Learning, teaching
and policy making in VET

LEARNING, TEACHING AND POLICY MAKING IN VET

EMERGING ISSUES IN RESEARCH ON VOCATIONAL EDUCATION & TRAINING VOL. 8

Lázaro Moreno Herrera,
Marianne Teräs
Petros Gougoulakis
& Janne Kontio (eds.)

ATLAS AKADEMI

© The authors and Atlas förlag 2023
Graphic design: Conny Lindström
Cover illustration: Sinna-Nyan
Printed by Publit, 2023
ISBN: 978-91-7445-051-4

www.atlasforlag.se
Atlas förlag is a part of Arenagruppen, Stockholm

Contributions in this book has been submitted to a peer review process.

PREFACE

> The variety of research questions and development tasks at the levels of vocational education and training systems (macro level), the organization and design of vocational training programs and institutions (meso level) and the analysis and shaping of education and learning processes (micro level) leads to the integration of different scientific disciplines and research traditions. VET research therefore can be organized only in an interdisciplinary way (Rauner & Maclean, 2008, p. 13)

This is the eighth volume in the research book series *Emerging Issues in Research on Vocational Education & Training*. The series is published by the research group VETYL (Vocational Education & Training/Yrkeskunnande och Lärande), at the Department of Education, Stockholm University, Sweden. VETYL was created in 2011 with twofold aims: contributing to the advance of knowledge in the intricate area of vocational education and training (VET) and strengthening the research basis of the teacher education program for VET that is offered at the Department of Education, Stockholm University. The Swedish term "yrkeskunnande och lärande" in the name of the research group translates as "vocational knowing" and indicates one of the major research focuses of the group.

The research book series started primarily as dissemination venue of selected papers, after a peer review process first presented at the international conferences organized yearly since 2012 by our research group VETYL. The conference has become a forum for sharing state of the art research in the field of VET and serving as a forum for networking and cooperation. The *Stockholm*

International Conference of Research in VET is one of the major scientific events organised in Europe as part of the *European Network for Vocational Education and Training* (VETNET).

This volume contains chapters that were first present as papers at the research conference held 11-13, May 2022. With the 8th volume we particularly celebrate two milestones in research and development at Stockholm University; the 10th anniversary of the creation of the Department of Education; and the 10th anniversary of the research group VETYL. Contributions in this volume show the diversity of research problems and national contexts in which VET systems operate and reflect the various research problems in focus within our research group and network.

The title of this volume *Learning, Teaching and Policy Making in VET* is an umbrella for the presentation of research outcomes focusing on a variety of aspects related to learning process, teaching strategies and challenges and policy making in VET systems internationally. The main aim of the volume is to present state of the art research in these areas. We are very happy with the variety of research contributions included in the volume from a diversity of national contexts, such as México, Malaysia, Germany, England, Spain, etc.

The chapters of the volume are grouped into two sections. Section 1:"Teaching and learning in VET" (Chapters 1-9) and Section 2: "VET systems and policy making" (Chapters 10-17). Each section is introduced with a separate brief presentation of the content of the included chapters.

The contributions in this volume show a diversity in theoretical frameworks of reference and methodological grounds. Even though some of the texts are case studies or national policy analyses, they will surely be of interest to an international audience.

This volume continues the tradition of our research book series to depict the diversity and complexity of research in the field of vocational education and training. We hope that it will meet the expectations of a variety of readers including undergraduate students, in particular students in initial and in-service teacher training programs for VET, post-graduate students, and policy makers.

Finally, we would like to thank the reviewers for valuable comments and constructive suggestions for improvement of the contributions to the chapter authors.

Ultimately, needless to say, this volume and the entire series would not have been possible without our Department's (Department of Education) support and of course without all the contributing authors.

Lázaro Moreno Herrera,
Marianne Teräs,
Petros Gougoulakis
& Janne Kontio
Stockholm, October 2022.

REFERENCE

Rauner, F. & Maclean, R. (2008). The International Handbook of Technical and Vocational Education and Training Research. New York: Springer-Verlag.

TABLE OF CONTENTS

SECTION I:
TEACHING AND LEARNING IN VET

The attractiveness of industrial technology education based on teacher and students' stories – p. 31
Asghari, Hamid

Bienvivance and Inclusive Vocational Excellence through Enabling and Collaborative Pedagogy, an Essay and Reflexive Analysis on Transformative Learning – p. 47
Bénédicte Gendron

An initial analysis of VET teachers' self-efficacy: the influence of teaching experience and VET instructional level – p. 102
Elena Quintana-Murci, Carme Pinya-Medina, Olaya ÁlvarezGarcía, Arturo García de Olalla Gutiérrez, Maria Tugores-Ques, Miquel F. Oliver-Trobat & Francesca Salvà-Mut

Observe-ask-analyze. TAG-MA, a new condition-related job analysis method to describe the work of VET teachers – p. 127
Lea Besser, Anne Traum, Franz Kaiser & Renate Rau

An evaluation concept for learning effects in an Augmented Reality-supported learning environment – p. 158
Silke Thiem, Marvin Goppold, Mattia Lisa Müller, Martin Frenz & Verena Nitsch

Top dead center: the transformation of a lexical item into practical work in bilingual vocational education – p. 198
Janne Kontio

Choosing vocational education: Reasons and rationale of recently graduated journeymen in Iceland – p. 225
Elsa Eiríksdóttir

Higher non-academic technical education in Italy: ITS Academy – p. 258
Francesco Magni & Virginia Capriotti

Gender Perspective as part of Quality: Perceptions of Chilean Students on the Online VET – p. 294
Paloma Fernanda Sepúlveda-Parrini, Pilar Pineda-Herrero & Paloma Valdivia-Vizarreta

SECTION II:
VET SYSTEMS AND POLICY MAKING

Between technological imperative and material culture: The chaîne opératoire of VET policy in England – p. 340
Bill Esmond

International organisations and policy-making in VET systems of developing countries – p. 370
Oksana Melnyk

Understanding the 'meaning' of VET institutions in their historical, social and cultural context in Europe from an interdisciplinary perspective – p. 390
Isabelle Huning

Meritocracy as a catalyst for the devaluation of vocational education and training – p. 420
Vera Braun

Inclusion in workplace learning: exploring gaps and inconsistencies between policy-making and practical implementation – p. 448
Manos Pavlakis

Factors related to workplace learning and congruence with organizational goals and values: Empirical findings from Estonia, Finland and Italy – p. 483
Petri Nokelainen, Milla Räisänen, Angelo Riviezzo & Gilda Antonelli

Training in a dual mode: Cooperation structures and procedures in actors' networks in Mexico – p. 518
Matthias Pilz

Perceptions of quality and the shaping or misshaping of vocational education: the case of T level qualifications in England – p. 544
Kevin Orr & Rachel Terry

AUTHORS' INFORMATION

Alphabetically ordered by first name.

Dr **Angelo Riviezzo** is Associate Professor at the Department of Law, Economics, Management and Quantitative Methods, University of Sannio, Italy. His research interests focus on competitive strategies, with particular focus on SMEs, and entrepreneurship, with particular focus on corporate and academic entrepreneurship.

Dr **Anne Traum** is a psychologist, specialised in Work and Personality Psychology and research assistant at the University of Rostock, Germany, since 2019 at the Institute for Vocational Education. Her current interests are improving the quality of training for vocational education and training (VET) teachers, objective work analyses and educational implications of Personality-System-Interaction (PSI)-Theory.

Arturo Garcia de Olalla Gutierrez is a predoctoral researcher and a member of the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain, by the Ministry of Science and Innovation of the Government of Spain (PID2019-108342RB-I00). He is currently working on his doctoral thesis.

Prof. Dr. **Bénédicte Gendron**, former Vocational Education and Training Vice-President of University Montpellier 3 in France is a professor in education and human development earned a PhD in Economics of Education and Human Resources and a PhD in

Psychology & Neuropsychology, after Post-doctoral research at UC. Berkeley (USA). Combining Economics, Psychology and Neurosciences her research is focused on "Bienvivance", "Vibratory and Enabling Leadership" and "Emotional Capital" for a better quality of life and Inclusive Excellence in Vocational Education and Training.

Bill Esmond is associate professor at the Institute of Education at the University of Derby, UK. His research interests focus on the boundaries between VET, higher education and learning at work. A 2022 monograph with Liz Atkins, *Education Skills and Social Justice in a Polarising World: Between technical elites and welfare vocationalism* (London: Routledge) examined recent stratification of VET in England, with parallels in other developed countries. His current research explores connections linking education, technology, the arts and material cultures.

Dr **Carme Pinya** is contract lecturer in the Department of Applied Education and Educational Psychology at the University of the Balearic Islands. Co-principal researcher in the R&D project Teaching practice and the prevention of early leaving from vocational education and training: empirical approach and intervention proposal (Ref. PID2019-108342RB-I00) (2020-2023). Currently working on lines of research on teacher education, inclusive education, teaching methods, educational innovation and Success and dropout pathways in vocational education and training.

Dr. **Elena Quintana-Murci** is contract lecturer at the Department of Applied Pedagogy and Educational Psychology at the

University of the Balearic Islands, Spain. Her research interests focus on early leaving from education and training, vocational education and training, youth transitions to adulthood and gender. She is the co-principal researcher in the Erasmus+ project Co-creation through Social Inclusion (2021-2024) and researcher in the R&D project Teaching practice and the prevention of early leaving from vocational education and training: empirical approach and intervention proposal (Ref. PID2019-108342RB-I00)

Elsa Eiríksdóttir is an associate professor at the School of Education, University of Iceland. She completed a BA degree in psychology from the University of Iceland in 1999 and a master's and a PhD in engineering psychology from Georgia Institute of Technology in Atlanta in 2007 and 2011, respectively. Her research interests include learning, transfer of training, skill acquisition, upper secondary education, and vocational education and training.

Fernando Marhuenda is Full University Professor at the Department of Didactics and School Organization at the University of València, Spain. His research interests focus on the intersections of vocational education and training, social education and adult education. Coordinator of the research group Transicions (GIUV2013-093).

Dr **Francesca Salvà-Mut** is full professor in the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands (UIB). She is an active member of the Education and Citizenship Research Group and the Director

of the Laboratory for Research and Innovation in Vocational Training (LRIFP) at UIB. Co-principal researcher in the R&D project Teaching practice and the prevention of early leaving from vocational education and training: empirical approach and intervention proposal (Ref. PID2019-108342RB-I00) (2020-2023).

Francesco Magni is an Assistant Professor at the Department of Human and Social Sciences, University of Bergamo (Italy). In 2019 he was a visiting scholar at the Institute for Education Policy at the Johns Hopkins University, School of Education. His research interests focus on work-based learning, teacher education, education policies, higher education and comparative education.

Prof**. Dr Franz Kaiser** is full professor at the Institute for Vocational Education at the University of Rostock, Germany since 2014. His lectures and research focus on occupational research, curricula and training regulations development, VET teachers, international research in VET and the critical theory of 'Bildung'.

Dr **Gilda Antonelli** is Professor at the Department of Law, Economics, Management and Quantitative Methods, University of Sannio, Italy. Her research interests involve innovation at different organizational levels (individual, team, organization, and network), organizational identity and entrepreneurial process.

Dr **Hamid Asghari** is an Associate Professor in educational work at the Department of Educational Studies at Karlstad

University, Sweden. His research interests focus on narrative studies, vocational education, newly arrived refugee youths in vocational education, (vocational) teachers' and (vocational) students' life stories.

Isabelle Huning is a doctoral researcher at the School for Business and Society at the University of York, UK. Her research focusses on the cultural context of institutionalisation of VET systems, and the relevance of language and meaning within the institutionalisation process. She holds an M.Ed. in Vocational Education (Leuphana University Lüneburg) and an M.A. in Social Policy (University of York).

Janne Kontio is Doctor of Philosophy (PhD) in education, currently working as a senior lecturer at the department of Education at Stockholm University. He conducts empirical research in the field of education, with a special interest in the research areas of multilingualism, gender and embodiment as situated interactional practices.

Kevin Orr is a professor and Associate Dean in the School of Education and Professional Development at the University of Huddersfield, UK. He worked in Further Education (FE) colleges for many years and he has written widely on vocational education and training, especially as offered in FE colleges. He recently led a three-year project funded by the Gatsby Charitable Foundation to research subject-specialist pedagogy in the teaching of technical subjects. Kevin's latest book coedited with Maire Daley and Joel Petrie, which examines possible futures for FE, is *Caliban's Dance: FE after The Tempest*

Lázaro Moreno Herrera is a professor in education sciences and the scientific leader of the research group Vocational Education & Training (VETYL) at the Department of Education, Stockholm University, Sweden. His research interests focus on various dimensions areas in VET notably policy issues, didactics and comparative international aspects. He has done significant research on technology education in the compulsory schools.

Lea Besser is a doctoral student of Professor Dr Renate Rau (Work and Organizational Psychology at Martin-Luther-Universität Halle-Wittenberg, Germany). She holds a master's degree in psychology. Her main research focus is the derivation of competencies and competence profiles based on condition-related work analyses.

Manos Pavlakis is a Lecturer of Adult Learning and Leadership at Frederick University and a postdoc researcher at the Department of Education at Stockholm University. His research interests focus on vocational training, workplace learning, teachers' training, and soft skills development. He has been involved in several European and international projects related to non-formal and informal learning and he authored the educational material for the international e-learning project YouReCa, which was nominated for the UNESCO youth label of quality and excellence in 2013.

Dr **Maria Tugores Ques** is a professor in the Department of Applied Economics at the University of the Balearic Islands. She is a researcher specialising in issues related to the labour market, industrial economics and tourism economics. Participation in

various competitive research projects.She is currently involved in the project funded by the Ministry of Science and Innovation on Teaching practice and the prevention of early leaving from vocational education and training: empirical approach and intervention proposal.

Marianne Teräs is a Professor in the Department of Education, Stockholm University, Sweden. Before joining Stockholm University (2016) she worked as a researcher and a lecturer at the University of Helsinki. Her research mainly focuses on vocational and professional learning, immigration and interculturality. She is currently leading a research project called "Integration and Inclusion of Migrants in and through Vocation and Work".

Martin Frenz is a professor at the Institute of Industrial Engineering and Ergonomics at RWTH Aachen University and is head of the TVET department.

Marvin Goppold, M. Sc. is a research associate at the Institute of Industrial Engineering and Ergonomics at RWTH Aachen University and works in the TVET department.

Prof. Dr. **Matthias Pilz** is Full Professor of Economics and Business Education at the University of Cologne and Director of the German Research Center for Comparative Vocational Education and Training (G.R.E.A.T.). He is Editor in Chief of the International Journal of Training and Development. His research interests are in international comparative research in VET, transitions from education to employment, and teaching and learning.

Mattia Müller, M.A. is a research associate at the Institute of Industrial Engineering and Ergonomics at RWTH Aachen University and works in the TVET department.

Dr **Miquel F. Oliver-Trobat** is Senior Lecturer in Teaching Education and Education Management at the University of the Balearic Islands (UIB). He is a member of the editorial board for various journals and a member of editorial committees for both national and international teaching-related works. He is part of The International Observatory on the Teaching Profession's (Observatori Internacional de la Professió Docent) scientific committee. He is a member of the Education and Citizenship research group and researcher in the R&D project Teaching practice and the prevention of early leaving from vocational education and training: empirical approach and intervention proposal (Ref. PID2019-108342RB-I00).

Dr **Milla Räisänen** is University Lecturer at the Faculty of Educational Sciences, University of Helsinki, Finland. Her research interests involve student learning at university, for example self- and co-regulation of learning, student well-being and workplace learning.

Oksana Melnyk is an academic staff member at the Chair of Business and Economics Education I at the Department of Economics of the University of Konstanz. She holds a degree of Candidate of Sciences (comparable to PhD) obtained at the Institute of Vocational Education of the National Academy of Educational Sciences of Ukraine. Her scientific interests include international and comparative education research, voca-

tional teacher training in German-speaking countries, reform and development processes of VET systems in the post-soviet countries.

Dr. **Olaya Álvarez García** Bachelor in Environmental Sciences (2007), with specialized training in the field of education. European PhD in Environmental Education at the University of Balearic Islands (UIB). Her main aim of research is training teachers in Environmental Education. Also experience as a research technician in academic plagiarism. Her teaching experience is focused in Environmental Education in Pedagogies and Social Education degrees. Among her professional experience it is higlighted her work as environmental educator in City of Madrid and City of Palma and her exprience as environmental techinican at the university sustainability office.

MA **Paloma Sepúlveda Parrini** is a PhD student in the Department of Theories of Education and Social Pedagogy of the Autonomous University of Barcelona. Her research interests include: online higher education, perceptions of quality and the inclusion of the gender perspective in education. In particular, her current doctoral research explores VET designed in online mode in the Chilean context.

Dra **Paloma Valdivia Vizarreta** is a Lecturer Serra Hunter at the Department of Theories of Education and Social Pedagogy of the Autonomous University of Barcelona. Her research interests include: technologies for social innovation, management and planning of socio-educational projects, community empowerment networks and open and inclusive training.

Dr **Petri Nokelainen** is Professor at the Faculty of Education and Culture, Tampere University, Finland. His research interests focus on workplace learning, higher engineering education and applied statistical modeling.

Petros Gougoulakis is a Professor of Education at the Department of Education, Stockholm University. His research interests are focused on the fields of Popular Adult Education ('Folkbildning'), Educators' competencies with focus on adult educators, Vocational Education and Training (VET), Teaching and Learning in Higher Education. He has been visiting Professor at the Graduate School of Education and Human Development, Nagoya University, Japan, and at Facultad de Educación, Universidad de Concepción, Chile. Since 2013, he has served as External Evaluator of Greece's higher education institutions by The Hellenic Quality Assurance & Accreditation Agency for Higher Education. Currently, he is appointed as Academic Coordinator and Supervisor of the post graduate program "Master in Adult Education" at Frederick University (Cyprus)

Dra **Pilar Pineda Herrero** is a Full Professor Organizational Training at the Department of Theories of Education and Social Pedagogy of the Autonomous University of Barcelona. Her research interests include: VET, laboral pedagogy and lifelong learning.

Prof. Dr **Renate Rau** has been a full professor at the Institute for Psychology, Unit Work and Organizational Psychology at Martin-Luther-University Halle-Wittenberg, Germany since 2011. Her research interests focus on occupational health psychology, work design and developing methods for job analysis.

Rachel Terry is a Senior Lecturer in the School of Education and Professional Development at the University of Huddersfield in England and she is a regional convenor of the Learning and Skills Research Network. Her research has focused on the professional learning of teachers in further education colleges and she has recently been co-investigator on a national study of the perceptions of technical teachers in England.

Silke Thiem, M. Ed., is a research associate at the Institute of Industrial Engineering and Ergonomics at RWTH Aachen University and works in the TVET department.

Vera Braun is postdoc at the Chair of Business and Economics Education I (Prof. Thomas Deissinger) of the University of Konstanz in Germany. Between 2016 and 2018, she coordinated an Erasmus+ project aimed at promoting professional teacher education in Ukraine. She received her doctorate in May 2021. Her research interests are macro-perspective issues in vocational education and training research, international comparative vocational education and training research, especially the post-Soviet area, and the social significance and standing of vocational education and training.

Verena Nitsch is a full professor and Director of the Institute of Industrial Engineering and Ergonomics at RWTH Aachen University.

Virginia Capriotti is a Ph.D. Student in Human Sciences and Welfare Innovation at the Department of Human and Social Sciences, University of Bergamo.

Section I

Teaching and learning in vet

This section will focus on teaching and learning in vocational education and training, which offers an intriguing world to researchers, as it does to practitioners and policy makers. Variety of questions are explored, some closely connected to teaching practices from teachers or students' perspectives, and some connected to workplace practices from trainers or mentors' perspectives. In the middle, there is the question of learning: what kind of practices and actions support the learning of various vocations.

All learning processes involve various aspects: who are the participants (teachers, students, workplace trainers, etc.), why are they learning (what is the aim), what is the contents of learning, how it is learned and with what equipment and where does the learning take place, in which environment. Furthermore, Nasir et al (2014) have argued that learning and teaching are fundamentally cultural processes. In other words, cultural practices of teaching and learning have consequences to vocational education and training in different vocational areas. What kinds of teaching methods are used and what kinds of studying methods do they require? Students' learning skills may focus heavily on cognitive skills, such as identifying learning style or strategy, surface or deep orientation, motivation, or target orientation

(c.f. Illeris 2015, p. 215-224). Based on these, students are taught a variety of studying techniques such as making notes, memorizing content, reading textbooks, and listening to lectures.

Diverse vocational learning environments are also central to vocational education and training. Leaning environments include school, class, work, home, virtual and other environments where learning takes place. In addition, teams consisting different professionals and people with diverse backgrounds are an important part of learning at work. Variety of vocational learning tools and methods can be explored, part of learning a vocation is to learn the language and tools used in the vocation. In various occupations, different types of knowledge and skills are needed. Depending on the area of the vocation, typically transdisciplinary knowledge is necessary to become a competent worker. (Teräs, 2019).

The attractiveness of VET programs is nowadays at the core of concern for research and policy making. In the case of Sweden, the industrial technology program (ITP) has suffered from a declining interest from students which lead to industrial sector experiencing difficulties in recruitment. Based on semi-structured interviews the study reported in the chapter by Hamid Asghari finds out that the attractiveness of ITP is closely related to the perception of the students about industrial companies in their surroundings, for example whether the company has international or local reach. Another core aspect is the level of security in employment that the company offers as well as the working conditions. The intercept of these various aspects often defines the level of attractiveness of the program.

Current research with implication for teaching and learning practice in VET, about the development of "bienvivance" and

"inclusive vocational excellence", is introduced and discussed by Bénédicte Gendron as a "holistic paradigm of human development and well-being". It embraces a positive perspective with focus on the vitality of one's life and at enhancing ressources and potentials. Rooted in a normative tradition of equitable education for all, bienvivance applied in education constitute a positive and operational educational methodology and paradigm, aiming for "the best" "of" and "for" everyone as a way of facilitation and promoting inclusive excellence for all, and turning schools into transformational ones in order to cope with constant change and to better align the VET system with the requirements of tomorrow.

There is enough evidence that teaching styles and pedagogical practices are contributing factors in preventing students from dropping out of school. According to the research conducted by Elena Quintana-Murci and colleagues, Spain is one of the developed countries with the highest rates of early leaving along with a low participation rate in VET programs. In their article they present findings from a study aiming to explore the perceptions of VET teachers on influencing factors of participation and dropout rates. A sample of 260 VET teachers from the Balearic Islands (Spain) completed a questionnaire that included Teachers Self Efficacy Scale. The results found this efficacy to be relatively high and that years of experience is an influential factor, but this is not the case with the VET instructional level. Overall, the study brings us back to the relevance of identifying not only external aspects influencing dropouts in VET but the teaching practices which can prevent and mitigate the dropout rate.

VET teacher training and the improvement of working conditions of vocational teachers is a key area in the context of pol-

itics and research. The study reported by Lea Besser and colleagues draws on observations and interviews with 21 teachers in vocational schools in Mecklenburg-West Pomerania, Germany where different objective work characteristics, such as sequential task completeness, degrees of freedom and the level of cognitive requirements, are assessed by trained experts. Since vocational education and training have been suffering from a shortage of teachers, a core question is then, according to the study, how the qualification to become a VET teacher and the working conditions as well as work attractiveness of VET teachers can be improved. The analysis brings forward proposals for working conditions and qualification opportunities for VET teachers as milestone to secure a successful VET.

A shared concern with quality development of VET and how teaching and learning could be improved is presented in the study by Silke Thiem and colleagues. The focus of the enquiry is in this case on learning effects in an augmented reality (AR)-supported learning environment. Silke and her co-workers argue that AR offers innovative options to design work-based learning environments in TVET. AR-Learning media enable to visualize e.g., error consequences in order to learn from them. Despite theoretical discussions, there is a gap in empirical investigations on learning effects of work actions in TVET where classical learning settings are compared with learning through AR-media.

Studies on bilingual vocational education are scarce, this even though at present integration of migrants is one of the main concerns for policy makes and practitioners alike. The study carried out by Janne Kontio focuses on second language learning in the language learning environment of an English-medium

content and language integrated learning (CLIL) workshop at an auto mechanics class in a Swedish upper secondary school. The study also demonstrates that second language learning in vocational CLIL classrooms is orderly, it is related to the progression of learning trajectories, often made explicit by humorous interaction.

Other contributions in this section give a comprehensive overview of emergent issues in research agendas in different national VET contexts.

The education choice rationale of recent vocational graduates is investigated by Elsa Eiríksdóttir in a chapter focusing on developments in Iceland. One of the major challenges to vocational education and training (VET) in Iceland is how to increase VET participation. Educational authorities have tried various measures without much success. The aim of her study presented in the chapter is to map the reasons vocational graduates provide for choosing their field. The findings reveal the complex interplay of different individual and societal factors, as well as the complexity of reasons and rationale for choosing vocational education, and provide a basis for further research.

The chapter by Francesco Magni and Virginia Capriotti departs from the Italian context where one of the main issues in education policies concerns the low numbers of young people aged 30-34 with a university degree (just 27.8% compared with an EU average of over 40%). Among the causes of this serious delay there is the absence of a distinct non-academic post-secondary (tertiary) education system parallel to the traditional university, as is already the case in many other European countries. The chapter deals with the challenges the Italian ITS (Istituti Tecnici Superiori -Higher Technical Institutes) are facing,

including an analysis of the ITS Academy system, which has recently been reformed and relaunched with emphasis on work-based education.

Quality is the core issue in the attempts to improve VET systems. However, Paloma Fernanda Sepúlveda Parrrini and co-authors questions what does quality in online VET mean and therefore wanted to investigate from a Gender Perspective (GP) Chilean students' perception of quality and the value that GP currently has and should have in their studies. By the year 2021, the enrollment of first-year students in VET in Chile represented 41.9% of total enrollment in the higher education system. Twelve percent of these programs were offered in online or distance mode. Initial results suggest that students understand quality as transformation and as the adequacy of the stated objectives of institutions, and to a lesser extent as selectivity or the relationship between price and quality. Perceptions associated with the quality of online VET are also linked to flexibility, the teaching role and the characteristics of the platform; while ideas on how to improve quality point to greater student participation and spaces for dialogue among peers and with professors.

Wishing you a pleasant reading!

Marianne Teräs, Petros Gougoulakis & Lázaro Moreno Herrera

The attractiveness of industrial technology education based on teacher and students' stories

Asghari, Hamid, PhD.
Karlstad University
Department of Educational Studies
651 88 Karlstad – Sweden
E-mail: hamid.asghari@kau.se

ABSTRACT

The Industrial technology program (ITP) in Sweden suffers from a declining interest and industry experience difficulties in recruiting. Although the choice of ITP pays off in the labour market, this education does not seem to attract young people. Based on the fact that fewer applicants also means fewer trained professionals in the industry and given that the industry is dependent on competent personnel, I am in my study interested in examining the attractiveness of ITP. The material collection has taken place through semi-structured interviews with a vocational teacher and three vocational students about their perceptions of what is positive or negative about the industry and ITP. The attractiveness of ITP is in a close relationship with how industrial companies and industrial work are perceived by industrial students and industrial teachers. The result points to a paradoxical picture of the attractiveness of ITP where the status

of industrial companies is important and it can vary depending on the type of company. For example, whether it is a local industrial workshop or a world-famous international industrial company. The paradoxical picture also includes whether the industrial company has had a secure or insecure form of employment with layoffs and operations moving to other countries. Even the type of industrial work tasks, for example whether the tasks are hard and arduous industrial work or it is varied and manageable, are included in this paradoxical picture.

INDUSTRIAL TECHNOLOGY PROGRAM IN SWEDEN

The Industrial technology program (ITP) is a three-year vocational program that leads to a vocational degree. Skolverket (The Swedish National Agency for Education) (2011) describes ITP as a program that aims to create conditions for students to both gain basic knowledge for work in industrial production and lay a foundation for continued learning in working life and for further studies. ITP has four specializations: Operational Safety and Maintenance, Process technology, Product and Mechanical technology, and Welding technology. This study is based on narrative interviews with one teacher and three students and all of them are active in one of the specializations.

INTRODUCTION

The last 20 years have been turbulent for Swedish industry. For example, some Swedish industrial companies such as Autoliv moved their production to low-wage countries such as Mexico,

Poland, Estonia, China and Romania. (SvD Näringliv, 2004 13 July) and the Swedish passenger car manufacturer SAAB Automobile went bankrupt on 19 December 2011 (ViBilägare, 2017 10 August). The closures and relocations of companies can have an impact on depopulation in rural areas, and also affect an entire city where the city can, for example, be transformed from a working-class city into a student city (Persson Thunqvist, 2006). I also assume that these turbulences around Swedish industry have had an impact on Swedish society. Vocational education in general has problems with attractiveness (Panican, 2020), while there is significant unemployment. The problem with attractiveness applies in particular to Industrial technology program (ITP) (Johansson & Asghari, 2021). In many places, industrial technology educations are discontinued due to the declining application pressure (SOU 2020:33), despite the fact that the industrial technology program pays off well in the labour market.

Despite the companies' closures and relocation to low-wage countries, Sweden is still an industrial country and many Swedish modern and high-tech national and international, large and small industrial companies are in need of competent personnel. There are also still students studying in ITP in Sweden. In view of the above picture when it comes to industry and industrial education, it is extremely important to study the attractiveness of the education.

AIM AND RESEARCH QUESTION

The purpose of the study is to contribute knowledge about the Industrial technology program's attractiveness. The research

question that I raise in this context is: Which categories of attractiveness emerge from the teacher's and students' stories about the Industrial technology program?

PREVIOUS RESEARCH ON THE ATTRACTIVENESS OF VOCATIONAL EDUCATION

Previous research shows that vocational education is often strongly segregated based on gender, ethnicity and class (Terning & Tsagalidis, 2020). Students can also be attracted to a vocational education based on the social positions of the profession (Terning & Tsagalidis, 2020). The profession and education of the students' parents can arouse interest in vocational education or profession among the students (Hansen, 2011; Paulsen & Haug, 2020; Sandell, 2007). Social class also plays an important role in how students assess themselves and the profession and vocational education they are drawn to (Kristen et al., 2008; Meriläinen et al., 2019). The social class that the students come from may set limits for the education and the profession they are interested in (Anders, 2017; Atkins & Flint, 2015). Young people with a lower socio-economic background are more interested in vocational education than students who have a higher socio-economic status (Anders, 2017; Haltia et al., 2021; Hansen, 2011; Sandell, 2007; Svensson, 2001).

Both parents and teachers of the students and their interest in the subjects and vocations can arouse interest in the profession and education of the students (Billett et al., 2020; Hegna & Smette, 2017; Sjaastad, 2012). International political events can also attract students for a specific vocational education (Pilz et al., 2018), such as mobility and work within the EU. Students

who prefer to work with their hands are also often interested in vocational training (Paulsen & Haug, 2020). The attractiveness of vocational education can also be related to their ethnicity. Previous research shows that students with an immigrant background may in some countries be overrepresented in vocational education (Avis et al., 2017; Brunila et al., 2011; Colding, 2006).

I would like to end this section by clarifying that previous research has contributed knowledge about the attractiveness of vocational education from a student perspective, but when I started to take a closer look at the research area, I found that at least one piece of the puzzle was missing. This piece of the puzzle is the vocational teacher's and vocational students' stories about the attractiveness of the industrial technology program in Sweden.

METHODOLOGICAL AND THEORETICAL APPROACHES

The methodological approach in my study is based on a narrative perspective (Mishler, 1999). At the centre of the study, there are three students' and a teacher's stories about the advantages and disadvantages of industry and industrial education and what can be attractive for students to choose the ITP. The theoretical approach is about understanding what the vocational students and teacher are saying. From a social constructionist perspective (Berger & Luckmann, 2003) on stories and based on Goodson (1988) and Mishler (1999), I look at stories as social acts that are constructed together with and in relation to other people. This means that the vocational students and the teacher in my research create meaning about themselves and about their

world in the narrative (cf. Mishler, 1999). Already in the interview situation, they highlight what they consider relevant to the interviewer (us researchers) and/or what they think the interviewer (me as a researcher) wants to hear.

The interviewees in the study are called Tobias, Sebastian, Samuel and Stefan. The students are studying in the last year (third year) of the Industrial technology program (ITP). To make it easier for the reader what role the interviewee plays in the study, the name of the teacher starts with the letter **T** and the names of the students starts with the letter **S**. In the study, **T**obias is the vocational teacher and **S**ebastian, **S**amuel and **S**tefan are vocational students.

Tobias was a teacher at a school in south-eastern Sweden at the time of the interviews, but due to a lack of students in the ITP, he was fired. He has got a part-time job as an industrial teacher at another school now. He is a vocational teacher who has been in contact with me in my various previous research projects and this time he was also interviewed twice by me. The interviews were conducted in 2021 and 2022 and each time about 45 minutes.

The students interviewed in the study are from five different schools in Sweden. Selection of the students was made in such a way that I contacted the principals of these five schools and told them about my research and that I would like to interview some of their students. From an ethical perspective, so that students do not feel compelled, and so that they would have time to think about their participation in the research I wanted the vocational students themselves to take the initiative and contact me if they wanted to participate in my research. After this, there were twelve vocational students returned to me via email

and wrote that they wanted to be interviewed. I called those who had shown interest and informed them about the purpose of the study and about the ethical principles surrounding the study. I interviewed twelve students in 2021 and 2022, between 45 minutes and 1 hour, and Sebastian, Samuel and Stefan are three of the twelve students. Since the interviews were conducted in 2021 and 2022, I have not yet had time to transcribe and analyse all twelve interviews. Therefore, only Sebastian's, Samuel's and Stefan's stories are reported in this book chapter. The remaining interviews will be transcribed and analysed for later article productions.

Sebastian is studying at a vocational school owned by a well-known Swedish industrial company. Samuel and Stefan study at two different municipal vocational upper secondary schools. I conducted semi-structured interviews with Tobias, Sebastian, Samuel and Stefan (Kvale & Brinkmann, 2008).

ANALYSIS OF THE STORIES

Regarding the analysis of the stories, I have used an analysis tool from Lieblich, Tuval-Mashiach and Zilber (1998). Inspired by Lieblich (1993), I have created stories of what the vocational teacher and students told about the advantages and disadvantages of industry and industrial education. Based on Lieblich et al. (1998) I categorically analysed their stories. The analysis work in a categorizing approach was done in such a way that what the teacher and students told was broken down, sectioned and individual words that belonged to a defined category were collected from the entire description, or from several descriptions of one or more interviewees (cf. Lieblich et al., 1998).

ETHICAL APPROACH

I have adhered to Swedish Research Council (2017). I informed the interviewees about the purpose of my study, that I am interested in their stories about industry and industrial education. I have also told the interviewees that their participation in the study is voluntary and that they have the right to terminate their participation in the study at any time during the ongoing study. I also told them that I would treat the interview material confidentially, that is, the names of places and people would be fictitious and that the recorded interview conversations would be kept in a safe place. I have also told the interviewees that the interview materials will be used in scientific publications, research conferences and teaching.

RESULTS

Below, I answer the study's research question, which is about the prominent categories about the attractiveness of the ITP from the teacher's and the students' descriptions. The categories are; 1) The status of industrial companies, 2) The insecure employment of industry and 3) The hard and arduous industrial work.

THE STATUS OF INDUSTRIAL COMPANIES

The category emerges when the students give a varied picture of the industry and the status of ITP. For example, Sebastian says that the industrial company that owns the school has a high status. The company is modern, clean and high-tech and industrial workers are proud to work for the company. Sebastian also talks about the status of the industrial company that owns the school:

> Working in a world-famous Swedish car industry has a very high status, but maybe not otherwise. It is not popular among young people to work in small workshops that have old machines and are not high-tech. Industrial education at an industrial school that is modern and high-tech and also owned by a world-leading company definitely has a high status.

From Sebastian's description emerges that from a student perspective the industry's status varies from company to company. Samuel also tells:

> I think industry has a bad reputation. Many people think that industry is dirty, a lot of oils, hard work, so I think that's why people don't go there. It's the same for me, I want to work in industry, but as an engineer and not as a workshop worker.

From Samuel's description, it appears that there is a rhetoric among young people who should choose upper secondary education. The rhetoric is about industrial work as hard works and industrial companies as dirty and oily workplaces. This rhetoric lowers both the status of the industrial education and the status of industrial workers. The industrial engineer, on the other hand, retains his/her high status because he/she does not work with heavy tasks and does not get dirty either.

Stefan, on the other hand, highlights another aspect of the status of industrial education and relates the status to the admission possibilities of the education. He says:

> I think it is very easy to get into the industrial technology program. Anyone can enter the education. No one is applying for that education, then they take in anyone, and that's a shame.

From Stefan's description, it appears that the industrial education's low admission score give the education a low status. This goes around as a circle that the low admission score causes anyone to enter the industrial education and when anyone can enter the industrial education, the status of the education is lowered, and this can have an impact on the attractiveness of industry education.

1. THE INSECURE EMPLOYMENT OF INDUSTRY

The category emerges when Tobias talks about the uncertainty surrounding employment in the industry:

> That was what made me not work there [in the industry] and applied to the vocational teacher education. Today you have a job, tomorrow you will not. It was so insecure. Order intake is at its peak today, they employ people. Tomorrow is low, they fire people. [...] I think our students know about it, but they are looking for the program because it's their last chance. They don't get into any other [program] and then it becomes industry.

From the Tobias' description, it appears that the insecure employment of industry can be important for the attractiveness of ITP. Uncertainty about employment due to, for example, the relocation of industrial production to low-wage countries, varied order intake to companies, and redundancies due to it, may lower the attractiveness of ITP. Sebastian also says:

> I see nothing negative with industry other than the uncertainty that exists. You may have a job today, but will be unem-

> ployed tomorrow. That was what happened to my father [...] because my father also worked here [at the international industrial company], but then they moved the jobs to a low-wage country when I was little, and then my father became unemployed. And as I have heard from my parents, it was very difficult for them. They sold the house, and they had a hard time until Dad got a new job at a grocery store.

From Sebastian's description it appears that the uncertainty surrounding industrial employment can create anxiety among students and in this way industrial education does not become attractive.

2. THE HARD AND ARDUOUS INDUSTRIAL WORK

This category emerges when Tobias and Stefan say that industrial work is perceived as hard and tiring work. Tobias says:

> Industrial work, how you turn it around, is a hard work. Sure, you use machines for heavy lifting, but not to lift a vice that weighs 5, 6 kilos, not to carry a vice that weighs 15 kg to the milling machine. Such jobs exist, whether you work for a small family company or a large, world-famous industry. You wear out your body over time.

From the description above, it appears that there may also be a perception among industrial teachers that industrial work is a heavy work. This heavy work can vary between different industrial companies, but the heavy work is also found in large world-famous industries. Stefan also says:

> My dad always said; no, if you are going to work until retirement, you shouldn't choose industrial education. When you are 40, you already have pain in your shoulders and back. Choose an education that doesn't have heavy tasks, but I like CNC programming [Programming in computerized industrial machines], so I chose it. [...] Of course! It is sometimes heavy, but not always. A metal bar that weighs 100 kg is heavy, but you get help from other classmates to carry it to the saw and saw it.

From Stefan's description, it appears that the perception of the hard and arduous industrial work can be crucial for the attractiveness of industrial education. This perception can also come from the students' parents.

DISCUSSION

The stories do not give a clear picture of the attractiveness of the Industrial technology program (ITP) and I find that there are quite conflicting descriptions of the program. What can be considered as the advantages of ITP in the teacher and students' stories is that the attractiveness of ITP is in a close relationship with how industrial companies and industrial work are perceived by them. The descriptions indicate that the current industries are clean and high-tech. Terning and Tsagalidis (2020) write that the social positions of the education can attract students to the education and my study shows that there is also a pride in identifying with Swedish world-renowned industry. However, these positive descriptions are not unambiguous, but rather there is an undertone of defense, such as the industry is not as dirty and

oily as many people think. Some stories are purely negative and in these, the industrial work is described as hard and arduous, or when the students who do not enter any other program, they choose industrial education. Previous research shows that students assess their interest for education when choosing education (Kristen et al., 2008; Meriläinen et al., 2019), but when it comes to industrial education, the choice of education for some students seems to be based on "their last chance" and not from the education they are interested in.

The industry's job opportunities and modernity are among the factors that can be seen as the attractiveness of the Industrial technology program. Parents of students can also arouse interest in some vocational education in their children (Billett et al., 2020; Hansen, 2011; Paulsen & Haug, 2020; Sandell, 2007) and my study also shows that both teachers' and parents' experiences of industry can be crucial in order to arouse interest in vocational education among students. Among the factors that lower the attractiveness may be the poor status of some industrial companies, but also unmotivated students who choose the program, but there is also a paradox here. Regardless of whether the reason for attending ITP as a second choice is due to low grades from compulsory school, or to the possibility of getting a job, this is likely to benefit the program's attractiveness in the short term. This in the sense that some students who otherwise would not have chosen the program end up there. It is worth noting that it is not uncommon for vocational education to be generally described as a second choice. The closures of industrial companies or relocations to low-wage countries have also created an uncertain work situation for industrial workers, which in turn can lower the attractiveness of the Industrial technology program (ITP).

REFERENCES

Anders, J. (2017). The influence of socioeconomic status on changes in young people's expectations of applying to university. *Oxford Review of Education*, *43*(4), 381-401. https://doi.org/10.1080/03054985.2017.1329722

Atkins, L., & Flint, K. J. (2015). Nothing changes: perceptions of vocational education in England. *International Journal of Training Research*, *13*(1), 35-48. https://doi.org/10.1080/14480220.2015.1051344

Avis, J., Orr, K., & Warmington, P. (2017). Race and vocational education and training in England. *Journal of Vocational Education & Training*, *69*(3), 292-310. https://doi.org/10.1080/13636820.2017.1289551

Berger, P. L., & Luckmann, T. (2003). *Kunskapssociologi: Hur individen uppfattar och formar sin sociala verklighet*. Wahlström & Widstrand.

Billett, S., Choy, S., & Hodge, S. (2020). Enhancing the standing of vocational education and the occupations it serves: Australia. *Journal of Vocational Education & Training*, *72*(2), 270-296. https://doi.org/10.1080/13636820.2020.1751247

Brunila, K., Kurki, T., Lahelma, E., Lehtonen, J., Mietola, R., & Palmu, T. (2011). Multiple transitions: Educational policies and young people's post-compulsory choices. *Scandinavian Journal of Educational Research*, *55*(3), 307-324. https://doi.org/10.1080/00313831.2011.576880

Colding, B. (2006). Ethnicity, gender and vocational education in Denmark. *International journal of Manpower*, *27*(4), 342-357. https://doi.org/10.1108/01437720610679205

Goodson, I. F. (1988). Teachers' life histories and studies of curriculum and schooling. *The making of curriculum: Collected essays*, 71-92.

Haltia, N., Isopahkala-Bouret, U., & Jauhiainen, A. (2021). The vocational route to higher education in Finland: Students' backgrounds, choices and study experiences. *European Educational Research Journal*, 1-18. https://doi.org/10.1177/1474904121996265

Hansen, M. N. (2011). Finnes det en talentreserve? Betydningen av klassebakgrunn og karakterer for oppnådd utdanning [Is there a talent reserve? The importance of class background and characters for achieved education]. *Søkelys på arbeidslivet*, *28*(03), 173-189.

Hegna, K., & Smette, I. (2017). Parental influence in educational decisions: young people's perspectives. *British Journal of Sociology of Education*, *38*(8), 1111-1124. https://doi.org/10.1080/01425692.2016.1245130

Johansson, M. C., & Asghari, H. (2021). Paradoxical Narratives about Industrial Technology. Pathways in Vocational Education and Training and Lifelong Learning. Proceedings of the 4th Crossing Boundaries Conference in Vocational Education and Training, Muttenz and Bern online, 8-9 April Muttenz/Basel and Bern, Switzerland.

Kristen, C., Reimer, D., & Kogan, I. (2008). Higher education entry of Turkish immigrant youth in Germany. *International Journal of Comparative Sociology*, *49*(2-3), 127-151. https://doi.org/10.1177/0020715208088909

Kvale, S., & Brinkmann, S. (2008). *Interviews: Learning the craft of qualitative research interviewing*. Sage Publications, Inc.

Lieblich, A. (1993). Looking at change: Natasha, 21: New immigrant from Russia to Israel. In R. Josselson & A. Lieblich (Eds.), *The narrative study of lives* (pp. 92-129). Sage Publications.

Lieblich, A., Tuval-Mashiach, R., & Zilber, T. (1998). *Narrative research: Reading, analysis and interpretation*. Sage Publications.

Meriläinen, R., Isacsson, A., & Olson, S. J. (2019). Secondary vocational education in Finland. *Workforce Education Forum (WEF)*, *39*(1), 43-51.

Mishler, E. G. (1999). *Storylines: craftartists' narratives of identity*. Harvard University Press.

Panican, A. (2020). Yrkesutbildningens låga attraktionskraft: Ett problem utan lösning? [The low attractiveness of vocational education: A problem without a solution?] In A. Panican (Ed.), *Yrkesutbildning på undantag?[Vocational education on an exception?]* (pp. 493-522). Studentlitteratur.

Paulsen, M. K., & Haug, E. H. (2020). Variasjoner i elevers subjektive erfaring av å ta utdannings-og yrkesvalg i 10. klasse i ungdomsskolen [Variations in pupils' subjective experience of making educational and vocational choices in 10th grade in secondary school]. *Norsk Pedagogisk Tidsskrift*, *104*(01), 43-58. https://doi.org/10.18261/issn.1504-2987-2020-01-05

Persson Thunqvist, D. (2006). Identitetsarbete i kommunala ungdomsprojekt [Identity work in municipal youth projects]. In Å. Mäkitalo (Ed.), *Att hantera arbetslöshet: om social kategorisering och identitetsformering i det senmoderna [Coping with unemployment: On social categorization and identity formation in the late modern]* (pp. 133–161). Arbetslivsinstitutet.

Pilz, M., Li, J., Canning, R., & Minty, S. (2018). Modularisation approaches in Initial Vocational Education: evidence for policy convergence in Europe? *Journal of Vocational Education & Training*, *70*(1), 1-26. https://doi.org/10.1080/13636820.2017.1392994

Sandell, A. (2007). *Utbildningssegregation och självsortering. Om gymnasieval, genus och lokala praktiker [Educational segregation and self-sorting: Upper secondary school choices, gender and local practices]*. [Doktorsavhandling, Malmö högskola]. DiVA. https://www.diva-portal.org/smash/get/diva2:1404460/FULLTEXT02.pdf

Sjaastad, J. (2012). Sources of Inspiration: The role of significant persons in young people's choice of science in higher education. *International Journal of Science Education*, *34*(10), 1615-1636. https://doi.org/10.1080/09500693.2011.590543

Skolverket [The Swedish National Agency for Education]. (2011). *Industritekniska programmet [Industrial technology program]*. https://www.skolverket.se/undervisning/gymnasieskolan/laroplan-program-och-amnen-i-gym-

nasieskolan/gymnasieprogrammen/program?url=1530314731%2Fsyllabuscw%2Fjsp%2Fprogram.htm%3FprogramCode%3DIN001%26tos%3Dgy%26p%3Dp&sv.url=12.5dfee44715d35a5cdfa9295

SOU 2020:33. *Gemensamt ansvar – en modell för planering och dimensionering av gymnasial utbildning [Shared responsibility – a model for planning and dimensioning upper secondary education]*. https://www.regeringskansliet.se/rattsliga-dokument/statens-offentliga-utredningar/2020/06/sou-202033/

SvD Näringliv. (2004 13 July). *Autoliv satsar mer i låglöneländer [Autoliv invests more in low-wage countries]*. https://www.svd.se/autoliv-satsar-mer-i-laglonelander

Svensson, A. (2001). Består den sociala snedrekryteringen? Elevernas val av gymnasieprogram hösten 1998 [Does the social recruitment bias exist? Pupils' choice of upper secondary program in autumn 1998]. *Pedagogisk Forskning i Sverige*, *6*(3), 161-161.

Swedish Research Council. (2017). *Good Research Practice*. Swedish Research Council. Retrieved February 9 from https://www.vr.se/download/18.56399 80c162791bbfe697882/1555334908942/Good-Research-Practice_VR_2017.pdf

Terning, M., & Tsagalidis, H. (2020). Yrkeselev – en attraktiv identitet? [Vocational student – an attractive identity?] In A. Panican (Ed.), *Yrkesutbildning på undantag?[Vocational education on an exception?]* (pp. 159-190). Studentlitteratur.

ViBilägare. (2017 10 August). *Allt om SAAB [All about SAAB]*. https://www.vibilagare.se/alltom/saab?page=9

Bienvivance and Inclusive Vocational Excellence through Enabling and Collaborative Pedagogy, an Essay and Reflexive Analysis on Transformative Learning

Bénédicte Gendron
University Montpellier 3
Department of Sciences of Education,
Route de Mende, 34000, Montpellier, France
Email: benedicte.gendron@univ-montp3.fr

ABSTRACT

Bienvivance applied in education as a positive operational holistic approach and paradigm of well-being focused on whole person development, explores, recognizes and valorizes the potential of students, and facilitates and promotes inclusion toward "inclusive excellence". Derived from neuro-psycho-pathology research, it is focus on the intern ressources, assets, or potentials instead of lacks or gaps. To set up the bienvivance at school and allow inclusive excellence, teachers have to become "facilitators and enablers of learning" rather than "dispensers of information and knowledge" (Unesco, 2015). Thus, it requests to question and revisit teaching missions and roles as competencies : toward an "enabling leadership" teaching style. In this bienvivance framework aiming at keeping each ones vitality, by valorizing intern ressources, potentials and assets, educational staff and

leaders' roles and missions are focused at creating opportunities and enabling environments to boost students'assets and find their own fulfilled way of living. Through enabling and collaborative pedagogy via this enabling leadership teaching style, this approach helps at reinventing learners-self, their life with positive creativity and at rebuilding and opening perspectives and operating learners and trainees' transformation. The outcome will be analysed through the lens of transformative learning and, agency that empower people promoting "inclusive vocational excellence".

KEYWORDS:

Bienvivance, Inclusive Excellence, Vocational Education and Training VETfulness, Emotional Capital, Enabling Leadership, Collaborative Pedagogy, Mini-enterprises.

INTRODUCTION

Humanity has entered into a deteriorating and undeclared globalized emergency involving almost all of its critical global systems. Such issues as the pandemic, security threats, wars, migration, civil and religious unrest, racial injustice, global warming, cultural conflicts in societies, young people's exclusion from labour market and social life and deteriorating indicators of young people's physical and psychological health are a matter of concern in education and on sustainability. As the fourth of the seventeen UN goals declares "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all", education will have to equip learners with the agency,

empowerment, competencies and the sense of purpose to shape their own lives and contribute to the lives of others. To do so, it questions inclusion implementation in an effective way and its framework. The "bienvivance" paradigm and approach developed by Gendron (2016), an holistic and operational paradigm of well-being and quality of life, embraces a positive perspective focus on the vitality of one's life focus on and at enhancing ressources and potentials. Applied in education and human development, Bienvivance approach is not satisfied with the usual way of inclusion which "does less for students deemed to be able to do less". Thus, Bienvivance in education is rooted in equitable education for all and aims for "the best" "of" and "for" everyone: excellence for all; it considers "differences" as a wealth to valorize. In this framework, teachers are focused at creating opportunities and enabling environments to boost students'assets to find their own fulfilled way of living. To do so, educational leaders, teachers...with an enabling leadership styles (Gendron and Lafortune, 2009, Gendron, 2015) explore, recognize and use the potential of every students, to facilitate and promote inclusive excellence. In this chapter, concepts and theoretical frameworks will be first defined. Then, it will be questioned which competences and pedagogical tools are helpfull for teachers to become "enabling leaders" for transforming and empowering students and serving "inclusive vocational education" (IVE) to implement bienvivance at schools. The enabling leadership style in teaching and collaborative pedagogy, precisely in this paper through collaborative narrative competence-based portfolios and mini-entreprise pedagogical tools, will be described. In the discussion, we will analyze the bienvivance approach through the lens of transformative learning and agency models.

1. BIENVIVANCE AND INCLUSIVE VOCATIONAL EXCELLENCE : CONCEPTS AND THEORITICAL FRAMEWORKS

The well-being different perspectives given rise to research foci and a body of knowledge divergent and complementary but which how well-being respectively it is defined, influences today-practices government, policies and their economics equations, until education and its vision of inclusion which requires to be questioned to suggest a new one: inclusive excellence. The bienvivance as a positive operational holistic approach and paradigm of well-being focus on whole development , applied in the education field, looks human well-being as embedded in the perspective of personal development and evolution or transcendence in a global interconnected world focused on vitality. In education field, focused on the perspective of person's accomplishment and development, the bienvivance paradigm interviews equity and equality in the inclusion perspective as remains today implemented at school.

1.1 BIENVIVANCE: WELL-BEING APPROACHES FOR INCLUSIVE EXCELLENCE

Hedonic and eudaimonic perspectives in well-being

Well-being is a complex construct that "concerns optimal experience and functionings" (Ryan and Deci, 2001). Well-being research has predominantly been focused on the philosophical distinction between hedonic and eudaimonic approaches. Current research on well-being has been derived from two general perspectives: the hedonic approach, which focuses on happi-

ness and defines well-being in terms of pleasure attainment and pain avoidance; and the eudaimonic approach, which focuses on meaning and self-realization and defines well-being in terms of the degree to which a person is fully functioning.

Derived from the philosophy of ethical hedonism, hedonic well-being refers to pleasure pleasure and satisfaction attainment (Kahneman, Diener, & Schwarz, 1999) and pain avoidance. This approach equates wellness with pure hedonic 'happiness' while the latter instead emphasizes broader notions of human flourishing and life satisfaction over time (Deci and Ryan, 2008). Usually traced back to the classical Greek philosophy of Aristotle, respectively, hedonic and eudaimonic philosophies have given rise to distinct paradigms.

Foreshadowing utilitarian approaches, the hedonic perspective formulated through the Subjective Wellbeing (SWB) posits that only that which can be deemed pleasant or has pleasant consequences is intrinsically good (Delle Fave, 2013) where "pleasure is the sole good, but also that only one's own physical, positive, momentary pleasure is a good, and is so regardless of its cause" (Waterman, 1993: 678). SWB is assessed through three components: the presence of positive mood, the absence of negative mood, and life satisfaction' (Carlisle et al., 2009: 1557). Hedonic perspectives, with their broadly outcome-based conceptualization lending themselves particularly well to measurement, have thus constituted the majority of studies in science of happiness led in economics and psychometrics. Already, Aristotle challenges hedonists who view happiness as 'the pleasure, wealth, or honor' (Ryff and Singer, 2013: 99), this desire for "the life of gratification", because it characteristics is 'completely slavish' (cited in Waterman, 1993: 689) as it makes dependent on outside matters.

The urge to maximize hedonic pleasure, as underlined by Ryan et al. (2013: 141), major researchers of contemporary psychological research in the eudaimonic tradition, is 'too often associated with dead-end routes to wellness such as selfishness, materialism, objectified sexuality, and ecological destructiveness, thus demonstrating how easily a map derived from hedonic thinking can mislead'.

Already, Aristotle thought that true happiness is found by leading a virtuous life and doing what is worth doing. He argued that realising human potential is the ultimate human goal. In that perspective, rooted also in ancient Greece philosophy, eudaimonia refers to living in accordance with what Aristotle referred to as the daimon or 'true self' (Waterman, 1993: 678). It focuses on meaning and self-realization and it is defined in terms of the degree to which a person is fully functioning. The realization of the daimon, or human potentiality, 'represents the greatest fulfilment in living' of which any individual is capable (p. 678). Daimon refers to potentialities of each person, realisation of which leads to the greatest fulfilment. Efforts to live in accordance with one's daimon, the congruence between this and people's life activities, lead to the experience of eudaemonia. Thus, the Eudaimonic wellbeing, adds a sense of complexity by looking at the processes which enable self-fulfilment, meaning and purpose (Deci and Ryan,2008) : a meaningful life. Amartya Sen (1985: 188) has similarly underlined the eudaimonic impetus of his influential capabilities-based research program as we can observe in positive psychology field.

Well-being and Positive psychology of Seligman

In positive psychology research, Seligman (2002) model distinguishes between the "pleasant life", "good life" and "meaningful

life" in well-being. The pleasant life is devoted to pursuit of positive emotions, and can be paralleled with hedonic well-being. In the good life one would use one's dominant character strengths to obtain gratifications – activities we like doing, akin to flow. And, meaningful life is about using our strengths in the service of something greater than yourself. Seligman believes that both pursuits of engagement/flow and meaning can be considered eudaimonic.The research shows that when people engage in hedonic activities (e.g. leisure, rest or fun), they experience many pleasant feelings but in the long run, as shown in the Easterlin paradox, it doesn't last. Instead, those engage in eudaimonic existence (work on developing their potentials and skills, learning something) are more satisfied with their lives in a long term.

The World Heath Organization' (WHO) well-being perspective and the Bienvivance approach

Focus on a positive operational approach of well-being and quality of life including an eudaimonic perspective, it defers in the World Heath Organization' (WHO) hedonic and individual well-being and health perspective. According the WHO definition, « wellbeing is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity ». Material well-being, health, longevity, literacy, and education are undoubtedly factors for creating opportunities and abilities to objective well-being, however the WHO objective reached today it's not garantee for life, and does not secure prosperity for future generations. And it might be difficult and it is already stressful to reach or to maintain. Moreover, an excessive focus on "a state of complete wellbeing" and material wealth can obscure the ultimate objective of enriching human lives.

If the hedonic and eudaimonic views have given rise to different foci and policies, new research advances allow to formulate new questions for the field and to reconsider research from both perspectives as more complementary than contradictory. The bienvivance paradigm (Gendron, 2006) is such an essay if we look at the well-being as embedded in a broader perspective of an entity development, here a personal development and evolution or transcendence in a global interconnected world focus on vitality. It is a positive operational holistic approach and paradigm of well-being and human development. Broadly, the bienvivance paradigm is focus on the perspective of entity's accomplishment which, applied in education and on people development, question equity and equality of people inclusion and its perspective.

Combining both perspective, hedonic and eudaimonic well-being as not mutually exclusive but complementary, the bienvivance reflects "the vitality of life, its intensity and dynamics (I live well -present state- and I am going well -the right direction-) whatever the altered situations and contexts focus on what the entity (person, organization, nation....) has and, what and who the entity is. In its micro level, concerning people's personal development, the bienvivance paradigm embraces a positive perspective focus on the vitality of all people's life. It includes the eudaimonic well-being approach refering to quality of life derived from the development of a person's best potentials and their application in the fulfillment of personally expressive, self-concordant goals (Sheldon, 2002; Waterman, 1990a, 2008).

Bienvivance embraces a positive holistic perspective focus on the vitality of one's life focus on and at enhancing ressources and potentials. Applied in education and human develop-

ment, Bienvivance approach is not satisfied with the usual way of inclusion which "does less for students deemed to be able to do less". Bienvivance in education is rooted in equitable education for all and aims for "the best" "of" and "for" everyone: excellence for all.

1.2 INCLUSION FOR ALL THROUGH BIENVIVANCE: TOWARD INCLUSIVE EXCELLENCE

If inclusion in education has long been associated with the school integration of children, students with disabilities and developed in the field of social and school adaptation, the bienvivance approach developed by Gendron (2016) from neuro-psycho-pathology sciences, extends the "inclusive" approach applied in education and human development to all learners who have a common characteristic : their difference ; differences not only from disabilities but coming from, for instance, migrations, (dis) abilities, low skills and obsolete qualifications, school failures and dropouts, special needs, disadvantaged, gender, sexual orientation, ethnic groups, or socio-economic background, etc... which can produce or generate inequalities, inequities and/or discrimination. Bienvivance approaches differences through an 'inclusive excellence' perspective which is about to cultivating an inclusive excellence mindset across schools and organizations. The bienvivance approach rests on the belief that in fully embracing diversity in all forms seen and unseen, making inclusion a top priority, promoting equity across educational policies and practices, ultimately could ensure that excellence is inclusive.

Inclusive excellence is built on the notions of "diversity" as a richness, "inclusion" as an educational tool and an enrichment

opportunity from diversity, and "equity" as an educational motto and vision. Precisely, diversity considers individual differences, (e.g., personality, capabilities, prior knowledge, and life experiences), group and social differences (e.g., race/ethnicity, indigeneity, class, gender, gender identity, sexual orientation, country of origin, and (dis)ability historically underrepresented populations, and cultural, political, religious, or other affiliations. Inclusion can be defined here as the active, intentional, and ongoing engagement with diversity, in the curriculum and in communities (intellectual, social, cultural, geographical) with which individuals might connect in ways that increase awareness, content knowledge, cognitive sophistication, and empathic understanding of the complex ways individuals interact within systems and institutions. Equity depends largely to cultural methodological positions, to some focus on practices, curriculum, and other on indicators as Moreno and al. (2014) quoted, " enacting equity is not just an issue of what is desired but mainly of what is possible in specific local contexts". Here, equity in a bienvivance perspective is about creating opportunities for under-represented populations to have equal access to and participate in educational programs that are capable of closing the achievement gaps in student success and completion.

Thus, inclusive excellence is designed to help school organisations integrate diversity, equity, and educational quality efforts into their missions and institutional operations. It calls for education to address diversity, inclusion, and equity as critical to the well-being of democratic culture and societies. It is an active process through which schools achieve excellence in learning, teaching, student development, institutional functioning, and promoting engagement in local and global communities.

Applied to vocational education, inclusive vocational excellence is about to implement equitable education in vocational tracks and toward disadavantaged students, as low socio-economics backgrounds but not only, are often one of the main students' caracteristics in vocational education and training (VET) or vocational tracks in some European countries and strongly in France, to allow them to reach the excellence. Inclusive vocational excellence reflects what Gendron and Steckler (2014) has been promoting since years at Charles Alliès Vocational High School and in vocational tracks at the University of Montpellier 3 in France and Paolo Nardi at Oliver Twist school in Italy (Nardi, Bengo, Caloni, 2018) who leads an European project gathering the activities and practices in terms of inclusion developed in some European schools (Governance of Inclusive Vocational Excellence -GIVE). Precisely, the learner-centred approach used in those above cases, personalizes educational project for every learner through "tutoring" services or special educational program as emotional capital development, and work and competencies-based learning where basic and life skills are strongly supported and integrated through School-Enterprise, Mini-Entreprise or Collaborative Projects as pedagogical tools.

Nevertheless, still nowadays, the implementation of inclusion at school remains focus at filling gaps and lacks and to people's adaptation to obstacles with still this feeling we "do less for students deemed to be able to do less". The bienvivance paradigm with its positive operational approach of well-being and quality of life, focus on and at enhancing ressources and potentials, applied to education, can serve, inclusive vocation excellence.

1.3 THE BIENVIVANCE PARADIGM AND DEFINITION

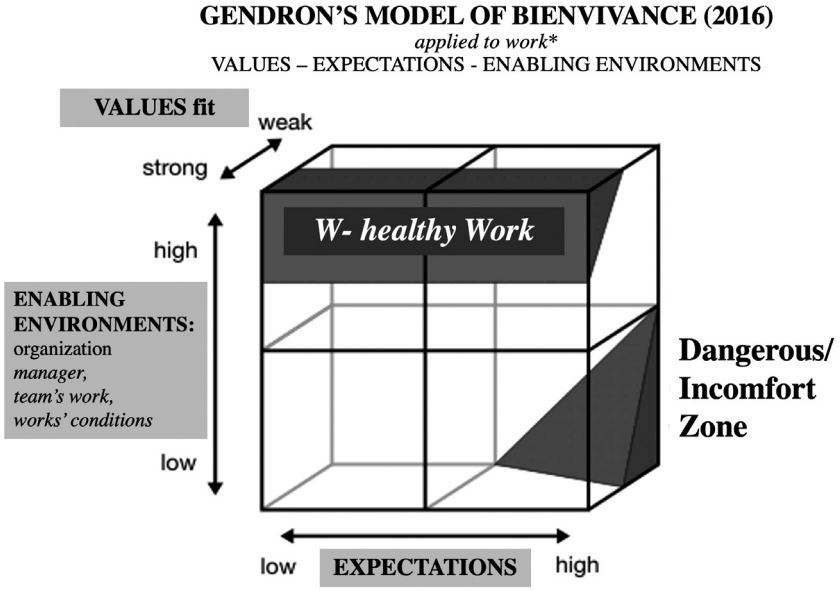
The paradigm of bienvivance is an eudaimonic and operational paradigm and approach developed by Gendron (2016) to implement well-being as a crucial condition to use and valorize potentials and assets to perform with vitality. From her neuropsychopathology scientific background, Gendron's Bienvivance paradigm is rooted in neuropsychiatric Caycedo (1964) research on consciousness among patients experiencing social burnout and trauma, focus on patients "vivanzia" i.e their remaining resources. Caycedo gradually oriented his medical methodology towards those patients' remaining ressources to help them to recover and find their new and own way to fulfill their life. Gendron (2016) extended this approach and developed the paradigm of "bienvivance" broadening the focus and the methodology to whatever the entity or population and situations and applied her paradigm in different fields (education, training, family and couple, human resource and organizational development, nations...) and levels (micro, meso, macro...) focus on vitality, development and growth. In education and HRD fields, it focus at empowering students, schools, organizations' potentials to help them at keeping their vitality and growing up.

Rooted in positive psychology and humanistic, existential, and phenomenological approaches, Bienvivance (Gendron, 2016) is defined as "a mind state/mindset that refers to the ability of an entity of various natures (for instance, a person at micro-level, an organization at meso-level, a society or a nation at a macro-level), the ability to live, flourish, to evolve with vitality, focused on the entity ressources and potentials, in whatever the situation: possible in the situation of misery, disease, disabil-

ity, handicap: possible in the situation of misery, disease, disability, handicap, scarcity, oppression…".

As a people mindstate/set, inducing a way and an art of living, bienvivance manifests itself through various vital experiences, through variations -ups and downs- throughout people existence with structuring impacts: meetings, ruptures structuring or soothing constitutive of the quality of the time lived. Possible in dis/ability, handicap, illness, scarcity, destitution, oppression, lockdown, pandemy, war ..., as a mindstate/set, it refers to a balanced posture, a mode of operation and evaluation in alignment with entity (person) values (V), entity (person) expectations (Expectations) and its, his or her field of possibilities to valorize their potentials (Enabling environments) to remain in a "vitality zone", schematized for all areas of life, couple, family, elderly, politics…as below in Gendron's Bienvivance model or VEE Model, 2016 p. 192) (see figure 2., here applied to work). The green area named the "w-healthy" zone where entity's values match expectations supported by an enabling environment is the entity "vitality" zone.

Figure 1. Gendron's Model of Bienvivance
(also called VEE Model), 2016 p. 192



* *The Bienvivance model can be applied to other life domains (couple, family, eldery, active aging, politics…)*

Readings: for example, in work situation, the bienvivance is when people can fulfill their work expectations in phase with their values, supported by manager, teacher, dean... with an 'enabling leadership style' and enabling environment ; in such a case, the w-heatly or vitality zone of the bienvivance is reached ; people keep their vitality in a meaningful job, with supportive enabling's peers or alter-ego in an enabling environment.

In education field and pedagogy, learners and teachers' bienvivance focus and school bienvivance go together. As a dynamic process of exploration of consciousness, and an art of being "alive" and living fully life, bienvivance approach and its pedagogy aim at building a path of evolution, through a reflexive,

meditative, a knowing thyself Socrates' practice which consists in discovering and realizing our essential aspect of human being. Realizing ourselves, our true nature, magnificence, it is to live this essence in order to blossom, flourish and fulfill our existence according our capacities and potentials, in an inner and outer harmony and peace.

Thus, the bienvivance pedagogy is based on people mind-state/set changes or transformation, focus at switching trainees and trainers bias or negative mind assessment filter to a positive one: to focus on their potential, on what do they have and they are, (instead of their lacks or gaps) through their emotional capital development.

Embedded in positive psychology and an holistic well-being approach, it includes the eudemonic perspective of living fully with and from what and who we are and what we have. The suffix "ance" in the term "bienvivance" indicates the result of an action, which is the attention paid to the phenomena that emerge from consciousness, what is experienced within us in the purity of emotion even before moving on to an explanation. The adjective "bien (well)" with "vivance" adds an additional force reinforcing its power as a social pact which commits to working for a better world, where people are at the heart of their changes and at the core of a new societal model.

As humanity or social changes will start by people changes, it has to be launched and promoted at school with revisited teachers' new missions, roles, and, adequate competencies and pedagogy style; they will have to empower students, and valorise their potentials to help them grow up with confidence, and especially in VET to allow inclusive vocational excellence.

2. NEW MISSIONS AND COMPETENCIES: TOWARD THE "ENABLING LEADERSHIP STYLE" OF TEACHERS

To implement bienvivance at school and allow inclusive excellence, teachers have to become "facilitators and enablers of learning" rather than "dispensers of information and knowledge" (UNESCO, 2015). Thus, teachers competencies and teaching styles here are questionned.

2.1 REVISITED TEACHERS VISIONS, NEW ROLES, MISSIONS AND COMPETENCIES : FROM TRANSMISSIVE TO COACHING ROLE, TOWARD "ENABLING LEADERSHIP" TEACHING STYLES

New roles and missions of teachers

In this bienvivance framework aiming at keeping each ones vitality, by valorizing intern ressources, potentials and assets, educational staff and leaders' roles and missions are focused at creating opportunities and enabling environments to boost students'assets and find their own fulfilled way of living. To do so, educational leaders, teachers explore, recognize and use the potential of every students, to facilitate and promote inclusive excellence. From transmitting knowledge and beyond teaching a subject, teachers have to teach students how to learn to develop themselve as autonomous learners. Thus, they will have to have a stronger emphasis on building capabilities across the key competencies. Teachers' and trainers' attitudes, their teaching, their awareness of career issues influence students and learners career progress. Especially in VET, teachers, trainers and supervisors are

important stakeholders and gatekeepers, which contribute to the enactment of successful i.e. meaningful careers (Stlader& Nägele, 2017) as meaningful training and learning (Gendron, 2018).

Those new roles are part of the new crucial challenges that education has to copy with: crossing boundaries to build humanistic and democratic connected societies with well trained and self-confident people as well as networked. In this context, there is a growing attention for the competence-based education. For Kaiser and Krugmann (2018), expansion of individual possibilities for the development of one's own life under contradictory circumstances where individual should be encouraged to develop himself and for society in the tradition of educational enlightenment, combined with critical thinking.

Thus, education has to copy with not only to develop knowledge but also life skills, as well as socio-emotional competencies as defined in emotional intelligence models, and critical thinking and written in the OECD 2030 key competences and United Nations 2030 Agenda. Thus, this set of socio-emotional competencies (see Table 1.) is regarded for Gendron (2004) as a real "emotional capital which helps individuals to perform better socially, economically and personally" (for further development, see 2.2). Nevertheless, schools still lack a clear way to develop it and methodological recommendations on how to develop it.

Our research and reflexions given here in this chapter are based on several research (comprehensive, action and experimental research) done since 1998 and cases studies focus on VET tracks, where students' emotional capital have been developed through enabling and collaborative pedagogy. Those researches which have been published and debated in conferences, stressed

out that VET tracks, beyong providing vocational skills, developed students' empowerment and students' emotional capital refering to life skills. Those outcomes showed as quoted by Gendron (2017) that "VET is more than VET : it is VETfulness"; in the sense of VET students learn not only than practical and vocational knowledge, they develop also their emotional capital, crucial nowaday for their employability and creativity.

The Teaching Styles From Leadership Styles Models

To revisit and understand the variety of teaching styles as observed in our different research case-studies, we mobilized and looked at human management sciences advances on leaderships models to see what could we learn from them or get inspired from. At issue is our understanding of leadership itself. If most of so-named "leaders" in education have appointments and titles that formalize their leadership and many teacher not appointed leaders don't find a comfortable niche in this analogy of teachers as leader, our purpose aims at learning from leadership models from management sciences.

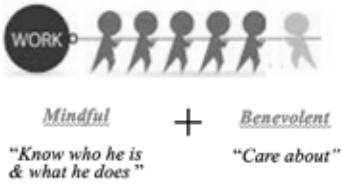
In management sciences, the two leadership styles mainly wellknown are: transactional and transformational leadership styles. The bienvivance approach supposes an enabling leaderships styles. In the transactional leadership style, teacher is focus on students learning lessons and at students performance to "do things right" ; if student' homeworks and what is expected as learning are done properly and reached i.e "the transaction" will be considered accomplished and gradated; the second type, the transformational teachers listens and pushes their students to give their best to "do the right thing".

To support inclusive excellence, the pedagogy refers to an innovative holistic pedagogy based on a revisited teachers mis-

sions and new roles as 'enabling leadership' (see Fig. 2, Gendron, 2006: 2015) as well as the learning approach focused on collaborative learning.

Indeed, in education at understanding leadership as a particular type of relationship—one that mobilizes other people to improve practice and according what emerged from VET teacher leadership styles, nor the transactional neither the transformational management models matched what have bee observed. Thus, we suggested a new model of leadership style, the "enabling leadership" style, specific of the education field as education engages on specific and ethical relationships, wich overcomes management sciences models of management focus on business and utilitarian issues.

Figure 2. Leadership Teachers' Styles (Gendron, 2006:2015)

Types of teachers and function (Gendron, 2002, 2015)	
Transactional teacher "Does the thing right"	
Transformational teacher "Does the right thing"	
Enabling leadership teacher (Gendron, 2015) "Does what should be done" to empower people and their potential: awakes, values and valorizes potential" (Human Resource Developer or Change Agent for him/herself and others)	

Readings: The analogy to management leadership models encounters, for the world of education, limits linked to the vocation and purpose of the ethical objectives of education. If the manager can motivate his collaborators to move towards a common objective for the interest of the organization, here in education, the ethics and the professional vocation animate the teacher and led us to suggest a new model of leadership style: the model of Enabling Leaderships. Inspired by Sen's capabilities and Gandhi's emancipation, the enabling leadership posture supports and enhances learners' potentials and open and promote the field of possibilities, "being present" here and there, like a parent in his child's first steps. The enabling leadership style accompanies the person's self-confidence at building his or her own path and find his or her place from a non competitive performance approach instead through an inclusive excellence where everyone has a his or her own possible place.

The Enabling Leadership styles of teaching: Toward Inclusive Vocational Excellence

The 'enabling leadership' style (see Fig. 2) aims at developing future leader as 'transformative pedagogue' to become active agents or human resource developer for themselves and others (colleagues as students). This new teachers profiles and missions is rooted in 1938 Dewey work supporting learners agency and empowerment i.e the importance of student-directed learning, as learners agency: "students should assume an active role in their learning process so as to develop the skills for becoming successful members of their communities." Learners' agency is when learning through activities are meaningful and relevant to learners, driven by their interests, and often self-initiated with appropriate guidance from teachers: the power to act. Agency involves initiative, self-regulation, awareness of social connectedness and the responsibility of ones own actions on the environment and on others. Each aspect relies on a student's belief that they are both supported and empowered, in ways that help them to develop their knowledge, skills and dispositions in the classroom, school and community. It is built on levels of personal development, mutual group support, participation and organization within a positive climate for learning. This approach concerns both teachers and students. This proactive process focuses on the strengths, skills and rights of individuals and the community, rather than on deficits or needs.

In the bienvivance perspective, teachers endorses new roles and missions to empower their students and make them autonomous learners; as knowledge is now easily accessible, teachers missions are not so much at transmitting knowledge but at training their students to "learn how to learn", at coaching,

leading and developing their students' potential and talents ; teachers in the decentrated mission become coachs or "*enabling leaders who do what should be done to empower their students to become learners agency, boost and valorize their potential: toward enabling leadership teachers'style*" (Gendron, 2015, 2016) (cf. Figure 1 & 2.).

Teachers will mobilize and empower and valorize learners' resources helping them at gaining self-confidence and enhancing their potential. It is up to the conscience and the benevolence of teachers or trainers, to decide to help reveal their students' potentialities and to put them into action, and to empower their learners. It calls for the mindfulness and benevolence of the teacher in his or her vocation, mission. Teachers shift their authority, under the auspices of collaborative learning, to the learners and provide the foundation and learning structures to guide, lead or coach them through various learning processes and experiences and through active social interaction on substantive issues.

"Enabling" leadership style (and enabling pedagogy) of teachers is inspired by the capabilities approach (Sen 1985, 1993, 2000) that we extend to pedagogy, organization and school work environment: the person's freedom of capacity to act. It is the "power to be and to do" which defines a field of possibilities both for the individual who carries them and for the organization that can benefit from them (De Munk et Zimmermann, 2008): its fulfillment. By putting the needs of people first – rather than the needs of the economy – the capability approach emphasises social justice, human rights and poverty alleviation. This approach is more focused on the values and goals of individuals and institutions, while retaining the economic rationale

as a key analytical tool and emphasising the continued importance of evaluation for the improvement of delivery and outcomes (Powell, L. and McGrath, S., 2014).

This enabling leadership teaching style and its associated pedagogy aim at including ethical, sustainable, mindful and empowerment perspectives in education. As learning is more than ever important and valuable, it encourages to make visible and to visualize people potential throughout their lives, taking into account their prior learning. Such pedagogy helps students deal with current global challenges, and also as their transformation, emancipation and creative empowerment. Enabling pedagogy offers "sharing of authority and acceptance of responsibility among group members for the group actions" (Panitz, 1996). Trainers shift their authority, under the auspices of ideal collaborative learning, to the learners and provide the foundation and learning structures to guide them through various learning processes and experiences and through active social interaction on substantive issues using in distance learning, all multimedia technology and applets. To support acquisition of competencies that enable people to live and act in a sustainable way, the enabling pedagogy involves "inclusive and integrative approaches to learning and teaching, using applied, futures-oriented, critical and participatory education and learning" (Dannenberg & Grapentin, 2016). It emphasizes the potential of education to empower learners to transform themselves and society. Thus, enabling pedagogy refers not only to renewal of education curricula but also to rethinking and changing of teaching pedagogy and styles and in consequences, to update teachers professional competencies according characteristics profile of teaching styles.

2.2 EMOTIONAL CAPITAL, BIENVIVANCE, INCLUSIVE EXCELLENCE AND ELEVATED CONSCIOUSNESS AND INTERCONNECTEDNESS

EMOTIONAL CAPITAL: FROM EMOTIONAL INTELLIGENCE AND SOCIO-EMOTIONAL COMPETENCIES (SEC)

Under above mentioned challenges and pressures, teachers have to cope with new missions and roles as preparing students to learn how to build their sustainable development, to maintain work readiness, to be a good citizen and feel fully accomplished. All those later characteristics are related with behaviors and social skills called emotional competencies coming from emotional intelligence researches (Cherniss and Goleman, 2001). As research demonstrated the SEC economics' return, they are considered as a real capital, an emotional capital (Gendron, 2004) which is "the set of resources (i.e personal and social emotional competencies, cf. Table 1) that inhere to the person, useful for personal, professionaland organizational development, and participates to social cohesion, with personal,economic and social returns" is an essential capital for all and precisely in education.

Table 1. Framework for Emotional Competencies (Cherniss & Goleman, 2001) (non exhaustive list)

	Personal Competencies (intrapersonal)	**Social Competencies (interpersonal)**
Recognition	Self-Awareness - Emotional self-awareness - Accurate self-assessment - Self-confidence - *Own culture awareness* [...]	Social Awareness - Empathy - Service orientation - Organizational awareness - *Other culture awareness* [...]
Regulation	Self-Management - Emotional self-control - Trustworthiness - Conscientiousness - Adaptability [revisit] - Achievement drive - Initiative - *Nonjudgmentalness* [...]	Social Skills - Developing others - Influence - Communication [revisit] - Conflict management - Visionary leadership - Catalyzing change - Building bonds - Teamwork and collaboration - *Respect* [...]

Emotional competencies are experiential and learned capabilities from the early age until adulthood, in family, peers, communities, societies and school contexts. Consequently, the different emotional competencies developed through those experiences will have a major impact on individual personality and different returns in different spheres and those competences become crucial as professional competences for instance for teachers.

According the teaching styles (cf. Table 2), the socio-emotional competencies to mobilize will differ. For instance, the enabling teaching style will require to be more listening and supportive than the talkative profile, as giving orders, in the transactional style.

Table 2. Teaching styles and characteristics profile (Gendron, 2006:2015)

Transactional Teaching style	*Transformational Teaching style*	*Enabling Teaching style (Gendron,2016:2022)*
• Talk • Students Production oriented • School needs • Competition • Individual • Logical • Written communication • Image • Secret • Short Term and Visible Success • Immediate Results • Critics • Hierarchical	• Listen • Students oriented • Students needs • Cooperation • Groups • Intuitive • Verbal Communication • Quality • Substance • Honesty • Teaching Mission • Process • Motivating • Centrarchical	• Listen and Supportive • Students needs oriented • Collaboration • Groups and Individual • Intuitive and Visionary • Emotional and Vibrant Communication • Quality of the productity and Vitality of his or her class substance, • Transparent & Authentic • Humanity Development Commitment • Valorize, no judgment • Delegative • Values (ethics and meaningful) oriented • High level of consciousness

The enabling leadership rooted in the verb "to lead" defined the capacity of a person to lead and drive people or organizations in such a way that they reach the objectives planned. A leader is able to guide, influence, inspire, and initiate changes and engagement of his or her followers, collaborators, people he or she has in charge.

The enabling leadership style is characterized for instance by an emotional and vibrant communication involving trust and authenticity and above all a high level of consciousness (see Fig. 3) requiring "benevolence" and "mindful"mindset to feel engage and commited with his or her educational mission. It requires "to be in peace inside -inner peace- to be able to be in peace outside" by a personal introspection work (which the main com-

petencies trained here are self-reflection, self-awareness, and self-knowledge) developing their emotional capital.

Introspection has been part of the fabric of human understanding already from ancient Greece with Socrates maxim "Know Thyself", which can be seen as a path to wisdom, truth and greater well being: a way of understanding conscious experience and offers an overlap between the "objective" world and the subjective experience of being. As Carl Jung said: "Until you make the unconscious conscious, it will direct your life and you will call it fate." As not all information is available to us, consciously, at any given moment, the introspection improves self-awareness and has the power by turning attention within, that unconscious contents become conscious: information that isn't available to us is revealed, igniting a journey of self-discovery. When we self-reflect and become aware of this information, or the particular tendencies or personality traits, we become more self-aware and with non-judgment, but simply acknowledged, leads to a process of self-acceptance, reducing our ego. This self-study begins to create a clear picture of unconscious processes and self-awareness increases, then we're able to change, grow, and to move beyond limitations. Thus, greater self-awareness leads to conscious decisions to act in ways that aren't on autopilot, or dictated by the unconscious but take action in consciousness and only then, we become truly in control of our lives, resulting in stronger relationships and a happier life. It is a way to gain knowledge not only of the Self, but of the wider cosmos and nature of reality.

Thus, enabling leaders have been going through this introspection which elevates their consciousness. It helps them at clearing up their thrue values, missions and role; which those

later matters ethically in education to promote equitable education and support effective inclusion. It helps at feeling interdependent to others in a holistic belief in an individual connection to others and to the world as a whole., or at feeling interconnected to "help students to grow up and flourish in a benevolence way, reaching the the blue zone (cf. Figure 2). The emotional capital development helps at going through this consciousness elevation process.

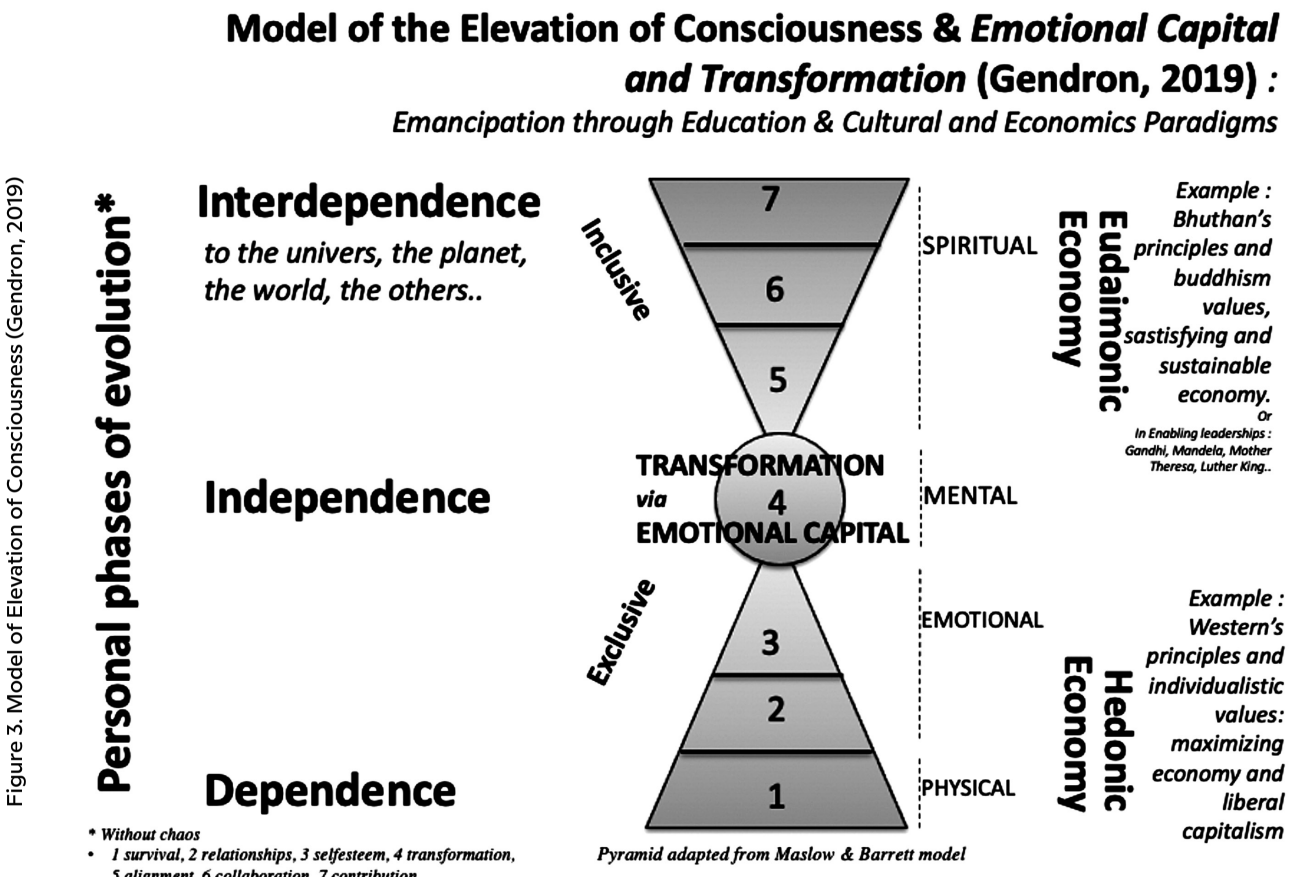


Figure 3. Model of Elevation of Consciousness (Gendron, 2019)

3. COLLABORATIVE PEDAGOGY TO COLLABORATIVE LEARNING AND CRITICAL AND CO-REFLECTIVE THINKING

In the bienvivance approach, in our experimental research developed since 2012 (Gendron, 2012 : 2020), three tools have been and are used to develop students emotional capital (EK) to promote effectively inclusive vocational excellence: collaborative project management, co-narrative langage and mini-enterprises. The case-studies were carried out in professional tracks at Master Degree at the University of Montpellier 3 and Higher School Degree levels at Charles Alliès VET School, in South of France. In this approach, both the professional training and the general education are integrated in the learning process based on involving students in collaborative projects, from the design and production of real products for real customers in mini-enterprises or from the design and academic and/or esthetics delivery products for master degree students.

3.1 COLLABORATIVE PROJECT MANAGEMENT AS A PEDAGOGICAL TOOL TO COLLABORATIVE LEARNING

Using the pedagogy of action according to Dewey's work, the main objective of the project management program, an European project management methodology, implemented by Pr. Bénédicte Gendron at the university of Montpellier 3 in vocational Master degrees, follows the guide "Project Management – Setting the Standards" developed by Prof. Dr. Michael Gessler (Universiy of Bremen) and Jürgen Uhlig-Schoenian (Federal Institute for Schools, Bremen). Its aims is to deliver a practice

oriented approach to learn organizational knowledge, to foster team competences as well as a sense of responsibility and the possibility to make real experiences with further working practice in the aspired vocational sector. In our case-studies, it is used as a pedagogical tool to learn and work by team on a common project where students have to learn a subject and at the same time about themselves and each other, to evaluate properly, and to work together collaboratively. It facilitated students' commitment to their projects where students become actors and where team collaboration and atmosphere matter a lot. First, in order to constitute their "efficient" team, a short self-quiz allows students to identify their own profile as either mainly manager, visionary, analyst, or collaborator. Plus, in this project approach, each member has different responsibilities which alternate with specific duties. Each team has a guidebook of the methodology, a storyboard book as an exercises' book which inside has a dairy journal which captures the project's management progress and their own and team progress regarding "responsibilities," "commitments," "communications," and skills progress. In this way, students learn about themselves from the team members and self and progressively know how to develop their deductive, inductive, analytic, synthetic, and critical mind. Via this project management, clearly designed steps by steps, students have to define and analyze the stakeholders of their team project and the associated risks. The professor, teacher or tutor has an important role as a coach, helping and encouraging students at discovering themselves ("knowing thyself") and, to perserver at achieving the team objectives. Alongside the sessions, students complete personal quiz helping them at assessing their progress, and at identifying indirectly their social and personal-emotional competencies.

3.2 MINI-ENTREPRISE AS A COLLABORATIVE LEARNING TOOLS TOWARD INCLUSIVE VOCATIONAL EXCELLENCE

Marc Steckler, VET teacher at Charles Alliès Vocational School, and Ph student under the supervision of Pr. Bénédicte Gendron, used the "Mini-entreprise" tool combined with project management methodology (described above), to develop collaborative learning among VET secondary and higher education degrees class. Part of the Junior Achievement Europe bringing together the public and private sectors to participate in entrepreneurship education, he designs and implements educational programmes that aim to foster an entrepreneurial mindset and skills among students. Generally integrated in the curricula in close co-operation with education authorities and his implementation normally supported by local school authorities in the classrooms, his active pedagogy is based on "learning-by-doing" and on collaborative project management methodology. His goal is to foster innovative thinking and improve young people's work and life skills through experience and practical activities. Regarding competencies objectives, entrepreneurship education focuses on bridging the gap and establishing a connection between school and the world of work, by developing work habits and conducts, personal leadership, communication skills, teamwork and collaboration, customer-service skills, and learning about the rights and responsibilities of workers and employers. It helps at work readiness, bridging school, community, personal life and work. Also, this methodology involves turning ideas into action, creativity, innovation, risk-taking, planning, and developing per-

severance and self-confidence. As social entrepreneurship or sustainable economy (blue economy...) are gaining a growing dimension in mini-entreprises projects, it serves and helps students to engage in the local community and to widen their circle of engagement to encompass international actions, through initiatives open to European and international connexions *(Elert, Andersson and Wennberg, 2015).* Social entrepreneurship appeals to young people who like the idea of applying business skills and ingenuity to solving social problems, serving worldwide sustainability policies and elevating their level of consciousness. To do so, while teachers do not necessarily provide students with the answers, they help them research and identify the right questions, and find the best answers following the socrate process of self-learning through self or collaborative reflexion. Nevertheless, this methodology rely on school leaders and teaching staff competencies toward "sustainability and enabling leadership" teaching style and mentors. This pedagogical approach develops competences such as teamwork, problem solving, leadership, initiative and creativity. Students built skills in turning ideas into action, analysing information, managing projects or business ventures, budgeting, financial management, marketing and sales, using their digital knowledge and foreign-language skills when carrying out internationally as the actual project "Team Blue Crocc" run with Croatia.

Both, project management and mini-entreprises are project-based learning and working which are particularly suitable for implementing work process orientation and to encourage developing the comprehensive ability to act in the sense of the triad of professional, social, and personal skills. Problem-solving processes are fundamental to the development of expertise,

which are divided into four phases: understanding the problem, developing a plan, executing the plan, and review (Gessler and Uhlig-Schoenian 2013). Acquiring socio-emotional competencies in turn requires a medium: a cooperating group that is pursuing a common objective, operates as a team and interdependently, and while doing so must learn to deal with motivation gains and losses (Locke and Latham 2002;Johnson and Johnson 2003;Schulz-Hardt et al. 2007).

3.3 COMPETENCE-PORTFOLIO THROUGH COLLABORATIVE NARRATIVES AS A DEVELOPMENTAL TOOL FOR CO-AND SELF-RECOGNITION AND REFLECTION FOR SUSTAINABLE HUMAN DEVELOPMENT AND LIFELONG GUIDANCE

The competence-porfolio (CP) is a French framework process which recognizes prior experience and knowledge. It consists of three steps (Mulder, Martin et al., 2007): a preparation period in which the candidate should explain and analyse his/her needs, an exploration period in which the candidate should be supported by his/her local CIBC (Centres Inter Institutionnel de Bilan de Compétences) in finding out about his/her values, interests, ambitions, knowledge, skills and motivation and a final period in which talks are held and the results of the former initiatives are analysed together with the candidate. After that, the assessment centre gives a summary of the candidate's performance. Here, in the vocational master degree, in this bienvivance approach, the CP is used as a co-learning process written in an collaborative way, focused on co-narrative and as part of emotional capital development for sustainable human develop-

ment. The CP provides a tool for collecting and managing multiple types of assessment evidence from multiple contexts and sources within students life and the curriculum to document competence and promote reflective practice skills. It is used as a way of working with the self helped by classmates in peer groups.

Through co-self-reflection in peer, they explore their individual experiences, have internal dialogues, and can observe themselves in interaction with others. The process of self-reflection enhanced the possibility of becoming aware of their own competencies of collaborative and enabling leaders and managers: the vocational objective of the Master degree.

The collaborative narratives approach help at identifying and building socio-emotional competencies for lifelong learners for new/ different career perspectives and personal development. It contributes to their emotional capital (EC) development and recognition. EC is "the set of social and personal emotional competencies, inherent to the person, useful for personal, professional, organizational and societal developments, contributes to social cohesion and has personal, economic and social returns" (Gendron, 2004, 2008), and sustainable human development. A central notion in this vocational master degree to become enabling leadership is the idea of working with students' life stories as a way of trying to overcome themselves in the form of overcoming their own prejudices and assumptions about the world's becoming and to learn something new. This is captured in a definition of sustainable and enabling leadership developed in this vocational master degree, which notes that sustainable and enabling leadership is the ability to relate to oneself and to others, and organize relations in a way in which people can develop and fulfil their potential in collaboration with others

in a way that both the organization and society benefit, and in which social, human, and natural resources are not the destroyed but at the opposite valorised and recycled.

This innovative use of competence portfolio writing also helps adult learners acquire the skills to thrive in this context of global changes to shape new jobs and career pathways as it promotes their wellbeing and resilience fostered on their flourishing, empowerment participating to their emancipation.

We illustrate by the case study of what has been done since 2012, at the University of Montpellier 3 in a vocational Master degree training addressed to adult, future Human Resource manager, educational leaders, head teachers, future managers in general. This developmental approach of collaborative porfolio as a lever for LLL lessons has been set up through a 'lifelong guidance and competence' course. This developmental direction requires innovative pedagogy support to assist the adult learner to produce portfolios of reflection on his or her experience and evidence of learning using adult language and narrative learning. To do so, we used a mixed-method, 'collaborative' and 'narrative language' learning. A candidate' life story or biography used as a narrative learning method was organized in dyads. Beyond formal education and training, the narrative includes informal learning from different places (work, family, volonteers or community services...). In this complex and fast-changing world, this approach considers that all kinds of learning and training outcomes deserve to be valued and validated, regardless of where and how they were obtained.

The research study, through trainees' reflexive reports aimed to understand what changes were perceived by adult trainees due to their participation in recognition of their prior learning,

building their CP, to end by writing their competencies porfolio. It can be an intimidating process for adult learners. Thus, this master degree developed since 2012 and given here as an example, embraces long-term practices, resources, and tools to foster a positive experience and to remove barriers. The competence-based portfolio realized at distance in dyad is based on collaborative learning and work, providing consistent communication to learners about the portfolio process foster on positive experiences. Beyond resources on competencies syllabus and grids centralized in the online platform, a one-on-one interaction is established with a classmate as a 'facilitator' for expressing the experiences of his or her dyad classmate; this latter tells his or her life story, who then, takes on this role. The content and verbatim analysis of personal perception of individual adults' learners identified changes at personal, educational and training, and professional levels, but gains primarily occurred at the personal level.

Descriptive and self-declarative outcomes revealed mainly effects in terms of learning, increased confidence, recognition of their prior knowledge and skills, valorization of their life experience, and motivation to further learning. Collaborative learning takes place by helping each other through verbal exchanges, in a narrative back-and-forth, in the development of their biographical story. Peer-to-peer recognition through the narrative exercise helps at highlighting specific competencies of trainees in terms of personal emotional competencies, referring to their emotional capital and knowledge, and specific skills gained during their life, through this process of personal development.

This collaborative learning method is of teaching and learning in which trainee team together to explore a significant question

or create a meaningful project. Collaborative learning theory is rooted in L. Vygotsky's idea of the Zone of Proximal Development. Collaborative learning occurs when dyads or small groups have been engineered to share responsibility, authority, and learning outcomes. Here, learners rely on one another to accomplish their competence-based portfolio. The peer facilitator co-writes his classmate' competence-based portfolio. With a benevolent perspective of Gendron (2008) motto "the extraordinary potential of each ordinary person", the facilitator looks for, identifies, promotes, and values his or her dyad classmate experience in competencies equivalence using his or her classmate narrative story. In this "human developer" role of recognition, facilitator provides feedback to help at strengthening his or her dyad's report of experience for their partner portfolio before to submit it to faculty member for an official evaluation. In this pedagogical approach, involving peer-to-peer learning create a positive experience for learners which helps at fostering deeper thinking. Through this targeted training, trainees report that it helps them developing their higher-level thinking, oral communication, self-management and leadership skills but also knowing and understanding themselves and others people better as well. Indeed, combined with a three-month meditative training course, trainees report that they developed a better inner awareness about their own competences as mental states, their values and have a better understanding of the others. As in all the situations where trainees come together in groups, it suggests a way of dealing with people, which respects and highlights individual group participant's abilities and contributions.

Also, the collaborative narrative language and learning depends on the art of social interaction among learners rather

than a mechanical process. It is not just a classroom method or technique. Beyond problem-posing education, it is a manifestation of humanization, critical conscientization, and emancipation based on enabling pedagogy.

This collaborative exercice on competence portfolio narrative sounds to have provided beyond formative and summative assessment of student achievement, a way or a process of personal transformation.

4. ANALYSIS AND ESSAY: COLLABORATIVE LEARNING TO TRANSFORMATIVE LEARNING AND AGENCY

Bienvivance as a positive operational holistic approach and paradigm of well-being, is focused in education on the whole person development, which explores, recognizes and valorizes the students'potential which might allow inclusive excellence through collaborative learning and an enabling pedagogy impulsed by enabling leadership teaching style, promoting people transformation. In this part, first, we will question how the collaborative education can serve emancipation decolonizing recognition to allow inclusive excellence. Second, this bienvivance approach of students devopment can be seen as a process of transformation that we will try to analyse through the lens of transformative learning models.

4.1 ANALYSIS: COLLABORATIVE EDUCATION

Collaborative education supports connected learning model suggesting that people learns best when: they are interested in

what they are learning; they have peers and mentors who share these interests; and their learnings are directed toward opportunity and recognition.

To get exposed to Other's differences to develop students' social emotional competencies, collaborative learning enable learners agency and empowerment. Teachers recognize learners' individuality and grasp formal and unformal learning environments (peers, families, communities..) as opportunities to influence students learning in a co-agency learning process. As interactive, mutually supportive relationships, it helps learners to progress towards their valued goals and together explore significant questions and create meaningful projects. It develops students agency and empowerment by knowing themselves through the group following Plato motto "Do thine own work, and know thyself". Acknowledging other's difference help to develop introspection and reflexive skills. As a holistic and experiential approach, this collaborative approach explores the mind, and the heart enlarging perspectives, leading to lasting solutions to cope with problems confronted.

Rooted in Dewey active learning, collaborative learning occurs when small groups of learners have been engineered to share responsibility, authority, and learning outcomes by developing a better inner awareness about their own competences as mental states, and have a better understanding of the others. They rely on one another to accomplish their work which respects and highlights individual group participant' abilities and contributions illustrating humanization, critical conscientization, and emancipation. This collaborative education impact on emancipation through this exercice of the co-writing and reflexive portfolio of competencies could be also analysed

through the lens of narrative langage as a media of recognition and decolonising recognition helping at an effective inclusion (Gendron, 2022). This process of recognition explore the interplay of power relationships and recognition in order to provide a holistic view underlying the different relational and

reciprocal range of recognition habits, processes, methods, technologies and practices operating at individual, social and cultural levels (Werquin et al. 2022). It questions how recognition practices could contribute to re-establishing more balanced power relationships? How the unrecognised, misrecognised, could be recognised and the invisible, not visible could be seen to facilitate inclusion ? Focused at creating opportunities and enabling environments to boost everyone's potential and to find their own fulfilled way of living, this approach can be analyzed through a lens of transformative agency, which empower students. The research shows that VET students rebuild their emotional capital, they recover their self-confidence and esteem, acceptance of 'Others' difference and facilitate and promote inclusive excellence.

4.2 BIENVIVANCE APPROACH THROUGH THE LENS OF TRANSFORMATIVE LEARNING: TOWARD VET STUDENTS EMPOWERMENT AND "INCLUSIVE VOCATIONAL EXCELLENCE"

Bienvivance applied in education as a positive operational holistic approach is a paradigm of well-being focused on whole person development, which explores, recognizes and valorizes the potential of students, allowing inclusive excellence through an enabling pedagogy impulsed by teachers with enabling leader-

ship style who promote people transformation. In the part, we will try to analyse, this bienvivance approach of students devopment can be seen as a process which transforms and empowers people and be analysed through the lens of transformative learning models; precisely, a transformative perspective by learning, referring to transformative learning as a process, an outcome, and a pedagogy. As a process, transformative learning is most often discussed in terms of Mezirow's ten-phase process. As an outcome, it constitutes a new lens through which to see oneself or others. As pedagogy, transformative learning provides a paradigm of education that fosters a powerful shift in beliefs or values, helping at changing mindset toward consciousness elevation and at keeping the vitality of their life.

The transformative learning is a cognitive, affective, somatic, or spiritual experience or possibly any of these combined. Lawrence and Cranton (2009) wrote, "No one theoretical perspective needs to mean others are excluded". Transformative learning can be cognitive, imaginative, collaborative and individually based or can include depth psychology alongside a more practical reflective approach. Mezirow (1997) and Cranton (2006) agree that transformative learning begins when individuals reflect critically upon their assumptions of what they believe to be real, true, or right. Critical reflection is the ongoing process of consciously or unconsciously reviewing and evaluating assumptions to clarify the meaning of experiences both individually and collectively.

For Mezirow (1997) transformative learning is "the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience in order to guide future action". Transformative or transformational learn-

ing (Mezirow 1997, 2000) is precisely defined as "an orientation which holds that the way learners interpret and reinterpret their sense experience is central to making meaning and hence learning." The theory is particularly focused on the idea that old and young adult learners' world view is changed the more they learn, and that helps them grasp new concepts and ideas as they don't apply their old understanding to new situations, instead they find they need to look at new perspectives in order to get a new understanding of things as they change. For Mezirow (1997, 2000) these critical reflection and critical review lead to a transformation of their understanding and involves a fundamental change in learners perceptions leading to mind emancipation and understanding. Young adults view life with limited perspectives based upon limited experiences shape their personal beliefs. Through expanding and sharing with others their experiences via collaborative pedagogy, individuals may challenge existing beliefs and gain new perspectives identified as transformative learning.

In order to challenge learners previous understanding and beliefs, Mezirow underlined two focuses in the transformative process that are both logical and emotional. First, instrumental learning focuses on task-oriented problem solving, and evaluation of cause and effect relationships and, second, communicative learning focuses on how learners communicate their feelings, needs, and desires. Learners need to be able to focus on different types of their understanding and view new perspectives and meaning structures based on concepts, beliefs, judgments, and feelings that shape learners' interpretation. The understanding of learners past perspective and the ability to look at new structures and perspectives through self-reflection, self-directed

learning, and critical theory are the key to the transformative process. They are able to critique their assumptions to understand if what they understood as a child still holds true now that they are growing up or becoming adult. In this process, we are thereby able to understand ourselves, and our learning better.

Mezirow's (1978) original study identified ten phases that contributed to transformative learning nevertheless to encounter transformative learning not all of the phases needed to be experienced and, furthermore, they may be experienced in random order. The phases are: a disorienting dilemma; self-examination of assumptions; critical reflection on assumptions; recognition of dissatisfaction; exploration of alternatives; plan for action; acquisition of new knowledge; experimentation with roles; competence building; and reintegration of new perspectives into one's life (Mezirow, 1991). These phases are key in helping learners transform their prior notions as they get new information and insight.

Through the multi-cultural and collaborative learning approach used in the pedagogy of the case-studies, **the disorienting dilemma** is a situation where a learner finds by their own or by getting exposed to others, that what they thought or believed in the past may not be accurate. This is the first part of transformational learning. This can be an "a-ha" moment where a student hears or consider something they may not have understood before. This disorienting dilemma can be uncomfortable or challenging for students, but is the key spark in starting a fire of transformational learning.

Through the competence-portfolio co-narrative' helping at" knowing thyself" following Plato and Socrate motto, students will do a **self-examination** of their beliefs and understanding.

They will think about their past experiences and how they connect to this disorienting dilemma. This can create a perspective transformation, where students understand that their perspective may not be the only one possible. And through the co-narrative competence-porfolio, the peer effect can help at a self-examination feedback.

Through collaborative project management, mini-enterprises or competence-portfolio, students discover or learn about themselves through overcoming obstacles, sometimes their own mental obstacles or limiting beliefs. This **critical assessment of assumptions** phase in this transformational learning process helps students at being able to take a more comprehensive look at their past assumptions and review them critically. They are able to accept that perhaps some of their past assumptions were wrong, and are thereby more open to new information and thoughts. This creates perspective transformation as they are able to look with more unbiased eyes at their own past and open them to emancipation and empowerment.

After students understand how their past assumptions and beliefs may have been wrong, they are able to **plan a course of action**. They are able to consider what kinds of learning they will now need to more fully understand a problem or situation. They will be able to have a strategy for learning new things, seeing new perspectives, talking to new people, and more. They will also be able to project themselves in the future with a more positive vision, a better self-confidence and esteem. This is what has been observed among mini-entreprises as in collaborative projects in the case-studies. This place of action requires to access resources. It is essential to act on the obstacles of a personal order but also of a structural order. They are helping at emancipation (freeing

themselves from obstacles) and no longer adaptation (to obstacles). The development of the "power to act" (Clot, 2008) is the possibility of having more control over what is important to oneself or to the community and empowerment, the development of the power of individuals and communities to act on the conditions they face.

The phase of **acquisition of knowledge and skills** helps students at carrying out new plan and get further in their transformational learning. The emotional capital development and their socio-emotional competencies, their technical skills as the knowledge access and stored among collaborative learning via active pedagogy are supporting this phase as they may have to learn new things and consider different perspectives in order to fully enhance their learning with meaningful in this reflective perspective. It can take extensive work and effort, but this is where the real learning is happening.

As part of transformational learning, **exploring and trying new roles** is an important phase as students need to act and to understand changes as a key to success. It goes beyond just learning about a content or something, but actively working to understand and experience new things for themselves and to learn how to learn by themselves in an autonomous way. In project management and running as in mini-entreprise they have to play role and take action and responsibility of their actions, tasks and knowledge resource. Also, through the emotional capital development and the competence-portfolio, they build their self-awareness and confidence and learn to recognize their values. It helps in this phase at their **self-efficacy in new roles and relationships**. Self-efficacy involves students being able to make their own decisions and have their own beliefs like in mini-en-

treprise decisions' steps as in project management that they hav to go through different roles (scribe, leader, visionary, follower, reporter...). Building confidence in students beliefs and understanding is crucial to nurture and to continue to practice this transformative cycle as they move forward.

Inspired by Mezirow, Nerstrom Transformative Learning Model (2014) process phases to four segments to comprehend and explain transformative learning (Figure 4) following a sequential order where all phases of the model are encountered; however, entry to the phases can begin in any segment. The four phases are having experiences, making assumptions, challenging perspectives and experiencing transformative learning. Transformative learning then becomes a new experience. This model provides a visual representation of how transformations are constructed and identifies transformative learning as a continuous cycle of learning. Once transformative learning occurs, individuals are more receptive to experiencing it again. Also, once transformative learning occurs it is unlikely that learners revert back to their prior beliefs.

Figure 4. Nerstrom Transformative Learning Model (2014, p.328)

Nerstrom Transformative Learning Model (2014, p.328)

Experience. Experience is everything that has occurred in our lifetime. It is the impetus of our learning and belief patterns. Experience stems from our environment and interactions with others, from which learning—such as knowledge, skills, attitudes, and insights—occurs.

Assumptions. From experience we form, receive, and construct assumptions that become our values and beliefs. They are the lens through which we view the world.

Challenge Perspectives. New experiences, both cognitive and affective, combined with reflection, may lead us to challenge our deeply held assumptions and consider a new perspective.

Transformative Learning. Adopting and acting upon a new perspective, we view ourselves and others through a more encompassing lens. Transformative learning becomes a new experience leading to openness for it to occur again.

In sum, from a general reviewing, whatever the models of transformative learning, we found through narratives, observations and learning journal, that the important elements of transformative learning process were disoriented dilemma or experience, dialogue, critical reflection, holistic of rational and emotional transformation, awareness of context and acting on revision or exploratory premise. Also, in other words, the learning process transforms learners perspectives which themselves will guide their future actions. To end, transformative learning is a complex reflective process that mobilizes reflection on the content, the process and the foundations of the experience. Under-

standably incorporating the model into this study to explain and strengthen the experiences of being transformed may well expand the theories of transformative learning. As a learning tool in coursework on adult learning theory, it assists learners with comprehending the process of transformative learning that themselves they are living and experiencing to reach and move toward bienvivance.

CONCLUSIONS: BIENVIVANCE AND INCLUSIVE VOCATIONAL EXCELLENCE, FROM INCLUSION TO INCLUSIVITY: VALORIZING THE RICHNESS OF THE "DIFFERENCE"

Bienvivance applied in education is a positive holist and operational educational methodology and paradigm focused on whole person development which could respond to inclusion in an effective way: toward Inclusive Excellence as to answer to the UNESCO agenda of education in sustainability development.

The outcome of the different research led especially in VET schools, shown that the co and selft-reflective practices and collaborative learning nurture inclusive vocational excellence and turn schools into transformational schools. Through an enabling leadership teaching style and associated pedagogy, the focus on social and emotional competencies helped at increasing as observed in previous broader researches, metacognition, attention, cognition and cognitive flexibility and at reducing stress and anxiety (Shapiro et al., 1998). This attention support and emotional balance, as empathetic connection, compassion, and altruism (Zajonc, 2013) supported self-awareness development required for ethical and empathic engagement in the world as citizens.

Also, this bienvivance approach can be analysed in a transformative perspective, referring to transformative learning as a process, an outcome and a pedagogy which transforms and empowers learners and trainees and support inclusive excellence. Indeed, transformative learning, as a pedagogical active model of learning, considered that learners are actively engaged through critical reflection and discourse to question assumptions, expectations, and context to achieve deeper meaning and new perspectives to guide their actions. It differs from the traditional model of pedagogy of 'passive' learning considering students as receptacles of knowledge. This approach generally reflects teacher, trainer, educator's personal visions and perspectives on their job' mission and beliefs and responds also to the UNESCO agenda of education in sustainability development.

To end, if Sen was focus on 'capabilities' Gandhi reflexion suggests us a further approach of Education for Good in the sustainable perspective in a global World as the quintessence of Gandhian philosophy is that the human values and not the market should govern life. To Gandhi, proper education not only includes knowledge of the subject but also devotion to duty, spirit of service and most importantly the training of character. The basic purpose of freedom is to endow the people with the power of capability expansion. Development policy not only aims at improving human capibilty but also human contestability to be consistent with the concept of international humanity in the global environment.

And in this perspective, putting an emphasis on human contestability in education is reinforcing the view that individuals are the ultimate source of value and, value generation depends less on tangible resources, but rather on intangible ones (partic-

ularly health, cognitive intelligence, collaboration, emotional wellbeing...) that bienvivance perspective tries to underline focused on vitality, promoting beyond the learning by doing, the "***learning by being***".

Linking human contestability to bienvivance can foster vitality as, physical attributes and abilities, creative minds, passionate hearts, individual empowerment..., and help clarify the vision of what true 'inclusion' should be: " inclusive excellence" or "inclusiveness/inclusivity", making "differences" not differences to be leveled or reduced to match or fit into the "norm" but, on the contrary, to be valued by celebrating diversity and accepting and considering differences as a richness and by implementing, through fairness and education equity, the best for all, to enhance the best in everyone.

Alone we go faster,
Together we go further
(African Proverb)

REFERENCES

Canal, M. & Jørgensen, KM. (2014) Storytelling and the Development of the Self: Learning Collaborative Negotiation Skills, In book: Critical Narrative Inquiry - Storytelling, Sustainability and PowerChapter: 9 Publisher: Nova Science PublishersEditors: Kenneth Mølbjerg Jørgensen, Carlos Largarcha-Martinez

Caycedo, A. (1964) Sophrology and psychosomatic medicine. The American Journal of Clinical Hypnosis, 14, 103-106. doi:10.1080/00029157.1964.10402403

Cherniss, C., & Goleman, D. (2001). Training for emotional intelligence: A model. In C. Cherniss & D. Goleman (Eds.), The emotionally intelligent workplace. San Francisco: Jossey-Bass.

Clot, Y. (2008). Travail et pouvoir d'agir. Paris : PUF.

Clot, Y. et Simonet, P. (2015). Pouvoirs d'agir et marges de manoeuvre. Le travail humain, 1(78), 31-52.
Cranton, P. (2006). Understanding and promoting transformative learning: A guide for educators of adults (2nd ed.). San Francisco, CA: Jossey-Bass.
Dewey, J. (1938/1997). Experience and Education. USA: Free Press Publisher.
European Commission (2007). Key Competences for Lifelong Learning – A European Reference Framework.https://www.britishcouncil.org/sites/default/files/youth-in-action-keycomp-en.pdf
Dirkx, J. M., & Mezirow, J. (2006). Musings and reflections on the meaning, context, and
process of transformative learning: A dialogue between John M. Dirkx and Jack Mezirow. Journal of Transformative Education, 4, 123–139.
European Commission (2008). European Universities' Charter on Lifelong Learning. Belgium, Brussels.
European Commission (2018). Commission staff working document accompanying the document Proposal for a Council Recommendation on Key Competences for LifeLong Learning.
Evans, K., Schoon, I. and Weale, M. (2013). Can lifelong learning reshape life chances? In: British Journal of Educational Studies, № 61;1, pp. 25-47.
Elert, Niklas; Andersson, Fredrik; Wennberg, Karl (2015) : The Impact of Entrepreneurship Education in High School on Long-Term Entrepreneurial Performance, IFN Working Paper, No. 1063, Research Institute of Industrial Economics (IFN), Stockholm.
Gendron, B. (2022 forthcoming), The Enabling Pedagogy of Recognition: From a Developmental Humanist Philosophy of Transformative Learning to Emancipation and Empowerment, Case study of the Revisited French Recognition of Prior Learning (RPL), in Patrick Werquin, Regina Klein and Serge Ravet Decolonizing Recognition, Editors, Publisher : Editions Atlantique.
Gendron, B. (2022), Excellence inclusive et enseignant au leadership 'capacitant' : propos réflexif pour une bienvivance à l'école sur l'évolution des compétences en prévision du futur, Revue La Recherche en Education, n°25.
Gendron B. & Normand R. (2022) Cross-national achievement surveys and educational monitoring in France, in Louis Volante, Sylke V. Schnepf and Don A. Klinger Eds., Cross-national Achievement Surveys for Monitoring Educational Outcomes Policies, practices and political reforms within the European Union, Luxembourg: Publications Office of the European Union, ISBN: 978-92-76-22353-5 DOI: 10.2760/406165 (online)
Gendron B., Usvyat N., Bukharova E., (2022), Adult Learning and Communication Learning for Sustainable Human Development, Chapter 10 in Kononova V., Kersh N., Dobrydina T., Eds., Adult Language Teaching, 1st ed. 202, Transformation through Lifelong Learning, Lifelong Learning Book Series, Vol. 29, Springer.

Gendron B. (2021), L'enseignant inclusif et capacitant : propos réflexifs sur l'évolution des compétences en prévision du futur pour une bienvivance à l'école, Chapitre in Rapport UNESCO & EDucation, Recherches et Actualités, Université Gustave Eiffel.
Gendron B. (2019), Emotional capital, positive psychology, active learning and mindful teaching : Which impact on student's well-being and behaviours?, in New Directions for Teaching & Learning, Ed. Wiley.
Gendron B. (2018), Emotional capital, positive psychology and mindfulness developments' for Enabling's Teachers and Educators: A new way of approaching citizenship's learning and skills, in Citizenship & Identity in a 'Post Truth' World, University of Warmia & Cicea European eds., ISBN: 9788381001274
Gendron B. (2018), The Power of The Emotional Capital in Education: Executive functions, Heutagogy and Meditation/Mindfulness, Ed. Paris : Connaissances et Savoirs.
Gendron B. (2018), « Emotional capital, Educational Leadership and EnablingTeachers: Emotional Competencies as Professional Competencies to Teach for Learning and Developing Potential » in Emergent Issues in Vocational Education & Training, Moreno Herrera et al. (Dir.), Stockholm :Arena Gruppen Press, p. 516-530 ISBN: 978-91-86743-74-1
Gendron B. (2018), What role should Universities play in career guidance for preparing students for successful studies and for work?, in Lázaro Moreno Herrera, Marianne Teräs & Petros Gougoulakis (Eds), Comparative Issues and Research Concerns in the National Landscapes of Vocation Education and Training, Emerging issues in Vocational Education & Training, Vol. II, p. 106-123.
Gendron B. (2006), From Education to Leadership Emotional Competencies : An Essay on a Conceptual Model of Emotional Capital, Conference, School of Education and Communication, Jönköping University, january 2006, Sueden.
Gendron, B. & al. (2008). Competence development through workplace learning: The case of the French Vocational Baccalauréat from Vocational Lycées and the Maisons Familiales Rurales. In: International Network on Innovative Apprenticeships, University of Bremen, Institute Technology and Education, pp. 59-67.
Gendron, B. (2004). Why Emotional Capital Matters in Education and in Labour? Toward an Optimal Use of Human Capital and Knowledge Management, Les Cahiers de la Maison des Sciences Economiques, série rouge, 113, Paris: MSE. ftp://mse.univ-paris1.fr/pub/mse/cahiers2004/R04113.pdf.
Gessler, M., & Uhlig-Schoenian, J. (2013). Projektmanagement macht Schule: Einhandlungsorientierter Leitfaden für den Unterricht in der Sekundarstufe II.5th edition. Nuremberg: GPM.
Gessler, M. (2016). Areas of Learning: Th e shift towards work and competenceorientation within the School-based Vocational Education in the German

Dual Apprenticeship System. In M. Mulder, & J. Winterton (Eds.), Competence-Based Vocational and Professional Education: Bridging the World of Workand Education (pages not jet available). Cham: Springer International Publishing.
Kaiser, F. Krugmann, S. (2018). Social Dimensions and Participation in Vocational Education and Training: An Introduction in the Special Issue. International Journal for Research in Vocational Education and Training. 5. 10.13152/IJRVET.5.3.1.
Mezirow, J. (1978). Perspective Transformation. *Adult Education*. 28, 100-110.
Mezirow, J (1997). "Transformative Learning: Theory to Practice". New Directions for Adult and Continuing Education. 1997 (74): 5–12. doi:10.1002/ace.7401.
Mezirow, J. (2000). Learning as Transformation: Critical Perspectives on a Theory in Progress. San Francisco: Jossey Bass.
OECD (2018), The Future of Education and Skills: Education 2030.
OECD/European Union (2017), "Junior Achievement Europe: An education network, multiple countries", in Boosting Social Enterprise Development: Good Practice Compendium, OECD Publishing, Paris.
Moreno Herrera, L., Jones, G., & Rantala, J. (Eds.). (2006). Enacting equity in education: towards a comparison of equitable practices in different European local contexts. Helsinki: University of Helsinki , p. 175
Mulder, M., Weigel, T.M., Collins, Kate. (2007). The Concept of Competence in the Development of Vocational Education and Training in Selected EU Member States: a Critical Analysis. Journal of Vocational Education and Training 59 (2007) 1. 59.
Nerstrom, N. (2014). "An Emerging Model for Transformative Learning," Adult Education Research Conference. and Continuing Education Conference, South Carolina. [Retrieved online: 01/06/22 https://newprairiepress.org/aerc/2014/papers/55
Nardi, P., Bengo, I., & Caloni, S. (2018). Reality-based learning and the Oliver Twist school: Towards a new approach in VET. In C. Nagele & B. E. Stalder (Eds.), Trends in vocational education and training research. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET) (pp. 261-268). https://doi.org/10.5281/zenodo.1319692
Powell, L. and McGrath, S. (2014) "Exploring the Value of the Capability Approach for Vocational Education and Training Evaluation: Reflections from South Africa ", International Development Policy, Revue internationale de politique de développement 5, DOI: https://doi.org/10.4000/poldev.1784
Ryan, R., & Deci, E. (2001) On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. Annual Review of Psychology, 52, 141-166.
Sen A. (1985) Commodities and Capabilities. Amsterdam: North-Holland

Shapiro, J., Brown, K., & Astin, J. (2011). Toward the integration of meditation into higher education: A review of research evidence. Teachers College Record, 113, 493–528.Stlader, B. & Nägele, C. (2017) Meaningful VET careers, in Christof Nägele & Michael Gessler, Intermediate Report on the research workshop, Second VET Skills Week in Brussels, 22.11.17, Ed. Solothurn & Bremen, December.

UN (2015). Ensure inclusive and equitable quality education and promote lifelong learning opportunitie for all. United Nations Press

UN (2015). Transforming our world: the 2030 Agenda for Sustainable Development. Available at: https://sdgs.un.org/2030agenda (Accessed: 20 April 2022).

UNESCO (2012). Report on the UN Decade of Education for Sustainable Development, Shaping the Education of Tomorrow: Abridged and Shaping the Education of Tomorrow.

UNESCO (2017). Education for Sustainable Development Goals: Learning Objectives. Paris : Unesco.

UNESCO (2020). UNESCO World Conference on Education for Sustainable Development. Available at: https://en.unesco.org/events/ESDfor2030 (Accessed: 20 December 2020).

UNESCO (2021). Members of the UNESCO Global Network of Learning Cities. Available at:https://uil.unesco.org/lifelong-learning/learning-cities/members (Accessed: 12 January 2021).

Werquin et al., (2020). Décoloniser la reconnaissance, Appel à communication, https://decolonising.openrecognition.org/appel-a-auteurs/?lang=fr

Zimmerman, R. (2008), "Understanding the Impact of Personality Traits on Individuals' Turnover Decisions: A Meta-Analytic Path Model," Personnel Psychology 61(2):309-348.

An initial analysis of VET teachers' self-efficacy: the influence of teaching experience and VET instructional level

Elena Quintana-Murci*
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: elena.quintana@uib.es

Carme Pinya-Medina
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: carme.pinya@uib.es

Olaya ÁlvarezGarcía
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: olaya.alvarez@uib.es

Arturo García de Olalla Gutiérrez
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: a.garcia-de-olalla@uib.cat

Maria Tugores-Ques
University of the Balearic Islands
Department of Applied Economics
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: maria.tugores@uib.es

Miquel F. Oliver-Trobat
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: m.oliver@uib.es

Francesca Salvà-Mut
University of the Balearic Islands
Department of Applied Pedagogy and Educational Psychology
Valldemossa Rd, km 7.5, 07122, Palma, Spain
E-mail: f.salva@uib.es

* Corresponding author

ABSTRACT:

Teachers' teaching styles and pedagogical practices are factors that contribute to preventing students from dropping out of school. In Spain, vocational education and training (VET) is characterised by low participation and high dropout rates. This study explores the perception of VET teachers in relation to professional self-efficacy and in association with two variables (VET instructional level and years of teaching experience) as factors that can influence this belief. The sample comprised 260

VET teachers from the Balearic Islands (Spain) who completed a questionnaire that included the Teachers Self-Efficacy Scale (TSES). The results found that this efficacy is relatively high and that number of years of experience is an influential factor, although the VET instructional level is not. The implications of these results are discussed for the identification of practices that can be positively associated with the prevention of dropout in this educational stage.

KEYWORDS:

Vocational Education and Training, Dropout, Teacher's Self-Efficacy, Years of experience, Instructional VET Level

1. INTRODUCTION

One of the major current educational challenges in the European Union is the prevention of early leaving of education and training (ELET), as it limits the socioeconomic opportunities of young people. It is one of the main risk factors for inactivity, unemployment, job insecurity, poverty, and social exclusion (European Union Council, 2021; Verd et al., 2019).

The Spanish education system is characterised by high ELET rates and the polarisation of the educational level of the population. In relation to ELET, although this indicator has fallen significantly in recent years, specifically since the outbreak of the pandemic, Spain continues to show the highest rates in comparison with the average for European Union countries, standing at 16% in 2020 compared to 9.9% for the EU average (Eurostat, 2021a). In turn, this indicator shows a high interregional vari-

ation, with the Balearic Islands (the region where this study is carried out) being one of the Spanish regions with the highest ELET rates, standing at 21.3% (Ministry of Education and Vocational Training, 2021), far from the 9% set by the European strategic framework for education and training 2030 (European Union Council, 2021).

In addition, the educational level of the Spanish population is strongly polarised, characterised by a higher number of people with a low level of education (ISCED 0-2*: 37.1% compared to 17.1% in the EU), a lower number of individuals with an intermediate level of education (ISCED 3-4: 23.2% compared to 46% in the EU) and a relatively high number of people with a high level of education (ISCED 5-8: 39.7% compared to 37.6% in the EU) (OECD, 2021). Educational attainment has a huge impact on youth school-to-work transitions and on the characteristics of future labour and personal pathways. More specifically, young people with low levels of education show higher levels of unemployment and poorer working conditions. In 2020, the youth unemployment rate stood at 29.2% and 40.4% for those with a low level of education (Eurostat, 2021b). Moreover, a recent study carried out in Spain on youth education and training transitions concluded that 58.1% of dropout students have a salary lower than 1000 euros, 67.7% work in low-skilled occupations

* The International Standard Classification of Education adopted by UNESCO (2012) as a standard framework used to categorise and report cross-nationally comparable education statistics (ISCED-2012). The different levels are: ISCED 0 (Early Childhood Education); ISCED 1 (Primary Education), ISCED 2 (Lower Secondary Education), ISCED 3 (Upper Secondary Education), ISCED 4 (Post-secondary nontertiary education); ISCED 5 (Short cycle tertiary education): ISCED 6 (Bachelor); and ISCED 7 (Master) and ISCED 8 (Doctoral).

and 48.4% have temporary jobs (National Institute of Statistics, 2020).

In this context, a recent study by European Centre for the Development of Vocational Training [Cedefop] (2020b) concludes that over the next decade, 50% of job opportunities will be reserved for people with intermediate qualifications (intermediate and higher vocational education and training), and only 16% of jobs will require a low level of qualification. Therefore, vocational education and training (VET) has a strategic role in preventing dropout, reducing youth unemployment, and improving youth labour market insertion processes (Cedefop, 2016; 2020a; Marhuenda-Fluixà, 2019).

The Spanish VET system is organised into three levels: basic VET (BVET), intermediate VET (IVET), and higher VET (HVET) (all levels have a duration of two academic years). BVET is a vocational option established in Spain in 2014–2015 and is geared towards students who have not completed compulsory secondary education (ISCED 2) and are at risk of leaving education; it seeks to reduce ELET and ensure that youth remain in the educational system. Those who attend BVET start this training at the age of 14 and, in the end, receive a VET Level 1 credential that enables students to continue in IVET. However, IVET begins after the end of compulsory education (at the age of 16) and, once completed, allows access to a higher level of VET.

Nonetheless, despite efforts to bolster VET in Spain, vocational training is characterised by low participation and high dropout rates. In this sense, Spanish students show a clear preference for academic studies over vocational studies; only 36.3% are enrolled in VET programs compared to 67% in *Bachiller-*

ato (post-compulsory education: academic track). More specifically, in the 2018–2019 academic year, net enrolment rates stood at 8.1% in BVET, 28.3% in IVET, and 29% in HVET (Ministry of Education and Vocational Training, 2021). In addition, it is estimated that more than half of the students leave this training without the corresponding qualification (Martínez-Morales & Marhuenda-Fluixà, 2020; Salvà-Mut et al. 2020). A study carried out in the Balearic Islands concluded that the dropout rate in BVET is 54.6% and 43.9% in IVET (Cerdà-Navarro et al., 2019; Salvà-Mut, 2018).

In this sense, specifically in VET, the influence of previous negative educational experiences, particularly in compulsory secondary education, has been shown to increase the probability of dropout (Nielsen & Tanggaard, 2015; Niittylahti, et al., 2019). Thus, some students may arrive at VET with advanced disengagement processes and a greater disinterest in studies, a perception that the education system is not adapted to their needs, a sense of failure, and less confidence in their possibilities (Elffers, 2012). Van Houtte and Demanet (2015) conclude that the intention to drop out of vocational training is determined by students' feelings of uselessness and failure, with variables traditionally related to dropout such as gender, cultural origin or academic background not being determinant. In this way, the teachers' confidence in the students' abilities and the positive expectations regarding their potential become a fundamental factor in reducing the feeling of failure and are configured as an element of influence on the perseverance of students in this educational stage.

For all of the above reasons, we consider it essential to conduct an in-depth exploration of the variables that influence the

prevention of dropout in VET. Therefore, this study is focused on the role of teachers and teaching styles, considering the contributions of self-determination theory (Ryan & Deci, 2017). For this purpose, BVET and IVET teachers' self-efficacy beliefs (Tschannen-Moran & Woolfolk Hoy, 2001) and the influence of years of professional experience and instructional level in this construct are analysed.

2. THEORY AND METHODS

2.1 THEORY

Numerous studies on student engagement point to the importance of the teaching role and student-teacher engagement in preventing students from dropping out of school (Archambault et al., 2009; Cerdà-Navarro et al., 2019; Davis & Dupper, 2004; Fall & Roberts, 2012; Jang et al., 2010; Lessard et al., 2010; Whannell & Allen, 2011). In this sense, when students perceive a greater sense of closeness, support, help, and encouragement from teachers and when teachers have confidence in students' potential and abilities, feelings of belonging and school engagement increase (Eccles & Roeser, 2009; Nielsen & Tanggaard, 2015; Pinya et al., 2017; Tarabini et al., 2019; Van Houtte & Van Maele, 2012). Furthermore, teachers' teaching styles and pedagogical practices, understood as supporting student autonomy, providing an optimal teaching structure and a curriculum adapted to students' interests, positively influence students' increased autonomy and competence and are key elements for increasing school engagement and preventing dropout (Aelterman et al., 2019; Eccles & Roeser, 2009; Jang et al., 2010; Tarabini et al., 2019).

In this research, self-determination theory (SDT), developed by Ryan and Deci (2017), is the theoretical framework that considers the influence of teaching practices on teaching-learning processes, focusing on the types and sources of motivation and their impact on student behaviour. According to SDT, it is essential to consider teachers' perceptions of their professional autonomy, teaching competence and interpersonal skills as determinants not only of beliefs and intentions but also of teaching practice, establishing a direct relationship with the connection established with students (Deci & Ryan, 2000; Niemiec & Ryan, 2009; Van Uden et al., 2013). The SDT identifies two important dimensions concerning teachers' teaching styles: support for students' autonomy and the provision of structure in teaching. Both dimensions correlate positively and predict student behavioural engagement (Aelterman et al., 2019; Jang et al., 2010), enabling the satisfaction of students' basic psychological needs in terms of autonomy and competence (Sierens et al., 2009). At this point, it is necessary to highlight the research developed on the influence of teachers' self-efficacy beliefs on the teachers' degree of involvement, teaching practices, and, therefore, students' achievement and motivation.

According to Bandura (1997), self-efficacy refers to an individual's beliefs about his or her ability to act successfully. Self-efficacy is constructed based on four factors: successful management of experiences (understood as experience in overcoming obstacles through persevering efforts), vicarious experiences provided by social models (observing in the environment how other people with similar characteristics achieve success in similar activities); social persuasion (those who are verbally persuaded that they possess the necessary skills to master certain

activities are more likely to make a considerable and constant effort compared to those who doubt their abilities), and affective state (evaluating abilities based on their own psychological states).

In the educational context, teaching self-efficacy refers to teachers' beliefs in their abilities to organise and execute the actions required to perform a teaching task in a specific context (Tschannen-Moran et al., 1998). Scientific evidence has shown that self-efficacy beliefs influence teachers' efforts in developing classes and their ability to teach and facilitate learning processes (Tschannen-Moran & Johnson, 2011), consequently improving the quality of teaching and student achievement (Klassen & Chiu, 2011). Accordingly, teachers with a high level of self-efficacy plan and organise lessons more effectively (Milner, 2002), are better able to create an appropriate learning environment (Pas et al., 2012) and are more open to using innovative pedagogical methods to promote students' autonomy (Berger & Girardet, 2016). Moreover, studies demonstrate that teachers are more persistent in difficult situations, show a greater understanding of students with more difficulties (Pressley et al.; 2018; Tschannen-Moran et al., 1998) and have higher expectations of students' academic achievement (Fackler & Malmberg, 2016).

One of the variables studied for its influence on teachers' self-efficacy is the instructional level of teaching. In the case of nonvocational education (both compulsory and postcompulsory), studies suggest that this belief is stronger at lower levels of education (Guskey, 1987; Ross, 1992; Wolters & Daughtery, 2007), although this is controversial. Other studies have shown that this belief is stronger in secondary school teachers (Raudenbush et al., 1992), and some more current studies have found no

significant differences in levels of self-efficacy as a function of academic level (Presley & Ha, 2021).

Another variable extensively studied for its implications regarding the level of teacher's self-efficacy is the number of years of teaching experience. Although Bandura (1997) argued that self-efficacy remained stable once professional stability was achieved, some studies have analysed the influence of years of teaching experience on self-efficacy beliefs in different contexts and educational stages, obtaining divergent results.

In this sense, various studies have shown that teachers' self-efficacy beliefs increase as professional experience rises and remains stable once professional stability is acquired, as teachers have gained more successful management experiences over the years (Tschannen-Moran & Woolfolk Hoy, 2007; Wolters & Daugherty, 2007). Moreover, other studies have demonstrated that teachers' self-efficacy gradually decreases throughout their professional career: Klassen and Chiu (2010) argued the influence of years of teaching experience on teachers' self-efficacy is a nonlinear relationship, increasing as more years of teaching experience are attained but decreasing in the last professional stage. Furthermore, Covarrubias and Mendoza-Lira (2015) concluded that the highest level of self-efficacy is between 6 and 10 years of professional experience, decreasing in the later stages.

Despite the differences in these findings, a common conclusion of all mentioned research is that self-efficacy belief is not a fixed construct, although it may fluctuate throughout a teacher's professional career and may be influenced by environmental or individual variables. In this sense, promoting an optimal climate in the school and a good relationship and communication between teachers (Siciliano, 2016), receiving practical

and meaningful training courses (del Río et al., 2011; Fernández-Arata, 2008; Woolfolk Hoy & Burke Spero, 2005), being supported by school management through coaching or mentoring (O'Connor & Korr, 1996; Ross & Bruce, 2007) and having opportunities for professional development (Fackler & Malmberg, 2016) are factors that have been found to have a positive influence on increasing teachers' self-efficacy beliefs.

Finally, it is necessary to point out that none of the previous studies has been carried out in the framework of VET but rather in other educational contexts. Therefore, it is considered necessary for dropout prevention to analyse this construct and its relationship with academic level and professional experience in the framework of VET education. Nevertheless, it is also important to highlight that in previous studies, teachers' self-efficacy beliefs are studied overall as well as in relation to the three subscales that make up this construct: instructional strategies, classroom management, and student engagement. However, in this study, the analysis of this belief is considered in generic terms, even considering the limitations that may be derived in comparison with these studies.

2.2. METHOD

This study assesses whether self-efficacy among VET teachers is associated with variables such as the VET instructional level (BVET and IVET) and years of teaching experience. It is a descriptive study that aims to explore teachers' practices as a means of dropout prevention. The instrument used was the questionnaire. The first part collected demographic information about teachers, academic level, years of teaching experience,

instructional VET level of teaching, and lifelong learning or student academic achievement. To measure teacher self-efficacy, the Teachers Self-Efficacy Scale was used (Tschannen-Moran & Woolfolk Hoy, 2001). This scale measures the beliefs that teachers hold about their capability to influence student learning by performing certain actions related to three domains of self-efficacy: student engagement (8 items), instructional strategies (8 items) and classroom management (8 items), according to a Likert-type scale, where 1 means "not at all able" and 9 means "fully able". Sample questions include "How well are you able to communicate with the most troubled students?", "At what level are you able to establish routines so that the activities are carried out in an agile and uncomplicated way?" or "To what extent are you able to react in front of students who have a defiant attitude?" The questionnaire reliability and validity values are α=0,94 for the overall TSE and α=0,87, α=0,91 and α=0,90 for its scale, respectively.

The fieldwork was carried out online and via email with VET schools in the Balearic Islands (Spain) during the first semester of 2021, resulting in a total of 287 surveys. It is a representative sample of the region with a confidence margin of 90% and a sampling error of 5%. Of the initial 287 participants, after a revision and exclusion process, a final sample of 260 VET teachers was established for this study: 97 are BVET teachers, and 163 are IVET teachers. Among the professional fields, 47% of VET teachers developed their teaching practice in Administration and Management, Computer Science and Communications and Hospitality and Tourism; that is, these three fields are the most representative of VET in the Balearic Islands. They represent almost 45% of the sample in the case of BVET and 48% in the case of IVET.

To establish associations between teachers' self-efficacy and the variables under study, the statistical analysis focused on the comparison of means obtained by applying a t test and ANOVA. The VET instructional level was divided according to the Spanish VET system: basic VET (BVET) and intermediate VET (IVET). Teaching experience was measured according to years of teaching. In Spain, the average length of a professional teaching career is 30 years. Therefore, following previous studies (Wolters and Daugherty, 2007) and this pattern, it was considered a novice group with less than one year of teaching experience (Group 1, ≤ 1), an intermediate group in the middle of their professional career (2–15 years) and a third group in the last stages of the profession (>16 years).

3. RESULTS

The average teacher's self-efficacy for the sample suggests that teachers have a relatively high belief in their efficacy, as the mean score for this value is 7,09 (SD=0,75). This perception is also demonstrated according to the VET instructional level and years of experience, with mean scores of approximately 7 points (Table 1). However, teachers with less than one year of teaching experience have the lowest self-efficacy beliefs (M=6,78, SD=0,153).

		N	M	SD
Overall		260	7,09	0,75
VET level	**BVET**	97	7,07	0,76
	IVET	163	7,11	0,75
Years of experience	**1 (≤1y)**	24	6,78	0,153
	2 (2-15y)	152	7,04	0,062
	3 (>16 y)	84	7,29	0,091

Table 1. Teachers' self-efficacy descriptive statistics

3.1. SELF-EFFICACY AND VET INSTRUCTIONAL LEVEL

When comparing teachers' self-efficacy based on the VET instructional level, the results indicate that BVET teachers have a slightly lower level of self-efficacy (M=7,07, SD=0,76) than IVET teachers (M=7,11, SD=0,75). However, the results indicate no significant differences in teachers' self-efficacy (t=-0,609, p=0,988) based on the VET type (Table 2).

VET level	N	M	SD	t	DF	Sig.
BVET	97	7,07	0,76	-0,609	259	0,988
IVET	163	7,11	0,75			

Table 2. Values from the t test for the relationship between self-efficacy and VET instructional level

3.2. SELF-EFFICACY AND YEARS OF TEACHING EXPERIENCE

The analysis of the relationship between teachers' self-efficacy and years of experience demonstrates that there are significant

differences in the three experience groups at the significance levels considered (Table 3 and Table 4). The results demonstrate that teachers with 1 or fewer years of experience have lower self-efficacy beliefs (Group 1, M=6,78) than those who have more than 16 years of teaching experience (Group 3, M=7,29), and teachers with between 2 and 5 years of teaching experience (Group 2, M=7,04) have lower self-efficacy than Group 3 teachers. According to the mean scores for each group, it can be stated that self-efficacy beliefs among teachers increase along with the development of their professional careers.

Years of Teaching Exp.	N	M	DF	F	Sig.
1 (≤1y)	24	6,78			
2 (2–15y)	152	7,04	2	4,714	0.010*
3 (>16 y)	84	7,29			

Table 3. Values from the ANOVA test for the relationship between self-efficacy and years of teaching experience

Years of Experience (I)	Years of Experience (J)	Mean differences	SE	Sig.
1 (≤1y)	2 (2–15y)	-0,254	0,165	0,373
	3 (>16 y)	-0,504	0,178	0,015**
2 (2–15y)	1 (≤1y)	0,254	0,165	0,373
	3 (>16 y)	-0,251	0,110	0,072*
3 (>16 y)	1 (≤1y)	0,504	0,178	0,015**
	2 (2–15y)	0,251	0,110	0,072*

Note: ***Significant to α=0,01 ** significant to α=0,05 * significant to α=0,1

Table 4. Values from the Bonferroni test for the relationship between self-efficacy and years of teaching experience

3.3. SELF-EFFICACY, VET INSTRUCTIONAL LEVEL AND YEARS OF EXPERIENCE

It was analysed whether teachers' years of experience as a function of VET instructional level influence self-efficacy beliefs (see Table 5 for descriptive statistics). Significant differences were found in some groups. The results demonstrate that BVET teachers who have more than 16 years of teaching experience (Group 3, M=7,29) have better self-efficacy beliefs than those with 1 or fewer years of experience (Group 1, M=6,66). Regarding IVET teachers, this difference was found among teachers with more than 16 years of experience (Group 3, M=7,29) and between 2 and 15 years of teaching experience (Group 2, M=7,02).

		M	SD
BVET	1 (≤1y)	6,66	0,216
	2 (2–15y)	7,06	0,095
	3 (>16 y)	7,29	0,156
IVET	1 (≤1y)	6,95	0,216
	2 (2–15y)	7,02	0,079
	3 (>16 y)	7,29	0,096

Table 5. Descriptive statistics for teachers' years of experience and VET instructional level

	Years of Experience (I)	Years of Experience (J)	Mean differences	SE	Sig.
BVET	1 (≤1y)	2 (2–15y)	-0,403	0,236	0,266
		3 (>16 y)	-0,635	0,266	0,054*
	2 (2–15y)	1 (≤1y)	0,403	0,236	0,266
		3 (>16 y)	-0,232	0,182	0,614
	3 (>16 y)	1 (≤1y)	0,635	0,266	0,054*
		2 (2–15y)	0,232	0,182	0,614
IVET	1 (≤1y)	2 (2–15y)	-0,105	0,230	1,000
		3 (>16 y)	-0,374	0,236	0,342
	2 (2–15y)	1 (≤1y)	0,105	0,230	1,000
		3 (>16 y)	-0,269	0,124	0,092*
	3 (>16 y)	1 (≤1y)	0,374	0,236	0,342
		2 (2–15y)	0,269	0,124	0,092*

Note: ***Significant to α=0,01 ** significant to α=0,05 * significant to α=0,1

Table 6. Values from the Bonferroni test for the relationship between self-efficacy, years of teacher experience and VET instructional level

4. DISCUSSION

The aim of this study was to determine the self-efficacy beliefs of VET teachers, as well as the relationship that may exist between self-efficacy and certain variables, such as the VET instructional level at which they teach and the years of teaching experience. The results obtained show that VET teachers have a fairly high sense of self-efficacy. It could be argued that these teachers feel confident in their classroom management, and, therefore, their learning styles may be positively influenced by this. Comparatively, previous studies on teachers' perceived self-efficacy in primary and secondary education show very similar values for

self-efficacy as in our research (Klassen & Chu, 2010; Wolters & Daugherty, 2007).

Concerning the analysis of the differences in self-efficacy beliefs depending on the VET instructional, our study has shown that there is no difference between BVET and IVET levels. This may be because teachers at both levels face the same situations in the classroom, regardless of the level of VET education. It could also be argued that any differences that might have existed have been reduced by the effect of COVID-19, equalising the difficulties that teachers face in the classroom, conditioning this belief of self-efficacy, as has been shown in a study on the impact of the pandemic on teachers' self-efficacy (Pressley & Ha, 2021).

One of the variables for which a positive association has been identified is the years of teaching experience. This research shows that as the number of years of teaching experience increases, self-efficacy beliefs also increase. Previous studies have identified similar results (Hoy & Woolfolk, 1993; Tschannen-Moran & Hoy, 2007; Wolters & Daugherty, 2007). However, it cannot be claimed that this is a common and generalised pattern, as other studies point to a nonlinear relationship on this efficacy, but rather that there is a decrease in self-efficacy beliefs in the later years of a professional teaching career (Covarrubias & Mendoza-Lira, 2015; Klassen & Chu, 2010). In any case, these results do not confirm the findings of Bandura (1997), who stated that teacher self-efficacy remains stable once it has been achieved.

In this sense, neither is it possible to affirm the existence of a clear pattern of teaching experience as a function of the VET instructional level of teaching. In this study, significant differences are identified that show higher levels of self-efficacy as a

function of years of experience for each VET instructional level, but this does not occur uniformly according to the different age groups of teaching experience.

5. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

In a context characterised by low participation in and high dropout rates from vocational and educational training, it is important to explore in-depth the factors that improve the quality of the teaching-learning process, increase student motivation towards training and, therefore, prevent dropout.

Scientific evidence has shown that the role of teachers is fundamental since an educational response adapted to the different learning styles of students and the establishment of a positive relationship with students leads to greater student confidence in their abilities and potential and an increase in their motivation towards learning (Nielsen & Tanggaard, 2015). In addition, strong self-efficacy beliefs among teachers influences the effort they make in organising classes and their ability to teach and facilitate learning processes (Tschannen-Moran & Johnson, 2011), increasing both motivation and student achievement (Klassen & Chiu, 2011).

The results of the research presented here show that the level of self-efficacy of VET teachers, in the specific case of the Balearic Islands, is relatively high and is specifically influenced by the number of years of teaching experience. However, this finding needs to be analysed in greater depth, identifying those teaching practices and teaching styles associated with a high belief of self-efficacy and, on the other hand, establishing the resources needed to promote and generalise its application.

In this sense, developing effective teaching styles and pedagogical practices for the prevention of dropout requires teachers' support from the education administration, for example, by providing meaningful teacher training (Woolfolk Hoy & Burke Spero, 2005), opportunities for professional development (Fackler & Malmberg, 2016), support for teachers, especially through coaching or mentoring (O'Connor & Korr, 1996; Ross & Bruce, 2007), educational environments that promote teacher well-being and enhance teachers' optimal interpersonal relationships (Siciliano, 2016); and strategies that have been demonstrated to increase teacher self-efficacy.

In accordance with these recommendations, the project *Teaching Practices & Early Leaving from Vocational Education and Training: An Empirical Approach & Intervention* (PID2019-108342RB-I00), whose initial results are presented in this chapter, aims to identify and analyse those educational practices and teaching styles that positively influence student achievement, with the main objective of transferring and generalising their application in VET.

To this end, the project is structured into two phases of development. The first phase aims to identify the pedagogical practices and teaching styles of teachers that are positively correlated with student achievement. First, two standardised questionnaires were administered to teachers: Teachers' Sense of Efficacy Scale-TSE (Tschannen-Moran & Hoy, 2001) and the Situations in School Instrument (SIS) to analyse teaching styles (Aelterman et al., 2019). Second, on the basis of the results obtained, focus groups were held with teachers, students, education experts and stakeholders to identify pedagogical practices and teaching styles that promote student motivation and, there-

fore, improve students' educational achievement. In a second phase, the implementation of these successful educational practices in two schools is planned by monitoring, evaluating and collecting evidence of the whole process by conducting focus groups with students and interviews with teachers. The ultimate aim of this phase is to cocreate a catalogue of successful tools and educational practices for their transfer and application in continuous teacher training.

ACKNOWLEDGEMENT

The project PID2019-108342RB-I00 is founded by MCIN/AEI/10.13039/501100011033

REFERENCES

Aelterman, N., Vansteenkiste, M., Haerens, L., Soenens, B., Fontaine, J. R., & Reeve, J. (2019). Toward an integrative and fine-grained insight in motivating and demotivating teaching styles: The merits of a circumplex approach. *Journal of Educational Psychology, 111*(3), 497-521.

Archambault, I., Janosz, M., Morizot, J., & Pagani, L. (2009). Adolescent behavioral, affective, and cognitive engagement in school: Relationship to dropout. *Journal of school Health, 79*(9), 408-415.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Berger, J.L., & Girardet, C. (2016). Les croyances des enseignants sur la gestion de la classe et la promotion de l'engagement des élèves: articulations aux pratiques enseignantes et évolution par la formation pédagogique. *Revue française de pédagogie, 196,* 129-154.

Cedefop. (2016). *Leaving education early: putting vocational education and training centre stage. Volume I: investigating causes and extent.* Publications Office of the European Union. http://dx.doi.org/10.2801/893397.

Cedefop. (2020a). *On the Way to 2020: Data for Vocational Education and Training Policies. Indicator Overviews: 2019 Update*. Publications Office of the European Union. https://doi.org/10.2801/62708.

Cedefop. (2020b). Vocational Education and Training in Europe, 1995-2035: Scenarios for European Vocational Education and Training in the 21st Cen-

tury. No 114 Publications Office of the European Union. Cedefop reference series. https://doi.org/10.2801/794471.
Cerdà-Navarro, A., Salva-Mut, F., & Comas-Forgas, R. (2019). A Typology of Students in Intermediate Vocational Education and Training Programs based on Student Engagement Factors, Sociodemographic Characteristics and Intentions of Dropping out. European *Journal of Education, 54*(4), 635-650. https://doi.org/10.1111/ejed.12361
Covarrubias, C. G., & Mendoza Lira, M. (2015). Sentimiento de autoeficacia en una muestra de profesores chilenos desde las perspectivas de género y experiencia. *Estudios pedagógicos (Valdivia)*, *41*(1), 63-78.
Davis, K. S., & Dupper, D. R. (2004). Student-teacher relationships: An overlooked factor in school dropout. *Journal of human behavior in the social environment, 9*(1-2), 179-193.
Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268.
del Río, M. F., Lagos, C., & Walker, H. (2011). El efecto de las experiencias de práctica en el desarrollo del sentido de autoeficacia en la formación inicial de educadoras de párvulos. *Estudios pedagógicos (Valdivia)*, *37*(1), 149-166.
Eccles, J. S., & Roeser, R. W. (2009). Schools, academic motivation, and stage-environment fit. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Individual bases of adolescent development* (pp. 404–434). John Wiley & Sons Inc. https://doi.org/10.1002/9780470479193.adlpsy001013
Elffers, L. (2012). One foot out the school door? Interpreting the risk for dropout upon the transition to post-secondary vocational education. *British Journal of Sociology of Education, 33*(1), 41-61. https://doi.org/10.1080/01425692.2012.632866
European Union Council (2021). Council Resolution (2021/C 66/01) on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030). Official Journal of the European Union, 26-11-2021. https://bit.ly/3f1Cpfs
Eurostat (2021a). *Database. Early leavers from education and training by sex*. https://ec.europa.eu/eurostat/databrowser/view/sdg_04_10/default/table?lang=en
Eurostat (2021b). *Database. Youth unemployment by sex, age and educational attainment level.* https://ec.europa.eu/eurostat/databrowser/view/YTH_EMPL_090__custom_2563357/default/table?lang=en
Fackler, S., & Malmberg, L. E. (2016). Teachers' self-efficacy in 14 OECD countries: Teacher, student group, school and leadership effects. *Teaching and Teacher Education, 56*, 185-195. https://doi.org/10.1016/j.tate.2016.03.002.
Fall, A. M., & Roberts, G. (2012). High school dropouts: Interactions between social context, self-perceptions, school engagement, and student dropout. *Journal of adolescence, 35*(4), 787-798.

Fernández-Arata, J. M. (2008). Desempeño docente y su relación con orientación a la meta, estrategias de aprendizaje y autoeficacia: un estudio con maestros de primaria de Lima, Perú. *Universitas Psychologica*, *7*(2), 385-401.
Guskey, T. R. (1987). Context variables that affect measures of teacher efficacy. *Journal of Educational Research, 81*, 41–47.
Hoy, W. K., & Woolfolk, A. E. (1993). Teachers' sense of efficacy and the organizational health of schools. *The Elementary School Journal, 93*(4), 355e372. https:// doi.org/10.1086/461729
Jang, H., Deci, E.L., & Reeve, J. (2010). Engaging Students in Learning Activities: It Is Not Autonomy Support or Structure but Autonomy Support and Structure. *Journal of Educational Psychology, 102*(3), 588-600.
Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741–756. https://doi.org/10.1037/a0019237
Klassen, R. M., & Chiu, M. M. (2011). The occupational commitment and intention to quit of practicing and pre-service teachers: Influence of self-efficacy, job stress, and teaching context. *Contemporary Educational Psychology*, *36*(2), 114-129.
Lessard, A., Poirier, M., & Fortin, L. (2010). Student-teacher relationship: A protective factor against school dropout?. *Procedia-Social and Behavioral Sciences, 2*(2), 1636-1643.
Marhuenda-Fluixá, F. (Ed.). (2019). *The School-Based Vocational Education and Training System in Spain: Achievements and Controversies (Vol. 32)*. Springer. https://doi.org/10.1007/978-981-13-8475-2.
Martínez-Morales, I., & Marhuenda-Fluixà, F. (2020). Vocational Education and training in Spain: steady improvement and increasing value. *Journal of Vocational Education and Training, 72*(2), 209-227. https://doi.org/10.1080/13636820.2020.1729840
Milner, R. (2002). Affective and Social Issues among High Achieving African American Students: Recommendations for Teachers and Teacher Education. *Action in Teacher Education, 24*, 81-89.
Ministry of Education and Vocational Training (2021). Sistema estatal de indicadores de la educación 2021. https://www.educacionyfp.gob.es/dam/jcr:98edb864-c713-4d48-a842-f87464dc8aee/seie-2021.pdf
National Institute of Statistics (2020). Survey on Education-Training transition and Labour Insertion. 2019. https://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736056996&menu=ultiDatos&idp=1254735573113
Nielsen, K., & Tanggaard, L. (2015) Dropping out and a crisis of trust. *Nordic Psychology, 67*(2), 154-167. http://dx.doi.org/10.1080/19012276.2015.1028763
Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and research in Education*, *7*(2), 133-144.

Niittylahti, S., Annala, J., & Mäkinen, M. (2019). Student engagement at the beginning of vocational studies. *Nordic Journal of Vocational Education & Training, 9*(1), 21-42.

O'Connor, R., & Korr, W. S. (1996). A model for school social work facilitation of teacher self-efficacy and empowerment. *Children and Schools, 18*(1), 45e51. https://doi.org/10.1093/cs/18.1.45

OECD (2021). *Education at a Glance 2021: OECD Indicators*. OECD Publishing. https://doi.org/10.1787/b35a14e5-en.

Pinya, C., Pomar, M. I., & Salvà-Mut, F. (2017). Prevenir el abandono educativo en la educación secundaria profesional: Aportaciones del alumnado y del profesorado. *Profesorado, Revista de Currículum y Formación del Profesorado, 21*(4), 95-117.

Pressley, T., & Ha, C. (2021). Teaching during a Pandemic: United States Teachers' Self-Efficacy During COVID-19. *Teaching and Teacher Education, 106*, 103465.

Pressley, T., Roehrig, A. D., & Turner, J. E. (2018). Elementary teachers' perceptions of a reformed teacher evaluation system. *The Teacher Educator, 53*(1), 21-43. https://doi.org/10.1080/08878730.2017.1391362

Raudenbush, S., Rown, B., & Cheong, Y. (1992). Contextual effects on the self-perceived efficacy of high school teachers. *Sociology of Education*, 65, 150–167.

Ross, J. A. (1992). Teacher efficacy and the effect of coaching on student achievement. *Canadian Journal of Education*, 17, 51–65.

Ross, J., & Bruce, C. (2007). Professional development effects on teacher efficacy: Results of randomized field trial. *Journal of Educational Research, 101*(1), 50e60. https://doi.org/10.3200/JOER.101.1.50-60

Ryan, R.M., & Deci, E.L. (2017). *Self-Determination Theory: Basic psychologycal needs in motivation, development and wellnes (1st ed).* Guilford Press.

Salvà-Mut, F. (2018, December 13-14). *Acompañar la transición entre la educación secundaria obligatoria y la formación profesional: la perspectiva de la investigación*. [Conference]. I International Seminar Continuar formándose después de los 16: los programas de apoyo a la transición entre la educación secundaria obligatoria y la formación profesional, Palma, Spain.

Salvà-Mut, F., Ruiz-Pérez, M., Psifidou, I., & Oliver-Trobat, M. F. (2020). Formación profesional de grado medio y abandono temprano de la educación y la formación en España: una aproximación territorial. *Bordón. Revista de Pedagogía, 72*(4), 95-116. https://doi.org/10.13042/Bordon.2020.76826

Siciliano, M. D. (2016). It's the quality not the quantity of ties that matters: Social networks and self-efficacy beliefs. *American Educational Research Journal*, *53*(2), 227-262. https://doi.org/10.3102/0002831216629207

Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, *79*(1), 57-68.

Tarabini, A.; Curran, M.; Montes, A., & Parcerisa, Ll. (2019). Can educational engagement prevent Early School Leaving? Unpacking the school's effect on educational success. *Educational Studies, 45*(2), 226-241. https://doi.org/10.1080/03055698.2018.1446327

Tschannen-Moran, M., & Johnson, D. (2011). Exploring literacy teachers' self-efficacy beliefs: Potential sources at play. *Teaching and Teacher Education*, *27*(4), 751-761.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education, 23*, 944–956.

Tschannen-Moran, M., & Woolfolk Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and teacher education, 17*(7), 783-805.

Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*, 202–248.

UNESCO *Institute for Statistics. (2012). International standard classification of education: ISCED 2011*. UNESCO Institute for Statistics.

Van Houtte, M., & Demanet, J. (2015). Vocational students' intention to drop out in Flanders: the role of teacher beliefs. *Profesorado, Revista de Currículum y Formación del Profesorado, 19*(3), 178-194.

Van Houtte, M., & Van Maele, D. (2012). Students' sense of belonging in technical/vocational schools versus academic schools: The mediating role of faculty trust in students. *Teachers College Record, 114*(7), 1-36.

Van Uden, J. M., Ritzen, H., & Pieters, J. M. (2013). I think I can engage my students. Teachers' perceptions of student engagement and their beliefs about being a teacher. *Teaching and Teacher Education*, *32*, 43-54.

Verd, J. M., Barranco, O., & Bolíbar, M. (2019). Youth unemployment and employment trajectories in Spain during the Great Recession: what are the determinants?. *Journal for Labour Market Research, 53*(1), 1-20. https://doi.org/10.1186/s12651-019-0254-3.

Whannell, R., & Allen, W. (2011). High School Dropouts Returning to Study: The Influence of the Teacher and Family during Secondary School. *Australian journal of teacher education, 36*(9), 22-35.

Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy: Their relation and association to teaching experience and academic level. *Journal of Educational Psychology, 99,* 181–193.

Woolfolk Hoy, A., & Burke Spero, R. (2005) Changes in Teacher Efficacy during the Early Years of Teaching: A Comparison of Four Measures. *Teaching and Teacher Education, 21*, 343-356. http://dx.doi.org/10.1016/j.tate.2005.01.007

Observe-ask-analyze. TAG-MA, a new condition-related job analysis method to describe the work of VET teachers

Lea Besser*
Martin-Luther-University Halle-Wittenberg
Institute for Psychology
06099 Halle (Saale)
E-Mail: lea.besser@psych.uni-halle.de

Anne Traum
University of Rostock
Institute for Vocational education
August-Bebel-Straße 28, 18055, Rostock, Germany
E-Mail: anne.traum@uni-rostock.de

Franz Kaiser
University of Rostock
Institute for Vocational education
August-Bebel-Straße 28, 18055, Rostock, Germany
E-Mail: franz.kaiser@uni-rostock.de

Renate Rau
Martin-Luther-University Halle-Wittenberg
Institute for Psychology
06099 Halle (Saale)
E-Mail: renate.rau@psych.uni-halle.de

* Corresponding author

ABSTRACT:

Vocational education and training (VET) have been suffering from a shortage of teachers for years (Kalisch & Kaiser, 2019; OECD, 2021). Therefore, the question of how the qualification of VET teachers and their working conditions, as well as work attractiveness, can be improved comes into focus of politics and research. To answer this question, 21 teachers were observed and interviewed in a structured way based on content-based regular scales in vocational schools in Mecklenburg-West Pomerania, Germany (The research project "Campus BWP MV" was founded by the Federal Ministry of Education and Research). The applied survey instrument TAG-MA by Rau, Schweden, Hoppe, and Hacker (2021) is based on the action regulation theory (Hacker, 1993; Hacker & Sachse, 2014). Different objective work characteristics, such as sequential task completeness, degrees of freedom and the level of cognitive requirements, are assessed by trained experts. The objective work analysis aims to the derivation of design suggestions for working conditions and facilitate personal development and provide learning opportunities for VET teachers. This paper will report on the procedure, the theoretical background and the results of the objective work analysis.

KEYWORDS:

VET teachers, objectively condition-related procedure, work analyses, action regulation theory

1. INTRODUCTION

Vocational education and training (VET) is a major factor influencing the location of the German economy and its supply of skilled workers. The predominantly dual system relies on workplace-centred learning in training companies and vocational schools (Brinkmann, Scholz, & Rischke, 2017). In addition to the training provider, the quality of VET teaching and the quality of VET teachers are of great importance for the quality of training (Kräenbring, 2011). However, the type of school "Vocational School" and here especially the industrial-technical specialisations have been suffering from a severe shortage of teachers for years (Brinkmann et al., 2017; Kalisch & Kaiser, 2019; OECD, 2021). This is due on the one hand to the age structure, especially the increasing retirement age, and on the other hand to the decreased interest in this profession and the resulting growing problems with young talent, which are reflected in the low numbers of students and graduates at universities (Kalisch & Kaiser, 2019). Furthermore, there are fluctuations in the profession of VET teachers in the first professional years. One reason for this fluctuation could be that young professionals do not meet their expectations of everyday working life. They may have no realistic job preview (Breaugh & Billings, 1988). That goes hand in hand with the existing and often discussed gap between theory and practice (Wildt, 2005). Although the tasks of VET teachers are roughly covered in school laws and other regulatory documents, there is little empirical knowledge about their working reality (Schnarr, 2011). As a result, prospective teachers may have misconceptions and are not adequately prepared for the challenges of everyday working life. Given these problems, the

aim of the joint project "Campus BWP MV" of the University of Rostock and the University of Applied Sciences Neubrandenburg is to improve teacher education in Mecklenburg-West Pomerania. Therefore, the actual challenges and required competencies of VET teaching have to be determined and presented transparently to facilitate the decision for or against studying (this is one of the aims of the sub-project of Campus BWP MV: "Individual").

Based on the educational goals described in the School Act, the "Standing Conference of the Ministers of Education and Cultural Affairs of the countries in the Federal State of Mecklenburg-West Pomerania" (KMK, 2004) has defined standards for teacher education and formulated a total of eleven competencies from the educational goals. These goals define requirements for teachers. Examples are: Competence 1 "Teachers plan lessons in a subject- and subject-related manner and carry them out in a subject- and subject-related manner." Competence 6: "Teachers find solutions to difficulties and conflicts in school and lessons." In addition, the competencies are underpinned by so-called standards for theoretical and practical training. These define learning objectives that teachers should be able to achieve in detail (knowledge, skills and practice). However, definitions that go beyond knowledge content are missing. A reason for this could be the lack of scientifically based work analyses. Their results could be used to derive competencies and competence profiles for VET teaching in a workplace-analytical-empirical way (Nerdinger, Blickle, & Schaper, 2019).

A fruitful theoretical background for analysing, describing and evaluating work content and work context is the action regulation theory (Leontjew, 1979; Hacker, 2003). This theory

names structural and functional characteristics of the mental regulation of actions that determine the preparation and execution of work tasks (Hacker & Sachse, 2014). According to the action regulation theory action is oriented towards a mentally anticipated result and deliberately regulated towards this goal. Therefore, the starting point of any action is the action goal. That means for work tasks the goals and sub-goals are to be derived from the work order. In other words: work orders are the starting point of work activities and therefore the basis of action regulation. The orientation of activity towards a goal controls both the preparation of an action as well as their execution. From the analysis of the work order and the actual work tasks on the one hand and of the work characteristics and conditions of execution on the other hand detailed statements about work design (content and context) and the resulting requirements for job incumbents can be extracted.

Based on action regulation theory the following question should be clarified by objective work analysis:

- What are the characteristics of the work content and the work context of vocational school teaching?

2. METHOD

2.1 SAMPLE

In total, objective work analyses were carried out for the activities of 21 VET teachers whereby participation was voluntary. The participants were distributed between the "Vocational School of the Hanseatic City of Rostock - Technology" (n = 9 [42.9%]) and the "Regional Vocational Training Centre of the Rostock District" (n = 12 [57.1%]). This means that both

a vocational school in a city and one in a rural area of the state of Mecklenburg-West Pomerania were included. The teachers were on average 49 years old (SD = 10.44; Min = 32; Max = 65). The gender distribution in this sample was heterogeneous (9 women [42.9%]; 12 men [57.1%]). On average, VET teachers had worked in their profession for 16 years (SD = 12.7) and had been employed at their current school for a mean of 15 years (SD = 12.6), of which a mean of 12 years (SD = 11.2) in their current position.

Most of the teachers taught in the fields of metal, ship and motor vehicle technology (n = 8 [38.1%]). Of the VET teachers, n = 5 [23.8%] taught in the subject areas of information technology and electrical engineering, agricultural economics (n = 4 [19%]), health and social work (n = 3 [14.3%]) and in the vocational training year (BVJ) (n = 1 [4.8%]). Eight teachers worked in a second field or held a management position.

2.2 MEASURING INSTRUMENTS

Work analysis should be based on objective environmental variables (work characteristics, division of labour between people, division of tasks between people and technology including digitalisation) measured with sources outside the job incumbent. Two different approaches are suitable for such work analyses (Spector, 1992), first the direct observation of working conditions, i.e. the work content and the work context including the observation of unanticipated events and unreported actions and second, the expert interviews on working conditions and success-critical behaviour (Oser, Curcio, & Düggeli, 2007). The main advantages of direct observations are that the resulting

data show a particular high ecological validity, everyday relevance and practical relevance (Fahrenberg, Myrtek, Pawlik, & Perrez, 2007). The prerequisite is that observation categories and, if possible, their anchoring in terms of content are defined in advance and the observers are trained accordingly (Voskuijl & van Sliedregt, 2002). Using both approaches in form of observational interviews, the workplaces of 21 participants were analysed with the objective-condition-related "Tool for Task Analyses and Job Design in Jobs with Mental Work Requirement" (Verfahren zur Tätigkeitsanalyse und -gestaltung bei mentalen Arbeitsanforderungen, TAG-MA) by Rau et al. (2021).

The instrument is based on action regulation theory and considered the work content including the required regulating mental processes and their structure as well as job context. It measures and specifies workloads independently of the experience and perception of the job incumbents (i.e. working method). In addition to the analysis of the work, the instrument allows the assessment of the job design in the entire range from work that is conducive to health and learning of job incumbents to potentially health impairing work design. For the latter, the TAG-MA instrument provides norm-oriented critical values. The basic instrument consists of 35 ordinal scales, in each of which individual levels are described (anchored) in terms of content. The lowest level of a scale means the worst design of work characteristic tested with the scale. The highest level means the best design of this work characteristic.

Scales of TAG-MA are organized in three areas:

Part A: work content and required cognitive performance

Part O: organisation and responsibility

Part L: extrinsic learning requirements and work intrinsic learning opportunities (for job incumbents).

Furthermore, two add-on modules of TAG-MA for analysing dialogue-interactive tasks (DIA scales) as well as work intensity (Z-AI-scales) were used. According to the Z-AI-scales, work intensity is described as a function of the required amount of work per available working time and the complexity of the requirement or the cognitive regulation level (Rau & Göllner, 2018). High work intensity always occurs when the conditions mentioned are incompatible (e.g. too little time for the quantity/performance to be achieved and/or too high level of regulation required in the performance of the task considering the available time and required performance).

2.3 PROCEDURE AND EVALUATION

As part of the work analysis with the TAG-MA procedure, the first step is to analyse documents for information on the organisation including the structure and formal regulations, the posts, the work order and their conditions of execution. Specifically, the school law of the state of Mecklenburg-West Pomerania, curricula, timetables, organisational descriptions of the individual schools as well as employment contracts were analysed. In addition, managers were interviewed about the organisation and processes within their schools. Afterwards, the analysis of the workplaces of each VET teacher took place. Since the analysis aimed at work characteristics and conditions of execution the teacher wasn't the research object, but the workplace and the circumstances like tasks, pauses, class size, and cooperation needs. For this purpose, 23 observation interviews were conducted at 21 workplaces, each over a typical school working day (around 8 hours) respectively in two cases, over two days, using the

TAG-MA instrument (including the above-mentioned additional modules for dialogue-interactive work and work intensity). Observation on two working days was always necessary if not all sub-tasks took place on one observation day.

In detail, seven job analysts rated the TAG-MA scales based on the observation of teachers during their work and their answers to questions regarding tasks and circumstances that weren't observable, e.g. "Apart from teaching and preparing, what are your usual work tasks?" All job analysts had professional experience in conducting such analyses. Before starting the job analyses in vocational schools, they were additionally trained in using the TAG-MA. To check the observational agreement, 10 of the 23 observation interviews were conducted by two observers at the same time, but independently of each other. The average agreement of the assessors was $\kappa = .53$, $p = .00$ (Min = .42; Max = .66; Cohen's Kappa κ can assume values between -1 and 1) according to Wirtz and Caspar (2002), the agreement values achieved can be rated as moderate to considerable.

The information in the survey forms was evaluated separately for the single sub-tasks (e.g. teaching) according to the rules specified in the classification forms of the TAG-MA and, considering the time proportion of the single sub-tasks, calculated into a scale value for the overall activity. The results were 21 work profiles and describable work characteristics. The assessment of the extent to which the work characteristics have the potential for health and promoting the learning of job incumbents or for risk of health impairment was carried out using the minimum profile shown in the TAG-MA. The minimum profile is based on inter- and nationally applicable standards, such as DIN EN ISO 6385 (2016), DIN EN ISO 10075-1 (2018), the Working Hours

Act (ArbZG, 1994) and the requirements of the "Joint German Occupational Health and Safety Strategy" (GDA, 2018).

3. RESULTS

3.1 DESCRIPTIVE RESULTS

The work of VET teachers consists of several sub-tasks (see Table 1), with the sub-task "teaching" taking up the largest share of time and the sub-task "preparation and follow-up of lessons" the second largest.

Table 1: Overview of the time shares of the sub-tasks in relation to the total activity (*n* = 21).

Sub-task	*N*	Share of time in the total activity in %.		
		%	Min %	Max %
Teaching	21	54.0	30.0	80.0
Preparation and follow-up	19	33.3	10.0	55.0
Audit Committee	8	13.9	2.0	35.0
Additional orders	8	12.0	5.0	25.0
Management activities	3	28.0	9.0	40.0
Problems of pupils	3	13.2	7.0	20.0

The evaluation of the job descriptions and dialogue-interactive scales showed that in the classroom, tasks have to be delegated (52.6%) and coordinated (60%), pupils have to be motivated (50%) and supported in their further development (80%). In addition, most teachers have the task of dealing with pupils from

different socio-cultural backgrounds (including migrant backgrounds, 70%), the task of multitasking (70%) and giving feedback (75%). Conducting feedback talks, and organising projects and events are common tasks of VET teachers in the field of health and social work. In 26.3% of the cases, the observers reported that teachers had to give tasks to students that were relevant for exams but not for the profession.

In addition, conflict discussions, such as disagreements or provocations, were recorded in 31.6 per cent of the analyses. All VET teachers have to pass on information, advise pupils and explain content during their teaching activities. The class size varies from one pupil (very rarely) to 32 pupils.

During preparation and follow-up, teachers design new assignments, plan lesson content, prepare and grade exams, check required materials, copy worksheets and prepare rooms and/or labs for lessons. In addition, class and course books are kept and verbal agreements are made with colleagues.

Teachers who are active in the examination board design examination questions in cooperation with other training providers (IHK, Chamber of Crafts, etc.) and examine the trainees in practice. Additional tasks such as working in the digitalisation advisory board or specialist conferences require close cooperation with other colleagues, intensive consultation and the development of solutions for various problems.

VET teachers with a management function, e.g. deputy head of school or head of department, have to carry out various coordinative and administrative tasks in addition to their teaching duties. These include budget planning, in-service training planning, drawing up timetables and substitution plans, and contact with training companies.

In addition to their teaching duties, some teachers are explicitly responsible for dealing with individual problems of pupils. This applies especially to teachers in vocational training year (BVJ) and school pastoral care.

3.2 RESULTS OF THE WORK ANALYSIS

The results of the work analysis are shown in figures 1 and 2 for the total activity of the VET teachers studied. The scales designate single work characteristics or the combination of several characteristics that make up a work characteristic, so-called sup scales. The scale values consider the percentage of time spent on the sub-tasks, such as teaching and preparation and follow-up. In the two figures, the minimum profile given by the TAG-MA is shown as a zero line. All work characteristics that: a) lie on and above the minimum profile (value at zero) in the area with a white background correspond to the norms, standards as well as legal provisions for occupational safety and health-compatible work design. However, they may still have design potential, i.e. further opportunities for improvement, especially if the ratings are at or only slightly above the minimum profile. In addition, scale values significantly above the minimum profile indicate that the work characteristics in question are potentially conducive to health and, in the case of certain scale combinations, also conducive to learning of job incumbents. The description of these work characteristics can be found in section 3.2.1. b) All scale values below the minimum profile (less than zero) in the grey-shaded area potentially indicate a risk of health impairment (strain). These work characteristics are presented and explained in section 3.2.2.

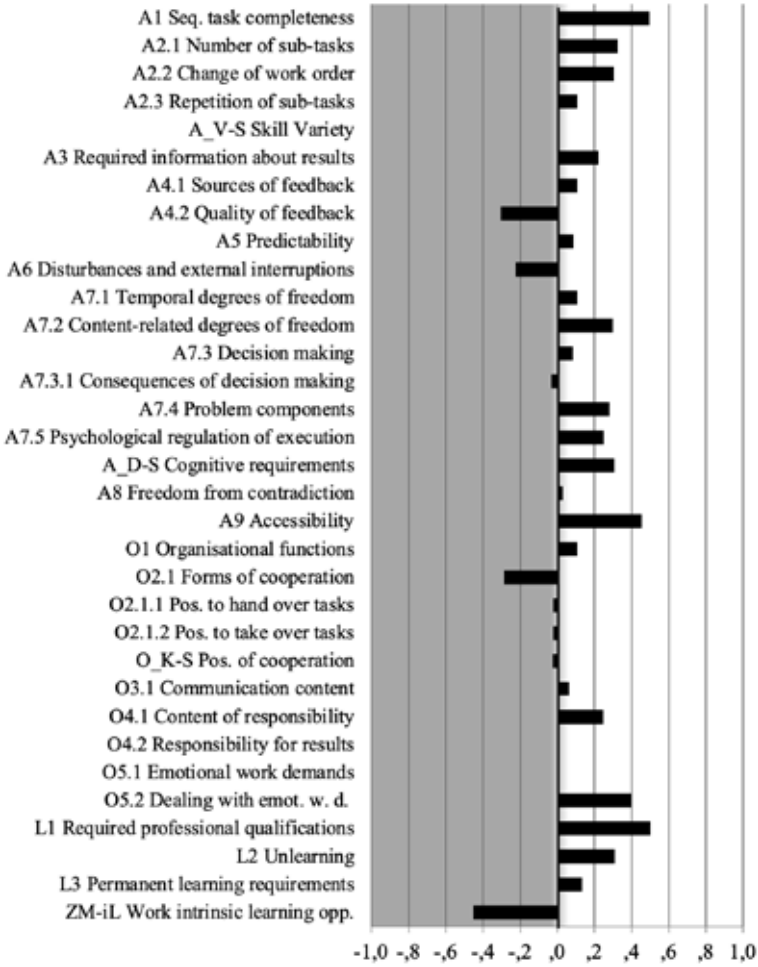


Figure 1. Representation of the work profile across all observed teachers by means of transformed scale values with a minimum profile on the zero line.

Legend:

Deviation below minimum profile (i.e. there is a risk for impairments and thus a need for design)

Deviation above minimum profile (impairment-free work possible; learning and health-promoting, if applicable) A_V-S, A_D-S, O_K-S, ZM-IL = sup scales.

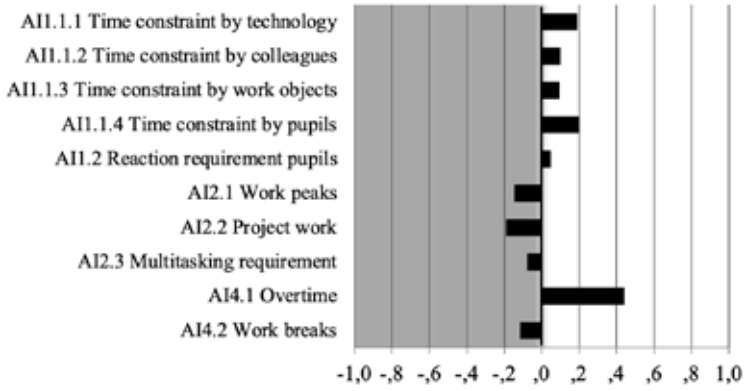


Figure 2. Results of the additional module on work intensity (Z-AI) across all work observations (transformed scale values, minimum profile on the zero line).

Legend: Deviation below minimum profile (i.e. there is a risk for impairments and thus a need for design)

Deviation above minimum profile (impairment-free work possible; learning and health-promoting, if applicable).

3.2.1 Scales at or above the minimum profile (design potential, if applicable)

1. *Sequential task completeness.* The results of the work analysis show that the work order of VET teachers consists of preparatory, organising, executing and controlling sub-activities and is therefore sequentially complete.
2. *Skill Variety.* Teachers have different teaching fields depending on the aimed qualification of pupils (e.g. pre-vocational classes, skilled worker classes, technical baccalaureate classes). Skill variation differs depending on these teaching fields. Thus, the work order of teachers in vocational prepa-

ration (BVJ) requires more often repetitive and less diverse work than the work orders of the other teaching fields. In addition, teachers who have to take on additional offices and assignments (e.g. digitisation advisory board) were found more often in demand of problem-solving thinking as well as higher quality opportunities to cooperate with others.

3. *Content-related degrees of freedom* and *Decision making.* The *degree of freedom in terms of the content* of the activity and *decision-making possibilities* vary depending on the thematic and creative specifications from the framework curriculum, examination content and training requirements in combination with the specifications in subject conferences and examination boards. On the one hand, there is the VET teachers' freedom to develop strategies for processing the work tasks (including set order of tasks, choosing means and ways of executing work order and defining results of the own work). On the other hand, it is VET teachers' common practice to orient themselves to the specifications of the intended examination and merely to use degrees of freedom in designing the sequence of processing steps.
4. *Temporal degrees of freedom.* The workplaces examined are characterized by teaching units of different lengths (45 and 90 minutes). Results show that a teaching time of 45 minutes means a limitation in the VET teachers' temporal degrees of freedom in comparison to a teaching time of 90 minutes. The limitation imposed by the 45-minute time constraint also leads to a reduction in the degrees of freedom in terms of content. Thus, the latitude for using different teaching methods is significantly higher within 90 minutes than within 45 minutes. Overall, however, only the

classification of the degrees of freedom in terms of time for 45-minute lessons falls slightly below the minimum profile, not the classification of the degrees of freedom in terms of content, which is above the minimum profile (not shown in figure 2). Overall, the 90-minute form of instruction predominated in the organization of schools we studied. The preparation and follow-up time can also be divided up by the VET teachers themselves over several days to the greatest possible extent.

5. *Time constraint by technology, colleagues* and *work objects*. No restriction by technology or availability of colleagues for the work of teachers could be found. The organization of schools we studied have adequate timetabling that takes this availability into account. There is a sufficient choice between different times or time windows for the performance of activities.
6. *Time constraint by pupils* and *Reaction requirements to pupils*. During the sub-task of teaching, it is usually necessary to react immediately to pupils' concerns. However, if there are more *pupil response requirements* than can be dealt with within working hours, there is no order that they have to be responded to. In other words: The observed VET teachers do not have to be available for pupils' requests outside of working hours (e.g. by phone or email).
7. *Accessibility*. VET teachers do not have to be available for work requirements outside their working hours. The shifting of preparatory and follow-up activities into the evening hours is a free decision. It partly reflects the degree of temporal freedom of this sub-task of the activity.
8. *Overtime*. The observed VET teachers work on average up to

three hours more per week than provided in their contract. Since this overtime is compensated financially or by time off, it can be assumed that overtime is well managed.

9. *Cognitive requirements.* The sequential task completeness and the variety of activities lead to a high cognitive demand level, which requires both rule-based judgements and problem-solving thinking as well as judgements of complex states and situations.
10. *Required information about results.* For their work, teachers mainly need information from their immediate teaching activities, but also information about the results of previous work steps and information about subsequent work steps. In addition, some teachers can work independently of other colleagues (e.g. general education subjects) and others are dependent on cooperative exchange and information from colleagues (e.g. cooperative learning field teaching).
11. *Required professional qualifications, Unlearning* and *Permanent learning requirements.* The learning scales show that teaching work is associated with a high extrinsic learning requirement (i.e. the need for further training).
12. *Predictability.* For planning one's activities as well as anticipating necessary efforts, the possibility of predictability of work actions is necessary. In the work of VET teachers, the occurrence of action requirements is predictable and, in many cases, the extent of the required activities can also be estimated.
13. *Emotional work demands* and *Dealing with emotional work demands.* These scales describe the performance conditions for coping with emotional demands. There are no fixed rules for VET teachers on what behaviour to show or dis-

play. Teachers have the possibility to discuss emotional stress with colleagues, hand over challenging tasks to experts (e.g. from school social work) and apply or learn coping strategies.

14. *Content of responsibility* and *Responsibility for results.* Teaching in VET requires individual responsibility for meeting deadlines, the quality of work and the safety and health of students. The latter is particularly relevant for work in various laboratories, some of which have extensive health and safety requirements. In addition, there is a fundamental responsibility for one's work results.
15. *Organisational functions.* All teachers also have to take on organisational tasks, like the planning and executing of school-related tasks and the coordination of the different actors for that (e.g. participation in advisory boards, specialist conferences, and projects). However, these tasks do not constitute leadership functions.
16. *Communication content.* Regarding content, communication between teachers is primarily characterised by passing on information and the coordination of organisational matters. For instance, VET teachers pass on class books and exchange rooms or labs but usually do not communicate how to teach certain content.

3.2.2 Scales below the minimum profile (in need of design)

1. *Work intrinsic learning opportunities* and *Quality of feedback*. It is striking that although there is a high extrinsic learning requirement, there is only a relatively low intrinsic learning potential in the VET teachers' activity. On the one hand, in

addition to a university degree (the contents of which are also used in the job), independent further education is necessary due to the constantly changing work environment, new equipment, technologies, digitalisation, etc. (extrinsic learning requirements). On the other hand, there is hardly any intrinsic learning potential, i.e. the possibility to learn by doing is largely missing. For such an intrinsic form of learning, an activity must have latitude for action and decision-making concerning the way of working (cf. scales: *Degrees of freedom with regard* to *content, time,* and *decisions*), provide feedback on the course and success of these ways of working (cf. scales for *feedback*) as well as locate the individual responsibility within the person acting and thus allow the attribution to one's own doing (cf. scale: *Content of responsibility*). This intrinsic learning potential is not given in the VET teachers' activity, because feedback, which is important for intrinsic learning, is poorly designed. Teachers can use different *sources of feedback* (behaviour or statements of pupils, results of performance assessments), but the *quality,* i.e. detail and/or time availability, of this *feedback* is strongly limited.

2. *Work peaks.* Teachers' working hours increase beyond the regular working hours due to work peaks during examination periods that occur several times a year. On the positive side, however, the working time even in times of work peaks is usually still below 12 hours a day and below a weekly working time of 48 hours and therefore complies with the rules of the Working Hours Act (ArbZG, 1994).
3. *Possibilities to hand over tasks to others, to take over tasks from others* and *Forms of cooperation.* The combination of these

three scale values shows that teachers carry out a large part of their work in relative isolation. Only in a few, selected weeks of the year do VET teachers have to coordinate the time and plan quantity distributions and contents within the framework of self-organised group work.

4. *Work breaks* and *Overtime*. The lack of *possibility to hand over work to others,* especially when colleagues are absent, in combination with the half-yearly *work peaks* during exam times or project work, promotes temporary phases of work intensification. In these phases, not only does *overtime* accumulate, but also breaks are cancelled. The classification of the scale *work breaks* under minimum profile is due to additional administrative work and the exchange of information between colleagues during breaks. As a result, VET teachers can take the legally required *break*, but this is often shortened by the organisational exchange of information and is then less than the 30 minutes required by the Working Hours Act (ArbZG, 1994: after six hours of work there must be a 30-minute recovery break).
5. *Freedom of contradictions.* In some cases, the work of VET teachers is characterised by *contradictions* between the given time for completing an assignment and the required quantity or quality of the result. In addition, the parallel orientation of the teaching content upon the curriculum and the examination requirements, which sometimes contradict one another, can lead to recurring conflicts between the objectives of the task. These conflicts in content often cannot be compensated for in the available teaching time.
6. *Disturbances and external interruptions.* Another loss of time is caused by *disturbances and interruptions*. This loss

depends on the potential for disruption, which can range from a simple interruption to the necessity of a change of activity, to the loss of the previous work result. With the extent of the potential for disruption, the additional cognitive effort (e.g. familiarisation with new tasks) increases, which in turn requires additional time, as well as the teacher's attention commitment.

7. *Project work*. The work of VET teachers also includes the implementation of various *projects*. Although teachers are given time to complete projects (as lowering of lesson hours), this extra time is often much less than would be necessary for project work.
8. *Multitasking requirements*. A very essential requirement for teaching is *multitasking*. This is especially required during teaching. This includes several sub-activities to be worked on in parallel, most of which have to be done at the same time (e.g. answering students' questions and at the same time creating a blackboard picture and/or creating a learning climate). This requirement means a very fast and frequent switching between the single tasks in class. During preparation and follow-up, however, it is possible to switch between the tasks with enough room for manoeuvre.

4. DISCUSSION

This article was intended to clarify how the work of VET teachers is designed and what improvements in working conditions and VET teacher qualification are possible. The focus of the study was an objective condition-related work analysis of the jobs of VET teachers.

Considering all job characteristics and their interdependencies, the job as a VET teacher corresponds to a "health-promoting" profession according to existing standards and laws (e.g. ArbZG, 1994). According to the results of TAG-MA assessment, many work characteristics are rated above the prescribed minimum level indicating that the job has many degrees of freedom, and few structural restrictions but also potential to become even more conducive for job incumbents. It is shown that the learning opportunities given by the jobs of VET teachers are primarily due to extrinsic learning requirements, i.e. the need for further training. However, there are some work characteristics which have the potential for stress and impairment of the quality of lessons. This is discussed in the following.

- In the synopsis of the scales of "Disturbances/interruptions", "Work peaks", "Work breaks", "Multitasking requirements" and "Possibilities to hand over and take over tasks", all graded under the minimum profile, there is a risk of too high work intensity, at least in phases. In connection with the high influenceability of one's activity and the possibility of adapting one's way of working, however, stress-associated impairments are generally not to be expected. A decisive exception is the time of work peaks, especially during examination periods. These phases of work intensification go hand in hand with long working hours and the non-observance of rest periods and reduce the opportunities for recovery between work shifts. As a result, performance prerequisites can be impaired (Rau, 2017).
- The lack of the opportunity to work with others is in contrast to the required learn-field orientation of teaching by

KMK (2004). One reason is seen in the prevailing individual (non-cooperative) way of teaching in vocational schools as well as the preparation and follow-up of lessons at home (Kremer, 2003). This goes hand in hand with findings by Eder and Koschmann (2011), who blame this circumstance on the lack of practical experience of VET teachers and the lack of organisational framework conditions. In both vocational schools tested, it was up to the individual teacher to coordinate with others in the preparation and execution of the lessons. For such cooperation, the availability of the teachers would have to be specified. These could be set times in the afternoon or during school holidays. However, the latter is usually considered by teachers as their vacation time (in total 12 weeks per year). A rule is missing due to ministerial specifications. Furthermore, it was found, neither teacher teamwork nor close cooperation with the training companies is an integral part of the work activity of VET teachers. The described lack of cooperation respectively opportunities for cooperation means both, a potential restriction on teaching quality as well as an individual danger by social isolation (cf. DIN EN ISO 6385, 2016).

- Work analysis yielded contradictions between the curricula concretised within the school and the examinations drawn up supra-regional with professional associations (including the Chamber of Industry and Commerce IHK, Chamber of Crafts) and training companies pose problems for the work of teachers in the vocational school. In contrast to the learning field orientation of the curricula, which are aligned towards holism, process orientation and procedural knowledge, in the examination mostly declarative knowledge questions with a high level of detail are asked (Berben, 2014).

Overall, the results of the study allow a precise description of the job of vocational teachers including the work content and the work context (organization, required technique, and typical work processes). Shown is the diversity of challenges, but also existing contradictions and a need for design concerning some work characteristics of VET teaching. Adjustments in teaching qualification and changes in work organization and work design of VET jobs can be derived. Based on the results novices in teaching as well as professionally experienced teachers and those who are responsible for teacher training get a comprehensive idea of the job demands. The detailed and specific work analysis results can be used to derive typical competencies for the respective school discipline. However, there are also general skill requirements that can be derived from the results. Thus, teachers need to be able to multitask and should have diverse communication, social and organisational skills as well as cognitive and work intensity associated skills.

4.3 IMPLICATIONS ABOUT WORK DESIGN

The excessive work intensity during the occurring work peaks can be understood as a condition-related and designable work characteristic (DIN EN ISO 6385, 2016). In principle, the extension of working hours must not violate the regulations of the Working Hours Act (ArbZG, 1994). Shaping the intensity of work can be done directly via the amount of work, for example by reducing teaching hours, and/or by increasing personnel resources.

An improvement of the forms of cooperation and the possibilities of cooperation requires the creation of organisational

framework conditions for the systematic cooperation of teachers. This includes institutional-legal anchoring (Eder & Koschmann, 2011), the establishment of cooperation time windows and ensuring qualified colleagues on site. Prospective VET teachers should also regularly deal with cooperative learning field-oriented teaching, e.g. through the cooperative development of learning fields within the framework of practical exercises. It should be noted that the heterogeneous structure of the teacher training programme and the complex study structure make subject-didactic cooperation difficult (Frommberger & Lange, 2018).

The quality of feedback is a working characteristic that must be designed concerning the promotion of learning by doing (intrinsic learning potential) as well as the reduction of sources of uncertainty. To make the existing sources of feedback usable for teachers in the long term, organisational framework conditions should also be created here, such as the establishment of regular supervision by superiors and colleagues. The already suggested cooperative development and planning of learning field lessons can also be used, which always includes a reflection on one's own learning goals and procedures for achieving goals and can thus be questioned during the joint work or requires feedback. Systematic feedback from pupils can increase the quality of feedback. It is important that teachers are not given the additional task of collecting the relevant information, but that this is provided by the school organisation.

Intrinsic learning opportunities (for the teachers) can be increased among teachers not only by improving feedback but also by more degrees of temporal freedom. Thus, 90-minute teaching units should be the norm. The increased duration of

school hours rises the degrees of freedom in terms of content and thereby opens more didactic variety for teaching. This is also in line with the observed didactic diversity in 90 minutes lessons versus 45 minutes lessons and with current research (Wackerman & Hater, 2016).

4.4 IMPLICATIONS FOR THE STUDY OF VOCATIONAL SCHOOL PEDAGOGY

To show a realistic picture of the job and thus facilitate the decision for or against studying, the results of the objective work analysis are prepared and made transparently accessible to potential study applicants. That way, results facilitate a realistic job preview (RJP) that has five key attributes: accuracy, specificity, breadth, credibility, and importance (Breaugh & Billings, 1988). Furthermore, the suggestions made about work design for cooperative work in the development of learning fields, the preference for 90-minute teaching units and dealing with work peaks and multitasking requirements should be part of the VET teacher training. To clarify the question of which competencies go hand in hand with the requirements, the work analysis can be used to derive a qualification or rather competence profile for VET teachers.

4.5 LIMITATIONS AND FUTURE RESEARCH

TAG-MA instrument focuses on only one interaction partner and can only superficially assess dialogue-interactive parts of the teaching activity. To compensate for this deficit additional scales were developed and used. However, these only allow gen-

eral assessment of dialogue-interactive work but not statements about the special demands of interaction in vocational teaching. Future work should comprehensively investigate the specifics of teacher-student interaction and consider the requirements of co-producing actors (Antera, 2021; Hacker, 2009).

Since the method of work analysis by using TAG-MA is very time and resource consuming only 21 workplaces of teachers in only two schools could be investigated. This might reduce the representativeness of results. However, a wide range of teacher-work places could be tested since, in VET schools of the current study pre-vocational classes, skilled worker classes and technical baccalaureate classes were educated.

The generalisation of the results in terms of other VET schools and other school forms is given, if the working environment, as well as the work order, is the same. If there are any non-trivial differences, the results and design proposals can differ. In particular, there are differences between VET schools and generally schools in that, VET pupils are nearly adults respectively are adult students. Therefore, interaction with parents is hardly necessary for VET teachers. Furthermore, VET teachers have more opportunities to react to discipline violations than other teachers. They could order pupils in their training company and they can exclude students from classes or ex-matriculate as there is no compulsory schooling.

5 CONCLUSION

This study pursues a very action-theoretical and thus work condition-related research approach. The challenges of teaching in vocational training are derived from the observable and asked

working conditions in the workplace. The performance of the individual teacher was not the focus and was even explicitly neglected. What initially appears to be a detour, since job holders could also be asked directly about their challenges, enables the comprehensive, detailed and not subjectively biased analysis of their work. These work characteristics were subsequently discussed with participating and non-participating teachers. For further use (e.g. development of VET teaching competence profile) the results have to be validated by relevant job incumbents.

REFERENCES

Antera, S. (2021). Professional Competence of Vocational Teachers: A Conceptual Review. *Vocations and Learning,* 14, 459–479. https://doi.org/10.1007/s12186-021-09271-7

ArbZG (1994). *Arbeitszeitgesetz vom 6. Juni 1994 (BGBl. I pp. 1170, 1171),* das zuletzt durch Artikel 8 u. Artikel 11 Absatz 2 Satz 2 des Gesetzes vom 27. März 2020 (BGBl. I pp. 575) geändert worden ist [Working Hours Act of 6 June 1994, last amended by Articles 8 and 11(2) sentence 2 of the Act of 27 March 2020].

Berben, T. (2014). Schulorganisation für den Paradigmenwechsel "Lernfeld" [School organisation for the paradigm shift "learning field"]. *Lernen und Lehren, 113*(1), 4–12.

Breaugh, J.A., Billings, R.S. (1988). The realistic job preview: Five key elements and their importance for research and practice. *Journal of business and psychology*, *2*(4), 291-305. https://doi.org/10.1007/BF01013761

Brinkmann, B., Scholz, C., & Rischke, M. (2017). *Attraktiv und zukunftsorientiert?! – Lehrerbildung in den gewerblich-technischen Fächern für die beruflichen Schulen* [Attractive and future-oriented?! - Teacher training in industrial-technical subjects for vocational schools]. In: Bertelsmann Stiftung, CHE Centrum für Hochschulentwicklung, Deutsche Telekom Stiftung und Stifterverband für die Deutsche Wissenschaft (Eds.), Sonderpublikation des Monitor Lehrerbildung.

DIN EN ISO 10075-1. (2018). *Ergonomische Grundlagen bezüglich psychischer Arbeitsbelastung. Teil 1: Allgemeines und Begriffe* [Ergonomic principles relating to mental workload. Part 1: General and terminology]. Berlin: Beuth.

DIN EN ISO 6385. (2016). *Grundsätze der Ergonomie für die Gestaltung von Arbeitssystemen* [Principles of ergonomics for the design of work systems]. Berlin: Beuth.

Eder, A., & Koschmann, A. (2011). Die Rolle von Lernortkooperation bei der Umsetzung lernfeldorientierter Lehrpläne an berufsbildenden Schulen in Niedersachsen [The role of learning site cooperation in the implementation of learning field oriented curricula at vocational schools in Lower Saxony]. *Berufs- und Wirtschaftspädagogik Online,* (20), 1–20. https://doi.org/10.25656/01:7796

Fahrenberg, J., Myrtek, M., Pawlik, K., & Perrez, M. (2007). Ambulantes Assessment - Verhalten im Alltagskontext erfassen [Outpatient assessment - capturing behaviour in an everyday context]. *Psychologische Rundschau, 58*(1), 12–23. https://doi.org/10.1026/0033-3042.58.1.12

Frommberger, D., & Lange, S. (2018). *Zur Ausbildung von Lehrkräften für berufsbildende Schulen. Befunde und Entwicklungsperspektiven* [On the training of teachers for vocational schools. Findings and development perspectives] (Forschungsförderung Working Paper, No. 60). Düsseldorf: Hans-Böckler-Stiftung.

Gemeinsame Deutsche Arbeitsschutzstrategie (Ed.). (2018). *Leitlinie Beratung und Überwachung bei psychischer Belastung am Arbeitsplatz* [Guideline on counselling and monitoring of mental stress at the workplace]. Berlin: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin.

Hacker, W. (1993). Objective work environment: Analysis and evaluation of objective work characteristics". In L. Levi & J. L. Petterson (Eds.) *A healthier work environment* (pp. 42–57). Copenhagen, Denmark: WHO Regional Office for Europe.

Hacker, W. (2003). Action regulation theory: A practical tool for the design of modern work processes? *European Journal of Work and Organizational Psychology, 12*(2), 105–130.

Hacker, W. (2009). *Arbeitsgegenstand Mensch: Psychologie dialogisch-interaktiver Erwerbsarbeit. Ein Lehrbuch* [Man as a Work Object: Psychology of Dialogical-Interactive Gainful Work. A textbook]. Lengerich: Pabst.

Hacker, W., & Sachse, P. (2014). *Allgemeine Arbeitspsychologie: Psychische Regulation von Tätigkeiten* [General work psychology: psychological regulation of activities] (3rd ed.). Göttingen: Hogrefe.

Harvey, R. J., & Wilson, M. (2000). Yes Virginia, there is an objective reality in job analysis. *Journal of Organizational Behavior, 21,* 829–854.

Kaiser, F., & Kalisch, C. (2019). Einführung: Berufsschullehramt ist die Königsklasse! [Introduction: vocational school teaching is king!]. In C. Kalisch, & F. Kaiser (Eds.), *Bildung beruflicher Lehrkräfte. Wege in die pädagogische Königsklasse* [Vocational teacher education. Pathways to the pedagogical royal class] (Berufsbildung, Arbeit und Innovation, Vol. 48, pp. 9–18). Bielefeld: wbv.

Kalisch, C., & Kaiser, F. (Eds.). (2019). *Bildung beruflicher Lehrkräfte. Wege in die pädagogische Königsklasse* [Vocational teacher education. Pathways to the pedagogical royal class] (Berufsbildung, Arbeit und Innovation, Vol. 48). Bielefeld: wbv.

Kräenbring, R. (2011). *Ausbildung aus Sicht der Auszubildenden des Maler- und Lackiererhandwerks Hamburg: Forschungsbericht und Ergebnisse* [Training from the perspective of trainees in the painter and varnisher trade in Hamburg: Research report and results]. Hamburg: Universitätsbibliothek der Helmut-Schmidt-Universität. https://doi.org/10.24405/437

Kremer, H.-H. (2003). Handlungs- und Fachsystematik im Lernfeldkonzept [Action and subject systematics in the learning field concept]. *bwp@ Berufs- und Wirtschaftspädagogik - online, (4),* 1–13. [Online document]. Access date: 20.01.2022. Available at: http://www.bwpat.de/ausgabe4/ kremer_ bwpat4.pdf.

Kultusministerkonferenz, K. M. K. (2004). *Standards für die Lehrerbildung: Bildungswissenschaften* [Standards for teacher education: Educational sciences]. [Online document]. Access date: 20.01.2022. http://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2004/2004_12_16-Standards-Lehrerbildung.pdf

Leontjew, A. N. (1979). Tätigkeit, Bewusstsein, Persönlichkeit [Activity, consciousness, personality]. Berlin: Volk und Wissen.

Nerdinger, F. W., Blickle, G., & Schaper, N. (2019). *Arbeits- und Organisationspsychologie* [Industrial and organisational psychology]. Berlin: Springer. https://doi.org/10.1007/978-3-662-56666-4

OECD. (2021). *Teachers and Leaders in Vocational Education and Training*, OECD. Reviews of Vocational Education and Training. Paris: OECD. https://doi.org/10.1787/59d4fbb1-en

Oser, F., Curcio, G.-P., & Düggeli, A. (2007). Kompetenzmessung in der Lehrerbildung als Notwendigkeit. – Fragen und Zugänge [Competence measurement in teacher education as a necessity. - Questions and approaches]. *Beiträge zur Lehrerbildung, 25*(1), 14–26. https://doi.org/10.25656/01:13630

Rau, R. (2017). Zum Stellenwert von Erholung in der Welt der "Arbeit 4.0" [On the place of recreation in the world of "work 4.0"]. In R. Romahn (Ed.), *Arbeitszeit gestalten. Wissenschaftliche Erkenntnisse für die Praxis* (pp. 61–77). Weimar: Metropolis-Verlag.

Rau, R., & Göllner, C. (2018). Rahmenmodell der Arbeitsintensität als objektiv bestehende Anforderung [Framework model of work intensity as an objectively existing requirement]. *Arbeit, 27*(2), 151–174. https://doi.org/10.1515/arbeit-2018-0012

Rau, R., Schweden, F., Hoppe, J., & Hacker, W. (2021). *Verfahren zur Tätigkeitsanalyse und -gestaltung bei mentalen Arbeitsanforderungen (TAG-MA)* [Activity analysis and design procedure for mental job demands (TAG-MA)]. Kröning: Asanger.

Schnarr, A. (2011). Verlierer im Lernen? Übergangsproblematiken sowie die Rolle der Lehrkräfte in der beruflichen Bildung der VR China. [Loser in Learning? Transition issues and the role of teachers in vocational education in the People's Republic of China.] *Berufs-und Wirtschaftspädagogik online,*

Spezial, (5), 1-16. [Online document]. Access date: 19.09.2022. Available at: http://www.bwpat.de/ht2011/kv/schnarr_kv-ht2011.pdf.

Voskuijl, O. F., & van Sliedregt, T. (2002). Determinants of Interrater Reliability of Job Analysis: A Meta-analysis. *European Journal of Psychological Assessment*, *18*(1), 52-62. https://doi.org/10.1027//1015-5759.18.1.52

Wackermann, R., & Hater, J. (2016). Der Einfluss der Stundenlänge (45 vs. 60 Minuten) auf ausgewählte Aspekte der Unterrichtsqualität im Physikunterricht am Gymnasium. Eine Prä-Post-Untersuchung mit zwei Lehrkräften [The influence of lesson length (45 vs. 60 minutes) on selected aspects of teaching quality in high school physics classes. A pre-post investigation with two teachers]. *Perspectives in Science, 10,* 1–12. https://doi.org/10.1016/j.pisc.2015.12.009

Wildt, J. (2005). Auf dem Weg zu einer Didaktik der Lehrerbildung?. [On the way to a didactics of teacher education?] *Beiträge zur Lehrerbildung*, *23*(2), 183-190.

Wirtz, M. A., & Caspar, F. (2002). *Beurteilerübereinstimmung und Beurteilerreliabilität. Methoden zur Bestimmung und Verbesserung der Zuverlässigkeit von Einschätzungen mittels Kategoriensystemen und Ratingskalen* [Rater agreement and rater reliability. Methods for determining and improving the reliability of assessments using category systems and rating scales]. Göttingen: Hogrefe.

An evaluation concept for learning effects in an Augmented Reality-supported learning environment

Silke Thiem*
RWTH Aachen University
Institute of Industrial Engineering and Ergonomics
Eilfschornsteinstraße 18, 52062, Aachen, Germany
E-mail: s.thiem@iaw.rwth-aachen.de

Marvin Goppold
RWTH Aachen University
Institute of Industrial Engineering and Ergonomics
Eilfschornsteinstraße 18, 52062, Aachen, Germany
E-mail: m.goppold@iaw.rwth-aachen.de

Mattia Lisa Müller
RWTH Aachen University
Institute of Industrial Engineering and Ergonomics
Eilfschornsteinstraße 18, 52062, Aachen, Germany
E-mail: m.müller@iaw.rwth-aachen.de

Martin Frenz
RWTH Aachen University
Institute of Industrial Engineering and Ergonomics
Eilfschornsteinstraße 18, 52062, Aachen, Germany
E-mail: m.frenz@iaw.rwth-aachen.de

Verena Nitsch
RWTH Aachen University
Institute of Industrial Engineering and Ergonomics
Eilfschornsteinstraße 18, 52062, Aachen, Germany
E-mail: v.nitsch@iaw.rwth-aachen.de

* Corresponding author

ABSTRACT:

Augmented reality (AR) offers innovative options to design work-based learning environments in TVET. AR-Learning media enable to visualise e.g., error consequences to learn from them. Despite theoretical discussions, there is a gap in empirical investigations on the learning effects of work actions in TVET. This contribution describes the concept development of a field study with a mixed-method approach for evaluating the learning effects of AR-visualised error consequences triggered by work action. The underlying work actions situate in an equipment process of a CNC lathe. The learning objective is to produce a shaft corresponding to guiding ideas. It is being investigated if apprentices who learn with the visualisation of error consequences explain the connection between the action step they made and the experiences they made better than apprentices in a classical learning setting. Therefore, hypothesises were developed and discussed to assess this relationship.

KEYWORDS:

Vocational education and training, work-based learning, learning from errors, learning effect, augmented reality

INTRODUCTION

The aim of technical vocational education and training (TVET) is to promote competence in work actions. As a normative statement, real work tasks offer good learning opportunities and provide a basis for designing learning situations (cf. Fischer & Bauer, 2007). Vocational activities are understood to be holistic and multidimensional occupational actions that solve problems toward a work outcome (Rauner, 2013).

In TVET, the promotion of competence to act is structured as a learning and work task. To this end, vocational training is characterised by work-based and workplace learning (European Training Foundation [ETF], 2013). Thus, apprentices can gather work experience on their own and use this as a learning occasion together with the training personnel. This is because experiential knowledge cannot be derived from knowledge, but requires an independent acquisition (cf. Fischer & Boreham, 2008; Polanyi & Sen, 2009). Reflection dialogues between apprentice and training personnel are suitable for developing the connection between the experiences gained and the knowledge (Bauer & Mulder, 2007; Cattaneo & Boldrini, 2017; Frese & Keith, 2015).Therefore, these discussions with the training personnel are an important piece in the learning puzzle in TVET practice. Training personnel ensure linking experiences to knowledge by mediating the reflection and fostering it with individual learning tasks afterwards.

In contrast to the opportunities that work-based forms of learning offer, they can also contain risks. Incorrect actions can have serious negative consequences. Negative consequences can be damage to machines, which can halt production and thus

have ecological consequences, but also involve the occupational safety and health perspective referring, for instance, to severe injuries. Therefore, apprentices must always be observed and checked by training personnel when learning on real machines. Trainers observe the apprentices' actions and intervene before errors lead to negative consequences. Thus, training personnel explain why they intervene, which error was committed and what the consequence would have been. In this way, the apprentices are supposed to learn from the errors induced by their actions and their consequences. However, they receive this information from trainers through verbal explanations.

With technological developments such as augmented reality (AR), learning and work processes can be extended to include a virtual dimension for support (Azuma, 1997). By making learning content available, AR can realise new possibilities of learning in action. For TVET, this offers an opportunity to develop didactic concepts for learning situations, such as in apprenticeship of the dual education system in Germany. Simulations can illustrate complex procedures and interrelationships in the work process during work-based learning (Howe & Knutzen, 2013). A comparable technical learning system can help prevent negative consequences in reality and simultaneously present them in AR with visualisations of simulations of the consequences of errors to learn from them. Apprentices can use it to independently understand what effects their actions have on a system and how it reacts to their actions to reach the desired state. Furthermore, by allowing apprentices to interact and experiment with activities they would not typically be able to accomplish in real life, the usage of such a learning medium might enhance motivation.

This paper presents a study concept that investigates the learning effect of an AR-learning system. A use case of the AR-learning system involves setting up a real CNC lathe to produce a shaft. If the apprentice makes a major error during equipment and setup, the lathe stops at the relevant action step where the problem occurs, and the error is shown via AR. The use case of the learning system is presented and the learning effects are defined based on the developed learning and work task. Then an investigation is presented of how a study can be conducted to explore the learning effects of the described AR-learning situation.

THE FEDINAR LEARNING SYSTEM

With the FeDiNAR learning system (Didactical Use of Errors with the Help of Augmented Reality), a medium was developed that enables learning based on action errors in TVET. Together with the advantages of AR to expand the real world with suitable information, this learning medium was designed, which simulates critical errors and can visually represent their consequences in AR. For this purpose, a learning and work task was developed for the use case of setting up a CNC lathe for the production of a shaft.

LEARNING MEDIA

Currently, in TVET, it is rarely possible for apprentices to make errors in real work processes. At the same time, extensive empirical studies show that learning from mistakes can create added value (Bauer & Harteis, 2012a; Cattaneo & Boldrini, 2017). In the project FeDiNAR, a digital medium was developed as an

educational medium for vocational training. The aim was to invent a medium that would have added educational value for vocational and educational practice. In this medium, the reality is expanded by means of AR to learn from errors. In addition to assistance or information overlays, this also enables the use of simulations, which can overlay action sequences in the virtual layer without negative effects on reality (Goppold et al., 2019). The developed AR-learning system thereby contradicts the assistance paradigm by using AR not to guide a "correct" action, but to enable learning from errors (Atanasyan et al., 2020). For this purpose, AR technology makes it possible to perform comprehensive learning and work tasks on machines without the apprentices being aware that they are working on such a learning system, except for showing additional visualisations. Sensors and interfaces can detect errors by a digital twin of vocational actions, error consequences can be simulated, visualised, and comprehended depending on the course of action (Kobelt et al., 2020).

If the apprentices make a mistake, the real action is interrupted by stopping the machine and the simulated error consequences are visualised. Thus, the apprentices are confronted with a learning and work task on a machine. They complete this task on the actual machine and use various tools to perform. This makes it possible for apprentices to make errors and experience negative consequences concerning safety, economic efficiency, or environmental protection without harm.

SELECTION OF THE CNC LATHE USE CASE

One use case of the AR-learning system is setting up a CNC lathe to produce a shaft. This process was chosen because of its

importance for TVET in the field of machining in Germany, especially for the vocations of precision machinist and milling machine operator. The curriculum of the training occupations is divided into learning fields in the framework curricula. For the application case, learning field 6 "Programming and manufacturing on numerically controlled machine tools" of the training occupation precision machinist is chosen (Kultusministerkonferenz, Rahmenlehrplan für den Ausbildungsberuf Feinwerkmechaniker/ Feinwerkmechanikerin, 2010). Apprentices complete this learning field in their second year of training. For the occupation of a milling machine operator, learning field 8 "Preparation and production of an individual production order" can be selected (Kultusministerkonferenz, Rahmenlehrplan für den Ausbildungsberuf Zerspanungsmechaniker/ Zerspanungsmechanikerin, 2018). This is a learning field that apprentices complete in the second year of apprenticeship.

It can be deduced from the classification of the activity in the aforementioned regulatory means that the subject matter of the application case thematically is suitable for the competencies promoted in the vocational school and the company.

LEARNING OBJECTIVES OF THE USE CASE

A guiding idea provides a central focus for learning and work tasks and prioritises the learning objectives. The framework curricula for the training occupations precision machinist (KMK, 2010) and the milling machine operator (KMK, 2018), as well as the training regulations for the vocational training of metal occupations (Bundesgesetzblatt Jahrgang 2018 Teil I Nr. 23, issued in Bonn on 5 July 2018), can be used as a basis for defin-

ing the central idea. In the framework curricula, general occupation-related preliminary remarks are formulated, which describe that the action should be included as a holistic grasp of occupational reality (KMK, 2018). This includes the consideration of safety, economic and ecological aspects. In the apprenticeship regulations, safety, health protection, and environmental protection at work are described as parts of the training occupation (Bundesgesetzblatt Jahrgang 2018 Teil I Nr. 23, ausgegeben zu Bonn am 5. Juli 2018, S.989Zweite Verordnung zur Änderung der Verordnung über die Berufsausbildung in den industriellen Elektroberufen, 2018). The framework curricula for vocations for metal workmanship in TVET result in the specified guiding ideas of ecology, quality, and occupational safety.

Due to the focus on competence in TVET, the learning objectives of learning and work tasks are described as competencies. To develop the learning objectives, the learning objectives were identified based on the sub objectives of the actions in the set-up process for the production of a shaft on a CNC lathe.

The vocational actions for manufacturing a shaft on a CNC lathe were documented together with training personnel. The overall learning objective is to produce a shaft that complies with the production specifications (measurements, tolerances). To derive the learning objectives, the work process was divided into singular actions.

In the learning process, the apprentices develop the relations between the tools and the workpiece they set up and the possible errors. Therefore, an error analysis for each action was carried out to determine which possible incorrect actions could occur when setting up the CNC lathe. Specific errors were collected and identified for the individual action steps of the

phases. Through an expert interview with training personnel, this collection of errors was adapted and supplemented. In the interview, errors were evaluated regarding their significance and how often apprentices cause these errors. This mainly concerned cost-intensive handling errors, which can lead to damaged machines and tools.

With the collection and evaluation of the errors, it is possible to derive the learning objectives for the set-up of the CNC lathe to produce a shaft for the phases of the action steps. The phases *Checking the tool turret* and *Selecting the tools* of the work process with their objectives as well as possible incorrect actions and consequences are presented in Table 1.

Table 1. List of the wrong action with error consequences, right action and learning objective of the phase *Check tool turret* and *Selection of the tool*

Phase of the workflow of a shaft production	Faulty actions	Consequences of errors	Right Action	Learning objective
Checking tool turret	· Tools mounted in the wrong position in the turret · Unnecessary tool mounted in the turret in a distracting position	· Turret enters the workpiece and damages the turret and the workpiece · Unnecessary tool moves into the chuck and damages the chuck	· Tools that were incorrectly mounted on the turret were mounted in the correct positions · Tools that are not needed and that interfere have been removed from the turret. (The apprentices check the turret independently as well as professionally and appropriately for its functionality. In doing so, the apprentices particularly check whether tools are interfering with each other. For this purpose, they use the retraction in the individual set.)	The apprentices can describe the effects of a tool turret that has not been properly and professionally set up on the manufacturing process.
Selection of the tools (Finishing cutter and milling cutter)	· Wrong cutting plate selected · Wrong cutter selected	· Surface finish does not match the specifications. Cutting data does not match the selected cutting plate, which can lead to higher abrasion · Dimensions are not correct. Cutting data does not match the selected cutter, which can lead to higher abrasion	· The finishing cutter plate was selected, as defined in the programme · The milling cutter has been selected, as defined in the program (The apprentices check the turned out cutting plates and milling cutters on the worktable. For this they also use the information on the respective tool from the NC programme and the information on the table)	The apprentices can describe the effects of an incorrectly selected tool on the manufacturing process.

From a constructivist point of view, the formulated competences are not regarded as being fixed, since they can still be adapted during the conception of the learning and work task (Kerres, 2013). Additional generalisable findings concerning the learning objectives were derived from the expert interviews with training personnel. The ability to take self-responsibility for one's actions and their resulting consequences was mentioned. Furthermore, the apprentices should internalise that a CNC machine carries out exactly what is entered and that incorrectly set parameters can lead to damage, which can cause damage to the person carrying out the work and damage to the machine. Predicting side effects of work actions and compensating for unintended outcomes in advance of the further steps were also mentioned in the interview. The apprentices should become aware of the possible consequences of their actions. This is connected to the control of their actions to ensure that they have not made any errors. Since the production of turned parts, especially for shafts, requires a high degree of precision, a careful handling of materials and a clean working method are required for all actions to assure quality. Since setting up a CNC lathe consists of many action parts, the apprentices should develop a work routine to internalise the process.

Furthermore, the aforementioned intended learning objectives can deviate from the actually achieved ones (Tramm & Naeve, 2007). The deviation can arise through an insufficiently designed learning and work task with a too high or low degree of difficulty, a poorly guided learning, and work task, or also through a lack of motivation of the apprentices. To this end, an iterative process of adapting the learning objectives during the design of the learning and work task might be beneficial.

LEARNING AND WORK TASK OF THE USE CASE

The aim of the learning and work task was to prepare the apprentices for a real work task. Therefore, the focus lies on the apprentices and their actions as well as the associated action errors. First of all, the learning and work task should be as complex and realistic as possible - analogous to the constructivist and design-oriented understanding in TVET (Rauner, 2013). To meet this requirement, the learning and work task was developed in cooperation with training personnel. This cooperation integrated expert knowledge and experience into the concept. Another requirement for the learning and work task was that it should be based on typical work tasks carried out by skilled personnel in companies. Such tasks can be typical and recurring, but also unusual and unexpected. In the use case, the equipment process for manufacturing a shaft was focused (see Figure 1). In the design of the learning and work task, the apprentices should have enough freedom and creative scope in the processing to gain their own experience and make errors.

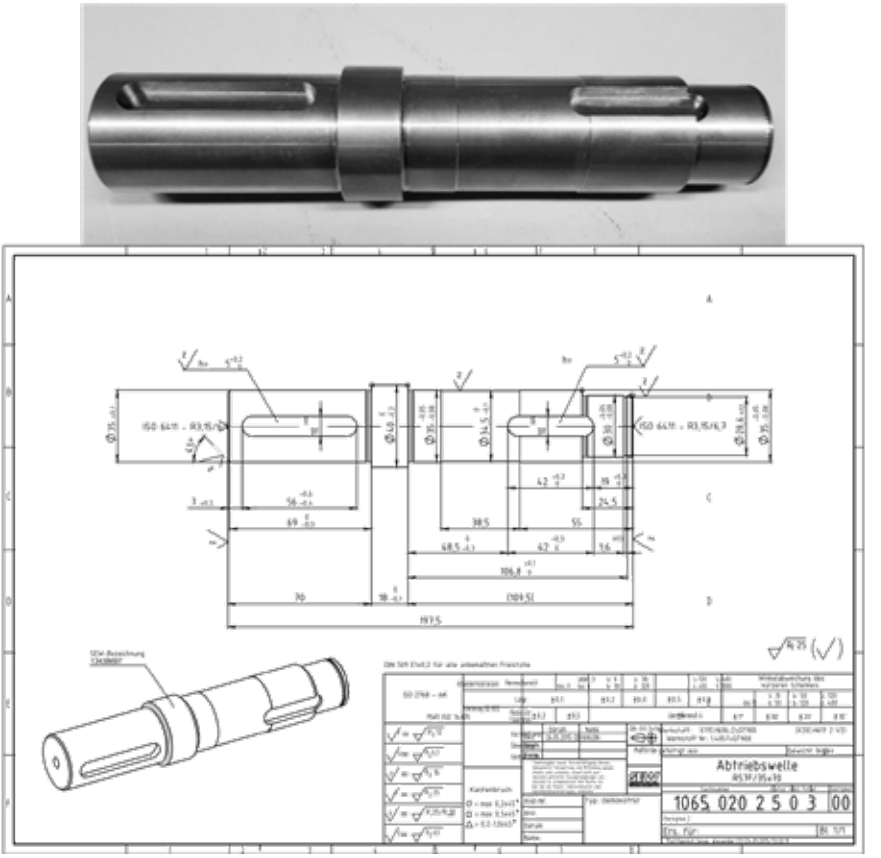


Figure 1. The shaft being manufactured with technical drawing

When setting up the CNC lathe, errors were limited to the choice of tools and the workpiece aligning to the framework curricula for the training occupations of precision machinist and milling machine operator. The selection of and setting up of tools will be focused on for the intended survey due to its complexity compared to the workpiece.

For the design of a learning and work task, a starting situation is first formulated. This should be closely related to a real example of vocational activities. For the planned study, the following learning and work task is proposed:

Initial situation (context, situation)

You are a precision machinist or a milling machine operator in a medium-sized manufacturing company. Today you received an order from a long-term customer to produce a shaft for a gearbox of a conveyor belt. The customer has sent you a technical drawing for this. There is already a CNC programme in your database that you can use.

Work order

Produce a shaft according to the customer's requirements on the CNC lathe using the materials available. First, create a workflow chart and equipment plan. After the production of the shaft, check all dimensions and document them in an inspection report.

The real CNC lathe on which the learning and work task is carried out is a Traub TNA 300 (see Figure 2). The apprentices can use a technical drawing of the shaft as well as paper templates for the workflow chart, equipment plan, and inspection report in addition to the learning and work task. Also, there are further tools, measuring tools, blank material, and aids on a table (see Figure 3).

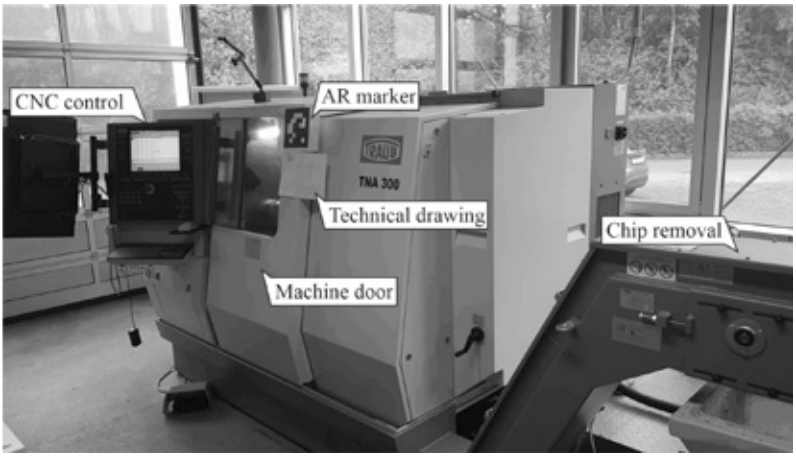


Figure 2. CNC lathe Traub TNA 300

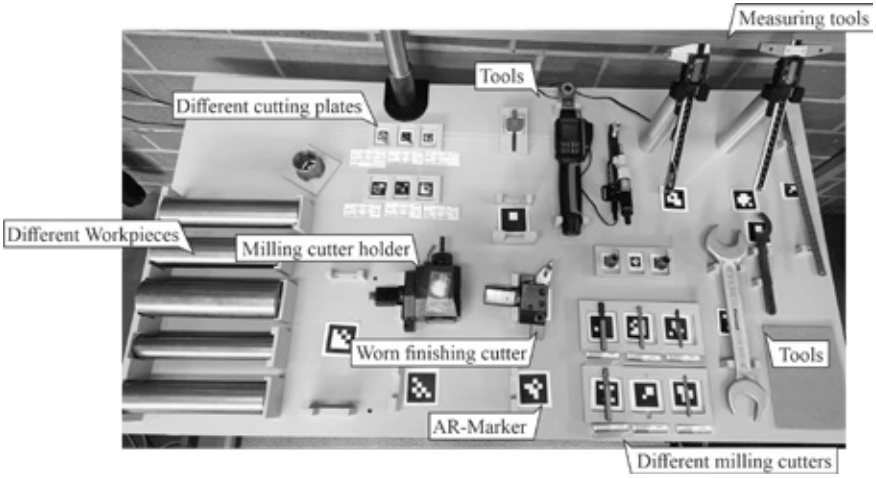


Figure 3. Workbench with various tools, measuring tools and blank material

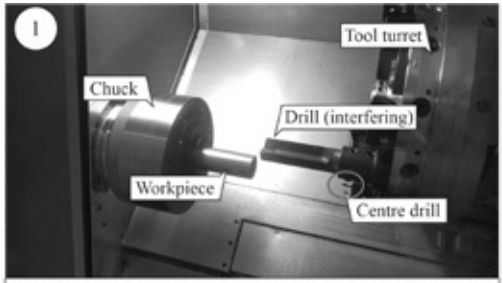
For the learning and work task, the right tools must be equipped. As in the initial situation at the CNC lathe, tools are already in the turret of the machine. Of these tools, one tool (roughing cutter) is already in the correct position in the turret. Two tools (centre drill and gouge cutter), which are needed for the production of the shaft, are in the wrong positions in the turret and have to be changed. Furthermore, there is an unneeded tool (drill) in the turret, which is mounted in a disturbing position. Two other tools (finishing cutter and milling cutter) are on the table. The finishing cutter is worn out and needs to be replaced. In addition, there are different cutting plates on the table next to the tool to choose from. The appropriate plate must be selected and mounted. The milling cutter needs to be mounted in its holder before it can be set up in the turret. For this purpose, there are several milling cutters to choose from on the table. The apprentices have to select the correct milling cutter and fit it into the holder before mounting it in the turret.

THE AR-LEARNING SYSTEM

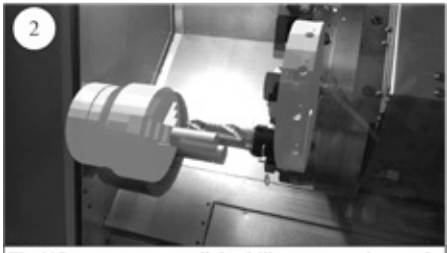
The AR-learning system is equipped with the CNC lathe through optical sensor technology, which can detect, for example, which tools are clamped in the tool turret or which clamping force has clamped the workpiece. Furthermore, various digital tools are connected to the AR-learning system via a corresponding interface. These and other non-digital tools and aids are located on a table. Each position of the tool, measurement instrument, or other aid is tracked utilising optical markers and a camera looking at the table. In this way, the AR-learning system can see which tools, measuring instruments, and aids are

taken from the table and put back again. The technical drawing, workflow chart, set-up sheet, and test report are marked with a marker. This provides via the AR glasses when the apprentices look at these sheets.

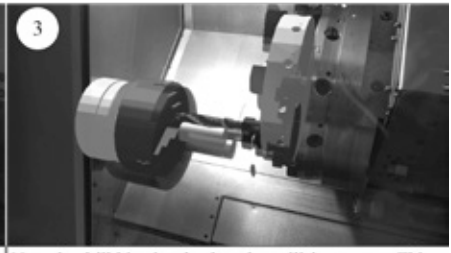
If a mistake is made during the set-up of the tools, the FeDi-NAR system recognises it and stops the machine at the point where the error occurred. Since the errors only occur during the set-up of the machine, all error sequences take place while the production programme is running. For example, in the learning and work task, an unnecessary tool (drill) was set up in the turret, which the apprentices have to recognise and dismantle. In real work processes, it can happen that tools that are not needed have not been taken out by the person who has used the machine before. The apprentices should be aware of this and therefore this unnecessary drill has been equipped in the learning and work task. Since this drill is mounted directly next to a required tool (centre drill) and the drill is much longer than the centre drill, a collision can occur between the unnecessary drill and the chuck during production. If this happens during production, the AR-learning system intervenes and stops before the possible collision. The AR glasses then display the consequences of the error. The apprentices first see in grey how the drill moves closer and closer to the chuck, then moves into the chuck, and then turns red and breaks off (see Figure 4).



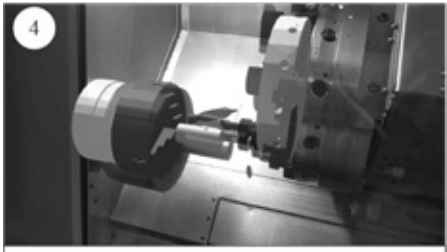
In the learning and work task, there is a large drill in the tool turret that is not required. The large drill has not been removed from the tool turret and therefore interferes with centering.



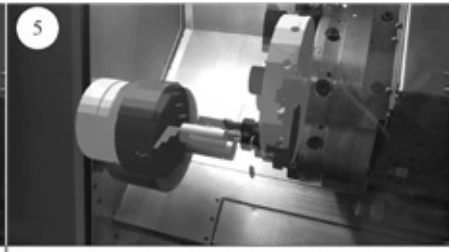
The NC program runs until the drill comes too close to the chuck. Then the machine stops and the AR glasses begin to visualise the consequence of the error. It shows the chuck, workpiece, tool turret and the drill in grey.



Now the drill hits the chuck and a collision occurs. This causes the chuck and the drill to turn red. This causes the drill and the chuck to tumble.



The drill cannot withstand the force that occurs and breaks off and flies to the side.



The drill is broken off. The chuck and the rest of the broken-off drill, which remains in the tool turret, are still coloured red.

Figure 4. Visualisation of an error consequence in AR

THE INTENDED LEARNING EFFECT OF THE USE CASE

The overall learning objective (Dick, 2008) of the learning and work task is the production of a shaft corresponding to the guiding idea of quality and thus to the information on dimensions and tolerances in the technical drawing. The production of a shaft can be understood as a complete action (Rebmann et al., 2005) (see Figure 5). In the beginning, the apprentices inform themselves about the necessary details of the shaft, which they take from the technical drawing and the CNC programme. Then, they plan the production by writing a work and process plan and a set-up sheet. They decide on the required tools, workpiece, and a sequence to set up and produce the shaft. During execution, a distinction is made between the set-up process and the production process. In the set-up process, the CNC lathe is loaded with the selected tool. The manufacturing process consists of starting the machine and running the CNC programme. Once the manufacturing of the shaft is complete, the dimensions are measured and documented in an inspection report. Finally, the manufactured product is evaluated to see if it meets the required dimensions and tolerances. The set-up process and the manufacturing process are evaluated for their quality, sustainability, and economic efficiency.

Figure 5. Manufacturing of the shaft as a complete action

For the use case and the study, only the set-up of the CNC lathe will be examined in more detail. The set-up process is essential for the manufacturing of the shaft. Without a proper set-up and equipment of the CNC lathe, the shaft can not be manufactured. In Figure 5, the parts that belong to the set-up process are marked in red. This includes the phases *Checking tool turret* and *Selection of the tools* (which were described in 2.3). For the phase *Checking tool turret* the apprentices are able to describe the effects of an improperly set up tool turret on the manufacturing process. For the phase *Selection of the tools* the apprentices are able to describe the effects of an incorrectly selected tool on the manufacturing process.

Coping with the learning and work task requires experience. Therefore, the apprentices must be able to read and understand the technical drawing and the CNC programme to plan the set-up. The programme offers information about the properties of the tool and for which production steps the tool is used. The apprentices are responsible for correctly assembling the tool for this purpose. They must know which tools are available for this purpose and choose the most suitable one. After setting up and manufacturing, the apprentices evaluate the result of the set-up process regarding the consequences of the manufacturing process. They evaluate this taking into account guiding ideas such as quality, sustainability, and economic efficiency. After this, they evaluate the whole set-up process regarding the set-up outcome which is seen after the manufacturing. This process will be evaluated also by guiding ideas such as quality, sustainability, and economic efficiency.

During the development of the learning and work task, experience is gained in setting up the CNC lathe and, in addition,

which errors and consequences can occur in this process (cf. Kapur, 2015). The learning process is that the apprentices discover the connection between the tools they have selected and set up and the possible faults. By superimposing the consequence of the error in the corresponding production step, the apprentices should be enabled to give an appropriate reason for the cause of the error.

Learning effect dimension 1:

Apprentices can analyse problems during the set-up of a CNC lathe.

Learning effect dimension 2:

Apprentices can plan the set-up of a CNC lathe.

Learning effect dimension 3:

Apprentices can carry out the actions of setting up a CNC lathe completely and properly.

Learning effect dimension 4:

Apprentices can evaluate the quality of the set-up outcome in terms of the impact on the manufacturing process.

Learning effect dimension 5:

Apprentices can evaluate the set-up process.

The apprentices can thus select the right tools according to the situation, set them up in the machine accordingly, and evaluate the set-up. They can develop an understanding between their action decisions and the experienced error consequences

(cf. Bauer & Harteis, 2012b). Therefore, the FeDiNAR learning system is intended to promote professional competence (Walden, 2008).

RESEARCH QUESTIONS

The question arises to what degree learning from errors is promoted for the apprentices with the help of the AR-learning system according to the theoretical assumptions, i.e., to what extent the desired dimensions of the learning effect are experienced. Therefore, the article presents an answer to the following research question:

How can a study concept be designed to investigate the AR-system's learning effect?

Within a conception of a study, the question about the promotion of an AR-learning system is examined more closely. Therefore, it is considered whether apprentices can establish the connection between each action step and the gained experience in setting up and equipping CNC lathes in the described learning and work task.

CONCEPT FOR THE STUDY OF LEARNING EFFECTS

A field study with a mixed-method approach is used to investigate the learning effects using the FeDiNAR learning system and the designed learning and work task. Hypotheses are developed for this purpose, as well as a study design.

HYPOTHESES

After completing the learning and work task with the AR-learning system, the apprentices can gain actual and autonomous experiences (since the machine pauses automatically in critical situations) and witness the consequences of errors. Apprentices who utilise the AR-learning system for the learning and work task but do not see the error consequences, for example, must make additional connections between their actions and the cause of the problem because the error result is not shown explicitly.

Accordingly, apprentices who undergo the learning process with all functions of the AR-learning system, apprentices who go through the learning process with only the machine stop-function, and apprentices in the classical learning process without the AR system have the following experiential and learning opportunities:

Table 2. Experiences and Learning opportunities dependent on learning conditions and dimensions of the learning effect

Learning condition Dimension of the learning effect	Learning process with all functions of the AR system	Learning process only with machine stop-function	Classical learning process
Dimension 1 Analysing problems during set-up	· Visualisation of error consequences · Independently investigate the causes of errors	· Select tools independently · Set up independently · Indication of where manufacturing errors occur · Independently investigate the causes of errors	· Training personnel stops apprentice · Training personnel explains cause and consequence of error
Dimension 2 Planning the set-up	· Planning set-up sequence independently · Select tools independently · Select workpiece independently	· Planning set-up sequence independently · Select tools independently · Select workpiece independently	· Training personnel verify set-up sequence · Training personnel verify selected tools
Dimension 3 Carrying out the set-up	· Mount tools in turret independently · Verify workpiece set-up independently · Verify revolver set-up independently	· Mount tools in turret independently · Verify workpiece set-up independently · Verify revolver set-up independently	· Training personnel stops apprentice · Training personnel explain cause and consequence of error · Training personnel verify revolver setup
Dimension 4 Evaluating the set-up outcome regarding the production process	· Indication of where manufacturing errors occur · Visualisation of error consequences · Independently investigate the causes of errors	· Indication of where manufacturing errors occur · Independently investigate the causes of errors	· Training personnel explain cause and consequence of error
Dimension 5 Evaluating the set-up process	Evaluate set-up process independently regarding guiding ideas	Evaluate set-up process independently regarding guiding ideas	Evaluate set-up process with training personnel

Hypothesis 1:

Apprentices who learn with all functions of the AR system demonstrate greater learning effects than those who learn with the machine stop-function.

The dimensions of the learning effect are outlined in the following hypotheses:

Hypothesis 1.1:

Apprentices who learn with all functions of the AR system analyse problems of setting up the CNC lathe better than those who learn with the machine stop-function.

Hypothesis 1.2:

Apprentices who learn with all functions of the AR system can plan the set-up of the CNC lathe better than those who learn with the machine stop-function.

Hypothesis 1.3:

Apprentices who learn with all functions of the AR system can carry out the actions of setting up a CNC lathe better than those who learn with the machine stop-function.

Hypothesis 1.4:

Apprentices who learn with all functions of the AR system evaluate the quality of the set-up outcome in terms of the impact on the manufacturing process better than those who learn with the machine stop-function.

Hypothesis 1.5:

Apprentices who learn with all functions of the AR system evaluate the set-up process better than those who learn with the machine stop-function.

Hypothesis 2:

Apprentices who learn with all functions of the AR system demonstrate greater learning effects than those who learn with the classical learning process.

According to the dimensions of the learning effect the following hypotheses are specified:

Hypothesis 2.1:

Apprentices who learn with all functions of the AR system analyse problems of setting up the CNC lathe better than those who learn in the classical learning process.

Hypothesis 2.2:

Apprentices who learn with all functions of the AR system can plan the set-up of the CNC lathe better than those who learn in the classical learning process.

Hypothesis 2.3:

Apprentices who learn with all functions of the AR system can carry out the actions of setting up a CNC lathe better than those who learn in the classical learning process.

Hypothesis 2.4:

Apprentices who learn with all functions of the AR system evaluate the quality of the set-up outcome in terms of the impact on the manufacturing process better than those who learn in the classical learning process.

Hypothesis 2.5:

Apprentices who learn with all functions of the AR system evaluate the set-up process better than those who learn with the classical learning process.

Hypothesis 3:

Apprentices who learn with machine stop-function of the AR system demonstrate greater learning effects than those who learn in the classical learning process.

According to the dimensions of the learning effect the following hypotheses are specified:

Hypothesis 3.1:

Apprentices who learn with the machine stop-function of the AR system analyse the problems of setting up the CNC lathe better than those who learn in the classical learning process.

Hypothesis 3.2:

Apprentices who learn with the machine stop-function of the AR system can plan the set-up of the CNC lathe better than those who learn in the classical learning process.

Hypothesis 3.3:

Apprentices who learn with the machine stop-function of the AR system can carry out the actions of setting up a CNC lathe better than those who learn in the classical learning process.

Hypothesis 3.4:

Apprentices who learn with the machine stop-function of the AR system evaluate the quality of the set-up outcome in terms of the impact on the manufacturing process better than those who learn in the classical learning process.

Hypothesis 3.5:

Apprentices who learn with the machine stop-function of the AR system evaluate the set-up process better than those who learn in the classical learning process.

SAMPLE

The participants of this study are apprentice precision machinists and apprentice milling machine operators at the beginning of their third year of apprenticeship in Germany. This target group already gained basic knowledge and skills for manufacturing CNC lathes. In their second year of apprenticeship, precision machinists develop skills and abilities for machining CNC turned parts in the learning field 6 "Programming and manufacturing on numerically controlled machine tools". Milling machine operators acquire this skill in the learning field 8 "Programming and manufacturing with numerically controlled machine tools" during their second year of apprenticeship. Furthermore, both apprenticeship jobs receive inter-company

CNC turning training at a secondary educational institution. Because the AR system is based on such an educational institution, it is possible to rely on apprentices who have already completed this training. CNC turning courses are held twice a year at this educational institution for each apprenticeship profession. Typically, each of these courses has between 8 and 10 apprentices participating. With these four courses (2x precision machinist, 2x milling machine operator), the total number of participants is 32-40.

OPERATIONALISATION

Standardised knowledge tests, which only examine knowledge retention, are usually used to measure learning effects (Stratmann et al., 2009). The ability to apply what has been learned in real action is not tested (cf. Rauner, 2010). However, this is the objective of the learning process within the AR-learning system.

The AR-learning system can record the individual action steps and the sequencing of actions. This also includes data on how often which operational unit of the action was processed and how long the apprentices needed for an action step and the outcome. For the investigation of the research question and the hypotheses, a reflection interview is used to collect the gained experience of the apprentices (cf. Hacker, 2008). During the interview, the connection between the performed action and the experience will be verbally expressed by the apprentices. Table 3 provides the learning dimensions along with their operationalisation.

A preliminary investigation is required to make the verbal explanations in the interview of the analysed problems during

setting up, the planning and carrying out of set-up the CNC lathe, their evaluation of the set-up process regarding its outcome on the manufacturing process, and the evaluation of the whole set-up process of the learning effects quantifiable. The categories and characteristics of the dimensions of the learning effects are deductively derived from the didactic idea and inductively adapted in this study. On this premise, a partially standardised survey will be designed. The results of this survey are then used to quantify learning impacts in other domains.

Table 3: Learning effect dimensions and their operationalisation

Learning dimensions	Operationalisation	
	Quantitative **Data from FeDiNAR-System**	**Qualitative** **Data from reflection interview**
Dimension 1 Analysing problems during set-up	· Which error occurred? · How often did which error occur?	· What problems have arisen? · Which errors can occur if the tools are not properly arranged? · What errors can occur if the tools are not picked correctly?
Dimension 2 Planning the set-up	· Looked at technical drawing? · Looked at CNC programme? · Looked at flow chart? · Looked at equipment plan?	· Why were these tools selected? · Why were the tools in the turret arranged this way? · How was the flow chart created? · How was the equipment plan created?
Dimension 3 Carrying out the set-up	· Chosen tools? · Which tools are in which position? · Which tools from the table were used?	· Why were these tools selected? · Why were the tools in the turret arranged this way?
Dimension 4 Evaluating the set-up outcome regarding the production process	· Looked at inspection report? · Did an error occur? · Which error occurred? · Which action steps were made after the occurrence of an error?	· How was the equipment inspection report created? · Did an error occur? · What error occurred? · How did the consequence of the errors manifest? · What caused this error? · How can the set-up process be improved to meet the guiding idea for manufacturing?
Dimension 5 Evaluating the set-up process	· Which action steps were performed again? · How often was an action step changed?	· What types of errors can arise during CNC lathe setup? · How can the set-up process be improved to meet the guiding idea? · Which action was modified? · How was the action modified? · Why were these actions modified?

STUDY DESIGN

A field survey with a mixed-method approach is planned to investigate the research question and the hypotheses (Creswell & Plano Clark, 2018). The study will be conducted in a between-subjects design, in which the independent variable, the learning condition, varies between the subjects. Likewise in the hypotheses, there are three learning conditions in which the sample is divided (cf. Giesbrecht & Gumpertz, 2004):

- **Group 1:** Learning condition 1: Apprentices who learn with all functions of the AR system
- **Group 2:** Learning condition 2: Apprentices who learn with machine stop-function of the AR system
- **Group 3:** Learning condition 3: Apprentices who learn with the classical learning process

Course of the experiment

All three groups receive the same learning and work task and work on the CNC lathe. To consider different prior knowledge, skills, and abilities depending on the training company, the prior knowledge is recorded in a preliminary survey. After this survey, the apprentices are divided equally into three groups based on their prior knowledge.

The apprentices in group 1 learn with all functions of the AR system. When an apprentice of this group makes an error, the CNC lathe stops at the corresponding point shortly before the error consequence occurs, and the consequence is displayed in AR. The machine then moves back to a defined starting position. This provides the opportunity for the apprentices to anal-

yse their error and to recognise the cause of the error in their actions. Then, the apprentices have the opportunity to adjust the corresponding action step where they suspect the cause of the error. Once finished, they can restart the manufacturing programme and find out whether or not they were able to correct the error.

The apprentices in group 2 learn with the machine stop-function of the AR system. The AR-learning system only runs in the background to stop the machine in case of critical errors, but without displaying anything virtually in AR. This allows group 2 to work independently on the learning and work task. The machine also stops at the point where the error consequence will occur, as it did for the first group, and moves back to a starting position. Thus, the apprentices are allowed to make mistakes, but they do not receive any information about the consequence of their mistakes. However, they can conclude at the point in the production programme where the machine stops in which of their action steps they have made an error.

The apprentices in the third learning condition learn with the classical learning process. The classical learning process was examined within a company who trains apprentices in dual-education. Training personnel have the task of monitoring the steps taken by the apprentices. The training personnel recognises whether an error occurred and then intervenes before an error consequence can occur. However, this does not happen right before the consequence, as it occurs in the AR-learning system, but already before the machine is started. In this way, any critical errors can be stopped with a degree of certainty. The training personnel supports the apprentice by explaining the cause of the error and the consequence of the error.

The dependent variables are the dimensions of the learning effect:

- **Dimension 1:** Analysing problems during the set-up
- **Dimension 2:** Planning the set-up
- **Dimension 3:** Carrying out the set-up
- **Dimension 4:** Evaluating the set-up outcome regarding the production process
- **Dimension 5:** Evaluating the set-up process
- **Dimension 5:** Correction of action

The AR-learning system records and categorises the actions of groups 1 and 2 (quantitative data) and will be interpreted according to the dimensions (cf. Abele, 2018). For group 3, the action is explained and documented in advance by the training personnel. To maintain comparability, only action steps that can be documented with the AR system are listed. The actions in group 3 are observed for this purpose, and any differences from the documented sequence are noted. This quantitative data collection of each apprentice's action steps serves as the foundation for an interview, which is used to explore the apprentice's experience during the learning and work task.

Following the learning and work task, the apprentices are interviewed in a discussion about their learning and work task (qualitative data). Based on a prepared guideline and the quantitative record of the action steps of each apprentice, a training employee conducts this reflection interview. The interview is taped, transcribed, categorised, and scored based on the aforementioned dimensions (Mayring, 2022).

SUMMARY

This paper describes the concept of a study that investigates the learning effects of an AR-learning system, where occurring errors and their consequences are visualised in AR when setting up a CNC lathe to manufacture a shaft. With the study, it is to be investigated if apprentices who learn with the AR-learning system can explain the connection between the action step they made and the experiences they made better than apprentices in a classical learning setting. The learning effect consists of the apprentices can analyse the problems during set-up, planning the set-up, carrying out the set-up, and evaluating the set-up process and outcome.

For the study, three groups are examined, all working on the same learning and work task but under different learning conditions. Group 1 learns independently and with all functions of the AR-learning system, which stops the machine before an error sequence occurs and visualises the error sequence. Group 2 learns independently but only with the machine stop-function of the AR-learning system. The AR-learning system stops the machine in case of critical errors, but without displaying anything virtually in AR. Group 3 learns monitored by a training personnel and learns on the CNC lathe as it is currently done in the apprenticeship of dual-education.

It is to be expected that group 1 demonstrates greater learning effects in all dimensions than those in group 2 who learn with the machine stop-function. Equally it is expected that group 1 demonstrates greater learning effects in all dimensions than apprentices who learn with the classical process. It is anticipated that apprentices who learn with the machine-stop function

demonstrate greater learning effects in all dimensions than those who learn in the classical learning process.

Based on the results, insight is generated into how such an AR-learning system can be used to promote vocational competence. Furthermore, criteria for the design of such an AR-learning system will be derived.

REFERENCES

Abele, S. (2018). Diagnostic Problem-Solving Process in Professional Contexts: Theory and Empirical Investigation in the Context of Car Mechatronics Using Computer-Generated Log-Files. *Vocations and Learning*, *11*(1), 133–159.

Atanasyan, A., Kobelt, D., Goppold, M., Cichon, T., & Schluse, M. (2020). The FeDiNAR Project: Using Augmented Reality to Turn Mistakes into Learning Opportunities. In V. Geroimenko (Ed.), *Springer Series on Cultural Computing. Augmented Reality in Education: A New Technology for Teaching and Learning* (pp. 71–86). Springer.

Azuma, R. T. (1997). A Survey of Augmented Reality. *Presence: Teleoperators and Virtual Environments*, *6*(4), 355–385. https://doi.org/10.1162/pres.1997.6.4.355

Bauer, J., & Harteis, C. (2012a). The ambiguity of errors for work and learning. In J. Bauer & C. Harteis (Eds.), *Professional and Practice-based Learning: Vol. 6. Human fallibility: The ambiguity of errors for work and learning* (pp. 1–17). Springer Netherlands.

Bauer, J., & Harteis, C. (2012b). The ambiguity of errors for work and learning. In J. Bauer & C. Harteis (Eds.), *Professional and Practice-based Learning: Vol. 6. Human fallibility: The ambiguity of errors for work and learning* (pp. 1–17). Springer Netherlands.

Bauer, J., & Mulder, R. H. (2007). Modelling learning from errors in daily work. *Learning in Health and Social Care*, *6*(3), 121–133. https://doi.org/10.1111/j.1473-6861.2007.00150.x

Bundesminister für Wirtschaft und Energie; Bundesministerium für Bildung und Forschung (20018). Zweite Verordnung zur Änderung der Verordnung über die Berufsausbildung in den industriellen Elektroberufen, https://www.gesetze-im-internet.de/mechatronikerausbv/BJNR151600011.html (2018). http://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&jumpTo=bgbl118s0678.pdf

Cattaneo, A. A., & Boldrini, E. (2017). Learning from errors in dual vocational education: video-enhanced instructional strategies. *Journal of Workplace Learning*, *29*(5), 357–373. https://doi.org/10.1108/JWL-01-2017-0006

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (Third edition). Sage. https://doi.org/John

Dick, M. (2008). Organisational Learning. In F. Rauner & R. Maclean (Eds.), *Handbook of technical and vocational education and training research* (pp. 458–465). Springer.

European Training Foundation. (2013). *Work-based learning: Benefits and obstacles: A literature review for policy makers and social partners in ETF partner countries*.

Fischer, M., & Bauer, W. (2007). Competing approaches towards work process orientation in German curriculum development. *European Journal of Vocational Training*, *40*(1), 140–157.

Fischer, M., & Boreham, N. (2008). Work Process Knowledge. In F. Rauner & R. Maclean (Eds.), *Handbook of technical and vocational education and training research* (pp. 466–474). Springer.

Frese, M., & Keith, N. (2015). Action errors, error management, and learning in organizations. *Annual Review of Psychology*, *66*, 661–687. https://doi.org/10.1146/annurev-psych-010814-015205

Giesbrecht, F. G., & Gumpertz, M. L. (2004). *Planning, construction, and statistical analysis of designed experiments*. Wiley.

Goppold, M., Tackenberg, S., Atanasyan, A., Cichon, T., Kobelt, D., Gamber, T., Roßmann, J., & Frenz, M. (2019). Systemkonzept und Modellierung beruflicher Handlungen im FeDiNAR-AR-Lernsystem. In T. Köhler, E. Schoop, & N. Kahnwald (Eds.), *Gemeinschaften in neuen Medien. Erforschung der digitalen Transformation in Wissenschaft, Wirtschaft, Bildung und öffentlicher Verwaltung* (pp. 12–23). TUDpress.

Hacker, W. (2008). Research Methods: Interview and Observation Methods. In F. Rauner & R. Maclean (Eds.), *Handbook of technical and vocational education and training research* (pp. 738–739). Springer.

Howe, F., & Knutzen, S. (2013). *Digitale Medien in der gewerblich-technischen Berufsausbildung: Einsatzmöglichkeiten digitaler Medien in Lern- und Arbeitsaufgaben*. Bonn. Bundesinstitut für Berufsbildung (BIBB).

Kapur, M. (2015). Learning from productive failure. *Learning: Research and Practice*, *1*(1), 51–65. https://doi.org/10.1080/23735082.2015.1002195

Kerres, M. (2013). *Mediendidaktik: Konzeption und Entwicklung mediengestützter Lernangebote* (4., überarb. und aktualisierte Aufl.). Oldenbourg. https://doi.org/10.1524/9783486736038

Kobelt, D., Herrmann, J.-P., Tackenberg, S., & Gamber, T. (2020). Petri-Netz Architekturen zur Modellierung von menschlichen Fehlern und Fehlerauswirkungen in Arbeitsprozessen. In Gesellschaft für Arbeitswissenschaft (Ed.), *Digitaler Wandel, digitale Arbeit, digitaler Mensch?* (B.17.1). GfA-Press.

Kultusministerkonferenz (25.02.2010). Rahmenlehrplan für den Ausbildungsberuf Feinwerkmechaniker/ Feinwerkmechanikerin, Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland.
Kultusministerkonferenz (23.02.2018). Rahmenlehrplan für den Ausbildungsberuf Zerspanungsmechaniker/ Zerspanungsmechanikerin, Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland (2018).
Mayring, P. (2022). *Qualitative content analysis: A step-by-step guide*. Sage.
Polanyi, M., & Sen, A. (2009). *The tacit dimension* [Nachdr.]. Univ. of Chicago Press.
Rauner, F. (2010). KOMET – Messen beruflicher Kompetenz im Berufsfeld Elektronik. *Berufsbildung in Wissenschaft Und Praxis*, *39*(1), 22–26.
Rauner, F. (2013). *Competence development and assessment in TVET (COMET): Theoretical framework and empirical results*. *Technical and vocational education and training: Vol. 16*. Springer.
Rebmann, K., Tenfelde, W., & Uhe, E. (2005). Didaktik beruflichen Lernens und Lehrens (D). In K. Rebmann, W. Tenfelde, & E. Uhe (Eds.), *Berufs- und Wirtschaftspädagogik* (pp. 173–200). Gabler Verlag. https://doi.org/10.1007/978-3-663-05768-0_8
Stratmann, J., Preussler, A., & Kerres, M. (2009). Lernerfolg und Kompetenz: Didaktische Potenziale der Portfolio-Methode im Hochschulstudium. *Zeitschrift Für Hochschulentwicklung*, *4*(1), 90–103.
Tramm, T., & Naeve, N. (2007). Auf dem Weg zum selbstorganisierten Lernen – Die systematische Förderung der Selbstorganisationsfähigkeit über die curriculare Gestaltung komplexer Lehr-Lern-Arrangements. *Berufs- Und Wirtschaftspädagogik - Online*(13).
Walden, G. (2008). Cooperation between Learning Venues and Training Partnerships. In F. Rauner & R. Maclean (Eds.), *Handbook of technical and vocational education and training research* (pp. 379–384). Springer.

ACKNOWLEDGEMENTS:

The contribution of this article is part of the projects "LeBiAC" and "FeDiNAR". The project "LeBiAC" is part of the "Qualitätsoffensive Lehrerbildung", a joint initiative of the Federal Government and the *Länder* which aims to improve the quality of teacher training. The programme is funded by the Federal Ministry of Education and Research (reference number 01JA1813). The project "FeDiNAR – Didactical Use of Errors with the

Help of Augmented Reality" is funded by the Federal Ministry of Education and Research (BMBF) as part of the "Digital Media in Vocational Education and Training" programme and is supported by the German Aerospace Center (DLR) under the funding code 01PV18005A.

Top dead center: the transformation of a lexical item into practical work in bilingual vocational education

Janne Kontio
Stockholm University
Department of Education
106 91, Stockholm
E-mail: janne.kontio@edu.su.se

ABSTRACT:

The present study focuses on second language users in the language learning environment of an English-medium content and language integrated learning (CLIL) workshop at an auto mechanics class in a Swedish upper secondary school. Data are drawn from video-ethnographic work during two years in a Vehicle engineering program taught in and through a foreign language; English.

The settings of Swedish schools of auto mechanics have recently been defined in various studies as a very rich soil for researchers to dig deeper into issues of language, learning and the productions of identities due to very rapid changes undergone by the program in the last decade (cf. Kontio, 2016; Nehls, 2003; Rosvall, 2011). Traditionally the students of auto mechanics in Sweden have leaned heavily on very normative masculine understandings of what learning in school in general is and spe-

cifically manifested in a disinterest in second language learning (Beach et. al., 1999).

The analyses here concern how and in what ways a certain second language lexical is transformed from teacher-impelled learnables, into the contextualization and visualization of the concept, and finally as actual professional practice, and how this can be seen to play an important role in building an English-speaking classroom community of becoming professionals of bilingual auto mechanics.

A linguistic ethnographic approach (Rampton, 2007) is taken in order to explore how teachers' and students' second language teaching and learning activities are organized. It is found that teachers introduce the lexical item first as a learnable, then how it can be used to engage in complex understanding, and finally how to implement the item in actual practice. It is here argued that engaging in these lexical learning trajectories should be seen as conditional for language learning and peer group participation at the English medium instruction Vehicle program.

The study also demonstrates that second language learning in vocational CLIL classrooms is orderly, it is related to the progression of learning trajectories, often made explicit by humorous interaction.

KEYWORDS:

CLIL, lexical acquisition, vocational education, language learning

INTRODUCTION

> These are words that you are going to see now that you will need. You will need them for next week, or the week after, depends on if you are in the workshop the first week or the second weeks. But they are not only for when you are in the workshop with me. They will be for the rest of your life. Yeah? You will see these words and expressions and you have to know what they mean. Otherwise, you will not be able to do the job. Yeah?

These are words spoken by one of the teachers in the Vehicle program studied, directed at students on a beginner's level. The teacher is putting emphasis on the fact that an appropriate professional language is needed to be able to work as an auto mechanic. Words are not only words that you need to recognise, learn to pronounce, but also, you need to know what they mean. And the students listening are not only to learn them for the coming week, no, they need to know these words and expressions, or they will not be able to do the job. This raises a few questions that begs the answer; what are these words; how do teachers of auto mechanics teach them, and in what situations and in what manners do students learn them?

The data in this study are drawn from 200 hours of video recordings of beginners of auto mechanics during collected during two years in an upper secondary school located in a mid-size Swedish town. The first year is almost completely taught in and through English and Swedish simultaneously, making this an example of a CLIL (content and language integrated learn-

ing) school (Coyle, 2007). At first glance, this might strike one as quite odd, as an anomaly in the Swedish school system; a vocational program that has such a significant focus on English as a language of instruction, a vehicle program at that. However, there are a number of reasons for this school to put this much emphasis on language learning amongst the students of auto mechanics; first of all there is a great demand from the business organisations to encourage teachers to teach the becoming atuo mechanics more English for a couple of reasons; for employability in different countries, for customer contact in a world where English is lingua franca in so many situations; but first and foremost it has to do with the increased linguistic demands on an auto mechanic – it is hard to find an instructions manual or a data base of a car brand in any other language than English. If you cannot make sense of instructions as a mechanic, especially as more and more instructions are brand specific, then you cannot do the job. The mechanics and business organisations have argued for more professional English in the education, and as many as ten schools in the studied part of Sweden offered the Vehicle program, to various extent, in English. However, this challenges traditional conceptions of how a student of auto mechanics is expected to appear.

Few identity characteristics have a bigger impact on a 15-year-old's choice, when asked to pick an upper secondary program, than gender (Beach et al., 1999). This has led to many Swedish vocational programs being very mono-gendered, mirroring the preconceptions of the society at large; girls are predominant in the Hair dressers' program, whilst there are more boys than girls applying for the Vehicle program. Thus, in Sweden at least, the student who applies for the Vehicle program has traditionally been defined as a man, who does not aim for higher studies,

who shows little to no interest in second language learning, and does not want to be seen as a swot (Kontio, 2016; Korp, 2011).

Though, in line with English increasingly becoming the language of instruction, we have also seen a demographic change among the students who apply for the program. In ten years, Kontio shows in his studies, the number of girls enrolling to become auto mechanics in Sweden has increased more than fivefold (Kontio, 2016). The reasons for this sudden increase, be it the fact that students seem to have great chances of getting a well-payed job after completing their studies, or if it is the fact that English as language of instruction has led to the demographic changes, has not been studied further, but it is difficult to neglect the fact that all these conversions add to a process of change in the professional identity of the auto mechanic. And given that English has a more prominent presence in the auto workshops in schools, raises new questions; how do the students learn a professional language in CLIL? When following the students for a longer period of time, is it possible to map out certain patterns or trajectories of learning when acquiring not only a new (professional) language, but also simultaneously learning a profession, and what characterises them?

This chapter aims to answer these research questions by relying on theoretical conceptualizations of learning as changes in participation, and by analysing video ethnographic data through the lens of ethnomethodologically inspired conversation analysis, in order to present the trajectories of learning when learning to become a bilingual, professional auto mechanic. Put differently; this chapter will try to put into words how students learn words needed, not only in the workshop in school, but also, to paraphrase the teacher in the introducing quote above; to be able to do the job.

THEORY AND METHODS

LEARNING IN INTERACTION

When forming and developing their linguistic practices in their everyday life in school in general, and in the auto mechanic workshop more specifically, the students studied here are establishing their interactions, relations, and identity processes within a specific practice. These environments and practices have traditionally been researched through different speech community approaches (Gumperz, 1968; Hymes, 1972). Though in recent years, the conceptualization of learning as changes in participation has become more prominent when analyzing how professional identities are accomplished in classroom interaction. Here Lave and Wenger's (1991; Lave, 1993) notion of learning trajectory has been very useful to expand our understanding of how students learning a profession can move from peripheral to full participation while following a path of learning, and how when moving towards a fuller participation, you also make changes in participation. In detailed analyses of how different situations are related, and oriented towards by the participants, we can describe and understand why the studied humans do not meet the world as a completely new world in every lived moment.

Billet (2001) points out that students in vocational educations must engage with work-based knowledge that include many cerebral dimensions that affect how knowledge is acquired, but also the ways in which students engage in social practices. Along these lines, Lave and Wenger (1991) note that vocational learning implies becoming a different person with respect to the possibilities enabled by these systems of relations. Thus, professional identity issues are important objects to study closer when look-

ing into how the students of auto mechanics learn a professional language. This view of learning as changing participation is radically different from theories of second language acquisition that frame language learning as a cognitive process existing only in the mind of the learner (Long & Doughty, 2011). The view taken in this chapter is of language learning as a situated, social process, executed amongst the students and teachers studied. In this perspective, language learning is seen as the participants' progress along continuous learning trajectories and changing participation in practices, changes that lead from peripheral to a fuller participation and a growth of professional identity (see Schegloff, 1991).

The detailed analyses of the video recordings from the workshop setting provide the empirical ground for the developed argument.

CONTENT AND LANGUAGE INTEGRATED VOCATIONAL CLASSROOMS

Although there has been an emphasis on developing CLIL across educational settings in a political European school policy perspective, there are still few in-depth studies of (especially vocational) CLIL classrooms (Dalton- Puffer et al, 2007; Duff, 1995; Nikula, 2010). For some decades, interactional studies have found fruitful applications in a wide range of social practices, some of them closely related to education. But surprisingly, the field of vocational education has not attracted considerable attention (Filliettaz, 2010). Linguists interested in education have mainly focused their investigation on ensuing school institutions and classroom practices (Rex et al., 2006), whereas

linguists involved in workplace studies have not been primarily interested in education and have often failed to approach the workplace or vocational education as a site for learning or training (Candlin, 2002; Mondada, 2006; Sarangi & Roberts, 1999). Conversely, it should be noted that vocational education researchers have remained remarkably distant from linguistic and classroom perspectives.

Nevertheless, there is a handful of studies that have had an approach towards language learning and professional identity work within everyday practice in vocational settings (see: Hüttner et al, 2013; Jexenflicker & Dalton-Puffer, 2010; Kontio, 2016; Kontio & Evaldsson, 2015; Præstmann Hansen, 2009; Fillettaz, 2010). However, none of them have looked closely at learning trajectories in CLIL VET classrooms.

METHODS

The interactional approach used here to understand second language learning, language use and professional identity work, is an eclectic combination of *linguistic ethnography* as a framework for studying language use (Bucholtz & Hall, 2005; Rampton et al, 2004; Rampton, 2007); ethnomethodological *conversation analysis* with a focus on participant perspectives and identities (Gafaranga, 2001; Garfinkel, 1967; Stokoe 2012); and the concept of *communities of practice* (Eckert & Rickford, 2001; Lave & Wenger, 1991; Wenger, 1998). Common to the three different orientations is an overarching aim of pursuing to understand language use and identities as both locally produced and situated in interaction, as well as socio-historically coded.

A common expression in the literature of Linguistic Ethnography is that the approach 'opens linguistics up and ties ethno-

graphy down' (Rampton et al. 2004: 4). This means that the ethnographic approach opens up new fields of everyday data for linguists, data that go beyond standardized descriptions of language structure and language use and give insights into the complex world of naturally occurring talk. On the other hand, linguistics gives the linguistic ethnographers tools to tie down their empirical data so that the researcher does not draw overgeneralized conclusions in relation to the participant's own experience (Rampton, 2007).

In this chapter I have applied a conversation analytic methodology (henceforth CA) to analyze and describe the second language learning trajectories that take shape when the students learn to use the correct technical lexical items in the interactions (Schegloff, 2007; Sidnell & Stivers, 2014) during class. In line with CA's radical participant's perspective, the organizations of talk-in-interaction are seen as ongoing sense-making practices of participants' social interaction. This means that I examine which actions are made relevant at a specific moment in the interaction, and how they are made relevant from the participants' points of view, and the method involves the use of the participants' demonstrated understandings of each other's actions, and thereby provide material for analysis (e.g., Schegloff, 2007). When approaching the data like this, the video recordings are transcribed in detail according to specific conventions (e.g., Hutchby & Wooffitt, 2008).

An organizing feature when constructing the trajectories of learning is the participants' orientations to aspects of the activity as being the same. In other words, a criterion for the selection of a specific activity was that it was possible to follow the development of a content of interaction over time. Tracking the

learning and use of a specific lexical item in this study opened up the possibility of arguing continuity and change in relation to the specific content, oriented to and accomplished by the participants. These are thus not merely methodological questions guiding the compilation of the orientations to a same content at different moments in time, but an analytical issue fundamentally related to the aims of the study.

In line with much previous interaction research (see Pekarek Doehler et. al., 2018 for an overview), it is here argued for the importance of constructing longitudinal collections, where the collections of interactional phenomena are organized in a way that respects the sequential and thus chronological development of the activities. In the ethnographic analyses below, the order in which the activities developed is also followed. To track how the activity unfolds is crucial in order to capture and analyze processes of learning, how shared understanding evolves, and how the participants are orienting towards change.

RESULTS

In the analyses below I have followed a specific lexical item, a phrase that denominates a concept that is central when learning about the combustion engine; namely that of 'top dead center'. When looking under the bonnet of a car you are likely to find an engine. Given that it is a combustion engine, then that engine has a certain number of cylinders. Inside the cylinder there is a moving piston. Pistons are always moving up and down, and as a piston moves upward, it compresses the air and fuel in the combustion chamber. When the piston reaches the very top, the top dead center, the spark plug is used to ignite the fuel and air

– resulting in an explosion that pushes the piston back down. This is a continuous process that happens within the engine for as long as the engine is running. To understand this process is fundamental for a mechanic. To teach and learn this word and concept, in a foreign language at that, and to co-construct learning in interaction, is the task at hand for the teachers and students in the following three extracts.

3.1 TDC AS A TEACHER IMPELLED LEARNABLE

The students have begun their first year at the Vehicle program at the upper secondary school. The first few weeks have been filled by getting to know one another and the surrounding environment. The foci of teaching have been to make sure that all students know about safety in the workshop and the names of all the different tools in the toolbox. Once they feel safe among the tools and cars, they also need to know the names of the different parts of a car before starting to work as mechanics amongst the cars.

The vocational teachers work closely with the English as a foreign language (EFL) teacher. They often visit each other's classrooms and workshops, to further blend content with language, which is the main theme of the particular CLIL educational setting. In this EFL classroom the students are seated around tables, and they are all turned towards a projection of words on the white board. One word at the time will arrive on the wall and the students are asked, one by one, to read the word out loud and then try to figure out what it means. They are all words that they have met in previous classes, both in EFL and, more prominently, in the workshop.

The turn has come to the lexical item 'TDC':

1.	Teacher	Oh (.) That's a little easy: one. Sven.
2.	Student 1	T D C
3.	T	Ah Is it your turn↑ ((teacher turns to Student 1))
4.		(2) Sven (.) could you say the word (.) letters?
5.	Sven	T-
6.	T	T
7.	Sven	TDC
8.	T	DC
9.	T	Yeah↑ What do you think TDC means?
10.	Sven	Turbo:: Diesel
11.	T	Jah-ah, it could be man (.) ah, but it's not
12.	S1	°Top dead center°
13.	T	Sorry↑
14.	S1	Top dead center
15.	T	Very very good (1.5) Yeah (.) And that's the problem here.
16.		Because if you go to a workshop manual (.) you will never see
17.		Top - Dead - Center.
18.		It is always shirt- shortened. Maybe it is shirtened. (hhh)
19.		Shortened to TDC. Yeah?
20.		Top (.) Dead (.) Center

Figure 1. Teacher stands up, students face the white board with the lexical item 'TDC'

The words pop up at random on the board, as you can tell by the surprised 'Oh' expressed by the teacher on line 1. The teacher then appoints Sven as the student to respond, to read out the word and try to figure out what it means. Sven is interrupted by another student who does his work for him. The student is hushed and corrected by the teacher (line 3) before Sven is handed back the word (4). Sven, a bit hesitantly, reads out the word, or the abbreviation rather, with the help, support, and affirmation of the teacher. Sven is then asked if he knows what TDC stands for, and Sven makes a qualified guess, using words from the Vehicle workshop (line 10). Could it have something to do with turbo diesel? The teacher responds with jokingly, that it could be, but it is not (11), an approach well used by the teach-

ers in the studied classrooms (see Kontio, 2016). The correct answer is then, cautiously delivered by one of Sven's classmates. After asking to repeat the answer, the teacher then confirms the correct answer and adds that this word is most often used in its abbreviated form in the texts of auto mechanics. And after stumbling on the words, he ends this situation by emphatically reproducing the lexical item (20).

The close collaboration between the auto mechanics teacher and the EFL teacher is here seen not only in that the two teachers are present, but also in that they have the EFL class in a classroom adjacent to the workshop. Furthermore, the class is setup as a traditional EFL class, in how the call-response setup, or Initiation-Response-Evaluation sequence (Bauersfeld, 1988); the teacher asking the students to read a lexical item out loud before expanding and elaborating on the meaning) is executed reminds us of vocabulary teaching strategies often implemented in foreign language classrooms (Gu, 2005; Chung, 2012).

The work here is by no means done. The next step is to develop an understanding for said lexical item. In the following month the students are having a theory lesson in the workshop, where the goal is to understand how the combustion engine works.

The teacher has a put a model of a cylinder on top of an overhead projector. The model is physical, and you can move the piston up and down inside the cylinder, opening and closing valves, representing the inner workings of an engine in motion. The students are sitting on chairs watching the teacher and the model on the projected images on the wall behind the teacher. The teacher stops the model and points with a large pointer to the different parts, especially the valves and states the following:

3.2 THE USE OF TDC AS TO DISPLAY COMPLEX UNDERSTANDING

1.	Teacher	Ok (.) That valve is closed. That valve is closed.
2.	T.	The piston is where?
3.	Student 1	The top
4.	T.	Ah
5.	S1	It's going down.
6.	T.	Where is the piston now?
7.	S1.	At the top
8.	T.	Yeah (.) When it is at the top (.) what do we call it?
9.		(2)
10.	T.	What do we call it when the piston is at the top?
11.		(2.5)
12.	T.	It's one of the words Sofia and I gave you.
13.		(2)
14.	T.	T (.) D (.)
15.	S.2	C
16.	T.	C
17.		Top
18.	S.2	>dead center<
19.	T.	dead center
20.	T.	Yeah (.) The piston is in top (.) dead (.) center (.) Yeah?

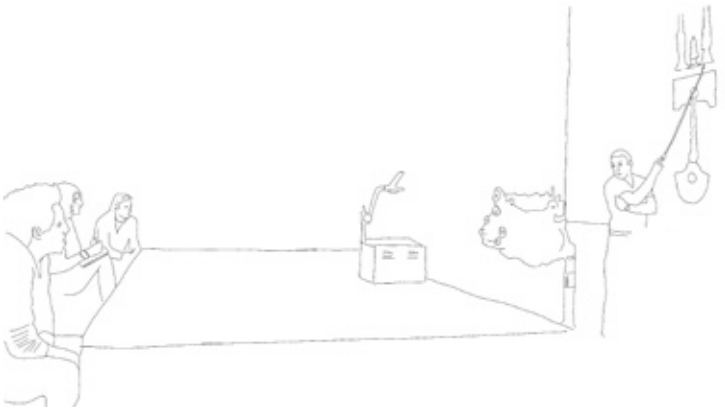


Figure 2. Teacher pointing at an image of a piston (right) to students (left)

In line (1) the teacher points out that the intake valves are closed, he then asks the students to identify where the piston is in relation to verticality inside the cylinder (2). When he gets the preferred response from the students, confirming their reading and understanding of the image showed on the wall, the teacher then asks for what lexical item, what professional term, that this position corresponds to (8). He repeats the question a couple of times, giving lots of interactional space for the students to nominate suggestions, and he then in lines 14-16 surrenders to a common didactical strategy in CLIL classrooms, he tries to elicit the correct answer by giving a part of the correct answer to the students, trying to draw out the lexical item in tandem with the students (Milla & Mayo, 2021).

This turns out to be a more prosperous strategy, as he succeeds in getting the students to apply their newly learned word,

both in its abbreviated form and in full. This is further underlined when the teacher repeats the correct words and closes his statement with a tag-question, as to get confirmation that all students present are on the same page, so to say.

So, the lexical item has now begun its transformation from a vocable, into expanding on the understanding of the internal functions of a combustion engine, and it is now time to see how the students apply their newly conquered knowledge into practical work.

Half a year has passed since the students first met the lexical item in the EFL classroom, they have been taught very many things inside the auto mechanics workshop since, and they are now working on actual customer's cars. It is a common practice in auto mechanics schools in Sweden, that friends and family can ask the school if they need any car to work on. And if the car has some issues that needs fixing, that align with what the teachers are teaching at the moment, then this is very much a win-win situation.

Now a group of students are working on re-fitting a timing belt on to an engine. This is a multifaceted task that requires a complex understanding of how the engine works. The pistons need to be in very exact positions for the timing belt to work properly. You see to it that a cylinder has its piston in top dead center position, you make marks on the belt, and you try to align the belt to the marks.

The three students have been working meticulously on the project and have now reached a point where they just need the teacher to give his expert opinion on whether they have accomplished their task or not.

So, the student calls for the teacher to come and check:

3.3 TDC AS USED IN PROFESSIONAL PRACTICE [TØ-DØ-SØ]

1.	Student 1.	You can check no::w
2.	Teacher.	I can check now? Ok
3.	T	Check-check-check-check-check ((Sing-song voice))
4.	S1	The marks and even what you want
5.	T	Ok (.) So:: (2.5) Look down at the bottom (.) ((the teacher point down
6.		the open bonnet)) And the mark is on
7.	S1	[tø-dø-sø]
8.	S2	[tø-dø-sø]
9.	T	[tø-dø-sø] And that one is smack on. And that one is smack on.
10.		But the (2) what's the matter there?
11.		(3)
12.	T	Look where I have the light. ((Points with a flashlight))
13.	S1	Twenty degrees (.) eh::
14.	T	What is wrong there? (.) Yeah so
15.		you gotta get the tensioner right. (2) And it is not right, is it?
16.	S1	But how we gonna take:: eh (.) when we hold it and stick it in

17.		((Figure 3))
18.	T	When you hold it and stick it in? That didn't sound]
19.	S1 S2	[Hehehe
20.	T	Very polite
21.		(3)
22.	S1	So, no it's right ((tries to pinch the tensioner))
23.	T	Yeah but you can't hold it there can you?
24.	S1	Men ((Swedish 'But')) how we gonna hold it there?
25.	T	Because you have to (.) Take your finger away, please. You have
26.		to release that, yeah? Which is released now. And there in the
27.		side you have to put a ((goes to get a special tool))

Figure 3. Teacher (right) repeats 'hold it and stick it in'

In the first lines of the extract, the student calls for the teacher and the teacher appears for inspection. The student tells the teacher that he can now look for and inspect all aspects of their work, as he thinks that they are done with their task (line 4). The teacher examines the engine and the timing belt and notices right away that not all marks are not aligned. He points to one of the marks and the students note that the timing belt hits the mark, and that the piston must be in top dead center. However, the lexical item itself has now morphed with the surrounding Swedish dialect and is pronounced by the students as [tø-dø-sø] (7-8), which the teacher acknowledges (9). He then concludes that two marks have been hit but that there is trouble with the third mark, the tensioner is not tense enough to hold the belt in the correct position. The student then questions how it is possible to apply force to the tensioner whilst fitting the belt, and he expresses this in English (note: a second language for

these Swedish students), and in doing so he produces a, presumably, unconscious sexual innuendo (16). This is quickly picked up by the teacher and the students have a laugh (17). The auto mechanic classroom teaching and interaction often leans heavily on laughter, humor and, not least, sexual humor (Kärnebro, 2013; Kontio, 2016). The student tries to save face by acting out what he tried to explain in previous lines by pinching the tensioner. The teacher then explains that the student cannot hold his hand there forever and moves on to propose a solution to the problem and leaves the car to go get a special tool (25-27).

ANALYSIS

Lave and Wenger's (1991; see also Lave, 1993) notion of a learning trajectory, that the learning individual moves along, from legitimate peripheral participation to full participation, can be applied here to describe the changes in participation and the learners' trajectories. We can see how the introduction of a lexical item is brought about by the EFL teacher and auto mechanic teacher in tandem in the first excerpt. As time goes by, the students are then taught how to use the vocable to expand their knowledge of the inner processes of an engine. Then finally, we can see how, months later, the students, in a jocular manner, transforms the lexical item and the complex understanding of auto mechanics, through contextualization and visualization, into actual work, and how the students and teachers come to a common understanding of different issues with the students' performance with a customer's car. In doing so, the students perform becoming a part of a community of practice.

DISCUSSIONS

The analyses concern how and in what ways certain second language lexicals are transformed

1. from teacher-impelled learnable,
2. into visualizations and contextualization of the concept
3. and finally, as implemented in actual professional practice,

and how this can be seen to play an important role in building an English-speaking classroom community of becoming professionals of bilingual auto mechanics.

Taking an ethnographic approach to linguistic features has allowed for a detailed investigation of when and how learners and teachers are positioned and position themselves within interaction in relation to a learning trajectory. Applying linguistic ethnography ties down the ethnographic data collected and opens up for conversation analysis. CA is here used to further deepen our understanding of the sequentiality of how students learn in interaction, and in what order.

When analyzing the trajectory of learning in the extracts pulled out to this chapter, it has become clear that the work done by the teachers, to introduce a lexical item and putting it into work to expand an understanding for a complex vehicular process, can be traced to have an important impact on how the students then use and reproduce professional knowledge in practical work.

Furthermore, this chapter tries to expand CA in VET research by the way of analyzing the trajectories of activities that develop and extend beyond the immediate sequential context. The lon-

gitudinal data collection has allowed for analyses of how learning trajectories are produced and how the participants progress along these trajectories, that lead not only from not-knowing into professional and practical learning, but also from peripheral into a fuller participation and growth. The conceptualization of learning as changing participation has been formulated differently by researchers. I tend to lean more towards Hellermann's understanding that it is important to analyze members' change in participation in activities within a community of practice over time (2008:13). Learning is not done in any one of these three extracts, one could argue, but rather, learning can be seen in a change in participation when analyzing the entire learning trajectory over time. In these extracts we can see that the students are introduced to a lexical item, then conquer its meaning, and finally they own the lexical item, even changing its pronunciation and putting it into work in actual practice. Even though most of the interactional work in the extracts here is done by the teacher, it is here argued that the learning trajectory amongst the students is to be seen of movement from a peripheral to a fuller participation.

However, this chapter, no matter how ambitiously it sets out to be in capturing and analyzing learning over time, it only delivers a small insight into how students of auto mechanics learn a professional language in CLIL classrooms. More research is needed in mapping out patterns and trajectories of learning when being taught a profession in a second language. The results here indicate that students' participation changes when becoming a fuller member of a community of practice, and it would certainly be interesting to further study how this is done in different contexts.

REFERENCES

Bauersfeld, H. (1988). Interaction, construction, and knowledge. Alternative perspectives for mathematics education. In D. A. Grouws & T. J. Cooney (Eds.), *Perspectives on research on effective mathematics teaching: Research agenda for mathematics education* (Vol. 1, pp. 27–46). Reston, VA: NCTM and Erlbaum.

Beach, D. (1999). *Utvärdering av fem gymnasieprogram 1998: huvudrapport*. (1999). Stockholm: Statens skolverk [http://www.skolverket.se/publikationer?id=512; Nov 2011].

Billett, S. (2001). *Learning in the Workplace: Strategies for Effective Practice.* Crows Nest: Allen and Unwin.

Bucholtz, M., & Hall, K. (2005). Identity and interaction: A sociocultural linguistic approach. *Discourse Studies*, 7(4/5), 585-614.

Candlin, C. (2002). *Research and practice in professional discourse*. City University of Hong Kong Press.

Chung, S. F. (2012). Research-Based Vocabulary Instruction for English Language Learners. *Reading*, 12(2).

Coyle, D. (2007) Content and Language Integrated Learning: Towards a Connected Research Agenda for CLIL Pedagogies, *International Journal of Bilingual Education and Bilingualism*, 10:5, 543-562.

Dalton-Puffer, C. (2007). *Discourse in content and language integrated learning (CLIL) classrooms.* Amsterdam; Philadelphia; John Benjamins Pub.

Duff, P. (1995). An ethnography of communication in immersion classrooms in Hungary. *TESOL Quarterly*, 29: 505-537.

Eckert, P., & Rickford, J. (eds.) (2001). *Style and Sociolinguistic Variation*. Cambridge University Press.

Fillettaz, L. (2010). Interactions and miscommunication in the Swiss vocational education context: Researching vocational learning from a linguistic perspective. *Journal of Applied Linguistics and Professional Practice*, 7(1): 27–50.

Gafaranga, J. (2001). Linguistic identities in Kyratzis. *Journal of Pragmatics* 33, 1901-1925.

Gu, P. Y. (2003). Vocabulary learning in a second language: Person, task, context and strategies. *TESL-EJ*, 7(2), 1-25.

Gumperz, J. (1968). The Speech Community. In: A. Duranti (ed.), *Linguistic Anthropology: A reader* 1:66-73.

Hüttner, J., Dalton-Puffer, C., & Smit, U. (2013). The Power of Beliefs: Lay Theories and their Influence on the Implementation of CLIL Programs. *International Journal of Bilingualism and Bilingual Education* 16(3): 267-284.

Hutchby, Ian & Wooffitt, Robin (1998). *Conversation Analysis: Principles, Practices and Applications.* Oxford: Polity Press.

Hymes, D. (1972). Models of the interaction of language and social life. In J. Gumperz & D. Hymes (Eds.), *Directions in sociolinguistics: The ethnography of communication* (pp.35-71). New York: Holt, Rhinehart & Winston

Jexenflicker, S., & Dalton-Puffer, C. (2010). The CLIL differential: Comparing the writing of CLIL and non-CLIL students in higher colleges of technology. In: C. Dalton-Puffer, T. Nikula & U. Smit. (eds.), *Language Use and Language Learning in CLIL Classrooms,* [AILA Applied Linguistics Series, 7] (pp. 169–190).

Kärnebro, K. (2013). *Plugga stenhårt eller vara rolig? : Normer om språk, kön och skolarbete i identitetsskapande språkpraktiker på fordonsprogrammet.* (PhD dissertation, Umeå universitet).

Kontio, J. (2016). *Auto Mechanics in English : Language Use and Classroom Identity Work*. (Diss.) Uppsala university, Uppsala.

Kontio, J., & Evaldsson, A. C. (2015). 'Last year we used to call it a man's hammer':(un) doing masculinity in everyday use of working tools within vocational education. *NORMA: International Journal for Masculinity Studies*, *10*(1), 20-38.

Korp, H. (2011). What counts as being smart around here? The performance of smartness and masculinity in vocational upper secondary education. *Education, Citizenship and Social Justice*. 6(1): 21-37.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University press.

Lave, Jean (1993). The Practice of Learning. In Seth Chaiklin & Jean Lave (Eds.), *Understanding Practice. Perspectives on Activity and Context* (pp. 3-32). Cambridge: Cambridge University Press.

Long, M. H., & Doughty, C. J. (Eds.). (2011). *The handbook of language teaching* (Vol. 63). John Wiley & Sons.

Milla, R. & Mayo, M. (2021). Teachers' oral corrective feedback and learners' uptake in high school CLIL and EFL classrooms. *Vigo International Journal of Applied Linguistics*. 18(1): 149–176.

Mondada, L. (2006). Video recording as the reflexive preservation and configuration of phenomenal features for analysis. In H. Knoblauch, J. Raab, H.-G. Soeffner & B. Schnettler (eds.), *Video analysis*. Bern: Lang.

Nehls, E. (2003). *Vägval: lastbilsförare i fjärrtrafik - perspektiv på yrkeskultur och genus*. (Diss.) Umeå: Umeå University.

Nikula, T. (2010). On effects of CLIL on a teacher's language use. In C. Dalton-Puffer, T. Nikula, & U. Smit (Eds.), *Language use and language learning in CLIL classrooms* (pp. 105-124). Amsterdam, the Netherlands: John Benjamins.

Pekarek Doehler, S., Wagner, J. & González-Martínez, E. (red.) (2018). *Longitudinal studies on the organization of social interaction*. London: Palgrave Macmillan.

Præstmann Hansen, R. (2009). *Autoboys.dk: en analyse af maskulinitets- og etnicitetskonstruktioner i skolelivet på automekanikeruddannelsen.* (Diss.) Copenhagen, Copenhagen University.

Rampton, B. (2007). Neo-hymesian linguistic ethnography in the United Kingdon. *Journal of Sociolinguistics*. 11 (5): 584-607.

Rampton, B., Tusting, K., Maybin, J., Barwell, R., Creese, A. and Lytra, V. (2004) *'UK Linguistic Ethnography: A Discussion Paper'*, published at www.lingethnog.org.uk.

Rex, L., Steadman, S. C. & Graciano, M. K. (2006). Researching the complexity of classroom interaction. In J. L. Green, G. Camilli and P. B. Elmore (eds) *Handbook of Complementary Methods in Education Research,* 727-771. London: Lawrence Erlbaum.

Rosvall, P-Å. (2011). Pedagogic practice and influence in a Vehicle Program class. In E. Öhrn, L. Lundahl & D. Beach (eds.), *Young people's influence and democratic education. Ethnographic studies in upper secondary schools*. London: Tufnell Press.

Sarangi, S., & Roberts, C. (eds) (1999). *Talk, Work and Institutional Order. Discourse in Medical, Mediation and Management Settings*. Berlin: Mouton de Gruyter.

Schegloff, E. A. (2007). *Sequence organization in interaction*. Cambridge: Cambridge University Press

Schegloff, E. A. (1991). Conversation Analysis and Socially Shared Cognition. In Lauren B. Resnick, J.M. Levine & S.D. Teasley (Eds.), *Perspectives on Socially Shared Cognition* (pp. 150-171). Washington D.C.: American Psychological Association.

Sidnell, J. & Stivers, T. (eds.) (2014). *The handbook of conversation analysis*. Oxford: Wiley-Blackwell.

Stokoe, E. (2012). *Categorial systematics. Discourse Studies, special issue: Categories and Social Interaction: Current Issues in Membership Categorization* (Sage) 14(3): 345–354.

Wenger, E. (1998). *Communities of practice: learning, meaning, and identity*. New York: Cambridge University Press.

APPENDIX: TRANSCRIPT NOTATIONS

[	overlapping utterances, whether at the start of an utterance or later
]	indicates a point at which two overlapping utterances both end, where one ends while the other continues, or simultaneous moments in overlap which continue
(2.0)	length in seconds of a pause
(.)	a short untimed pause (less than 0,2 seconds)
(( ))	contextual description and accounts

(x)	an uncertain hearing of what the speaker said
Word	stressed syllable or word
°world°	degree signs indicate that talk is markedly quiet
>word<	left/right carats indicate that the talk between them is compressed
:	a prolonged stretch
=	continued speech
-	hyphen after a word indicates a cut-off or self-interruption
↑	up arrow marks a sharp rise in pitch

Choosing vocational education: Reasons and rationale of recently graduated journeymen in Iceland

Elsa Eiríksdóttir
University of Iceland
School of Education
Stakkahlíð, 105, Reykjavík, Iceland
E-mail: elsae@hi.is

ABSTRACT:

Most upper secondary school students in Iceland choose academic programmes over vocational and increasing vocational enrolment has long been an educational policy goal. It is therefore important to understand why vocational education is chosen and the aim of the study is to map the reasons vocational graduates provide for choosing their field. An online questionnaire was sent to all recently graduated journeymen in the certified trades in Iceland. The results indicate participants could be categorized by their prior work experience and knowledge; indicating different paths for recruitment. Interest (in the trade, the job, or practical fields) was the most common reason provided for choosing a vocational field. Other reasons cited were: practical concerns, coincidence, not choosing academics, working in the field, and the influence of family and friends. The findings reveal the complexity of reasons and rationale for choosing vocational education and provide a basis for further research.

KEYWORDS:

Vocational education, upper secondary schools, educational choice, career choice, enrolment.

1. INTRODUCTION

How to get more young people to choose vocational pathways has been a focal point in educational policy in Europe and the Nordic countries for the past few decades (e.g., Cedefop, 2020a; Helms Jørgensen, et al., 2018; Michelsen, 2018; Eiríksdóttir et al., 2018). This is due to young people preferring academic pathways over vocational when enrolling in upper secondary schools. Reasons for increasing vocational education participation are varied; from addressing the needs of those disadvantaged in the educational system, to finding ways to match skills and needs of the future economic system. Regardless of why it is deemed important that more young people choose vocational pathways, the overall policy emphasis has been clear, and Iceland is no exception.

In Iceland, there has been an effort to strengthen vocational education and training (VET) since the middle of the last century (Eiríksdóttir, et al., 2018; Jónasson, 1995; OECD, 2013), and this emphasis is still seen in the official contract and policy of the last two government coalitions (Government of Iceland, 2018, 2021). Strengthening VET usually refers to increasing enrolment and graduation rates in vocational programmes at the upper secondary level. Which means that a large portion of the effort revolves around getting more young people to choose vocational education. In the first part of the 21st cen-

tury there were various efforts in play with the aim of increasing VET enrolment, including new laws governing upper secondary education and a new curriculum guide (law nr. 92/2008; Ministry of Education, Science and Culture (MoESC), 2012, 2014). However, in 2017 the Icelandic National Audit Office (INAO), reported that despite these efforts the number of students enrolled in and graduating from VET had only decreased. The overall percentage of upper secondary students enrolled had remained around 30-32% on average (INAO, 2017; Statistics Iceland, 2021), which is consistently lower than the EU average of 47% (Cedefop, 2020b).

Explanations for the preference of academic over vocational education are varied – and relate to the issue of the parity of esteem between vocational education and academic education (Billett, 2014, 2020; Field og Guez, 2018). Academic education usually enjoys a higher status than vocational education and the fact that more young people choose academic pathways is taken as evidence of the disparity of esteem. Vocational education is often considered a dead-end in the educational system by young people and their parents; the perception is that it does not allow young people to keep their options open for the future as it generally does not offer access to higher education (Eiríksdóttir et al., 2018; Helms-Jørgensen et al., 2018; MoESC, 2014; Nylund, et al., 2018). Academic pathways at upper secondary schools and higher education following graduation are seen as the key to upward mobility and future options. Especially as academic drift and increased demand and requirement for university education has made this pathway predominant (Field og Guez, 2018; Jónasson, 2003).

The discussion on parity of esteem and status of vocational education is often centred on why young people do not select

vocational education. However, the other side of the equation – trying to understand why they do – is also important. If the goal is to increase enrolment in vocational education, it is necessary to figure out what makes it an attractive choice. The aim of the current paper is to map the reasons and rationale for why recently graduated vocational students chose a vocational field for study.

2. BACKGROUND

2.1 VOCATIONAL EDUCATION IN ICELAND

Vocational education in Iceland generally takes place at the upper secondary schools and there are no Universities of Applied Sciences or Vocational Colleges. Most vocational programmes take about 4 years to complete compared to 3 years for most academic programmes. Vocational programmes are found in 14 of the 32 upper secondary schools in Iceland. These are all comprehensive schools offering both academic and vocational education, five of which are located in the Reykjavik metropolitan area (Directorate of Education, n.d.a.).

Currently, there are about 80–100 different vocational programmes on offer (OECD, 2013; Directorate of Education, n.d.b.), but the largest proportion of vocational education are the so-called certified trades (Regulation on Certified Trades, No. 940/1999). In the certified trades a journeyman's exam is required to become a licensed practitioner, which is necessary for legally practicing in the field. The certified trades are for example electrical work, hairdressing, carpentry, plumbing, culinary arts, tailoring, and bookbinding. The vocational programmes for the certified trades are all organized as a dual sys-

tem where students have to complete courses at school and an apprenticeship at a company to graduate. The apprenticeship contract can range from 24 to 126 weeks, depending on the field and at the workplace the students work under the guidance of a master in the trade (Eiríksdóttir, 2017, 2018). After completing the programme, the students can take the journeyman's exam. The certified trades are the focus in this article.

Students graduate from compulsory education in Iceland at the age of 16 and over 95% of each cohort of young people enrol in upper secondary school. The majority are enrolled in academic programmes and only 15% on average enrolled directly into vocational programmes (Directorate of Education, 2018; Eiríksdóttir et al., 2018; Jónasson & Óskarsdóttir, 2016; Statistics Iceland, 2018, 2021). However, about 30% of upper secondary students are enrolled in vocational programmes overall. The discrepancy in percentages is explained by returning and second-chance students (often older) choosing vocational programmes, as well as students enrolled in academic pathways changing programmes (Blöndal et al., 2016; Eiríksdóttir et al., 2018). This suggests that vocational education is seen either as a second-best choice or only considered after the academic pathway has been attempted. Indeed, research on educational choice in Iceland does suggest that choosing an academic pathway is seen as the default (Blöndal et al., 2016; Eiríksdóttir et al., 2022; Gunnarsdóttir, 2019). Even if a large proportion of young people say they were more interested in practical or vocational subjects in elementary school, the majority still choose academic pathways in upper secondary schools (Blöndal et al., 2016; Svavarsdóttir, 2010). Interest is therefore clearly not the only determining factor when young people choose between academic and

vocational pathways. Indeed, the choice of educational pathways at the upper secondary level is a complex interplay of different individual and societal factors (Kidd, 2006; Mann, et al., 2020; Maxwell et al., 2000).

The question, who chooses vocational education and why can be approached from two angles: (1) general theories and research on what determines educational and career choice and (2) research specifically aimed at looking at why vocational education is selected. The former angle encompasses a wide array of research literature focusing on why a school, a programme or an occupation is chosen, falling under vocational psychology or occupational/career counselling. Whereas the second angle is more related to the issue of parity of esteem between vocational and academic education.

2.2 THEORIES ON EDUCATIONAL CHOICE

Theories on career decision making, especially initial entry to work or field, fall into a few different categories. The first main category are theories that focus on the person-environment fit and these have been dominant in the literature on career decision making (Gati & Asher, 2001; Kidd, 2006; Osipow, 1990). The basic tenet of these theories is that there should be a fit between the characteristics of the person and the vocation or environment in question. A good fit is expected to lead to well-being, satisfaction, and a sense of achievement (Gati & Asher, 2001; Holland 1997).

Research has to a large degree supported that individuals make career decisions based on their interest, but person-environment fit theories have also been criticized for not taking

into account other important factors. It has been pointed out that career decision making happens in context of a social background and prior experiences, and characteristics shaped by these experiences, such as self-efficacy, play a role (Betz, 2001; Gati & Asher, 2001; Kidd, 2006). Other theories on decision making have also emphasized these factors. Structural theories focus for instance on the social environment of individuals, such as family background, social-economic status and gender, and explain how this delimits the educational and career choices and opportunities available (Kidd, 2006). Another category of theories focuses on both social and cognitive dimensions and how educational and career choice is influenced by self-efficacy and outcome expectations. Self-efficacy refers to the view individuals have of their own capabilities, either in general or in specific domains, while outcome expectations refer to beliefs about probable outcomes (Betz, 2001; Lent et al., 1994). Research has shown that self-efficacy plays an important role – especially in terms of avoidance. That is, those with low self-efficacy in certain areas tend to avoid educational and career choices related to these areas.

How people make decisions is also relevant in this context. Not only is it important that individuals have access to information about what study or career options are available, but also how they use the information when making decisions. People differ in terms of deliberation; some are quite spontaneous career decision makers, while others systematically examinate their choices (Osipow, 1990). That is, some fall into the first accessible career path while others deliberately search out opportunities in their chosen path. It has also been pointed out that students at the end of compulsory education might not

have the cognitive capabilities to make rational choices, taking all the information into account (Kuipjers, et al., 2010).

There are therefore various factors involved when considering educational and career choice. Research on what determines the choice of either academic or vocational upper secondary school pathways has indeed shown that individual, social, and contextual influences play a role.

4.3 EDUCATIONAL CHOICE: ACADEMIC OR VOCATIONAL?

The disparity of esteem between academic and vocational pathways has long made vocational education the lesser choice for young people and their parents (e.g., Cedefop, 2014; Billett, 2014; Hoeckel, 2007; Wolf, 2011). In Iceland, as in many other countries, academically oriented curriculum, and an emphasis on knowledge-based pathways into higher education has resulted in vocational education being seen as a second-best choice (Bleazby, 2015; Eiríksdóttir, et al, 2018, 2022; Nylund et al., 2018; Swift & Fisher, 2011). As a general backdrop, the culture encourages students to choose academic rather than vocational pathways.

The situation is of course more complex, and research has shown that a variety of factors play a role (Mann, et al., 2020; Maxwell et al., 2000). Some of the factors that have been shown to matter are: Parental background and influence, peer-group relationships, school reputation, stereotypes and role models, as well as knowledge about career options and educational pathways.

Research has indicated that parents tend to direct their children towards academic programmes, ostensibly to keep the path

to higher education open (Blöndal, et al., 2016; Braun, et al., 2011; Eiríksdóttir, et al., 2018). This seems especially true for parents with university education and socio-economic status (SES) plays a role in this context. Higher SES means more resources, both to assist students in making an informed choice and successfully applying, but also to get the grades needed for entry into competitive academic upper secondary schools and programmes (Dovemark et al., 2018; Eiríksdóttir et al., 2018; Horvat et al., 2003; OECD, 2021; Magnúsdóttir & Garðarsdóttir, 2018; Wolf, 2011). As the upper secondary school system in Iceland is defined as a single school district, admission into the most sought-after schools and programs can be competitive and grades from elementary schools are important. Higher grades are usually required for entry into academic programs than vocational programs. As a result, students with lower grades have less of a choice in upper secondary education, and conversely less popular vocational pathways are more likely to be available to these students (Eiríksdóttir et al., 2022).

Peer group relationships matter and where and what their friends intend to study has been found to influence the decision of young people. Research shows that students entering academic pathways are more likely to have followed their friends in their choice of upper secondary education instead of deliberately choosing a programme for study compared to those enrolling in vocational programmes (Blöndal & Ægisdóttir, 2013; Blöndal et al. 2016). There are even indications that students lacking in social peer group relations find it easier to choose vocational education and make a non-traditional choice (Kristjánsdóttir, 2020). Additionally, research has shown that a lack of belonging predicts depressive symptomology in college students (Dutcher

et al.). Upper secondary school students in Iceland are around the same age as college students in the US and these results therefore suggest that a sense of belonging is not a trivial issue.

The reputation of the school matters as well. Some schools have a reputation for active social life and extracurricular activities, and these can influence educational choice (Magnúsdóttir & Garðarsdóttir, 2018). For many 15–16-year-olds the most important part in their life is interacting with their peer group, and they understandably consider the opportunities for doing so when choosing where and what to study (Svavarsdóttir, 2010). In Iceland, vocational schools and programs tend to have a worse reputation for extracurricular activities than many academic schools, and this seems to a degree to stem from the fact that many VET students are older – often with jobs and family responsibilities – and therefore less likely to actively participate in the school's social events (Eiríksdóttir et al., 2018). This means that a 16-year-old will be less likely to interact with their peer group with similar interests if they choose vocational programme.

Role models are also important for education and career choice (Gibson, 2004; Quimby & DeSantis, 2006). In Iceland, students enrolled in vocational education are more likely to have parents with a vocational background (Blöndal, et al., 2016). Gender plays a part in this context and young people tend to choose career paths that are typical for their gender (Guðráðsdóttir, 2018). This is especially important for vocational education as the majority of Icelandic VET programs are male oriented (Eiríksdóttir, et al., 2018).

Knowledge about careers and educational pathways on offer is another important factor. The view that choosing an academic

pathway keeps all options open and delays actual career choice until enrolling in higher education, is prevalent and, for many, desirable. There has been some discussion on whether 15- and 16-year-olds are ready to choose a career, and this idea has been used to rationalize more open, interdisciplinary vocational programmes for the youngest students, both in Iceland and some of the other Nordic countries, e.g., Denmark and Norway (Eiríksdóttir et al., 2018; Helms Jørgensen et al., 2018). It can also be questioned how much information on vocational options students get when preparing to choose upper secondary education. Recent policy emphasis (MoESC, 2014) has emphasised more focused education and career counselling is needed for the students graduating from elementary education – especially in terms of introducing them to vocational programs. However, knowledge about vocational pathways can also come from personal work experience. Anecdotally, the influx of second chance and returning students into VET in Iceland has been connected to these students getting jobs in the vocational fields and then returning to school to get their vocational qualifications.

Overall, it is clear that choosing vocational education is influenced by a constellation of factors – both personal and societal ones. In Iceland, this decision is also made within a culture that has traditionally valued academic education and the pathway to higher education more highly than vocational pathways. It is therefore interesting to consider how those who have chosen vocational pathways explain their choice.

2.4 AIMS AND RESEARCH QUESTIONS

The aim of the current paper is to map the reasons and rationale for why recently graduated journeymen chose a vocational field to study. First, by looking at *the influence of prior work experience and knowledge of the field* specifically, and secondly by thematically *analysing provided reasons for why they chose to study what they did* in upper secondary school. The data analysed comes from an online questionnaire sent to all, then recently graduated, journeymen in the certified trades in Iceland.

3 METHOD

The data used in the current analysis are a part of a larger study on the dual system in the certified trades in Iceland. In the study, recently graduated journeymen, vocational teachers, and workplace trainers in all certified trades in Iceland were sent an online questionnaire. Here, only the data from the recently graduated journeymen are used.

3.1 PARTICIPANTS

Participants were recently graduated journeymen in all the certified trades in Iceland in 2017, a population of 3222. The e-mail addresses of the journeymen were obtained from vocational education centres overseeing journeymen's exams. The total number of email addresses was 2175, representing about 68% of the journeymen population. A total of 319 journeymen responded, which is a 15% response rate. The low response rate is in part likely due to a number of e-mail accounts no longer in use. Altogether 322 e-mail accounts were closed, and the lack

of response suggests many more might have been inactive. The response rate is therefore likely higher than reported. However, many participants skipped questions or did not answer more than the first few questions – and as a result the number of participants answering each question is lower than the overall number of participants. To maintain privacy, the researchers received only a list of e-mails and no further information about the participants, it was therefore not possible to follow-up on the lack of responses with more targeted methods, such as phone calls.

Because of the low response rate, it is not clear whether those responding are representative of the population or if a self-selection or non-response bias might play a role. However, the respondents appear to adequately represent the expected frequency for trade, gender, and age in the population. The percentage of participants belonging to individual trades (e.g., carpenters, hairdressers, electricians) roughly corresponded to the percentages of the trades in general. The majority of participants (75%) were male and between the age of 20 and 40 years. This corresponds to the percentages in the journeyman population in general (MoESC, 2018).

The choice was made to select graduated journeymen rather than vocational students as participants because the aim of the questionnaire was to capture their whole experience of being a student in the certified trades (both in school as an apprentice). Differences between individual programmes and trades means that it would be difficult to interpret answers from current students, as they would depend on how much of the studies were completed at the time. At the same time, it was important to get views of those with similar experiences and therefore only those who had graduated within the past two to five years were selected.

3.2 THE QUESTIONNAIRE

The questionnaire included items on different topics related to studying in a vocational dual system, for example integration of the periods at school and work, competencies developed at school and work, and identity development. The questionnaire was developed based on results from prior interviews with journeymen, teachers, and trainers (Eiríksdóttir, 2017, 2018) and from prior research in this area (Virtanen et al. 2014). The current focus is on questions on prior knowledge of and experience with the trade, and reasons provided for choosing to study the vocation.

3.3 PROCEDURE

The questionnaire was initially sent out in May of 2017 and the participants received five reminders over the course of the following four months. Data collection was closed at the end of September. Before starting the questionnaire, the participants received information on the purpose of the study and told they could skip questions and withdraw at any time.

The data analyses are on one hand based on descriptive statistics and correlations and on the other, based on thematic analysis of written answers to an open-ended question. The descriptive statistics are used to describe the frequency (f) and percentage (%) of participants selecting each alternative of the questions. Pearson's correlation coefficient was used to investigate the correlation between different alternatives where participants could select more than one answer. Statistical significance (p) was set at 0.05.

The thematic analysis was used to categorize written answers to an open-ended question: "Why did you choose to study this field in upper secondary school". Altogether 154 participants provided a written response (48% of participants). The answers were thematically categorized and analysed. The process of doing so was based on Clarke and Braun's (2016) thematic analysis, moving from data familiarization to coding, and then on to creating and refining themes. However, the answers varied considerably in length, from one-word answers to a few sentences long, and therefore the thematic analysis was quite simple in many cases. Some lengthier responses (40% or 26%) could be categorized in two separates thematic categories of reasons and as a result the total number of provided reasons for choosing a particular vocational field (instances of reasons) were 194.

4 RESULTS

The results are in two sections. In the first, prior experience with and knowledge of the trade before starting the studies is analysed. The second deals with an analysis of the question why this field was selected for study.

4.1 PRIOR KNOWLEDGE OF AND EXPERIENCE WITH VOCATION

The recently graduated journeymen were asked about their prior exposure to trades and vocational education. First, they were asked whether they had been introduced to vocational education programmes while in compulsory school and 77% said no

(or 143 out of 186 who answered). It seems that for the participants vocational education was rarely introduced as an option for future studies while they were in compulsory school.

The participants were then asked whether they did have any knowledge of the trade before starting their studies. Of the recently graduated journeymen 187 answered the question (59%) and as they could select more than one option, altogether 255 options were selected (see Table 1). Almost half of the responses selected (44%) referred to having knowledge from parents, other family members, or friends. About one fourth of the selected options were that they had previously worked in the trade (27%), and another fourth that they did not have any knowledge about the trade before starting their studies (24%).

Table 1. Shows the frequency (*f*) and percentage (%) of the responses chosen by recently graduated journeymen (more than one answer could be selected), outlining their prior exposure to and knowledge of the trade they eventually studied.

Did you have any knowledge about the trade before you started your studies?	***f***	**% out of 255 responses in total**
I had worked in the trade	70	27%
My parents had worked in the trade	31	12%
I had knowledge from other family members (not parents)	38	15%
I had knowledge from friends	43	17%
I did not have any knowledge about the trade beforehand	60	24%
I had knowledge from somewhere else	13	5%
Total	255	100%

Those 13 participants who selected the option "I had knowledge from somewhere else" were asked to explain their answer. When those answers were analysed most referred to prior work-related experience – not necessarily in the trade itself, but in an adjacent field or position. For example, working as a nail technician before starting to study to become a beautician or working in a bakery before starting to study to become a baker. A few mention being influenced by either seeing a professional in the field at work (for example a photographer or a hairdresser) or a non-professional family member doing work related to the field (for example mother sewing or a father repairing machinery).

As participants could choose more than one option the correlation between the reasons given for having knowledge about the trade (previous work, through parents, family, or friends) was calculated (see Table 2). Significant positive correlation was found for (a) having worked in the trade and having parents in the trade, (b) having parents in the trade and knowledge from other family members, and (c) having knowledge from other family members and from friends. This indicates that some participants have various familial and social relationships with others in the trade before they begin studying the trade. That is, their social environment is populated with people who belong to the trade in question. As expected, not having any knowledge before starting to study the trade was significantly and negatively correlated with the four reasons for having knowledge about trade (see Table 2).

Table 2. Shows the Pearson's correlation (*r*) between the four reasons provided for having knowledge about the trade before starting school (*N* = 189).

Did you have any knowledge about the trade before you started your studies?	**1**	**2**	**3**	**4**
1. I had worked in the trade	1	.22*	.05	.03
2. My parents had worked in the trade	-	1	.17*	-.04
3. I had knowledge from other family members	-	-	1	.20*
4. I had knowledge from friends	-	-	-	1
5. I did not have any knowledge about the trade beforehand	-.52**	-.30**	-.34**	-.34**

*$p < .05$, **$p < .001$

The recently graduated journeymen were also asked directly whether they had any experience with working in their trade before starting the programme. More than half (58%) said that they had no prior experience with work in the trade, while 42% had worked in the field previously. Of those who had work experience 12% had worked in the trade for more than 5 years (see Table 3).

When the journeymen were divided into two groups based on age, those under 30-years-old were more likely to have had no experience working in the trade while the older were more likely to have over 5 years of work experience (see Table 3).

Table 3. Shows the frequency (*f*) and percentage (%) of recently graduated journeymen based on their prior experience of working in the trade they eventually chose and graduated from. Percentage of those younger and older than 30 years is also shown and significant difference in frequency is depicted by letters. If the letters differ, then there is a significant difference ($p < .05$) between the groups in selecting the answer option.

Did you have any experience working in the trade before you started your studies?	***f***	**%**	**% of age group**	
			< 30 years (*n* = 101)	**> 30 years (*n* = 87)**
I had no experience working in the trade	109	58	65a	49b
I had worked in the trade for less than a year	23	12	14a	10a
I had worked in the trade for 1–5 years	33	18	18a	15a
I had worked in the trade for over 5 years	23	12	3a	23b
Total	188	100	100	100

What these results suggest is that those who choose to study the trades in upper secondary school and graduate, fall into three general groups: (1) those who have little or no knowledge of or experience with the trades prior to studying that trade in upper secondary school. (2) Those who have prior experience through working the trade, and (3) those who have some prior knowledge of the trade through family and friends (but not work). On the whole, 178 participants could be divided into these three groups (see Table 4). It must be noted that there is some overlap between the last two groups as 43 participants had both prior knowledge of trade from family and friends and prior work experience. Here participants are categorized as having work

experience regardless of whether they have any prior knowledge or not. That is, work experience was made to take precedence over knowledge from family and friends. This shows that almost half of the recently graduated journeymen had experience with working in the trade before starting their studies. But it is also interesting to note that third had no prior knowledge nor any experience with the trade before enrolling into the programme.

Table 4. Shows the frequency (*f*) and percentage (%) of recently graduated journeymen who could be categorized based on how they answered questions on prior work experience and prior knowledge of trade.

Categorization of participants	*f*	%
No prior knowledge nor prior work experience	57	32
Prior work experience in trade	79	44
Prior knowledge of trade, but no work experience	42	24
Total	178	100

4.2 REASONS FOR CHOOSING VOCATIONAL EDUCATION

The recently graduated journeymen were asked why they chose to study their vocational field in upper secondary school. The thematic categories of reasons are shown in Table 5. Almost half of the reasons provided concerned being interested in this particular trade. Other reasons were less common, ranging from 5% to 10% of total responses. Where an answer fell into two thematic categories, interest in the field was one of them in 30% of cases as would be expected. Each category will be described more fully in turn.

Table 5. Shows the frequency (*f*), percentage (%), and examples of each category of the reasons recently graduated journeymen provided for choosing a particular vocational field/trade for study.

Thematic categorization of reasons	*f*	%
1. Interest in trade	**82**	**42**
Example quotes: "This was my field of interest"; "Because this is my favorite thing to do"; "I have an unfailing interest in jewellery and design"; "An interest in machinery".		
2. Interest in the job	**19**	**10**
Example quotes: "It's my dream job"; "It's such a fun and diverse job"; "I had intended to become an electrician since I was a kid"; "I wanted to become a machinist/engineer at sea".		
3. Interest in practical fields / like working with their hands	**19**	**10**
Example quotes: "I like taking things apart and putting them back together"; "I am a jack-of-all-trades"; I wanted to work in a practical field …"; "I have always been good with my hands and creative".		
4. Practical choice	**17**	**9**
Example quotes: "Practical. A secure job"; "Good to have [the qualifications], very useful and you can work part-time or wherever"; "There is always a need for plummers"; "The qualifications fit well with my prior education".		
5. Coincidence/gave it a try	**17**	**9**
Example quotes: "It just happened"; "Just because; wanted to try something new"; "It was a coincidence"; "Because what I wanted to learn was not taught, so I decided try this trade as a back-up".		
6. Choosing away from academics	**13**	**7**
Example quotes: "I have difficulties with academic courses"; "Just chose something where I didn't have to study Danish"; "… very few academic courses in the programme"; "… academic programmes did not interest [me]".		
7. Worked in the field	**11**	**6**

Thematic categorization of reasons	*f*	%
Example quotes: "I had worked in the field for a long time"; "It started as a summer job with my best friend, haven't stopped since, even when my friend went into another field"; "I was already working in the trade and decided to go to school to get the qualifications"; "I have worked in the field more or less all my life".		
8. Influenced by family or friends	**10**	**5**
Example quotes: "I didn't know what I should study so I chose the same field that my father is in"; "My father works in the trade, with a good reputation"; "My father is a master in the trade, my father-in-law is a master in the trade ... "; "Some older friends of mine were learning the trade".		
9. Does not provide a clear reasons	**6**	**3**
Example quotes: "Just because"; "No specific reason".		
Total	194	100

The descriptions of the reasons that fell into the category *interest in trade* could be roughly divided into two, either general or specific. The general reasons were for instance "because this is interesting" (see Table 5). More specific reasons provided more detailed descriptions of why this interest developed, for instance "I got interested in what electricity was and where it came from after watching documentaries" or elaborations on what they found interesting about the field, for example "I love designing and working with the Adobe software, creating layout, thinking about fonts, image resolution ... everything is fun!".

Some participants referred to *the job itself* rather than the field specifically when describing their interest (see Table 5). In some cases, they referred to specific characteristics of the job, for instance: "The working hours are flexible and it's fun to do physical work", while others referred to the job title specifically, for example "I wanted to become a photographer". It can be debated

whether there is a difference between describing an interest in a field or a job but being interested in a specific field does not necessarily mean being interested in a specific job and a specific job title might also encompass more than just what captures interest. It is therefore worthwhile to consider these separate, albeit quite related, categories.

Being interested in *practical fields or like working with their hands* was also mentioned as reason for choosing a vocational programme (see Table 5). In some cases, the participants specifically mention academic proficiency as an opposite, for example: "Books are not for me. But working with my hands, playing with steel and seeing this material turning soft as butter. That got me. And finally, some good grades". Another participant mentioned math specifically, "I have problems with math, but I'm handy and clever in a practical way." The academic and vocational pathways are here positioned as opposites, even if this is not necessarily true. Electricians for example need to be proficient in math and physics and beauticians in physiology and dermatology. This notion of selecting something *not academic* was also a thematic category (see Table 5) and was often included as an additional reason. In some cases though it was the focus, notably for participants reporting negative experience of school, for example: "Teachers thought I was bad at school and told me this was the only thing I could do". Others related their experience to learning difficulties: "Dyslexia and other learning difficulties in academic subjects. Teachers in certain schools did not seem to realize that a student might be trying hard but couldn't deliver what was expected due to learning difficulties. Instead, the teachers concluded that you were lazy and stupid. And that turned me away from academic programmes into vocational studies".

Practical reasons were also provided for choosing a vocational field (see Table 5). These usually referred to job security, flexibility, independence, and connections with both prior education and future options. In one case immediate practicalities were cited: "I had gotten a woman pregnant and needed a 'real job' to provide for the family". Some participants cited *coincidence or giving it a try* as the reason for their choice (see Table 5). In a few cases the participants elaborated on how they saw this choice as a coincidence or happenstance, for example: "I wanted to do something easy and fun in between [graduating from] upper secondary school and going to university, but also something that would serve me well. [I] completely fell for the trade and have worked [in it] full time since then". Another participant gave an example of working in an adjacent occupation: "Coincidence. I was offered a job in a plumbing store and exaggerated my understanding of plumbing a bit to land the job. A few years later I had gained a good understanding of the field and asked customers whether they needed an apprentice".

Having a job in the field was also a thematic category (see Table 5) and in all cases it involved the participant having started working in the field for some reason and then continuing to study for qualifications. In some cases, the work experience opened their eyes and focused their interest while in others getting qualifications seemed sensible as one participant said: "I started studying carpentry but quit. Coincidentally, I got a job working for a mason/bricklayer and soon after I decided to ask him for a contract [as an apprentice] and get the qualifications over with, just to finish some education".

A few recently graduated journeymen also cited the *influence of family and friends* as a reason for their choice (see Table 5). In

most cases familiarity and accessibility seems the key, but many also cite interest. One even went so far to say, "I have electricity in my blood", effectively describing the combined influence of interest and family.

5 DISCUSSION

In general, the results indicate that those who choose vocational education pathways at upper secondary schools in Iceland can be categorized depending on their prior knowledge and experience. There are those who have prior work experience, which here was almost half of the participants, then those who have prior knowledge (but not work experience) from friends and family, and finally those who had neither prior knowledge nor experience. The results therefore suggest that prior knowledge and experience matters and that, as research has suggested, the influence of family and friends is particularly important (Blöndal, et al., 2016; Blöndal & Ægisdóttir, 2013; Kristjánsdóttir, 2020). Furthermore, the view that recruitment of vocational students is often made through work experiences is also supported. As participants with work experience were more likely to be older than those without, this would suggest that an important pathway into vocational education is through later re-entry into upper secondary education. It is therefore important that this pathway is kept open. Overall, these results suggest that recruitment for vocational pathways might need to be targeted based on prior experience and knowledge. Also, reinforcing the idea that efforts of informing young people of educational options are important to increase vocational enrolment.

The analysis of the reasons the recently graduated journeymen provided for choosing their field of study revealed eight dif-

ferent, but interrelated, thematic categories. The most common reason cited was interest, interest in the trade, the job, or practical fields. This fits well with dominant theories on educational choice emphasizing the fit between the person and the environment and the role of interest (Gati & Asher, 2001; Holland 1997; Osipow, 1990). Other reasons cited were practicalities, already working in the field or being influenced by family and friends. It is therefore clear that the social environment also plays a role in the decision of choosing vocational education (Gati & Asher, 2001; Kidd, 2006). Already working in the field means that the individual has had an opportunity to match themselves to the environment and figure out whether they can see themselves belonging to field and doing the work. Successfully navigating the work environment should only increase their sense self-efficacy in this area and provide a basis for positive outcome expectations (Betz, 2001; Lent et al, 1994).

Self-efficacy can also be seen to play a role for those who described what could be called a negative choice. Some participants specifically said that the important part was not choosing academic pathways and discussed previous negative school experience. Lack of self-efficacy in an academic education (as is dominant in the Icelandic school system) therefore seems to direct some people towards vocational education. Here the disparity of esteem between academic and vocational education is important as this choice is then not seen as a choice based on interest or self-determination (a positive choice), but as an unavoidable second-rate or negative choice for those who cannot thrive in the academic environment society seems to value more.

Finally, coincidence was cited as reason for why participants ended in vocational education and shows the importance of

considering how people make decisions in this context (Osipow, 1990). For some people, entering vocational pathways might not be a deliberate choice, but rather an accidental one. But it would however be worthwhile to investigate how societal and background factors might shape these coincidences and opportunities.

6 CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The results of the study provide a rough mapping of the reasons and rationale for why some choose vocational education over academic pathways at the upper secondary level in Iceland. It is clear that there is a constellation of reasons for why vocational education is chosen, both personal and societal, even if interest clearly was the main reason provided. The influence of prior work experience and knowledge of the field seems clear, and the results suggests that recruitment into vocational education might need to be tailored to different groups based on this, but more research is needed.

Here it must be kept in mind that the participants in the study were all recently graduated journeymen when answering the questionnaire. This means that these students are not only those who chose vocational studies, but also graduated, having both successfully completed the program at school and the mandatory weeks as apprentices. These participants had the hindsight of a successful completion and might also be interpreting their rationale for choosing the field through that lens. It is therefore important to investigate the reasons for choosing vocational pathways within the group that recently made this choice, students at the start of their studies – and taking into

account their prior knowledge and experience.

The focus here has been on reasons why students choose vocational pathways, but to fully understand the dynamic of upper secondary choice it is also important to understand why students do not consider vocational education as an option. Further investigation should both look at the rationale for choice for those who do choose vocational education and those who do not. By doing so, it might be possible to tease out the intersection of personal as well as socio-cultural influences determining whether young people consider vocational education an option.

The results of this study provide a general outline of influences and reasons for choosing vocational pathways in upper secondary schools – but due to the limitation of the study (possibilities of self-selection, hindsight bias, and low response rate) these should be considered suggestive and used as the basis on which to build further investigation in this area.

REFERENCES

Bergsdóttir, Á. & Magnúsdóttir, B. R. (2018). Ólíkur félagslegur og menntapólitískur veruleiki íslenskra framhaldsskóla: Nám til stúdentsprófs í 20 ár af sjónarhóli framhaldsskólakennara og -stjórnenda. *Netla – Online Journal on Pedagogy and Education.* https://netla.hi.is/serrit/2018/framhaldskolinn_brennidepli/12.pdf

Betz, N. E. (2001). Career self-efficacy. In: F. T. L. Leong & A. Barak (Eds.), *Contemporary models in vocational psychology* (pp. 55–78). Erlbaum.

Billett, S. (2014). The standing of vocational education: Sources of its societal esteem and implications for its enactment. *Journal of Vocational Education & Training, 66*(1), 1–21. https://doi.org/10.1080/13636820.2013.867525

Billett, S. (2020). Perspectives on enhancing the standing of vocational education and the occupations it serves. *Journal of Vocational Education & Training, 72*(2), 161 –169. https://doi.org/10.1080/13636820.2020.1749483

Bleazby, J. (2015). Why some school subjects have a higher status than others: The epistemology of the traditional curriculum hierarchy. *Oxford Review of Education, 41*(5), 671–689. doi:10.1080/03054985.2015.1090966

Blöndal, K. S. & Ægisdottir, B. S. (2013). Óákveðni nemenda við námsval í framhaldsskóla og skuldbinding þeirra gagnvart námi og skóla. *Netla – Online Journal on Pedagogy and Education*. http://netla.hi.is/serrit/2013/rannsoknir_og_skolastarf/005.pdf

Blöndal, K.S., Jónasson, J.T., & Sigvaldadóttir, S. (2016). *Sérkenni námsferils starfsnámsnemenda í framhaldsskóla. Afstaða og skuldbinding til náms, líðan og stuðningur foreldra og skóla*. Institute of Education, University of Iceland. http://hdl.handle.net/1946/26433

Braun, A., Ball, S. J., Maguire, M. & Hoskins, K. (2011). Taking context seriously: Towards explaining policy enactments in the secondary school. *Discourse: Studies in the Cultural Politics of Education, 32*(4), 585–596.

Clarke, V., & Braun, V. (2016). Thematic analysis. In E. Lyons & A. Coyle (Eds.), *Analysing qualitative data in psychology* (2nd edition ed., pp. 84-103). Sage.

Cedefop. (2014). *Attractiveness of initial vocational education and training: Identifying what matters*. Publications Office of the European Union.

Cedefop. (2020a). *The importance of being vocational: Challenges and opportunities for VET in the next decade*. Publications Office of the European Union.

Cedefop (2020b). *Developments in vocational education and training policy in 2015-19: Iceland*. Author. https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/developments-vocational-education-and-training-policy-2015-19-iceland

Directorate of Education. (n.d.a.). *Listi yfir skóla [Upper secondary schools]*. https://mms.is/listi-yfir-skola

Directorate of Education. (n.d.b.). *Staðfestar námsbrautalýsingar [Confirmed upper secondary education programmes]*. https://mms.is/stadfestar-namsbrautalysingar

Directorate of Education. (2018). *Tölfræði starfsnáms á Íslandi*. https://mms.is/sites/mms.is/files/mms_starfsnam_2.pdf

Dovemark, M., Kosunen, S., Kauko, J., Magnúsdóttir, B. R., Hansen, P. & Rasmussen, P. (2018). Deregulation, privatisation and marketisation of Nordic comprehensive education: Social changes reflected in schooling. *Education Inquiry, 9*(1), 122–141. doi:10.1080/20004508.2018.1429768

Dutcher, J. M., Lederman, J., Jain, M., Price, S., Kumar, A., Villalba, D. K., Tumminia, M. J., Doryab, A., Creswell, K. G., Riskin, E., Sefdigar, Y., Seo, W., Mankoff, J., Cohen, S., Dey, A., & Creswell, J. D. Lack of belonging predicts depressive symptomatology in college students. *Psychological Science, 33*(7), 09567976211073135. https://doi.org/10.1177/09567976211073135

Einarsdóttir, A. D. (2016). *Búseta og áhugi: Starfsáhugi íslenskra ungmenna eftir búsetu á uppvaxtarárum* [Unpublished master's thesis]. University of Iceland. http://hdl.handle.net/1946/24415

Eiríksdóttir, E. (2017). Nám í skóla og á vinnustað: Viðhorf og reynsla sveina, kennara og meistara af tvískiptu kerfi löggiltra iðngreina. *Icelandic Journal of Education, 26*, 43–64.

Eiríksdóttir, E. (2018). Variations in implementing the dual VET system: Perspectives of students, teachers, and trainers in the certified trades in Iceland. In Choy, S., Wärvik, G.-B., Lindberg (Eds.) *Integration of Vocational Education and Training Experiences* (pp. 175–198). Springer.

Eiríksdóttir, E., Ragnarsdóttir, G., & Jónasson, J. T. (2018). Þversagnir og kerfisvillur? Kortlagning á ólíkri stöðu bóknáms- og starfsnámsbrauta á framhaldsskólastigi. *Netla – Online Journal on Pedagogy and Education*. http://netla.hi.is/serrit/2018/framhaldskolinn_brennidepli/07.pdf.

Eiríksdóttir, E., Blöndal, K. S., & Ragnarsdóttir, G. (2022). Selection for whom? Upper secondary school choice in the light of social justice. In M. Dovemark & A. Rasmussen (Eds.), *Governance and Choice of Upper Secondary School in the Nordic Countries* (pp. 145–164). Springer.

Field, S. og Guez, A. (2018). *Pathways of progression: Linking technical and vocational education and training with post-secondary education*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000265943

Gati, I., & Asher, I. (2001). The PIC model for career decision making: Prescreening, in-depth exploration, and choice. In: F. T. L. Leong & A. Barak (Eds.), *Contemporary models in vocational psychology* (pp. 7–54). Erlbaum.

Gibson, D. E. (2004). Role models in career development: New directions for theory and research. *Journal of Vocational Behaviour, 65*, 134–156.

Government of Iceland. (2018). *Agreement on the Platform for the Coalition Government of the Independence Party, the Left Green Movement and the Progressive Party*. Author. https://www.stjornarradid.is/library/05-Rikisstjorn/sattmali-rikisstjornarsamstarf.pdf

Government of Iceland. (2021). *Agreement on the Platform for the Coalition Government of the Independence Party, the Left Green Movement and the Progressive Party*. Author. https://www.stjornarradid.is/library/05-Rikisstjorn/Agreement2021.pdf

Guðráðsdóttir, G. B. (2018). *Kynjaður veruleiki og væntingar til starfa. Þróun kynjamunar í starfsáhuga, draumastörfum og starfsreynslu á ungdómsárum*. [Unpublished master's thesis]. University of Iceland. http://hdl.handle.net/1946/29417.

Gunnarsdóttir, Á. (2019). *"Það hjálpaði mér alveg svakalega að fá að prófa". Tækniskólaval fyrir grunnskólanemendur*. [Unpublished master's thesis]. University of Iceland. http://hdl.handle.net/1946/32763

Helms Jørgensen, C., Olsen, O. J. & Thunqvist, D. P. (Eds.). (2018). *Vocational education in the Nordic countries. Learning from diversity*. Routledge.

Hoeckel, K. (2007). *Key evidence on vocational education and training policy from previous OECD work*. OECD.

Holland, J. L. (1997). *Making vocational choices* (3rd ed.). Psychological Assessment Resources.

Horvat, E. M., Weininger, E. B. & Lareau, A. (2003). From social ties to social capital: Class differences in the relations between schools and parent networks. *American Educational Research Journal, 40*(2), 319–351.

Icelandic National Audit Office. (2017). *Starfsmenntun á framhaldsskólastigi: Skipulag og stjórnsýsla*. https://www.rikisend.is/reskjol/files/Skyrslur/2017-Starfsmenntun-a-framhaldsskolastigi.pdf

Jónasson, J. T. (1995). Baráttan á milli bóknáms og starfsmenntunar á framhaldsskólastigi. In Friðrik H. Jónsson (ritstjóri), *Rannsóknir í félagsvísindum: Erindi flutt á ráðstefnu í september 1994* (pp. 277–285). Félagsvísindastofnun HÍ, Hagfræðistofnun HÍ, Háskólaútgáfan.

Jónasson, J. T. (2003). Does the state expand schooling? A study based on five Nordic countries. *Comparative Education Review, 47*(2), 160–183. https://www.jstor.org/stable/10.1086/376541

Jónasson, J. T., & Óskarsdóttir, G. (2016). Iceland: Educational structure and development. In T. Sprague (Ed.), *Education in Non-EU countries in Western and Southern Europe* (pp. 11–36). Bloomsbury.

Kidd, J. (2006). *Understanding career counselling: Theory, research and practice*. Sage.

Kristjánsdóttir, F. (2020*). "Ein af strákunum": Stúlkur í hefðbundnum karlagreinum í framhaldsskóla.* [Unpublished master's thesis]. University of Iceland. http://hdl.handle.net/1946/34676

Kuijpers, M., Meijers, F. & Gundy, C. (2010). The relationship between learning environment and career competencies of students in vocational education. *Journal of Vocational Behavior, 78*, 21–30. 10.1016/j.jvb.2010.05.005

Law nr. 92/2008. Upper Secondary Education Act. https://www.government.is/media/menntamalaraduneyti-media/media/law-and-regulations/Upper-Secondary-Education-Act-No.-92-2008.pdf

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79–122.

Magnúsdóttir, B. R. & Garðarsdóttir, U. E. (2018). "Bara ekki mínar týpur!" Sjálfsmyndasköpun, félagsleg aðgreining og framhaldsskólaval. *Netla – Online Journal on Pedagogy and Education*. https://opinvisindi.is/bitstream/handle/20.500.11815/1596/3075-4858-1-PB.pdf?sequence=1&isAllowed=y

Mann, A., Denis, V., Schleicher, H. E., Forsyth, T., Liu, E. & Chambers, N. (2020). *Dream jobs? Teenagers' career aspirations and the future of work*. OECD.

Maxwell, G., Cooper, M., & Biggs, N. (2000). *How people choose vocational education and training programs: Social, educational and personal influences on aspiration*. NCVER.

Michelsen, S. (2018). The historical evolution of vocational education in the Nordic countries. In, S. Michelsen & M. L. Stenström (Eds.), *Vocational education in the Nordic countries: The historical evolution* (pp. 1–23). Routledge.

Ministry of Education, Science and Culture (2012). *The Icelandic national curriculum guide for upper secondary school: General section*. Author. https://www.government.is/library/01-Ministries/Ministry-of-Education/Curriculum/adskr_frsk_ens_2012.pdf

Ministry of Education, Science and Culture. (2014). *Hvítbók um umbætur í menntun [White paper on education reform]*. Author. https://www.stjornarradid.is/media/menntamalaraduneyti-media/media/frettir/Hvitbik_Umbaetur_i_menntun.pdf

Ministry of Education, Science and Culture (2018). *Samantekt úr Education at a Glance 2018: Skýrsla OECD um Menntatölfræði [Summary on Iceland from Education at a Glance]*. Author.

Nylund, M., Rosvall, P.-Å., Elsa Eiríksdóttir, Holm, A.-S., Isopahkala-Bouret, U., Niemi A.-M. & Guðrún Ragnarsdóttir. (2018). The academic-vocational divide in three Nordic countries: Implications for social class and gender. *Education Inquiry, 9*(1), 97–121. doi: 10.1080/20004508.2018.1424490

Osipow, S. H. (1990). Convergence in theories of career choice and development: Review and prospect. *Journal of Vocational Behavior, 36*, 122–131.

Quimby, J. L. & DeSantis, A. M. (2006). The influence of role models on women's career choices. *The Career Development Quarterly, 54*, 297–306.

OECD. (2013). *OECD review: Skills beyond school. National background report for Iceland*. Ministry of Education, Science and Culture. https://www.stjornarradid.is/media/menntamalaraduneyti-media/media/mrn-pdf/oecd-skyrsla-tilbuin-nov-2013.pdf

OECD. (2021). *Education at a glance 2021: OECD indicators*. Author. https://www.oecd-ilibrary.org/education/education-at-a-glance-2021_b35a14e5-en

Regulation on Certified Trades, No. 940/1999. https://www.reglugerd.is/reglugerdir/eftir-raduneytum/idnadarraduneyti/nr/2736.

Statistics Iceland. (2018, 9. April). *Nýnemum fækkar í starfsnámi á framhaldsskólastigi*. https://hagstofa.is/utgafur/frettasafn/menntun/nynemar-a-framhaldsskolastigi-1997-2016/

Statistics Iceland. (2021). *Freshmen at the upper secondary school level by gender, age, type of study, background, and form of teaching 1997–2017*. https://px.hagstofa.is/pxis/pxweb/is/Samfelag/Samfelag__skolamal__3_framhaldsskolastig__0_fsNemendur/SKO03109.px/table/tableViewLayout1/?rxid=12bbb1c2-1ae4-4095-a0e6-dcda0c6a6464

Svavarsdóttir, S. (2010). *Á hverju byggja 10. Bekkingar val sitt á framhaldsskólanámi? Skólaheimsóknir og önnur upplýsingaöflun 10. Bekkinga um framhaldsskóla og námsbrautir*. [Unpublished master's thesis]. University of Iceland. http://hdl.handle.net/1946/4774

Swift, J. & Fisher, R. (2012). Choosing vocational education: Some views from young people in West Yorkshire. *Research in Post-Compulsory Education, 17*(2), 207–221. https://doi.org/10.1080/13596748.2012.673890

Virtanen, A., Tynjälä, P., Eteläpelto, A. (2014). Factors promoting vocational students learning at work: Study on student experiences. *Journal of Education and Work, 27*, 43–70.

Wolf, A. (2011). *Review of vocational education – The Wolf report*. UK Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf

Higher non-academic technical education in Italy: ITS Academy

Francesco Magni*
University of Bergamo
Department of Human and Social Sciences
piazzale S. Agostino 2, 24129 Bergamo, Italy
E-mail: francesco.magni@unibg.it

Virginia Capriotti
University of Bergamo
Department of Human and Social Sciences
Ph.D. Student in Human Sciences and Welfare Innovation
E-mail: virginia.capriotti@unibg.it

* Corresponding author

Although this paper is the result of joint work by the authors, paragraphs 1 and 2 can be attributed to Francesco Magni; paragraphs 3, 4 and 5 can be attributed to Virginia Capriotti. The introduction and conclusions were written by both authors.

ABSTRACT:

Italy's higher education system is composed, almost exclusively, by academic and university-based training paths. Recently, it was only in 2010 that a system of non-academic

Higher Vocational Education and Training (HVET) was established, with the ITS (*Istituti Tecnici Superiori - Higher Technical Institutes*). They are post-diploma technical and vocational educational pathways and target those technological and innovative areas considered priorities for economic development and competitiveness at the national level.

ITS courses, based on the pedagogical principle of work-based learning, provide an innovative experience of higher education that combines theory and practice in a complete development of the person, leading to excellent employment prospects. Through ITS courses students can develop different skills related to different economic and social areas (new technologies, social mobility, green energy, cultural activities, tourism) but also to promote critical and analytical thinking, creativity and problem solving. Flexibility is the main characteristic of this type of educational pathway, which means different organizational, didactic and design directions to create an educational program that can adapt each student's curriculum to different work and socio-territorial contexts.

The aim of this paper is to present Italy's higher non-academic Higher Vocational Education and Training system, starting from a pedagogical rediscovery of the educational value of work and including an analysis of the ITS Academy system, which has recently been reformed and relaunched. The analysis of these systems will follow a pedagogical approach, starting from some data provided by recent studies and institutional surveys.

Some of the main and up-to-date challenges that face the Italian ITS system will be discussed, such as: is it possible to successfully combine theory and practice in higher educa-

tion? Can a parallel system of non-academic tertiary education be established alongside the traditional university system?

KEYWORDS:

Vocational Education and Training; Non-Academic Higher Education; work-based learning; ITS Academy; Italy.

INTRODUCTION

Higher education systems around the world are experiencing a phase of epochal change: the pandemic has accelerated certain trends that had already been underway for some time, starting with the massive implementation of digital technology in teaching activities (Marin, 2021) and then progressing to a discussion of even more fundamental issues such as the educational value of the relationship between teachers and students and among students themselves (Bristow et al., 2021).

Higher education universities, academies, and other tertiary institutions are now finding themselves rethinking their pedagogical function in order to address the changed, shifting, and unpredictable socio-historical context (McLaughlin et al., 2020; Levine & Van Pelt, 2021).

One of the increasingly important issues that all European education systems now face is discerning how to combine theory and practice within the educational pathways they provide. The topic is particularly relevant at higher education level, where frequently there is a lack of a well-established historical tradition and cultural awareness of a work-based learning pedagogical paradigm in the design of education pathways (Cun-

ningham et al. 2004; Potestio, 2020; CEDEFOP, 2021). Italy is one of the countries where negative prejudice against the educational value of work is more widespread and deep-rooted (Bertagna, 2011).

Higher education systems around the world are experiencing a phase of epochal change: the pandemic has accelerated certain trends that had already been underway for some time, starting with the massive implementation of digital technology in teaching activities (Marin, 2021) and then progressing to a discussion of even more fundamental issues such as the educational value of the relationship between teachers and students and among students themselves (Bristow et al., 2021).

In the Italian school contest is becoming evident that higher education universities, academies, and other tertiary institutions are now finding themselves rethinking their pedagogical function in order to address the changed, shifting, and unpredictable socio-historical context (McLaughlin et al., 2020; Levine & Van Pelt, 2021).

One of the increasingly important issues that all European education systems now face is discerning how to combine theory and practice within the educational pathways they provide. In the specific Italian case, which will be analysed below, the topic is particularly relevant at higher education level, where frequently there is a lack of a well-established historical tradition and cultural awareness of a work-based learning pedagogical paradigm in the design of education pathways (Cunningham et al. 2004; Potestio, 2020; CEDEFOP, 2021). Italy is one of the countries where negative prejudice against the educational value of work is more widespread and deep-rooted (Bertagna, 2011).

Nevertheless, new study programs at post-secondary and tertiary educational level, which have been designed, developed and implemented outside of the academic realm, are expanding rapidly and attracting increasing attention all around Europe. In those countries where the so-called dual system of VET (Vocational Education and Training) is long established (i.e. Austria, Germany and Switzerland), hybrid forms of work-based academic education that combine elements of vocational training and higher education (Graf, 2017) have recently been developed; but countries with a more "traditional" higher education system are also wondering how to keep theoretical learning and professional development together, enabling a horizontal and cross-boundary contextual learning process and promoting collaboration on multiple levels and between multiple subjects, both inside and outside academia (Magni & Mazzini, 2018).

The report of the International Labour Organization (2020), an extensive data collection and modelling efforts to develop new global estimates of indicators that provide a comprehensive picture of labour markets, mentions that labor relations are changing. We are witnessing increasing poverty and social exclusion. Manufacturing activity has been hard hit, leading to a negative impact on business confidence and investment decisions. Trade and geopolitical tensions additionally depress confidence and GDP growth, and can have far-reaching ramifications for employment through global supply chains.

The enormous challenges in the world of work – including persistent inequalities and exclusion – call for a critical reflection on the adequacy of our methods and concepts, with possible innovations, to address today's challenges. We need to understand whether people of working age can realize their

full potential in their employment. Inequality and widespread decent work deficits not only lead to economic inefficiency, but can also undermine social cohesion within countries. Governments, workers and employers must continue to prioritize active labour market policies. But we are not just facing only a new industrial revolution.

Our time is characterized by uncertainty, complexity and unpredictability: it is a matter of consciously living this accelerated change of era. For this reason, we need to rethink our education systems (European Commission, 2012), and we are already running out of time.

The world of work has had to adapt by creating a structured path to cope with the over-segmentation of university disciplinary sectors. Higher education pathways (and, in particular, vocational higher education) must be designed and structured for jobs that have not yet been created, for technologies that have not yet been invented, to solve problems we have not yet even imagined (OECD, 2018).

For this reason, what is important is not only to learn an objective craft, as if it were something external to our person, outside of each of us; but we also need to hold tight to the things that enter the depths of our souls from the outside, that are recognized not only by the senses and intellect but which also touch the heart and spirit (Bertagna, 2021, in particular pp. 222-225). Thus, new degree courses have been created, including within academia, the so called "professional degrees" (*lauree professionalizzanti*): this type of three-year bachelor's degree aims to provide more contact with the world of work in certain occupational fields (such as construction, agriculture, energy). These new courses of study, among other consequences, have led

to the need for practitioners with skills from different professional fields to participate in the training pathways; to increase collaboration, inside and outside universities, between professionals, researchers and experts.

In such a rapidly changing context, the importance of building a coherent and strong VET system, that is equal in value to the more traditional school curricula, even at the tertiary level of education, is now internationally recognized as a priority for the educational policies of every country (Pilz, 2017; Guile & Unwin, 2019; Pilz & Li, 2020).

Against this backdrop, this paper aims to present and analyze the Italian tertiary vocational training educational pathways, represented by the ITS (*Istituti Tecnici Superiori* - Higher Technical Institutes) launched in 2010.

These institutes do not have national programs or curricula and use different teaching methodologies, to be more flexible and able to respond to the needs of both the chosen professional field and the socio-territorial context of reference. Teachers in ITS are mostly practitioners, coming from the world of work and the professions, and their mission is to convey to students the passion, knowledge and skills they have acquired in the professional field. One of the main aspects of this curriculum is the prominent role of labs and internships, in accordance with the pedagogical principle of work-based learning.

This non-academic Higher Education VET system is still at an "embryonic stage" in Italy and ITS courses need to be studied and analyzed to grasp their novelty and originality, also recognizing that there are still relatively few studies on them, given their recent implementation. The success of ITS is not only a question of good employment outcomes, as will be seen later,

but is also based on the involvement and motivation of the students, in the growth and development of the whole person.

This article will also give a brief overview of IFTS (*Istruzione e Formazione Tecnica Superiore*) courses, post-diploma technical specialization training courses, which together with ITS represent the Italian way to vocational, technical and non-academic higher education.

HIGHER EDUCATION AND THE EDUCATIONAL VALUE OF WORK

Before proceeding, a brief introduction is needed, without which the reason for a pedagogical interest in non-academic tertiary pathways of a vocational nature cannot be fully understood.

An essential starting point is, in fact, the recognition of the formative value of work, of every working activity – when performed with responsibility without making distinctions between intellectual and manual work – if undertaken consciously, in freedom and responsibility, and preceded and followed by appropriate theoretical in-depth studies and moments of critical reflection. In this light, all work can be an important source of personal skills development for young and adults alike (Bertagna, 2017).

The starting point is then the acknowledgement that all working activities, of any nature, come with sociality, humanistic, scientific and technological knowledge and – in order to be performed properly – require the interaction of practical and theoretical skills in real situations. Work is indeed a treasure

whose underlying structure consists of theoretical principles, operational techniques and actions. In this view, work is conceived as an educational, instructive and training process in its own right and is considered in its unavoidable – or rather, always possible if recognized critically and reflexively, in freedom and personal responsibility – educational and training dimension (Cegolon, 2020).

The overall commonalities across the range of offerings from universities, vocational colleges and schools that constitute the broad field of vocational education are broadly associated with developing and sustaining individuals' capacities required for work and working life. That is, their educational purpose are primarily concerned with (i) identifying the knowledge required for effective performance in an occupation; (ii) organizing experiences for the learning of that knowledge; then (iii) finding ways of enacting the experiences so that learnes can become effective in occupational practice and (iv) also be sustained in that effectiveness across working life including transitions to other occupations (Billet, 2011, p. 25)

In order to restore the full pedagogical and training dimension to work, it is necessary first of all to recognize the unity of each human person, rediscovering a unitary and positive anthropological vision. The pedagogical principle of work-based learning and the didactical methodology of combining theory and practice, school and work require as an anthropological premise the awareness that each person – on whom all educational practices focus – is made up of spirit and body, mind, hands and heart, reflection and action.

Introducing young people to work in an effective higher VET system cannot be reduced to learning a craft or a means of reduc-

ing youth unemployment. These are important goals, but there is something more. As we learnt from John Dewey's concerns expressed more than a century ago, vocational education and training could – but should not be – only «interpreted in theory and practice as trade education: as a means of securing technical efficiency in specialized future pursuits» (Dewey, 1916, p. 369).

In order to avoid these reductionisms, it is necessary to start again from a vocational conception of the person, which can give meaning, direction and purpose to every action, as, in Dewey's words: «a vocation means nothing but such a direction of life activities as renders them perceptibly significant to a person, because of the consequences they accomplish, and also useful to his associates. The opposite of a career is neither leisure nor culture, but aimlessness, capriciousness, the absence of cumulative achievement in experience, on the personal side, and idle display, parasitic dependence upon the others, on the social side» (Dewey, 1016, p. 359). Dewey goes on: «an education which acknowledges the full intellectual and social meaning of a vocation would include instruction in the historic background of present conditions; training in science to give intelligence and initiative in dealing with material and agencies of production; and study of economics, civics, and politics, to bring the future worker into touch with the problems of the day and the various methods proposed for its improvement. Above all, it would train power of readaptation to changing conditions so that future workers would not become blindly subject to a fate imposed upon them» (Dewey, 1916, p. 373).

Consequently, it is not possible to place human beings' qualities in a hierarchical order, wrongly assuming that learners'

training consists of theoretical knowledge that does not directly involve practical action. From this assumption follows the need to constantly reconnect theoretical and practical knowledge, experience and reflection, work settings and school and university/tertiary learning environments, enabling in this way careful and thoughtful action. This approach to work-based/related learning revitalizes and renews in our contemporary contexts the pedagogical principle that brings together at the same time, body and spirit, theory and practice, study and work, referring to and renewing an important and prestigious tradition of pedagogical reflection (e.g., Jean-Jacques Rousseau, John Dewey). In the tertiary educational context, the work-based learning approach is recognized as a valuable pedagogical strategy and methodology for developing graduate employability, increasing employment prospects and contributing to other learning outcomes (Rowe et al., 2021).

NON-ACADEMIC HIGHER EDUCATION IN ITALY: LAST CALL?

As already mentioned, the historical evolution of the Italian education and training system is characterized by a dualism (study versus work, intellectual versus manual labour, theoretical rationality versus technical and practical rationality, and so on...) that has historically seen high school courses (*Licei*), characterized as they are by theoretical and reflective study, reserved for the future leading elite of the country and the students considered the most deserving; with, on the other hand, technical-vocational paths, which over the decades have become less prestigious options, suggested for "difficult" and "less meritori-

ous" students who did not want to "study". Over time, these educational options have increasingly been considered – at a social, familial and cultural level – as "second class" choices.

The new global scenario, however, requires an overthrow of the Fordist model, recovering a paradigm of compositional type, starting from a unitary anthropological vision of the human person who knows how to restore a formative dimension to work (Bertagna, 2017). Only an inseparable union between theoretical knowledge, practical skills, mastery, virtue and technical skills will be able to restore momentum and meaning to the professionalism that today has become shrouded in shadow.

The same prejudice has been reflected at the higher education level, which has long been based solely on the educational courses provided by the country's more than 90 universities: in other words, instead of fostering a pluralism of actors and options in higher education, there has been a preference for a single educational channel, that of the national university (Bertagna, 2012).

There are, however, several critical points that characterize the Italian landscape: while at the end of the 1980s Italy occupied 5th place in the ranking of industrial powers, it is now 11th. Today, compared to the rest of Europe, there is a considerable mismatch between the personal skills required by the labor market and the personal skills available: companies, particularly those more advanced in terms of information technology, technology and mechatronics, are unable to find in the labor market higher-level technicians who are available and have the necessary and appropriate professional skills. In Italy, moreover, the average age at which young people enter the world of work is almost 22 years, far higher than in other European countries.

To address these needs and try to stop this seemingly unstoppable decline, in recent decades, alongside the universities and academies of fine arts and music conservatories (the so-called "Higher education in art, music and dance" sector – *Alta formazione artistica, musicale e coreutica* - AFAM), some vocational tertiary education courses, grouped around two main types of institutions, have also slowly developed.

The first are the IFTS courses (Higher Technical Education and Training courses – *Istruzione e Formazione Tecnica Superiore*). These post-diploma professional training courses are planned on a regional basis and are delivered by at least four VET providers from the school system, vocational training, university, and business sector. These courses last one year (or two semesters), comprising a total of 800-1,000 hours, and include theory lessons and practical activities (at least 30% of hours are dedicated to company training periods). The introduction of the IFTS paths in Italy dates back to 1999 (Law n. 144, art. 69); the training paths are set according to a list of higher technical specializations identified in national reference figures, which can be divided into specific regional profiles on the basis of professional needs, and the local socio-economic context.

These courses are designed to strengthen, update and specialize technological and technical-professional skills among the following groups:

1) young people in possession of an upper secondary education diploma or a professional technician's diploma;

2) those admitted to the fifth year of high school courses (*Licei*);

3) those who do not possess an upper secondary education diploma, subject to an accreditation of skills acquired in regional

courses of education, training and work as fulfilment of their right and duty to education (which can be achieved at age 16).

At the end of these courses, students obtain a higher technical specialization certificate (*certificato di specializzazione tecnica superiore*), equivalent to the European Qualifications Framework (EQF) level 4. **Table I** shows data on IFTS courses and students enrolled in the Lombardy region (unfortunately, no further public data are available), one of the country's most populous (with 10 million inhabitants) and where the VET system is most developed (Magni, 2020). As you can see, the IFTS option still represents an unpopular choice among young people that attracts a very small number of students, and has yet to find a real place within the system: for example, during the training year 2019/20 there were 1,377 students enrolled in IFTS courses in the Lombardy region.

The second typology are the ITS courses (Higher Technical Institutes - *Istituti Tecnici Superiori*) which will be explained in more detail in the next paragraph.

Table I. Number of IFTS courses and enrollments by technological area years 2018/2019, 2019/2020 in the Lombardy Region (PoliS-Lombardia elaboration on data provided by the General Directorate for Education, Training and Labor – Lombardy Region, September 2020)

Reference area	2018/2019		2019/2020	
	Courses	Students enrolled	Courses	Students enrolled
Agri-food	1	23	1	24
Artistic craftsmanship	2	57	1	28
Culture, information and computer technology	8	204	10	253
Electrical - electronics, information technology and telecommunications	2	43	3	69
Graphics, multimedia communication and entertainment	0	0	1	29
Wood and furniture	0	0	1	24
Manufacturing and craftsmanship	3	72	3	69
Mechanics	4	101	6	160
Mechanics, plants and construction	9	220	11	260
Fashion and clothing	2	53	1	27
Commercial services	5	136	5	123
Catering services	0	0	2	51
Tourism and sport	12	284	11	267
Total	48	1.193	56	1.377

ITS (HIGHER TECHNICAL INSTITUTES): AN INITIAL OVERVIEW

The government decree (DPCM) of 25 January 2008 "Guidelines for the reorganization of the higher technical education and training system and the establishment of higher technical institutes" represents the policy document that marks the birth of ITS in Italy (D'Amico, 2015).

Istituti Tecnici Superiori (ITS or, now with a new designation, ITS Academy) were established in Italy with the intention of providing a professionalizing tertiary educational offer that would train highly specialized superior technicians in technological areas considered strategic and innovative at a national level.

The Italian regulations specify that ITS (and IFTS) courses should have the following characteristics:

(a) they are designed and organized in relation to the need to ensure an offer aimed at meeting differentiated training needs according to criteria of flexibility and modularity

b) they must allow personalized training paths for young people and adults of working age, recognizing acquired training credits, including for the purpose of determining the length of the individual path

c) they must encourage the participation of employed adults

d) in response to national reference figures, they must promote the achievement, at a national level, of consistent levels of quality and employability through skills acquired as a result of the training course, including within the EU framework.

ITS courses relate to six technological and economic areas (more information is available on their website at https://sistemaits.it/):

- Energy efficiency;
- Sustainable mobility;
- New technologies of life;
- New technologies for "Made in Italy" (Companies services, Agro-food system, Home system, Mechanics system, Fashion system);
- Innovative technologies for cultural heritage and activities - tourism;
- Information and communication technologies.

Unlike the IFTS pathways, ITS courses last two years (four semesters) or a maximum of three years (six semesters), and consist of a total of 1,800-2,000 hours, which include theory lessons and practical activities (at least 30% being dedicated to mandatory company training periods, possibly abroad in an international context). Work experience in companies can also be carried out through a high-level training and research apprenticeship (Level III). At least 50% of the teachers come from the world of work and the professions.

At national level there are 117 ITS offering 713 training courses, with 2,932 partner entities, including 1,148 companies and 131 enterprise associations, 6,800 teachers (around 70% of whom come from a professional field and are employed part-time) and 18,273 enrolled students (INDIRE, 2020) (for detailed data see **Table IV**).

Admission to this type of tertiary education is open, based on selection, to young people and adults who hold an upper secondary education diploma and those who hold a four-year regional vocational education and training diploma and have attended an annual supplementary course of higher technical education and training (IFTS).

At the end of these courses, students obtain a higher technical education diploma (*diploma di tecnico superiore*), EQF level 5.

While still having limited success in terms of numbers of students, especially when compared to similar international experiences, ITS are nevertheless attracting attention mainly due to the high employment rate of their graduate students: after a year, around 80% of ITS students are employed (see later **Table II**), approximately 90% finding a job relevant to the training path undertaken (see later **Tables III and V**) (Zuccaro et al., 2021).

The following founding principles have been identified by INDIRE (Istituto Nazionale Documentazione Innovazione Ricerca Educativa) to enable the further development of quality self-organization of ITS, including:

1. *Reconfiguration*. Having an independent location and implementing more courses in more locations, in more cities, redefining organizational units.
2. *Redundancy*. In coordinating work, given the multidisciplinary nature of ITS, they should be equipped with transversal and competent figures capable of understanding and handling the complexity of production chains.
3. *Interconnection*. ITS are directly connected with the production managers of companies and are characterized by their ability to evolve in terms of their contacts, relationships, choice of teachers, tutors and placement figures.
4. *Sharing*. In a flexible organization, it is necessary to foresee processes of sharing, and to establish rules without losing the ability to grasp new requests that emerge.
5. *Innovation*. The organizational model of ITS appears to be multiform, influenced by the people who lead it, who

carry the organizational culture of the institutions from which they come (companies, schools, training agencies, universities). The organizational model of some ITS where operators come from entrepreneurial organizational contexts prompts experimentation with new forms of inter-organizational territorial governance centered on production chains: so-called supply chain communities (Aiello et al., 2019).

ITS: ORGANIZATION, EDUCATIONAL MODELS, EMPLOYMENT OUTCOMES

ITS are set up as foundations, a model of public-private management of non-profit activities, which entails collaboration between companies, universities/scientific and technological research centers, local authorities, schools and the training system (*Internal Network*). These institutions are permanent members of each "ITS Foundation".

Some ITS have added to this stable and structured organization a flexible and dynamic element in terms of roles and functions, that relate to the multiplicity of paths that can be taken and to emerging strategic alliances, that bring with them the capacity to grasp different trends in work, to understand the real needs of companies, and to renew every year the contents, the number of courses and the location of venues involved, in various cities (*External Network*).

The ITS, as provided for in the interministerial decree no. 93 of 7 February 2013, are to be included within "bodies governed

by public law" and are endowed with statutory, educational, research, organizational, administrative and financial autonomy.

The training paths available respond to companies' needs for new and high-level technical and technological skills to promote innovation processes. They are post-diploma technical specialization paths, rather than academic paths, and are created for those technological areas considered priorities for the economic development and competitiveness of the country. They represent an educational strategy that combines training and the world of work, through a highly qualified offer (Zuccaro et al., 2021).

In particular, the courses provide development in both "general/basic" skills (linguistic, communicative and relational, scientific and technological, legal and economic, organizational and managerial); and in "technical-professional" skills for each national professional profile, that relate to technological applications required by the world of work and the geographical area, responding to different situations and contexts.

ITS paths follow three possible educational models:

1. *Alternating teaching/learning methods*. These paths entail 2/3 days in the classroom and 2/3 days at an internship each week. This model allows companies to enhance their training potential.
2. *Circular teaching/learning method*. These two-year training paths entail activities being divided equally between the classroom and the internship during both the first and second years. The opportunity to encounter two dif-

ferent working contexts allows students to deepen their understanding of problems encountered in the first year of internship.

3. *Laboratory teaching/learning method*. These paths provide long-term laboratory activities, which are characterized using enabling technologies 4.0, to practice problem solving and critical thinking (in the first year), and internship in an enterprise (in the second year).

The training proposed in the ITS thus combines theory and practice, personal and professional training, and technical and cultural training.

Flexibility is the key characteristic of this type of pathway, which finds expression in different organizational, didactic and design directions, to create a training offer that can adapt each individual student's curriculum to different work and socio-territorial contexts. In partnership with the business sector, the ITS Foundations design and implement two- or three-year courses based on three-year plans drawn up by regional programs.

A key element of teaching is the critical reinterpretation of the practical experience undertaken, giving students the opportunity to directly experience what they have learned by connecting learning to business contexts, that is, verifying firsthand what they are going to achieve in the professional field. Specifically, it is in the laboratories that students can carry out complex activities that emulate work, experiencing authentic problem-solving processes. In this way, using the pedagogical paradigm of work-based learning already mentioned (Potestio, 2020), ITS promote the continuous interweaving of classroom teaching activities, laboratories and internships in companies, thus bringing

students closer to the real world of work they are about to enter as full members.

The "national monitoring" of 2021 demonstrates how ITS are characterized by a flexible organization of the didactics, articulating them in terms of hours of theory, hours of theory in laboratory training, hours of internship, and activities abroad. ITS develop a flexible teaching model based on laboratory activities that reduce the risk of training courses providing merely "passive" schooling. The hours spent in business and research laboratories account for 27% of the total hours of theoretical study, distributed as follows: hours of theory and lectures 1,165.6 (57%); hours of internships 835.5 (41.3%); hours of laboratories and visits abroad/to other regions 21.4 (1.1%), (INDIRE, 2021, p. 33).

The presence of professionals dedicated to these modes and areas of learning, such as tutors, orientation staff and other strategic figures for coordination, pedagogical supervision and the management of internships, is fundamental. Another essential factor is the fact that the majority of the teachers come from the world of work and the professions: 70.9% come from the world of work; 11.7% from universities; 11.5% from schools; 4.4% from training agencies; and 1.6% from research centers (INDIRE, 2021, p. 33).

The courses conclude with final examinations, conducted by examination committees made up of representatives from schools, universities, professional training and experts from the world of work. There are three exams: a theoretical-practical test, a written test and an oral test.

Appointed by the Ministry of Education, INDIRE has the task of managing both the national database of ITS and the national monitoring, and of conducting research activities to

investigate the structural, organizational, didactic and developmental elements practiced in the various ITS. Through annual monitoring, it is possible to have updated data, which can be consulted directly on the INDIRE website.

The national monitoring of the ITS 2021 pathways analyzes the 201 pathways that concluded in 2019. These were provided by 83 of the 104 ITS Foundations established as of 31 December 2019, and involved 5,097 students and 3,761 graduates. The courses are monitored a year after graduation, which is necessary to track employment outcomes. Around 80% of ITS graduates had found work a year after graduation (**Table II**).

This figure is particularly significant because it refers to 2020, the year of the explosion of the pandemic crisis and the lockdown associated with it. ITS guarantee high levels of employment for their graduates, working towards the occupational success of those with higher technical professional profiles in advanced technological sectors. Their key to success is their focus on innovation in content, teaching methods and instrumentation to support teaching. In fact, many of the paths are oriented to the use of enabling technologies specified in the "Industry 4.0" plan (Avis, 2018).

Table II. Graduates and employment rates one year after graduating from the training courses completed between 2013 and 2019 (INDIRE, 2021, p. 8)

Year	Graduates	% employed
2013	1098	78.3
2014	1235	81.1
2015	1767	79.1
2016	2193	82.5
2017	2601	79.5
2018	3536	82.6
2019	3761	80.0

92% of those employed in 2019 found work in an area that was relevant to their education. This figure is in line with the previous year (**Table III**).

Table III. Relevance between employment and training 2013-2019 (INDIRE - National ITS Database)

Year	Employees	% Employment relevant to the educational pathway
2013	860	86.4
2014	1002	90.2
2015	1398	87.5
2016	1810	87.3
2017	2068	89.9
2018	2920	92.4
2019	2995	92.0

According to the "ITS 2021 Monitoring", the students enrolled are mainly young men (72.6%) between the ages of 20 and 24 (42.4%) and 18-19 (38.0%), who hold a secondary school diploma with a technical orientation (59%). There has also been a constant and progressive increase in those who enroll with a high school diploma (21%). 10.5% of those enrolled live in a region other than the location of the course. The most significant percentage of those enrolled off-site is in the technological area of Sustainable Mobility (17.5%) (INDIRE, 2021, pp. 10-19).

This paragraph analyses jointly the distribution of members, graduates and employed persons according to the technological area and subsequently the percentage rate of graduates and employed. The distribution by technological area of the members, graduates and employees shows the constant prevalence of these in the New technologies for Made in Italy area with a slight increase in the percentage as the condition changes (41.9% of those enrolled, 45.2% of graduates, 45% of employees). A reduction in the percentage of members, as the condition changes, is recorded for Energy Efficiency (10.6% members, 8.6% graduates, 8.0% employed) and for New Technologies of Life (6.6% members, 6.1% graduates, 5.8% employed); the other technological areas are almost stable. Among the areas of Made in Italy, the Mechanical System (41.4% enrolled, 44.8% graduated, 49.5% employed) recorded a significant increase in the percentage of members as the condition changed. (INDIRE, 2021) (see **Table IV**).

Table IV. Enrolled, graduated, and employed: distribution by technology area, for pathways completed in 2019 (INDIRE - Monitoring 2021)

Technology area	Enrolled		Graduated		Employed	
	Nº	%	Nº	%	Nº	%
Energy Efficiency	540	10.6	316	8.6	241	8.0
Sustainable Mobility	743	14.6	511	13.9	425	14.2
New Life Technologies	338	6.6	223	6.1	174	5.8
New Technologies for Made in Italy	2235	43.8	1768	48.2	1411	47.1
Business Services	243	10.9	196	11.1	135	9.6
Agro-food System	654	29.3	477	27.0	332	23.5
Home System	114	5.1	80	4.5	62	4.4
Mechanics System	926	41.4	792	44.8	699	49.5
Fashion System	298	13.3	223	12.6	183	13.0
Information and Communication Technologies	680	13.3	518	14.1	424	14.2
Innovative Technologies for Cultural Heritage and Activities - Tourism	651	11.0	425	11.6	320	10.7
Total	5097	100.0	3671	100.0	2995	100.0

From the analysis of the data relating to the percentage rate of graduates and employed it emerges that it is the Mechanical System that records the best performance (85.5% graduation rate, 88.2% employment rate), followed by the Fashion System and Information and Communication Technologies. They exceed the average value of the percentage rate of graduates (72.0%) but not that of the employed (79.6%) Innovative technologies for cultural heritage and activities - Tourism (75.7% graduation rate, 75.2% employment rate). Rates below the average value for

both graduates and employed people are observed for Energy Efficiency, New Technologies of Life and the Agri-food System. 42.1% of those employed found work with a fixed-term contract or became self-employed. The 2021 monitoring records that 80% of graduates (3,671) found work within a year of graduation, of which 92% (2,756) was in an area consistent with the pathway completed (see **Table V**).

Table V. Employment outcomes of ITS graduates from courses completed in 2019 (INDIRE - National ITS Database)

	Nº	%	
Employed at 12 months	2995	80.00	of graduates
of which relevant employees	2756	92.0	of employed people
of which non-relevant employees	239	7.9	of employed people
Not employed or other condition	766	20.0	of graduates
of which not employed	418	11.1	of graduates
of which enrolled at the University	157	4.1	of graduates
of which in extracurricular internship	102	2.7	of graduates
of which untraceable	90	2.4	of graduates
Total	3761		

At the end of the ITS course students obtain a Higher Technical Diploma with a certification of competences that corresponds to the V level of the European Qualification Framework: this V

level of the National Qualifications Framework (NQF) in Italy corresponds to the learning outcomes of the Higher Technical Education diploma; in Sweden, for example, the same level of the NQF corresponds to the learning outcomes of a qualified graduate of an upper secondary engineering course; a diploma in Higher Vocational Education; or qualifications awarded outside formal education.

In order to facilitate national and European mobility, the qualification is accompanied by the EUROPASS diploma supplement. These diplomas are issued by the ITS' educational institution of reference based on a national model.

ITS ACADEMY: RECENT REFORMS AND FUTURE PERSPECTIVES

Bill no. 2333 regarding the *Redefinition of the mission and organization of the higher technical education and training system in implementation of the National Recovery and Resilience Plan* (PNRR – Piano Nazionale di Ripresa e Resilienza), passed its first reading in the Chamber of Deputies on 20 July 2021. This draft law, which consists of 17 articles, is the first organic legislative reform of ITS, which to date have been governed by a secondary source (the Prime Ministerial Decree of 25 January 2008).

Art. 2, paragraph 1, states that the ITS Academies, in addition to their main priority of enhancing and expanding the vocational training of higher-level technicians with high-level technological and technical-professional skills, have the task of supporting: the dissemination of scientific and technological culture; the orientation of young people towards technical pro-

fessions and the provision of information to their families; the updating and in-service training of teachers of scientific, technological and technical-professional disciplines working in schools and in the vocational training system; active employment policies, especially as regards the transition of young people into the world of work, including through organic links with bodies involved in workers' ongoing training; and technology transfer, especially to small and medium-sized enterprises.

The draft law also applies to one of the PNRR's areas of interest, in which the commitment to reform the ITS system was made. More specifically, the Plan provides for the strengthening of the relevant organizational and teaching model, the consolidation of ITS within the system of professional tertiary education, the strengthening of ITS' active presence in the entrepreneurial network of territories and the integration of ITS courses with the university system of professional degrees.

Specifically, the intention is to strengthen the ITS system by enhancing the organizational and teaching model (through the integration of teaching courses, introduction of rewards and expansion of courses for the development of enabling technological skills - Impresa 4.0). There are plans to:

- integrate ITS pathways with the university system of vocational degrees;

- simplify ITS governance, in order to increase the number of institutes and enrolled students;

- approve measures to develop and strengthen STEM (Science, Technology, Engineering and Mathematics), digital and innovation skills, with the aim of boosting enrollment in tertiary STEM curricula, particularly among women.

With additional economic resources of € 1,500 million from 2022 to 2026, the aim is to increase the number of ITS; to

strengthen laboratories with 4.0 technologies; to train teachers so that they are able to adapt training programs to the needs of local companies; and to develop a national digital platform for job offers for students with professional qualifications. The specific objective is to achieve an increase of at least 100% in the number of students currently enrolled in ITS courses.

Several amendments were subsequently made to the text of the draft law, with reference to:

- digital transition, including for the purpose of expanding digital services in the areas of personal identity (e.g., SPID, CIE), authentication (e.g., for electoral subscriptions), health and justice;
- innovation, competitiveness and culture;
- the green revolution and ecological transition;
- infrastructures for sustainable mobility.

The main interventions concern:

- the introduction of a system of initial and periodic accreditation of ITS Academies. The requirements and minimum standards for recognition and accreditation are established at the national level, with regions transposing the national minimum standards. In the first two-year period of the law's application all ITS Foundations already established are considered accredited;
- the definition of new technological areas to which ITS Academies must refer;
- the structuring of ITS Academies pathways at two levels: the first level lasting 4 semesters with at least 1,800/2,000 hours of training (V EQF level); and the second level lasting 6 semesters with at least 3,000 hours of training (VI EQF level). At the end of these pathways, following verification and final assessment, higher technical diplomas at the first and second level are awarded respectively;

- the definition of the governance of the ITS Academies. All foundations are required to appoint: the president, the board of directors, the general secretary, the assembly of participants, the technical scientific committee, the auditor of accounts. The control function is exercised by the prefect of the province in which the ITS Academy has its legal seat;

- the definition of the requirements in selecting ITS Academy teachers. These must be selected from among people from the world of work, including private research organizations, and have specific professional experience, acquired over at least 5 years, in productive sectors that relate to the technological area of reference.

It is also expected that the Ministry of Education will establish national coordination for the development of the Italian non-academic higher technical education and training system; as well as establishing an ongoing dialogue between the government and the regions, coordinated by the Ministry of Education, to draw up proposals for the definition of new degrees in this sphere.

CONCLUSIONS

As we have seen, therefore, through ITS higher education courses, students can develop a variety of specific skills related to innovative areas (new technologies, social mobility, green energy, cultural activities, tourism, etc.), starting from the overall growth and development of each person, and encompassing critical and creative thinking, active learning, the ability to use initiative and problem solving, in a perspective that sees this intersection of skills through their concurrent manifestation in

situations involving a person, in a precise space-time context and through a continuous interaction with the work environment (Mulder, 2017; Sandrone, 2018).

These professionalizing training paths therefore not only offer the opportunity to combine theory and practice – thus avoiding and overcoming a hierarchical relationship between study and work, theory and practice, student and worker – but also the possibility of providing all those young people who live on the margins of society or in educational poverty with a training path that can accompany them in the discovery of their "hidden" talents and the development of their still "unexplored" skills (Powell & McGrath, 2019):

a challenge that is new but at the same time age-old and on which we have been pondering for a long time.

Nearly a century ago, in the November 1932 edition of the *Journal of Higher Education*, C. D. Clark critically examined some experiments conducted outside the so-called academic institutions of the American Higher Education system. Many decades later, these remarks still retain their relevance and can help us better understand the reasons for and importance of the existence and good functioning of a non-academic tertiary education. He wrote the following: «certain groups, however, have been dissatisfied with the aims and achievements of our system of higher education and they have begun a number of educational experiments on their own initiative» (Clark, 1932, p. 401).

The starting point seems similar to that of our contemporary world: a dissatisfaction on the part of society, families, and companies with the exclusivity of academic learning as the only available pathway to higher education.

And even its concrete expression has similar characteristics: Clark already identified greater flexibility as one of the main features of this new type of higher education institution: «these schools are far more flexible, informal, and democratic than the prevailing academic type» (Clark, 1932, p. 404).

Even with respect to the immediate outcomes, in trying to change the entire educational system, he reached a very realistic assessment: «the educational experiments in higher learning just described are as yet too young and feeble to have modified greatly the basic pattern or ideals of our academic system. It is significant, however, that such experiments have arisen and are being conducted outside of regular academic channels» (Clark, 1932, p. 406). In concluding this paper however, the important thing to underline are the conclusions Clark reached in his pioneering contribution. He wrote: «the main influence of these non-academic educational experiments is likely to be found eventually in modifications of the administration, curriculums, and instructional methods of our formal institutions of higher education. [...] Their most important function, perhaps, will have been to jog us out of the rut of academic formalism and regimentation» (Clark, 1932, p. 406). Could this be a chance and a hope for the Italian higher education system as well?

REFERENCES

Aiello L., Buffardi A., Taddeo G., Zuccaro A. (2019). *Istituti Tecnici Superiori. Una sfida culturale in atto*. Firenze: INDIRE.

Avis J. (2018). Socio-technical imaginary of the fourth industrial revolution and its implications for vocational education and training: a literature review. *Journal of Vocational Education & Training*, *70*,(3), 337-363.

Bertagna G. (2011). *Lavoro e formazione dei giovani*. Brescia: La Scuola.

Bertagna G. (2012). *Per una pluralità di soggetti nella formazione superiore*. In G. Bertagna, V. Cappelletti (eds.), *L'università e la sua riforma*, (111-157) Roma: Edizioni Studium.

Bertagna G. (2017). *Luci e ombre sul valore formativo del lavoro. Una prospettiva pedagogica*. in G. Alessandrini (Ed.), *Atlante di Pedagogia del Lavoro*. Milano: Franco Angeli, 49-89.

Bertagna G. (2021). *Ha ancora senso "insegnare ed imparare un mestiere"?*. In S. Soresi (Ed.), *L'orientamento non è più quello di una volta. Riflessioni e strumenti per prendersi cura del future*. Roma: Edizioni Studium.

Billett, S. (2011). *Vocational education: Purposes, traditions and prospects*. Dordrecht: Springer.

Bristow J., Cant S., Chatterjee A. (2021). *Generational Encounters with Higher Education. The Academic–Student Relationship and the University Experience*, Bristol: Bristol University Press.

Cegolon A. (2020). *Lavoro e pedagogia del lavoro. Origine, sviluppo, prospettive*. Roma: Edizioni Studium.

CEDEFOP (2021). *The role of work-based learning in VET and tertiary education: evidence from the 2016 EU labour force survey*. Publications Office of the European Union.

Clark C. D. (1932). Non-Academic Higher Education. *The Journal of Higher Education*, *3*(8), 401-406.

Cunningham I., Dawes G., Bennett B. (2004). *The Handbook of Work Based Learning*. London: Routledge.

D'Amico N. (2015). *Storia della formazione professionale in Italia. Dall'uomo da lavoro al lavoro per l'uomo: Dall'uomo da lavoro al lavoro per* l'uomo. Milano: FrancoAngeli.

European Commission (2012). *Rethinking Education: Investing in skills for better socio-economic outcomes*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM 669, Strasbourg (http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0669).

Levine A., Van Pelt S. (2021). *The Great Upheaval, Higher Education's Past, Present, and Uncertain Future*. Baltimore: Johns Hopkins University Press.
INDIRE (2021), *Istruzione Terziaria Professionalizzante, Istituti Tecnici superiori, Monitoraggio 2021*, https://www.indire.it/wp-content/uploads/2017/05/4.-Rapporto-nazionale-Indire-Monitoraggio-ITS.-Sintesi.-2021_az.pdf
International Labour Organization (2020) *World Employment and Social Outlook: Trends 2020*, Geneva: ILO https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_734455.pdf
Graf L. (2016). The rise of work-based academic education in Austria, Germany and Switzerland. *Journal of Vocational Education & Training*, 68(1), 2016, 1-16. https://doi.org/10.1080/13636820.2015.1107749.
Guile, D., Unwin, L. (eds.) (2019). *The Wiley Handbook of Vocational Education and Training*. Hoboken, NJ: Wiley.
Magni F. & Mazzini A. (2018). *Collaboration and Entrepreneurship Education: Requirements and Perspective*. In G. Bosio, T. Minola, F. Origo, S. Tomelleri (Eds.). *Rethinking Entrepreneurial Human Capital. The Role of Innovation and Collaboration* (89-104), Cham: Springer.
Magni F. (2020). *The VET system in Lombardy (Italy): a first pedagogical outlook between history and future*. In L. M. Herrera, M. Teräs, P. Gougoulakis (eds.). *Policies & partnership with the world of work – national and cross-national perspectives. Emerging issues in research on vocational education & training*. Vol. 6. (26-50). Stockholm: Premiss förlag.
Marin L. (2021). *On the Possibility of a Digital University. Thinking and Mediatic Displacement at the University*. Cham: Springer.
McLaughlin T., Chester A., Kennedy B., Young S. (eds.) (2020). *Tertiary Education in a Time of Change. Disruptions, Challenges and Strategies*. Cham: Springer.
Mulder, M. (Ed.) (2017). *Competence-based Vocational and Professional Education. Bridging the Worlds of Work and Education*. Springer: Berlin.
OECD (2018). *The Future of Education and Skills, Education 2030*. Paris: OECD Publishing.
Pilz, M. (2017). *Vocational Education and Training in Times of Economic Crisis Lessons from Around the World*. Cham: Springer.
Pilz, M., Li, J. (eds.) (2020). *Comparative Vocational Education Research Enduring Challenges and New Ways Forward*. Cham: Springer.
Potestio A. (2020). *Alternanza formativa. Radici storiche e attualità di un principio pedagogico*. Roma: Edizioni Studium.
Powell L. J., McGrath S. (2019). *Skills for Human Development. Transforming Vocational Education and Training*. New York: Routledge.
Rowe A. D., Jackson D., Fleming J. (2021). Exploring university student engagement and sense of belonging during work-integrated learning. *Journal of Vocational Education & Training*, (1-22).

Sandrone G. (2018), *La competenza personale tra formazione e lavoro*. Edizioni Studium: Roma.
Zuccaro A., Taddeo G., Buffarfi A., L. Aiello (2021). *Gli istituti tecnici superiori. Una sfida culturale per l'istruzione terziaria professionalizzante*. Roma: Carocci Editore.

Gender Perspective as part of Quality: Perceptions of Chilean Students on the Online VET

Paloma Fernanda Sepúlveda-Parrini*
Autonomous University of Barcelona
Department of Theories of Education and Social Pedagogy
G6 - Office 144 - 08193 Bellaterra
(Cerdanyola del Vallès) - Barcelona - Spain
email: palomafernanda.sepulveda@autonoma.cat

Pilar Pineda-Herrero
Autonomous University of Barcelona
Department of Theories of Education and Social Pedagogy
G6 - Office 144 - 08193 Bellaterra
(Cerdanyola del Vallès) - Barcelona - Spain
email: pilar.pineda@uab.cat

Paloma Valdivia-Vizarreta
Autonomous University of Barcelona
Department of Theories of Education and Social Pedagogy
G6 - Office 144 - 08193 Bellaterra
(Cerdanyola del Vallès) - Barcelona - Spain
email: paloma.valdivia@uab.cat

* Corresponding author

ABSTRACT:

In this research we propose to analyse the quality of online VET training from a critical perspective, by incorporating a Gender Perspective with a Cyberfeminist focus -GP(CyberFem)-, as part of its quality. In this way, we aim to contribute to the problematisation of VET training in virtual environments and the current intersections between gender, feminisms, technologies and education. To this end, we designed, validated and applied a questionnaire to 1,073 online VET students from 12 higher education institutions in Chile. The objectives were to find out students' perception of quality and the value that GP currently has and should have in their studies. The findings indicate that students perceive that in the current scenario of their institutions, GP(CyberFem) as part of quality is valued from aspects linked to interactions and dialogue between students and teachers, while in the expected scenario they point out the importance of aspects linked to accompaniment, conflict mediation and student participation. The most important significant differences in the responses are observed in terms of the gender variable, which reaffirms the importance of problematizing online training with a cyberfeminist gender perspective.

KEYWORDS:

VET; online higher education; gender perspective; cyberfeminism; quality

INTRODUCTION

After 30 years of deep neoliberal policies, the higher education system in Chile is one of the many areas that has been almost entirely privatized, commodifying its access and turning quality into a tradable and scarce good. In October 2019, Chilean society experienced an unprecedented social outburst that portends profound transformations. Among the demands, the student movement, growing during the last decade in the country, demands quality education that democratizes access to the higher education system, ensures free education as a right, and celebrates quality as a guarantor against uncontrolled supply (see Photograph 1). This is the context in which this research is situated.

Photograph 1. "Free, quality public education", May 2014.

Source: https://www.elquintopoder.cl/educacion/reforma-educacional-y-actores-de-reparto/

Photograph 2. "For a non-sexist education. Dissident and feminist pedagogy", May 2017.

Source: https://zur.uy/un-mayo-chileno-universidades-y-colegios-en-toma-feminista/

In this scenario, quality can be understood as a principle of educational equity. In this line, this paper proposes the use of the concept of Gender Perspective (GP) with a cyberfeminist focus, to interpret the empirical results and analyse the quality of online VET. This decision is based on a cyberfeminist view of GP allows us to contextualise the issues related to education and gender, which have been widely studied in the educational and feminist literature, to virtual learning environments as physical and symbolic spaces hosted on the Internet, where problems, biases and inequalities specific to virtuality intersect, as well as new challenges and educational potentialities appear. This view is particularly relevant in the analysis of quality, as it allows us to broaden and enrich the conceptions associated with it and to

incorporate variables that aim to improve educational processes. From now on, we will use the concept GP(CyberFem) to refer to this perspective.

In the context of higher education in Chile, PG has been adopted from the perspective of parity and with the paragon of the university context (Morris et al., 2021; Unidad de Equidad de Género, 2015). However, in recent years, the power of the feminist student movement (Zerán, 2019) has *forced* HEIs to incorporate gender as part of their educational policies (in all institutions there is a Gender Unit), coexistence protocols (including protocols for cases of harassment and gender violence), but also as a questioning of androcentric and patriarchal biases in the structuring of the curriculum, content and pedagogical and institutional interactions (see Photograph 2). In terms of education policy, gender is one of the priorities of the Secretariat for Higher Education: by 2022, none of its areas will be considered without a gender perspective. Both in this Secretariat and in the National Accreditation Commission (CNA), PG is part of the *integral quality* that they seek to promote (Subsecretaría de Educación Superior, Chile, 2022). This movement of educational transformation has its origins in the traditional university environment (face-to-face and professional careers), an issue that may prove to be an elitist burden if it is not open to the heterogeneity and complexity of the higher education ecosystem in the country (Esmar & Poo, 2022; Ruz-Fuenzalida, 2021). We believe that online VET has been one of the modalities that have lagged.

The current focus on VET* in Chile responds to the scenario of a sustained increase in labour demand for this student profile, which translates into educational policies to strengthen it and increase its social value, the background of which is the incorporation of this higher education subsystem into a new institutional framework, increasingly distanced from the market models that defined it in its beginnings (Álvarez et al., 2021; Sanhueza, 2016). On the one hand, GP is incorporated into this scenario mainly because of the concern to incorporate women in STEM areas and, to a lesser extent, men in traditionally feminised areas of study (Sevilla, 2021). On the other hand, the current focus on online higher education in the country, especially after the accelerated digitalisation of education during the COVID-19 pandemic (Çoban, 2021), emphasises the growing interest of individuals and HEIs in incorporating this modality as a valid and accessible option. This interest translates above all into institutional efforts to *equate* the quality of the online mode with the quality (socially perceived as intrinsically good) of face-to-face education; in this sense, the new Law that establishes the criteria and standards for the compulsory accreditation of HEIs in Chile, dilutes the online mode together with the other modes (face-to-face and blended) in common criteria and definitions (Ley 21091. Sobre educación superior, 2018). From our perspective, this situation makes the many particularities of this modality invisible in relation to the others, leaving behind a dangerous silence. This study attempts to contribute to this direction.

* VET education in Chile is developed through: Technical Training Centers (CFT), Professional Institutes (IP) mainly. In a very minority way, some Universities (Ues) offer programmes in this modality. For the purpose of this research, we contemplate the 3 types of HEIs.

This article is part of ongoing doctoral research on Online Higher Education (OHE) in Chile*. We intend to reflect on the value that online VET students place on GP(CyberFem) as part of the quality of their studies. To respond to this, we set ourselves the objective of finding out what importance students perceive the GP(CyberFem) to have at present and what relevance it should have in the future as part of the quality of their studies.

THEORETICAL FRAMEWORK

QUALITY AND GENDER PERSPECTIVE (CYBERFEMINIST)

In this research, we understand quality, contextualised to online VET, as a non-neutral (Prieto & Manso, 2018), therefore political (Williamson, 2019), multifaceted (Harvey & Green, 1993) and subjective (Dahlberg et al., 2005) concept that is constructed in a situated way as a cause and consequence of power relations (Giroux, 2014), and in a processual and dialogical way in the institutional and social contexts in which educational systems are embedded (Stracke, 2019). In short, we approach quality from the perspective of equity (Bendixen & Jacobsen, 2020).

For its part, GP(CyberFem) is a filter that allows us to observe the quality of online VET as a mode of study that is developed through a technological environment, specifically virtual, as a socio-cultural and contextual product (Feenberg, 2005; Sancho Gil et al., 2018). In particular, the *cyberfeminist* approach is defined by the literature as the critical reflection and transformation of virtual environments from the assumption that

* *Online Higher Education in Chile: Contributions to Quality Analysis and Gender Perspective (2019-2023)*. Developed thanks to the Chile Scholarship for Doctoral Studies- ANID-Chile.

these are extensions of the physical world (Fernández, 2002), and that they are intimately connected to people and institutions; to their hierarchies, classifications and differences (Daniels, 2009; Knox, 2019). In this sense, cyberspace is a gendered place in which power relations are exercised and the inequalities and material gaps of the analogue world are evident: the *physical* and the *virtual* are political, contextual and performative realms (Gajjala, 2014; Wajcman, 2010; Yoon, 2021).

When talking about gender, we understand that gender, as a social construction with performative qualities (Butler, 1999; Haraway, 1991) challenges the binarism (feminine/masculine) as responsible for modeling and defining, through heterosexual canons, two idealized and desired genders within the social collective. Thus, gender is neither a causal result of sex nor as apparently fixed as the latter: its artificiality can be questioned and its meanings can be undone (Butler & Bixio, 2015). In this context, the adoption of the Gender Perspective (GP) is a useful filter to question the heterosexual and patriarchal normativity that sustains the social system, as well as its principles of hierarchization of spaces, resources, values, and subjectivities (Donoso Vázquez et al., 2017). When we observe technologies and their corporeality through the filter of GP with a cyberfeminist focus, we understand gender as an analytical category that allows us to problematize cyberspace as a field in dispute.

From this perspective, GP(CyberFem) in educational cyberspaces announces the importance of analysing inequalities in cyberspace and making visible and reducing cyber-violence (Herman & Kirkup, 2017); assuming *non-neutrality* in political decisions linked to the acquisition of or preferences regarding the technologies of institutions (Williamson et al., 2019); prob-

lematising the ethical implications of the use of the data of those who interact on platforms and their privacy (Koseoglu, 2020); the presence of gender stereotypes and biases from an *intersectional* point of view, on platforms or in educational resources (Koseoglu et al., 2020); or androcentric and patriarchal biases in teaching and curricula (Luxán & Biglia, 2011; Migueliz Valcarlos et al., 2020). It also invites us to question the materiality of the people who interact in virtuality: in this way, the conditions of precariousness in teaching and student indebtedness or the scope of neoliberal management in higher education institutions appear (Cielemecka & Revelles-Benavente, 2017; Hernández-Hernández & Sancho-Gil, 2017). In this way, technologies would cease to be considered as a *neutral* variable in this modality of studies, allowing us to visualise the inequalities and biases with which gender and other inequalities are codified through them (Eynon, 2018), in terms of educational quality (Agud et al., 2020; Benito & Verge, 2020).

CONTEXT OF ONLINE VET IN CHILE

Within the higher education system in Chile (HE), online vocational education and training (VET) is one of the types of studies that has grown the most in recent years. Online VET is a modality planned and designed by a HEI to be studied mostly asynchronously through educational platforms hosted on the Internet via technological devices. It combines autonomous work by students and an institutionalised system of support and tutoring that mediates between the contents and activities provided on the platform (García Aretio, 2020). According to data from the Chilean Ministry of Education (SIES, 2021), in

2021 there were a total of 1,294,739 students enrolled in degree programmes, of which 317,710 (24.5%) corresponded to VET, of which 11.7% were enrolled in online programmes in a total of 23 HEIs, of which only 11 are accredited. This student body consisted of 54.3% female and 45.7% male students, whose average age is 33.5 years and 34.5 years respectively. Due to this student profile, it is key to understand online VET studies in Chile from the perspective of the flexibility offered by asynchronous spaces and the possibility of making studies compatible with the work activities -remunerated or not-, particularly for female students (Heedy & Uribe, 2008; Lai & Lu, 2009; Patterson, 2010).

On quality, the predominant focus in the higher education system in Chile are compliance and assurance of standards and accountability (Scharager Goldenberg, 2018), represented by the traditional educational quality perspectives proposed by (Harvey & Green, 1993): *quality as exceptional* and *value for money*. The quality of online VET in Chile is part of this system, described as complex, multifunctional and with a strong emphasis on institutional accreditation (Lemaitre, 2011). As a result of the neoliberal reforms of the 1980s, which drastically modified institutional structures, the presence of public universities was reduced and with it the state's interference in education, while the quality assurance system raised the possibility that the market itself would regulate the quality of the academic offer (Brunner, 2009). In this way, the HE system became a competitive environment, forced to shift its efforts to marketing activities through actions to attract and retain students and focused on demonstrable results (Araya-Castillo et al., 2018). This, as expected, resulted in a higher education system where HEIs that achieved international quality standards coexisted

with many others that did not meet the minimum requirements, but, despite their *unaccredited* status, the model allowed them to exist and grow (Corvalán et al., 2011). Specifically, VET is the higher education sub-system that has most strongly echoed the prevailing market model: it was only in 2016 that a law was signed to create state CFTs; until that date, all VET provision was private (Bernasconi & Irarrázaval, 2015). However, the picture for online education and specifically for online VET is even more dramatic: until only a couple of years ago, academic programmes in this modality were not eligible for any type of accreditation to *demonstrate* quality, even though HEIs require greater institutional investment and powerful specialised teams within the institution to implement them (Ragusa & Crampton, 2017). In this scenario of deregulation, online higher education has proliferated and grown in an unprecedented way, more than any other type or modality of studies: between 2017 and 2021 it increased by 178.5% (SIES, 2021).

METHOD

This study has an exploratory nature, is based on quantitative data from a questionnaire, and like several studies, gives value to the voices of the student body on issues related to quality (Fidalgo et al., 2020). The questionnaire as an instrument to produce information is a method that has overcome the traditional negative assessment that links it to positivism and currently receives great interest in methodological approaches with a feminist perspective, due to its potential to make inequalities quantitatively visible and to disseminate complex issues graphically and directly (Hesse-Biber, 2013).

First, the data will be presented descriptively through percentage means and then through a bivariate analysis of the dataset according to sample characteristics. We used Mann-Whitney U and Kruskal-Wallis tests (Boduszek et al., 2017; Field, 2009). This decision is because the first test is used as a non-parametric rank test, to test for differences between variables where the independent variable is dichotomous (gender). The second test is used when the variables have three or more categories (age range, type of HEI, semester, type of work activity) (Ladrón de Guevara et al., 2020).

SAMPLE

Of the 23 HEI that in 2021 offered online VET academic programs, 12 agreed to participate in the research: three CFT, six IP, and three Ues. Within the HEI, the sample of students was non-probabilistic self-selection, considering as the only criterion that they were studying, during the year 2021, any semester of an online VET career, the approximate universe* of students who meet this criterion is 37,035.

The questionnaire was answered by 1,583 VET students online. The cases not considered were: i) one person reported having a non-binary gender since, although our theoretical approach considers the multiplicity of genders as relevant, being only one

* This figure was taken from the official register provided by the Chilean Ministry of Education, through its website (https://www.mifuturo.cl/). However, it is known that this register only includes people who enroll at the beginning of the academic year, while online enrolment does not necessarily follow this pattern and can take place at different times of the year, a situation that also varies from one institution to another. For this reason, we consider the universe of the population to be an *approximate*.

case, it was considered anecdotal as it reduced the possibilities of inferring results if it was considered as a category. ii) the 183 people who only answered the socio-demographic characterisation questions. iii) the 326 people who stopped answering the survey before the part considered for this study. The final sample is composed only of those persons who answered the questionnaire up to at least the part *GP(CyberFem) on quality* completely (n=1,073). This means a response rate compared to the estimated universe of 2.89%.

INSTRUMENT

In this article, we present the results of a questionnaire applied to online VET students in Chile. In this article, we will present the results of one of its parts. This part was constructed from a systemic review of literature previously carried out by the authors previously (Sepúlveda-Parrini et al., 2022), where four relevant dimensions of Online Higher Education (OHE) were identified (Platforms, Pedagogical design, Interactions, Accompaniment) worked on by research with a focus on cyberfeminist pedagogies. These dimensions were operationalised through variables and indicators based on different quality models.

In terms of PG in higher education, the following were useful: from the *Marc Conceptual Perspective de Gènere en la Educaciò* (General Framework for the Gender Perspective in Education) of the Education and Gender Group of the UAB (Agud et al., 2020), we took the idea of physical and symbolic spaces as a useful element to problematise the technological platform as an educational space, as well as the adaptation of an intersectional perspective (based on: Cole, 2009; Collins, 2015; Crimmins,

2019) as an adequate view to question the structural inequalities that permeate education. And from the *Marco General para incorporar la Perspectiva de Género en la Docencia Universitaria* (General Framework for Incorporating the Gender Perspective in University Teaching) of the Agency for the Quality of the University System of Catalonia (AQU, 2019), we use the variables linked to gender imbalances or stereotypes in educational materials, syllabi and public information on training.

In relation to PG in OHE, we took as a reference the *Guies per a una Docència Universitària anb Perspectiva de Gènere* (Guidelines for University Teaching from a Gender Perspective) (Garcia & Conejo, 2021), we extracted the importance of a teaching position and methodological approach based on a participatory and dialogical educational relationship that involves students in their educational process, while forming part of an ecosystem of institutional support. And from the model proposed by (Khan, 2021), we highlight the focus on ethical aspects in the design and implementation of e-learning, as a reflection on the presence or absence of political questioning in the institutions, as well as spaces conducive to this through student organisation and participation.

Finally, as part of the contextualisation of this study, we take as a starting point what is proposed by the new Law 21,369 for regulates sexual harassment, violence, and gender discrimination in the field of higher education (2021, p.1), which stipulates that an action or conduct of sexual harassment in higher education can be carried out "in person, virtually or telematically". However, both the Law and the extensive current literature on the demands of university and student feminism in Chile omit the specificities of the online modality to propose actions, pro-

tocols and reflections situated in the virtual context (see: Alfaro Álvarez & de Armas Pedraza, 2019; De Fina Gonzalez & Figueroa Vidal, 2019; Dinamarca Noack & Trujillo, 2021).

The instrument was validated by a panel of nine expert judges. The criteria used were their belonging to the OHE context and specifically to VET online in Chile, with more than five years of experience in their fields (two people from the OHE quality assurance area, two people from the OHE programme management area and 1 OHE academic teacher). These five judges contributed to the contextual validation of the instrument. While in the context of the Universitat Autònoma de Barcelona (UAB), the criteria for the selection of judges were specialists in quantitative methodology (two academics), research in feminist theory (one academic) and research and teaching in online education (one academic). For validation, each judge completed a Validation Guideline using the criteria of univocity, relevance and importance to assess each of the items in the questionnaire, as well as providing comments and input. Based on these evaluations, changes and reformulations were made to the final instrument.

Subsequently, the significance test (Cronbach's Alpha) applied to determine the internal consistency of the questionnaire, yielded a high level of reliability: $\alpha = 0.926$, while the analysed part of this study: $\alpha = 0.956$.

Each item in Part IV was assessed through the following question: "What is the degree of importance that the following topics currently have and should have in your HEI? The response scale for each option was a 5-point Likert scale (1= very little, 2= a little, 3= a lot, 4= totally, 5= none/not at all) (see Table 1).

Table 1. Items IV. GP(CyberFem) on quality

Dimensions	Items

Platforms	1.	Avoid gender stereotypes or biases in verbal and visual communication for advertising purposes.
	2.	Avoid class, race, or origin stereotypes, or biases in verbal and visual communication for advertising purposes.
	3.	Avoid gender stereotypes or biases in verbal and visual communication on the Intranet.
	4.	Avoid class, race or origin stereotypes, or biases in verbal and visual communication on the Intranet.
Pedagogical design	5.	Gender balance in the % of women and men referenced in the bibliography of your syllabi/subjects you teach.
	6.	Avoid gender stereotypes or biases in verbal and visual communication in learning resources.
	7.	Avoid class, racial, or ethnic stereotypes or biases in verbal and visual communication in learning resources.
	8.	Existence of subjects that include GP in their learning objectives.
Interactions	9.	Codes of behavior to foster safe online interaction spaces.
	10.	Instances for students and faculty to dialogue about the activities proposed in the subjects.
Accompaniment	11.	Institutional instances aimed at the psychosocial support of students.
	12.	The instances of support from the library for the search of information with open access or the use of free software.
	13.	Instances aimed at mediation and resolution of online and/or offline conflicts (between students, students/teachers, students/persons of the institution, etc.).
	14.	Institutional protocols about online violence or harassment.
	15.	Online spaces for student organizations (Federation, Assembly, etc.).

Source: own elaboration.

ETHICAL PROCEDURES

The questionnaires were sent to the HEI through links on the SurveyMonkey platform. Each institution determined how to disseminate and follow up on them (through announcements on the survey platform or mass mailings depending on the profile of students in the sample). Our task was to ensure that the message containing the links had a clear explanation about participation, its voluntary nature and that it was not associated with any kind of incentive or benefit. Each week we sent a response status to each HEI which was used to plan the follow-up strategy. The questionnaire filtered those who gave their *Consent to participate*[*], where the nature of the participation was specified, as well as the anonymous, confidential and for research purposes only treatment of the data collected.

The data were collected between November 15, 2021, and January 28, 2022, then exported and analyzed using Excel and Jamovi software through descriptive statistics procedures. All data collected were worked on files shared by the research team associated with technological platforms provided by the UAB and in no case uploaded to the cloud or shared with other people. In this way, we ensure that we consider the possible ethical risks in the collection, storage and use of data in the research. The doctoral research of which this study forms part has the approval of the Comissió d'Ètica en l'Esperimentaciò Animal i Humana de la UAB (Committee on Ethics in Animal and

* According to Organic Law 3/2018 of December 5, 2018, on the protection of personal data and guarantees of digital rights and complementary regulations; and General Data Protection Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016.

Human Experimentation, UAB).

RESULTS

The first outcome of the study was a characterisation of online VET students in Chile. The study provided additional data to the official information provided annually by the Ministry of Education*, incorporating, for example, the working conditions of the students. This information, from a cyberfeminist perspective, contributes to the analysis of subjective and material conditions in educational cyberspaces.

The sample of the online VET student body achieved in this study, whose data are summarised in Table 2, is divided into 19.2% of CFT students, 78.6% of IP students, and 2.1% of university students.

Table 2. Description of the sample of students according to type of HEI, gender and age (n=1,073)

	Total respondent		Female gender		Male gender		Age		Response rate in relation to targeted sample
Type of HEI	*n*	%	*n*	%	*n*	%	*M**	*SD***	%
CFT	206	19.2	136	12.6	70	6.5	41.0	8.4	4.1
IP	844	78.6	414	35.8	430	40.0	37.6	9.4	2.7
Ues	23	2.1	9	0.8	14	1.3	36.0	9.6	6.7

* See: https://www.mifuturo.cl/informes-de-matricula/

Source: own elaboration.
* M: Mean
** SD: Standard Deviation

Some relevant characteristics of the sample are the high average total age (38.2 years), considering that the online VET studies to which they belong are undergraduate studies, which for many could correspond to their first career. Regarding the semester attended by the sample, most of the population is in the first or second semester* of their degree (32.1% and 30.4%, respectively). Regarding the type of work activity** at the time of answering the questionnaire, the option *Work with a permanent contract* prevails, representing 45.3% of the total sample, with significant differences in the case of those who identified themselves as women and men (33.1% y 58.6% respectively). In the case of men, the following options are *Work with a fixed-term contract* (7.8%) and *Work with a labor contract* (5.8%). In the sample of women, the second option is: *Work in domestic tasks* (8.4%). In the case of men, this option is only 0.2%. There is also a significant percent-

* The response options were nine: from *1* to *more than 8 semesters*.

** The response options were: (1)*I work as a domestic worker (householder)*, (2)*I work at home taking care of other people (elderly, children, etc.)*, (3)*I work with a fee-based contract*, (4)*I work with a permanent contract*, (5)*I work with a fixed-term contract*, (6)*I work with a work contract*, (7)*I work sporadically and informally*, (8)*I am unemployed*, (9)*I am looking for a job for the first time*. Of these, options 4 and 5 correspond to the most stable types of work, while options 3, 6 and 7 correspond to unstable or sporadic contractual relationships. Options 1 and 2 are the only two unpaid work activities. These options combine the traditional classification between employed and non-employed persons from the National Employment Survey (Instituto Nacional de Estadísticas, Chile, 2022), the main types of contracts in the Chilean labour market (Dirección del Trabajo, Chile, 2021), and the *unpaid work* options identified in the study by (ComunidadMujer, 2019).

age of the sample of women and men who are unemployed at the time of answering the survey, 7.3% and 4.9%, respectively. These data show how the sexual division of labour is reproduced in the VET online sample, highlighting the precarious employment situation in which women find themselves to detriment of men, who study and have a job with greater stability (at least in contractual terms). Meanwhile, women who study and do housework or do not have a paid job (option *Unemployed*) stand out. This situation could be interpreted as part of the motivations of this group to study for an undergraduate degree in VET online mode.

PERCEPTIONS OF THE IMPORTANCE OF GP(CYBERFEM) IN HEI

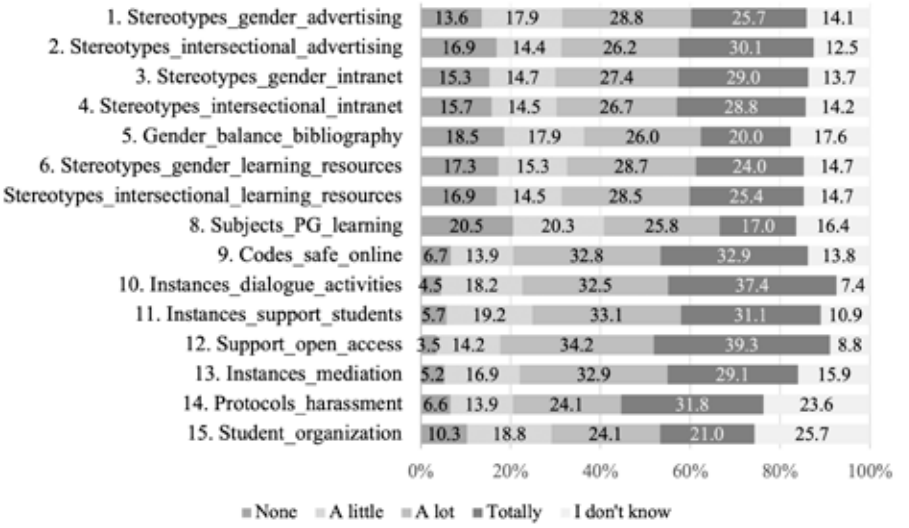
This study revealed differences and similarities in the students' perceptions of how important different variables related to GP currently are and should be in their institution.

CURRENT IMPORTANCE OF GP(CYBERFEM)

Students' perception of the current importance of GP(CyberFem) in their HEI, are concentrated in the dimensions of *Accompaniment* and *Interactions*. Specifically, the items perceived as most important in terms of *Accompaniment* are: 12. Support_open_access with an average of 73.5% of the options *quite a lot* or *a lot*, 11. Instances_sharing_studying (64.2%) and 13. Instances_mediation (62.0%). In the dimension of *Interactions*, the items with the highest importance are: 10. Safe_spaces_codes (65.7%). On the other hand, the items perceived with less importance

correspond to the *Pedagogical design* dimension, whose items are: 8. Subject_GP_objectives (40.8%), 5. Gender_balance_bibliography (36.4%). Graph 1 shows the mean number of responses for each of the items.

Graph 1. What is the current importance of the following topics in your HEI? (n=1,073)



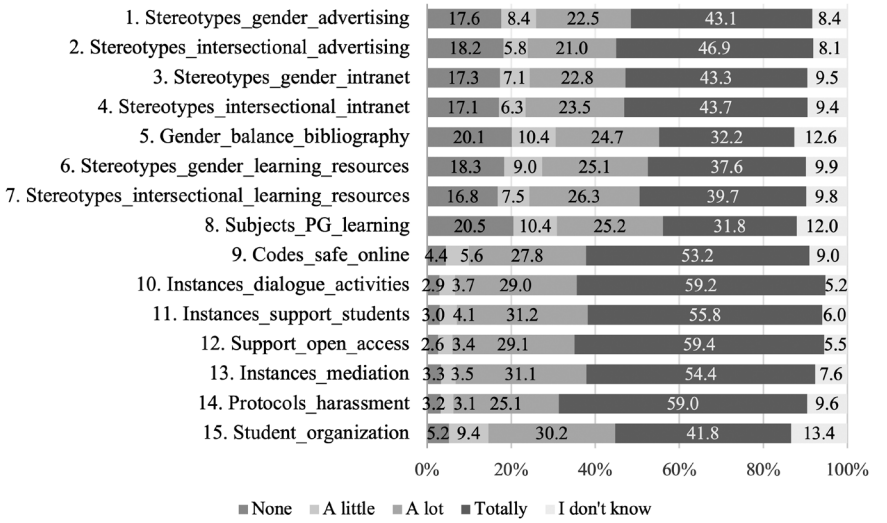
Source: own elaboration.

EXPECTED IMPORTANCE OF GP(CYBERFEM)

In terms of perceptions regarding the importance that GP(CyberFem) should have, the sample mentions mainly items similar to the assessment of current importance: 12. Support_open_access (88.5%), 11. Instances_support_students (87.0%) and 13. Instances_mediation (85.6%), in addition to these three items,

the following are also mentioned with much importance: 14. Protocols_harassment (84.2%) and 15. Student_organization (72.0%). Both options had been valued in the current importance with an average of 55.9% and 45.1% respectively, which shows interest in areas that are being attended weakly by the HEI, but that revert great interest on the part of their students. On the other hand, the items of the dimension *Interactions*, also strongly mentioned, are: 10. Instances_dialogue_activities (81.0%). This reaffirms the students' interest in these topics. While the items perceived with less value correspond to the *pedagogical design* dimension: 8. Subjects_GP_learning (30.9%), 5. Gender_balance_bibliography (30.5%) and 6. Stereotypes_gender_learning_resources (27.4%). Coinciding with the lower valuation of current importance. Graph 2 shows the average responses for each of the items.

Graph 2. How important should the following topics be in your HEI? (n=1,073)



Source: own elaboration.

CORRELATIONS BETWEEN VARIABLES OF GP(CYBER-FEM) IN HEI AND STUDENTS' CHARACTERISTICS

The next step was to relate each of the items to student characteristics (gender, age range, type of HEI, semester and type of work activity) in order to look for significant differences in the responses. On the one hand, as shown in Table 3, it is surprising that at present, variables such as gender, age or type of work activity do not explain differences in the evaluations of the people in the sample. On the other hand, the differences are significant with respect to the type of HEI and the semester they are studying.

Regarding the former, differences are in the *Accompaniment* dimension, in the items: 14. Protocols_harassment ($\chi 2$ =

9.213, $df = 2$, $p = .010$), 15. Student_organization ($\chi 2 = 10.272$, $df = 2$, $p = .006$) and 9. Codes_safe_online ($\chi 2 = 7.847$, $df = 2$, $p = .020$) of the *Interactions* dimension. While according to semester, significant differences are observed in the items: 13. Instances_mediation ($\chi 2 = 17.358$, $df = 8$, $p = .027$) and in 14. Protocols_harassment ($\chi 2 = 25.393$, $df = 8$, $p = .001$). In general, the few significant differences in the current ratings could be interpreted as a diagnosis shared by the student sample, reflecting the transversal scarcity regarding the incorporation of gender perspectives within the institutions that deliver VET online in Chile. The significant differences detected, mostly explained by the type of HEI, could be reflecting the specific characteristics of each institution in terms of infrastructure, human and material resources, pedagogical and instructional models, etc.

As shown in Table 4, in the assessments of the future scenario regarding the importance of PG as part of the quality of their education, interesting significant differences can be observed based on the gender of the students in the sample. In almost half of the items we observe differences: 2. Stereotypes_intersectional_advertising ($U = 131538$, $p = .011$), 3. Stereotypes_gender _intranet ($U = 129048$, $p = .002$), 5. Gender_balance_bibliography ($U = 129633$, $p = .004$), 6. Stereotypes_gender _learning_resources ($U = 13343$, $p = .036$), 7. Stereotypes _intersectional _learning_resources ($U = 130053$, $p = .005$), 8. Subjects_PG_learning ($U = 127679$, $p = .001$), 15. Student_organization ($U = 125653$, $p = < .001$). Corresponding mainly to the dimensions *Platforms* and *Pedagogical design*. This could be read under the theoretical perspective put forward in this study: people's online presence and experience are strongly influenced by their gender, in the understanding that gender does not only

Type of HEI			Semester			Type of work activity		
$\chi 2$	*df*	*p*	$\chi 2$	*df*	*p*	$\chi 2$	*df*	*p*
8.825	2	.012	2.266	8	.972	7.20	8	.515
5.433	2	.066	3.116	8	.927	7.64	8	.469
2.386	2	.303	2.165	8	.976	3.18	8	.922
4.718	2	.095	0.796	8	.999	5.50	8	.703
2.364	2	.307	5.221	8	.734	4.43	8	.817
1.755	2	.416	4.196	8	.839	2.43	8	.965
3.263	2	.196	4.967	8	.761	4.52	8	.808
0.652	2	.722	5.342	8	.720	4.38	8	.822
7.847*	2	.020	8.204	8	.414	1.95	8	.982
1.440	2	.487	6.328	8	.610	7.77	8	.456
1.230	2	.541	10.886	8	.208	4.15	8	.844
2.336	2	.311	7.386	8	.496	2.20	8	.974
4.095	2	.129	17.358*	8	.027	5.40	8	.714
9.213*	2	.010	25.393*	8	.001	2.86	8	.943
10.272*	2	.006	10.590	8	.226	11.02	8	.200

* Significant at the $p = < 0.05$ level

refer to an individual condition but to a social structure that bases its power relations around it.

In global terms, in the case of both scenarios, it is surprising that the type of work activity variable does not explain the statistical differences in the assessments of the sample of student. Considering that as part of the characteristics of the sample, the type of work activity is one of the variables with the greatest gender imbalances, as it reproduces the traditional sexual division of labour between men and women. However, considering the results, these gender imbalances would not be explanatory factors for differences in assessment, while gender as a variable would explain differences between current and future perceptions regarding the quality of their studies.

Type of HEI			Semester			Type of work activity		
$\chi 2$	*df*	*p*	$\chi 2$	*df*	*p*	$\chi 2$	*df*	*p*
3.651	2	.161	5.25	8	.730	9.54	8	.299
2.670	2	.263	7.61	8	.472	7.20	8	.515
1.236	2	.539	5.72	8	.678	4.28	8	.831
3.582	2	.167	5.66	8	.685	8.28	8	.406
3.849	2	.146	7.40	8	.494	6.63	8	.577
0.332	2	.847	9.81	8	.279	5.95	8	.653
0.724	2	.696	10.18	8	.252	8.94	8	.347
1.478	2	.478	6.68	8	.571	6.80	8	.559
0.604	2	.739	18.16*	8	.020	6.30	8	.614
0.711	2	.701	5.51	8	.702	7.54	8	.480
0.444	2	.801	4.60	8	.800	5.96	8	.652
0.203	2	.904	10.91	8	.207	4.62	8	.797
0.463	2	.793	13.95	8	.083	7.18	8	.517
2.492	2	.288	18.49*	8	.018	5.58	8	.694
0.737	2	.692	12.69	8	.123	10.97	8	.203

* Significant at the $p = < 0.05$ level

Table 3. Current importance of GP(CyberFem) in relation to elements of students' background

	Gender		Age range		
	U	*p*	$\chi 2$	*df*	*p*
1. Stereotypes_gender_advertising	139568	.407	1.512	4	.825
2. Stereotypes_intersectional_ advertising	141515	.663	2.030	4	.730
3. Stereotypes_gender_intranet	137357	.201	1.860	4	.761
4. Stereotypes_intersectional_ intranet	141676	.687	3.914	4	.418
5. Gender_balance_ bibliography	133624	.043	2.048	4	.727
6. Stereotypes_gender_learning_ resources	137908	.244	5.108	4	.276
7. Stereotypes_intersectional_ learning_resources	137741	.231	8.401	4	.078
8. Subjects_PG_learning	137971	.251	4.863	4	.302
9. Codes_safe_online	138098	.253	1.993	4	.737
10. Instances_dialogue_activities	140438	.504	8.731	4	.068
11. Instances_support_students	136359	.134	2.386	4	.665
12. Support_open_access	142807	.859	3.326	4	.505
13. Instances_mediation	138648	.305	5.094	4	.278
14. Protocols_harassment	140129	.472	3.240	4	.519
15. Student_organization	134865	.075	0.969	4	.914

* Significant at the $p = < 0.05$ level

Table 4. Expected importance of GP(CyberFem) in relation to elements of students' background

	Gender		Age range		
	U	*p*	$\chi 2$	*df*	*p*
1. Stereotypes_gender_advertising	135668	.097	1.222	4	.874
2. Stereotypes_intersectional_ advertising	131538*	.011	4.058	4	.398
3. Stereotypes_gender_intranet	129048*	.002	0.995	4	.911
4. Stereotypes_intersectional_ intranet	134291	.051	2.676	4	.613
5. Gender_balance_ bibliography	129633*	.004	5.765	4	.217
6. Stereotypes_gender_learning_ resources	133433*	.036	4.191	4	.381
7. Stereotypes_intersectional_ learning_resources	130053*	.005	6.550	4	.162
8. Subjects_PG_learning	127679*	.001	2.318	4	.677
9. Codes_safe_online	138207	.237	2.968	4	.563
10. Instances_dialogue_activities	136945	.131	9.198	4	.056
11. Instances_support_students	138804	.283	4.594	4	.332
12. Support_open_access	141278	.591	1.629	4	.804
13. Instances_mediation	135663	.079	8.654	4	.070
14. Protocols_harassment	139304	.330	2.490	4	.647
15. Student_organization	125653*	< .001	5.319	4	.256

* Significant at the $p = < 0.05$ level

DISCUSSION-CONCLUSIONS

In this study, we set out to analyse the perceptions of online VET students in Chile about the quality of their training through the eyes of the GP(CyberFem). To do this, we asked two questions: how important do they perceive GP(CyberFem) to be at present as part of the quality of their studies, and how important do they think it should be? In this respect, we conclude that the sample of online VET students consulted think that the following dimensions are currently most important in their HEIs: *accompaniment* and *interactions*. Specifically, aspects related to institutional initiatives in favour of greater and better student participation. On the other hand, the sample of students believes that in a future scenario, the aspects that should be more relevant are those related to *accompaniment*, *conflict mediation* and *student participation*. All these aspects are in line with the current approach of PG in higher education in Chile, understood as a transversal and multidimensional axis that cut across all educational areas (Subsecretaría de Educación Superior, Chile, 2022). However, it is relevant to highlight the lack of importance given by students to purely pedagogical, methodological and technological issues. These results can be interpreted as an interest of the students in topics not strictly linked to their subjects, learning activity or content, denoting an interest and demand for topics related to the experience of their studies and the personal relationships developed during their training.

In light of these results, it is interesting to review the traditional perspectives on quality proposed by Harvey & Green (1993) and later the review by Jungblut & Vukasovic, (2013), who do not consider gender as a category. The results of the

study confirm the importance of issues related to *accompaniment*, *conflict mediation* and *student participation*, analysed in this study from a GP(CyberFem). While purely pedagogical, methodological and technological issues are mentioned with less relevance, suggesting a possible indifference towards these issues that we interpret as a possible lack of criticality regarding the contents and pedagogical design of their studies, or as a passive and instrumental approach to them. In both cases, a better protagonist of the students could help to reverse these positions. Thus, it could be interpreted that the perspective of *quality as transformation* from Harvey & Green (1993), is more relevant from the perspective of the students in the sample, reaffirming the premises of the literature that warn that the characteristics of the online modality are one of the fundamental reasons why these studies are chosen, especially in groups marginalised from more traditional education systems (Heedy & Uribe, 2008; Lai & Lu, 2009; Patterson, 2010). These results suggest the importance of incorporating the views of students from the quality perspective (Fidalgo et al., 2020), thus reinforcing the contextual, dynamic, and dialogical perspective of quality (Bendixen & Jacobsen, 2020; Stracke, 2019; Williamson, 2019). Within this view, GP(CyberFem) could be considered as part of those *added values* in the student experience.

The findings from the inferential part of our study show that gender is the variable that explains the most significant differences in the results. Thus, our proposal to analyse the quality of online VET through the prism of GP(CyberFem), gives importance to virtual learning environments as cultural and political technologies, as non-neutral spaces that have an associated embodiment in students' experiences. This is in line with current

efforts to incorporate an intersectional view of gender in higher education (Herman & Kirkup, 2017), contextualised in online environments (Garcia & Conejo, 2021), which allows progress towards the *integral quality* view proposed by institutions in Chile, where gender is a transversal part of the pedagogical and institutional areas of higher education.

The introduction of these changes could lead to a rethinking of traditional views on quality in online VET, which mainly refer to didactic aspects, scalability, standardisation and efficiency of technological platforms (Williamson et al., 2019). In addition, they transfer to virtual environments the efforts linked to the use of inclusive, non-sexist and heteronormative language in the curriculum, syllabi and teaching (Vizcarra-García, 2021). The Gender Perspective with a cyberfeminist approach is a useful tool to incorporate these emerging issues of online VET and from them generate new questions about the teaching role, institutional policies on GP, participatory spaces and the criteria with which quality is analysed (Barón, 2019; Benito & Verge, 2020).

This study provides interesting clues to further problematise the motivations and meaning that online students give to their VET training, given their profile as working adults, with an average age of 38, in contrast to what has traditionally been understood as a professionalising and instrumental meaning. The findings of this study allow us to observe the importance that this group attaches to other aspects linked to *dialogue*, *participation* and *transversal training* in subjects that go beyond the disciplinary field of their studies. It would be interesting to investigate how these issues are currently incorporated into the criteria for assessing the quality of online VET, and to propose new challenges based on this.

Finally, this study presents several challenges. From a theoretical point of view, it is necessary to point out that the principles of the cyberfeminism are currently understood by the specialised literature on the basis of other definitions and do not necessarily use the concept of *cyberfeminism*. We believe that this situation is not due to a lack of usefulness or relevance of cyberfeminist principles for understanding current phenomena, but rather to a re-conceptualisation of the terms and their adaptation to global agendas. However, our theoretical proposal is also a bid to revitalise the concept and use it to critically observe and interpret educational phenomena. While, from a methodological point of view, our results are limited within the possibilities of the statistical margin, given the phenomena studied, it would be tremendously enriching to contemplate the incorporation of qualitative methods to nurture students' perceptions or to deepen the results found, as well as to incorporate a triangulation with other profiles (teachers, quality managers, online programme managers, political authorities, etc.) linked to online VET.

REFERENCES

Agud, I., Amat, M., Bertran, M., Caravaca, A., Chamorro, C., Empain, J., Flores, C., Foradada, M., Gavaldà, X., Llos, B., López, S., Macià, S., Marbà, A., Prat, M., Puente, S., Rifà, M., & Sánchez, A. (2020). *Perspectiva de gènere en l'educació. Marc conceptual*. Universidad Autónoma de Barcelona.

Alfaro Álvarez, J., & de Armas Pedraza, T. (2019). Estudiantes universitarias chilenas: Discursos y prácticas contra la violencia sexista. *Nómadas*, *51*, 31-47. https://doi.org/10.30578/nomadas.n51a2

Álvarez, J., Labraña, J., & Brunner, J. J. (2021). La educación superior técnico profesional frente a nuevos desafíos: La Cuarta Revolución Industrial y la Pandemia por COVID-19. *Revista Educación, Política y Sociedad*, *6*(1), 11-38. https://doi.org/10.15366/reps2021.6.1.001

AQU. (2019). *Marco general para la Incorporación de la perspectiva de género en la docencia universitaria*. Agència per a la Qualitat del Sistema Universitari de Catalunya.

Araya-Castillo, L., Yañez-Jara, V. M., Rivera-Flores, Y. F., & Barrientos, N. (2018). Grupos estratégicos en educación superior: Mercado universitario de Chile. *Entramado*, *14*(2), 74-94. https://doi.org/10.18041/1900-3803/entramado.2.4759

Barón, S. (2019). Ceguera de Género, Feminismo y Academia en la Violencia de Género. Comentario a Ferrer-Pérez y Bosch-Fiol, 2019. *Anuario de Psicología Jurídica*, *29*(1), 89-93. https://doi.org/10.5093/apj2019a7

Bendixen, C., & Jacobsen, J. C. (2020). Accreditation of higher education in Denmark and European Union: From system to substance? *Quality in Higher Education*, *26*(1), 66-79. https://doi.org/10.1080/13538322.2020.1729310

Benito, E., & Verge, T. (2020). Gendering higher education quality assurance: A matter of (e)quality. *Quality in Higher Education*, *26*(3), 355-370. https://doi.org/10.1080/13538322.2020.1769268

Bernasconi, A., & Irarrázaval, I. (2015). *CFT estatales: Una "solución" en busca de un problema* (N.o 28; Apuntes legislativos). Centro de Políticas Públicas de la Pontificia Universidad Católica de Chile.

Boduszek, D., Debowska, A., Trotman Jemmott, E., Da Breo, H., Willmott, D., Sherretts, N., & Jones, A. D. (2017). *Victimisation, violence perpetration, and attitudes towards violence among boys and girls from Barbados and Grenada* (pp. 1-61). Loughborough University. https://unipress.hud.ac.uk/

Brunner, J. J. (2009). Mercados, instituciones y políticas en la educación superior chilena. *Temas*, *57*(enero-marzo), 52-59.

Butler, J. (1999). *El género en disputa. El feminismo y la subversión de la identidad*. Paidós.

Butler, J., & Bixio, A. (2015). *Cuerpos que importan: Sobre los límites materiales y discursivos del «sexo»*. Paidós.

Cielemecka, O., & Revelles-Benavente, B. (2017). Producción de conocimiento "knowmada" en tiempos de crisis. En B. Revelles-Benavente y M. González (Eds.), *Género en la educación. Pedagogía y Responsabilidad Feministas en Tiempos de Crisis Política* (pp. 49-90). Morata.

Çoban, S. (2021). Gender and telework: Work and family experiences of teleworking professional, middle-class, married women with children during the Covid-19 pandemic in Turkey. *Gender, Work & Organization*, 1-15. https://doi.org/10.1111/gwao.12684

Cole, B. A. (2009). Gender, Narratives and Intersectionality: Can Personal Experience Approaches to Research Contribute to "Undoing Gender"? *International Review of Education*, *55*(5-6), 561-578. https://doi.org/10.1007/s11159-009-9140-5

Collins, P. H. (2015). Intersectionality's Definitional Dilemmas. *Annual Review of Sociology*, *41*(1), 1-20. https://doi.org/10.1146/annurev-soc-073014-112142

ComunidadMujer. (2019). *¿Cuánto aportamos al PIB? Primer Estudio Nacional de Valoración Económica del Trabajo Doméstico y de Cuidado No Remunerado en Chile*. http://www.comunidadmujer.cl/biblioteca-publicaciones/2020/03/

cuanto-aportamos-al-pib-primer-estudio-nacional-de-valoracion-economica-del-trabajo-domestico-y-de-cuidado-no-remunerado-en-chile/
Corvalán, J., Falabella, A., & Rojas, M. T. (2011). El doctorado en educación: Un ejemplo de desregulación en el campo de la educación superior en Chile. *Calidad en la educación*, *34*, 15-42. https://doi.org/10.4067/S0718-45652011000100002
Crimmins, G. (Ed.). (2019). *Strategies for Resisting Sexism in the Academy: Higher Education, Gender and Intersectionality*. Springer International Publishing. https://doi.org/10.1007/978-3-030-04852-5
Dahlberg, G., Pence, A., & Moss, P. (2005). *Más allá de la calidad en educación infantil*. Graó.
Daniels. (2009). Rethinking Cyberfeminism(s): Race, Gender, and Embodiment. *WSQ: Women's Studies Quarterly*, *37*(1-2), 101-124. https://doi.org/10.1353/wsq.0.0158
De Fina Gonzalez, D., & Figueroa Vidal, F. (2019). Nuevos "campos de acción política" feminista: Una mirada a las recientes movilizaciones en Chile. *Revista Punto Género*, *11*(Junio), 51-72. https://doi.org/10.5354/0719-0417.2019.53880
Dinamarca Noack, C., & Trujillo, M. (2021). Educación superior chilena y violencia de género: Demandas desde los feminismos universitarios. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, *19*(2), 1-24. https://doi.org/10.11600/rlcsnj.19.2.4537
Dirección del Trabajo, Chile. (2021, octubre 7). Contrato de trabajo. *Tipo de contrato*. https://www.dt.gob.cl/portal/1628/w3-propertyvalue-23563.html
Donoso Vázquez, T., Rubio Hurtado, M. J., & Vilà Baños, R. (2017). Los espectadores y espectadoras de la ciberviolencia de género. *Innovación educativa*, *27*, 107-119. https://doi.org/10.15304/ie.27.4324
Esmar, L., & Poo, S. (2022). Desafíos de aseguramiento de la calidad en las instituciones de educación superior técnico profesionales frente al sistema de acreditación obligatoria en Chile: Diferencias de acuerdo con una clasificación del sector basada en datos empíricos. *Calidad en la Educación*, *56*. https://doi.org/10.31619/caledu.n56.1133
Eynon, R. (2018). Feminist perspectives on learning, media and technology: Recognition and future contributions. *Learning, Media and Technology*, *43*(1), 1-2. https://doi.org/10.1080/17439884.2018.1442848
Feenberg, A. (2005). Teoría crítica de la tecnología. *Revista CTS*, *2*(5), 109-123.
Fernández, M. (2002). Cyberfeminism, racism, embodiment. En M. Fernández, F. Wilding, M. Wrigth (Eds.), *Domain errors: Cyberfeminist practices!* (pp. 17-28). Autonomedia.
Fidalgo, P., Thormann, J., Kulyk, O., & Lencastre, J. A. (2020). Students' perceptions on distance education: A multinational study. *International Journal of Educational Technology in Higher Education*, *17*(1), 18. https://doi.org/10.1186/s41239-020-00194-2

Field, A. P. (2009). *Discovering statistics using SPSS: And sex, drugs and rock «n» roll* (3rd ed). SAGE Publications.

Gajjala, R. (2014). Woman and Other Women: Implicit Binaries in Cyberfeminisms. *Communication and Critical/Cultural Studies*, *11*(3), 288-292. https://doi.org/10.1080/14791420.2014.926241

García Aretio, L. (2020). Bosque semántico: ¿educación/enseñanza/aprendizaje a distancia, virtual, en línea, digital, eLearning...? *RIED. Revista Iberoamericana de Educación a Distancia*, *23*(1). https://doi.org/10.5944/ried.23.1.25495

Garcia, I., & Conejo, M. A. (2021). *Dòcencia en línia amb perspectiva de gènere* (Guies per a una docència universitària amb perspectiva de gènere, p. 116) [Metodología]. Xarxa Vives d'universitats.

Giroux, H. (2014). *La guerra del neoliberalismo contra la educación superior*. Herder Editorial.

Haraway, D. (1991). *Ciencia, cyborgs y mujeres. La invención de la naturaleza.* Ediciones Cátedra.

Harvey, L., & Green, D. (1993). Defining Quality. *Assessment & Evaluation in Higher Education*, *18*(1), 9-34. https://doi.org/10.1080/0260293930180102

Heedy, C., & Uribe, M. (2008). La educación a distancia: Sus características y necesidad en la educación actual. *Educación*, *XVII*(33), 7-27.

Herman, C., & Kirkup, G. (2017). Combining feminist pedagogy and transactional distance to create gender-sensitive technology-enhanced learning. *Gender and Education*, *29*(6), 781-795. https://doi.org/10.1080/09540253.2016.1187263

Hernández-Hernández, F., & Sancho-Gil, J. (2017). El lugar del género como espacio para pensar las políticas universitarias y las relaciones pedagógicas. En B. Revelles-Benavente, y M. González (Eds.)*, Género en la educación. Pedagogía y responsabilidad feministas en tiempos de crisis política* (pp. 91-100). Morata.

Hesse-Biber, Sh. (2013). *Feminist Research Practice*. SAGE Publications, Inc.

Instituto Nacional de Estadísticas, Chile. (2022). *Mercado Laboral*. Ocupación y desocupación. https://www.ine.cl/estadisticas/sociales/mercado-laboral/ocupacion-y-desocupacion

Jungblut, J., & Vukasovic, M. (2013). And Now for Something Completely Different? Re-Examining Hybrid Steering Approaches in Higher Education. *Higher Education Policy*, *26*(4), 447-461. https://doi.org/10.1057/hep.2013.28

Khan, B. (2021). A global framework for e-learning. En B. Khan, S. Affouneh, S. Hussein, (Eds.), *Challenges and Opportunities for the Global Implementation of E-Learning Frameworks* (pp. 1-14). Information Science Reference.

Knox, J. (2019). What Does the 'Postdigital' Mean for Education? Three Critical Perspectives on the Digital, with Implications for Educational Research and Practice. *Postdigital Science and Education*, *1*(2), 357-370. https://doi.org/10.1007/s42438-019-00045-y

Koseoglu, S. (2020). Access as Pedagogy: A Case for Embracing Feminist Pedagogy in Open and Distance Learning. *Asian Journal of Distance Education, 15*(1), 277-290. https://doi.org/10.5281/zenodo.3893260

Koseoglu, S., Ozturk, T., Ucar, H., Karahan, E., & Bozkurt, A. (2020). 30 Years of Gender Inequality and Implications on Curriculum Design in Open and Distance Learning. *Journal of Interactive Media in Education*, *2020*(1), 1-11. https://doi.org/10.5334/jime.553

Ladrón de Guevara, R., Gómez, A., Peña, V., & Madrid, R. (2020). Influencia del nivel de avance educativo y el género en la toma de decisiones financieras: Una aproximación desde la Prospect Theory. *Revista Finanzas y Política Económica*, *12*(1), 19-54. https://doi.org/10.14718/revfinanzpolitecon.v12.n1.2020.3092

Lai, A., & Lu, L. (2009). Integrating feminist pedagogy with online teaching: Facilitating critiques of patriarchal visual culture. *Visual Culture & Gender*, *4*, 58-68.

Lemaitre, M. J. (2011). Un recorrido histórico por los procesos de aseguramiento de la calidad. En M. Jimenez y F. Durán (Eds.), En *Un Recorrido por la Historia Reciente de la Educación Superior Chilena 1967—2011* (pp. 155-162). Corporación Santo Tomás para Aequalis, Foro de Educación Superior.

Luxán, M., & Biglia, B. (2011). Pedagogía cyberfeminista: Entre utopía y realidades. *Education in the Knowledge Society (EKS)*, *12*(2), 149-183. https://doi.org/10.14201/eks.8277

Migueliz Valcarlos, M., Wolgemuth, J. R., Haraf, S., & Fisk, N. (2020). Anti-oppressive pedagogies in online learning: A critical review. *Distance Education*, *41*(3), 345-360. https://doi.org/10.1080/01587919.2020.1763783

Ley 21091. Sobre educación superior, Pub. L. No. 21.091, 101 (2018). http://bcn.cl/2ciws

Regula el acoso sexual, la violencia y la discriminación de género en el ámbito de la educación superior, Pub. L. No. 21.369, 5 (2021). http://bcn.cl/2rh6e

Morris, C., Hinton-Smith, T., Marvell, R., & Brayson, K. (2021). Gender back on the agenda in higher education: Perspectives of academic staff in a contemporary UK case study. *Journal of Gender Studies*, 1-13. https://doi.org/10.1080/09589236.2021.1952064

Patterson, N. (2010). Distance Education: A Perspective from Women's Studies. *Thirdspace*, *9*(1).

Prieto, M., & Manso, J. (2018). La calidad de la educación en los discursos de la OCDE y el Banco Mundial: Usos y desusos. En H. Monarca (Coord.), *Calidad de la educación en Iberoamérica: Discursos, políticas y prácticas* (pp. 114-135). Dykinson S. L. http://hdl.handle.net/10486/684152

Ragusa, A. T., & Crampton, A. (2017). Online learning: Cheap degrees or educational pluralization?: Cheap degrees or educational pluralization? *British Journal of Educational Technology*, *48*(6), 1208-1216. https://doi.org/10.1111/bjet.12489

Ruz-Fuenzalida, C. (2021). Educación virtual y enseñanza remota de emergencia en el contexto de la educación superior técnico-profesional: Posibilidades y barreras. *Revista Saberes Educativos*, *6*, 128. https://doi.org/10.5354/2452-5014.2021.60713

Sancho Gil, J. M., Alonso Cano, C., & Sánchez Valero, J.-A. (2018). Miradas retro-prospectivas sobre las Tecnologías Educativas. *Educatio Siglo XXI*, *36*(2), 209-228. https://doi.org/10.6018/j/333051

Sanhueza, J. M. (2016). Instituciones de educación en un contexto de mercado: El caso de la educación superior técnico-profesional en Chile. *Revista Estudios de Políticas Públicas*, *3*, 82-104. https://doi.org/10.5354/0719-6296.2016.41829

Scharager Goldenberg, J. (2018). Quality in higher education: The view of quality assurance managers in Chile. *Quality in Higher Education*, *24*(2), 102-116. https://doi.org/10.1080/13538322.2018.1488395

Sepúlveda-Parrini, P., Valdivia-Vizarreta, P., & Pineda-Herrero, P. (2022). Enseñar y aprender en el ciberespacio: Aportes desde las pedagogías ciberfeministas a la educación virtual. Revisión sistemática de literatura. *Teknokultura. Revista de Cultura Digital y Movimientos Sociales*, *19*(2), 123-135. https://doi.org/10.5209/tekn.77868

Sevilla, M. P. (2021). *La educación técnico-profesional y su potencial para mejorar la trayectoria educativa y laboral de las mujeres en las áreas de ciencia, tecnología, ingeniería y matemáticas* (N.o 160; Asuntos de Género, p. 44). Comisión Económica para América Latina y el Caribe (CEPAL).

SIES. (2021). *Informe 2021 matrículas en educación superior*. Sistema de información y estadísticas, Ministerio de Educación. https://educacionsuperior.mineduc.cl/2021/06/08/matricula-de-educacion-superior-aumenta-en-2021-total-supera-1-200-000-estudiantes/

Stracke, C. M. (2019). Quality Frameworks and Learning Design for Open Education. *The International Review of Research in Open and Distributed Learning*, *20*(2). https://doi.org/10.19173/irrodl.v20i2.4213

Subsecretaría de Educación Superior, Chile. (2022). *Orientaciones para los procesos de implementacion de la Ley 21.369*. Ministerio de Educación, Chile. https://www.cned.cl/noticia/subsecretaria-de-educacion-superior-entrega-orientaciones-instituciones-de-educacion

Unidad de Equidad de Género. (2015). *Plan para la igualdad de género. Plan 2015-2018*. Ministerio de Educación, Chile. https://bibliotecadigital.mineduc.cl/handle/20.500.12365/490

Vizcarra-García, J. (2021). Teachers' Perceptions of Gender Inclusive Language in the Classroom. *International Journal of Linguistics, Literature and Translation*, *4*(3), 110-116. https://doi.org/10.32996/ijllt

Wajcman, J. (2010). Feminist theories of technology. *Cambridge Journal of Economics*, *34*(1), 143-152. https://doi.org/10.1093/cje/ben057

Williamson, B. (2019). New power networks in educational technology. *Learning, Media and Technology*, *44*(4), 395-398. https://doi.org/10.1080/17439884.2019.1672724

Williamson, B., Potter, J., & Eynon, R. (2019). New research problems and agendas in learning, media and technology: The editors' wishlist. *Learning, Media and Technology*, *44*(2), 87-91. https://doi.org/10.1080/17439884.2019.1614953

Yoon, H. (2021). Digital flesh: A feminist approach to the body in cyberspace. *Gender and Education*, *33*(5), 578-593. https://doi.org/10.1080/09540253.2020.1802408

Zerán, F. (2019). *Mayo feminista: La rebelión contra el patriarcado*. LOM Ediciones.

Section II

Vet systems and policy making

Systems and policies of vocational education and training (VET) are aiming to responding to the needs of the economy by providing learners with desirable skills as well as cultivating their abilities for personal growth and active citizenship. VET can boost enterprise performance, competitiveness, research and innovation, which are fundamental aspects of successful employment and social policy. The search for best impacts on employability and meeting changing demands in industry and services has led to a process of transformations and reconsideration of VET policies in different national VET systems in Europe and beyond. Chapters in this section depict a variety of challenges for teachers, students and policy makers in a variety of VET contexts.

The first chapter in this part of the anthology is written by Bill Esmond, and here we get a rare and well written insight into the social and economic policies in England over the last 12 years, centered on the reform of apprenticeships and technical education. Esmond introduces us to the *chaîne opératoire* of historical artefacts, and how this chain leads us back to a dualization of labor markets and social policies that is increasingly reshaping VET, not only in the UK, but across developed countries.

Oksana Melnyk has written a text that reviews the work and activities of international organizations as policy makers in the post-WWII era. It discusses and questions the influence on policy making in the sphere from the perspective of traditional institutions, mainly focusing on developing countries and countries in transition. Melnyk suggests that these countries have not established institutionalized VET systems, and thus are more approachable to implement policies financed by international organizations.

Isabelle Huning's chapter aims to explore the historical development and institutionalisation of VET systems. As has been noted in previous research, VET systems greatly vary in set up and prestige across Europe. It is however agreed upon that each VET system follows its own unique historical path, which makes going back in time inevitable to understand today's differences. The comparative accounts on VET systems in Huning's text are based on various scholarly traditions and literature branches, and it particularly looks at the role of apprenticeships in VET systems.

In *Meritocracy as a catalyst for the devaluation of vocational education and training*, Vera Braun presents a research project that investigates the relationship between meritocracy and vocational education and training. As previous studies on VET in Europe claims, in many countries, it can be observed that vocational education and training is not held in high social esteem and that a vast majority of young people prefers to go on to higher education. According to the Braun's study, a meritocratic orientation acts as a catalyst for developments that contribute to this devaluation of vocational education and training. This leads, among other things, to vocational education and training

only insufficiently fulfilling its qualification function and the employment market complaining of a shortage of skilled workers with a simultaneous surplus of academics.

In the same vein, Manos Pavlakis tries to grasp to what extent policies designed are successfully implemented in the field of VET, however, here the focus is on inclusion. Inclusion in workplace learning has been challenged during the last couple of years, Pavlakis notes, as one of the consequences of the pandemic. The purpose of the study in this article is to build on the data of the previous review and further examine the issue of inclusion in workplace learning taking into consideration all new developments in the field, through a multifaceted data collection.

The study presented in the following chapter investigates factors related to workplace learning and congruence with organizational goals and values and represents empirical findings from three different countries. The study is conducted by Petri Nokelainen and colleagues, and the results show that expansive workplace learning factors related to work resources and environmental resources were present in cross-cultural context (Estonia, Finland and Italy), and congruence with organizational goals and values had a strong positive relation with work and environmental resources factors both in merged and country-specific data.

In the next to last chapter in this book, Matthias Pilz presents findings from a study on cooperation structures and procedures in actors' networks in Mexico. Pilz has studied the dual education system that has been implemented by the national government in Mexico in recent years, and his interest here is to look at what principles are necessary for cooperation between

different actors in Mexico? The presented research includes a qualitative survey of expert interviews. The study shows, among other things, that different principles are needed to ensure that cooperation does not come to an end.

This book concludes with a chapter written by Kevin Orr, and Rachel Terry concerning the T level qualifications in England. T level technical qualifications for 16–19-year-old students were introduced in England in 2020, and as of 2022, Ten T levels are available and more are planned, each one corresponding to a specific occupational area. The claim that T levels are high quality is central to their introduction and politicians have repeatedly described them as "gold standard". However, Orr closes this book by arguing that beyond a rhetoric of skills and employment, perceptions of quality in English vocational education and training (VET) including T levels, reflect the values of society, especially the primacy of academic and university-based education, and that consequently T levels will struggle to gain favour among young people or wider society.

Wishing you a pleasant reading!

Janne Kontio, Petros Gougoulakis & Lázaro Moreno Herrera

Between technological imperative and material culture: The chaîne opératoire of VET policy in England

Bill Esmond*
University of Derby
Institute of Education
Kedleston Road, DE22 1GB Derby, UK
E-mail: w.esmond@derby.ac.uk

ABSTRACT:

VET policies that assign increasing importance to workplace learning, including as a route into higher education, emphasise technological advances, such as international discourses referencing a fourth industrial revolution (4IR). Such approaches have become increasingly central to UK social and economic policies over the last 12 years, centred on the reform of apprenticeships and 'technical education' in England. Yet these policies have also appealed to a discourse of 'craft' to validate vocational routes, recalling the earlier status of skilled work during the handicraft period. These apparently incongruous references to moral and material dimensions of skilled work, largely neglected by technological policy discourses, call our attention to cultural and societal contexts of these policies. This paper explores these contexts drawing on methods used to construct material cultures from the *chaîne opératoire* of historical arte-

facts. This *chaîne* leads us back to a dualisation of labour markets and social policies that is increasingly reshaping VET across developed countries.

KEYWORDS:

craft; apprenticeship; workplace learning; material culture; chaîne opératoire

INTRODUCTION:

technology, technical education in England and notions of 'craft'

Policy discourses favouring the development of VET have increasingly selected technology as the decisive factor in post-COVID recovery and the future economy in general. The 'fourth industrial revolution' or 'Industry 4.0' has become a key trope for a world of work dominated by artificial intelligence, robotics and supply chain synchronicity, widely employed within developed countries (Schwab 2017; Cedefop 2020a; Avis 2020). The COVID-19 pandemic appears to have strengthened these aspects of VET, providing them with new impetus internationally. Training for new occupations in emerging industries and technical fields has become an essential solution for labour market dislocation, continuing during the greater disruption of war and refugee crises (ILO 2020; Osnabruck Declaration 2020; Cedefop 2020b). Correspondingly, across educational sectors, national governments and international agencies seek to continue strengthening digitised forms of education, albeit

with modification, during economic recovery (Vincent-Lancrin et al. 2022).

This technological imperative has reinforced tendencies to draw educational pathways closer to employment practice. The 'technical education' reforms in England since 2010 provide a notable example. Here, some students, mainly male young people on STEM-based routes, are enabled to engage with new specialist opportunities for work-based learning. However, such experiences are unavailable to other students, especially young women and the children of refugee families, whose VET experiences direct them towards service industry roles in such fields as care and retail. This leads to new dimensions of inequality within VET (Esmond, 2018; Esmond and Atkins 2020, 2022). This emerging stratification, reproducing more directly the inequalities of the workplace within educational pathways, should also remind us that, in any country, only a minority of VET students will find work in manufacturing roles. A notable feature of the 'lockdown' measures such countries took against the pandemic was the salience of many 'essential' or 'key workers' whose uninterrupted labour proved necessary for human life to continue; yet their expertise is valued little and usually poorly rewarded (Avis et al. 2021).

The dominant focus on technology raises further concerns about what role VET can play in creating more sustainable societies. A question posed with greater urgency during the recent past has been how far VET should be oriented to productive needs that are premised on ever-increasing consumer demand, rising employment and depletion of the world's resources. The experience of this period when much productive activity slowed or halted, however temporarily, reinforced scepticism about

contemporary work (Avis 2022; Graeber 2018) and lent credence to those seeking guaranteed incomes rather than a waged economy. It also demonstrated, also temporarily, the possibility of a world in which environmentally destructive activities can be suspended (Avis et al. 2021). The urge towards a 'greener' VET reflects these concerns, most strongly expressed in demands for a thoroughgoing transformation of VET, as part of a proposed shift in the values and motivations of key industries (e.g., Relly et al. 2022).

These concerns build on earlier anxieties, especially since the economic crisis after 2007 but even during periods of relative stability: disillusion with modern commercial activity fostered a retrospective longing for a lost authenticity and engagement associated with earlier forms of work and modes of work organisation. This urge to rediscover virtues of the past has been evidenced in such fields of work as 'heritage' building practices, specialist textiles, or food and drink production, offering the opportunity for consumers and workers to rediscover apparently lost experiences and meanings. A burgeoning literature of craft (e.g., Adamson 2007, 2010; Crawford 2009; Marchand 2007) has contrasted virtues of handicraft production to the alienating experiences of mechanised production and the 'knowledge society, drawing attention to the 'value of craftsmanship in a mechanical, quantitative society' (Sennett 2009, 48). In the arts, and notably in textiles, possibilities for autonomy, critique and 'craftivism' are complemented by caution about 'craftwashing,' the appropriation of craft discourse for neoliberal policy aims (Black and Burisch 2020).

This interest in craft has echoes in VET, where such language recalls both extensive and ambiguous traditions. Across inter-

national settings, VET has employed the language of 'craft,' 'craftsmanship' and such equivalents as 'Handwerk' to convey various meanings about VET's aims and activities. Whilst in specific cases they reference historical precursors of current techniques, 'heritage' skills such as those taught for restoration work, or catering for tastes in 'artisan' food and beverages, this terminology also has deeper meanings in VET. It can operate as a discourse beyond describing specific occupational meanings. It references not simply what must be learnt in order to work in an occupation(s) but what it means to be a member of the occupational group: the ethical considerations that should guide one's work and how one should behave towards others. These behaviours and attributes are implied preconditions of each group's membership privileges, and in turn convey a status associated with occupational groups. They provide moral, cultural and social dimensions to learning about work and in the workplace, leading such discourses to resonate with many though by no means all practitioners.

The immediate focus of this paper is the way that these discourses were appropriated by English VET policy, only to fade as technology-led discourses came into focus to legitimate these policies. The UK government's technical education reforms after 2010 were extensively justified with references to a spirit of 'craftsmanship' including references to the 19th century 'arts and crafts' movement (e.g., Hayes 2010, Gove 2011). These allusions were abandoned as the language of 'technical education' became pervasive, and the creative and specialist manufacturing curricula most relevant to this earlier vision were rescheduled to the latest possible date of introduction. The marginalisation of these 'craft' vocations raises questions about VET's

uneasy relationships with technology, social inequality and sustainability.

These developments, apparently isolated in a country considered increasingly as an outlier, give rise to more profound questions about the fundamental purposes of learning at and 'for' work. The potential of these discourses for remoralising the field and motivating its students are widely noted by practitioners and reflected by researchers focused on practice (e.g., Mjelde and Daly 2006) even extending to the practices of teachers (e.g., Kidd et al. 2022). In turn this raises further questions about whether 'craft' and 'craftsmanship' discourses are doomed to present a narrow vision of skilled-worker privilege, or whether they can support deeper thinking about the context of older work practices, tool and material use. In short, what aspects of past practice can help us think in more expansive terms about the meaning and potential of VET?

The paper therefore proceeds in the next section to anchor discussions from studies of craft within VET in a wider body of literature that has sought to theorise craft. The following section then explains how these approaches have also given rise to a specific methodology, the *chaîne opératoire,* to make explicit the connection between craft practices and the societies that make and consume their products. This approach has been employed to understand the how the policies of English VET are shaped by wider patterns of production and consumption. Next, data is then presented about technical education reforms and their relationship to the context of a polarising society. Discussion of this data enables us to understand the outcomes of VET policy in England; but also provides suggestions about what aspects of 'craft' might have value for a renewal VET as an educational

pathway, as well as which have less promise. In conclusion, the paper reviews the potential of craft concepts for VET research to explore further the complexities of learning in the workplace and in preparation for work.

THEORY AND METHODS

THEORISING 'CRAFT' WITHIN VET AND BEYOND

Notions of 'craft' and its international equivalents have pervaded VET from its earliest times, contributing to a general terminology of institutions, courses and qualifications. In their simplest usage, these terms refer to a level of study and the occupational group of which the student aspires to become a fully qualified member. In England 'craft' qualifications survive, using a widely recognised descriptor for the requirements of skilled manual work (e.g., City & Guilds 2021). This term also references learning at work or similar activities in educational settings, of a type that Winch summarises as 'essentially non-academic and practical' (Winch 2007, p.17). Such practical learning differs from one-off classroom exposition by its continuous iteration of actions through the use of varying materials and in different contexts. Richardson's (1939) early account of UK technical colleges captures this variation, citing Sturt's (1923) description of learning through 'practice and experience of every difficulty' (Sturt 1923 in Richardson 1939, p.2). This breadth of experience also suggests a richer educational experience than the acquisition of narrow competences associated with English-speaking countries from the 1980s onwards. Such terms as craft allude to meanings beyond these simpler labels, summoning up the characteristics that members of the occupational group can be

expected to exhibit, and by implication the mode of work organisation suggested by 'craft.'

These are ambivalent concepts; and if 'craft' is frequently referenced in VET, it is usually theorised weakly, with fleeting references to a small number of well-known sources. The same concepts, or more accurately, the same overlapping fields, have been examined at length by multiple academic disciplines. This ranges from those such as archaeology and anthropology, which once expected craft practices to disappear as modernity reached further across the globe and now situates them in the urban present as well as the liminal past (Greiner and Proepper 2016), to perspectives from philosophy and sociology.

Within VET, craft and its cognates have affinities with a handicraft past, referenced in countless allusions to the ancient pedigree of work-based learning in comparison to schooling (Billett 2011; Wellington 1993). A key question for this discussion is what aspects of the learning associated with craft production are relevant today. Learning at work has been a defining feature of apprenticeship since its emergence in pre-industrial societies, with learning from experienced practitioners during the productive process a salient distinction between vocational and general education. The revival of interest in such practices extends from educational research (e.g., Eraut 2004) to the ethnography of 'situated learning' (Lave and Wenger 1991; Wenger 1998). Accounts of learning through 'legitimate peripheral participation' have provided justification for learning 'autonomously' at work, or in online 'communities of practice,' in preference to the classroom. Yet this sublimation of learning to production activities is certainly problematic for learning about occupations that require a substantial scientific or technological knowledge, to say nothing

of learning about the societal context of work or preparing the student more broadly for participation in civic life.

By contrast, others have taken interest in craft's broader possibilities: its association with materials, senses, tools, embodied cognition and above all identities shaped by notions of 'mastery' achieved through persistent deployment of skills to varied materials and products. Mjelde and Daly (2006) contrast the 'depth of understanding or mastery of a craft' (2006, p.10) through workshop practice to its erosion in favour of market-driven 'business' skills. Hyland (2014) draws on craft to propose a transformation of VET, arguing that 'VET needs to emphasize the values, craft and aesthetic features of vocationalism if the perennial problems are to be dealt with' (2014, 3). Chan (2014) argues that 'craftsmanship ... is not limited to trades-based occupations nor is the designation of craftsmen gendered' (2014, p.314) and cites Corson's (1985) conditions for the acquisition of dispositional aspects of craftsmanship: no ulterior motive in work other than the product and its creation; and workers free to control their own working action, learn from and develop their own capacities in work that infuses their entire mode of living (Corson 1985 in Chan 2014, 316). These idealised conditions have scarcely been those of craft production in almost any historical period or location. However, they open up possibilities for VET to conceptualise the meaning of work beyond the performance of narrow production routines.

Such potential is recognisable in a broader literature that identifies a capacity for more meaningful engagement with work through the identities that craft confers. Denicola and Wilkinson-Weber (2016) describe this as the 'constitutive nature of craft... the ways in which it constructs a category of makers

at the same time as they make the objects with which they are associated' (2016, 3). The possibility of constructing identities based on engagement with materials, tools and practices that lead to the creation of recognisable use-values is central to the practice of all those who seek to find meaning in both work and learning that includes embodied cognition. This capacity to construct identities outside the relations of commodity production is suggested in the most unpromising settings: Sanchez (2020) contrasts the satisfaction of Indian scrapyard workers in transforming objects into raw materials with the demotivation of car production workers in the same city. This does not imply an idealisation of such work, however: Makovicky (2020) notes the tension of craft textile workers both fulfilled and impoverished by an activity that they describe as driving them mad; Munro and O,Kane (2022) see in contemporary craft discourses a mission to drive the unemployed into entrepreneurship. Nevertheless, the breadth of expertise in such occupations contrasts sharply with the assessment of isolated competences, which reflects the division of labour into alienated piece-part work (Gregson and Todd 2019). VET researchers note the 'occupational prestige' that shapes student identities, whether or not these are realised in working life (Dummler et al. 2020).

This breadth is also suggestive of a certain independence from the performativity of contemporary work: Gamble (2001) describes craft in terms of an autonomy of expertise shared by a community rather than controlled by an employer or manager. Yet the same account draws attention to its entanglement with apartheid and inequality. Craft retains troubling associations with insular communities and social inequalities. The relatively privileged status of skilled workers is referenced by practitioners

in everyday VET practice. A critical dimension is the historical association of craft with political economy: its association with a mode of production that preceded the modern division of labour described by Smith (1776/2012) and the alienation produced by modern industry, identified by Marx and Engels (1932/1976). In these terms, craft describes a mode of production and of work organisation in which the artisan manufactures the finished object from raw materials. This mode was of course largely superseded by the industrial revolution, mechanisation and capitalist relations. Adamson (2010) observes that craft defines itself in terms of its opposition to the industrial mode of production that replaced it, although handicraft survivals, skilled work in maintenance and assembly, as well as 'heritage' revivals, have all laid claim to this title within industrialised societies.

Gamble's (2001) account remains unusual in its attention both to craft-based educational practice and its societal context: it notes the erosion of traditional crafts, which 'find their continuation in the niche markets of lifestyle commodities, rather than at the core of major production processes' (Gamble 2001, 185). This process is traced back through Taylorism to the industrial revolution and eighteenth-century division of labour. Meanwhile, the master-apprentice relation that long shaped skilled labour has been dispersed into a combination of college modules and workplace experience. Especially in contexts where learning is broken down into employer-friendly competences, we are left with 'a socially and pedagogically empty practice, divorced from its original social function and purpose as a transmitter of identity based on mastery' (2001, 198). Yet this account of South African cabinet-making apprenticeship presents the transmis-

sion of expertise entirely in terms of creating finished objects, with drawings, tools and interactions mediating emerging understandings of their creation. Gamble traces these understandings back through Polanyi's tacit knowledge, through Bernsteinian recontextualisation to Durkheim's 'idealisation,' enabling both classification and systematisation, but also a projection towards a more desirable state. Such learning contrasts starkly with the narrow curricula that have come to characterise much VET in English-speaking countries. Especially where vocational learning is based on occupations, survivals of pedagogies based on holistic understandings, combined with a civic education, hold out hope for remoralised forms of learning.

Such complexities rarely feature in VET accounts, or in the daily references to craft discourses that populate daily VET practice. Nor do craft's allusions to sensory, moral and societal aspects of skilled work have the same salience across VET practice and policy. This contrasts with the sensitivity to the natural world and its resources that has characterised writing on craft at least from Sturt (1923) and survives in contemporary writing on sustainability (e.g., Väänänen and Pöllänen 2020). This provides one of the major ironies of contemporary education: that insights from spheres of activity and technologies more sympathetic to the planet's future may be shared in schools, as in the sloyd movement's attention to socio-cultural and historical aspects (Kokko et al. 2020), but rarely with learners at advanced levels, close to transitions into work. The preservation of intangible cultural heritage (UNESCO 20003) likewise focuses on craft in terms of the continuity of traditional practices rather than the contextual insights they offer to contemporary work. In making sense of these contradictions, the paper now draws

on a methodology drawn from the sphere of anthropology and architecture to connect these two domains: the practice of craft and its societal context.

METHODS: INTRODUCING THE CHAÎNE OPÉRATOIRE

The *chaîne opératoire* developed from the insights of Marcel Mauss and his students with the aim of capturing the social acts that comprise the life cycle of an artefact, as well as the cognition that informs its actions (Leroi-Gourhan 1964; Lemonnier 1992). In its anthropological and archaeological applications, the *chaîne opératoire* begins with manufactured objects and first determines the processes used to make them. This series of activities, which might include the extraction of ores, the smelting of metal, the hammering into shape, annealing and finishing, each requires a particular set of social arrangements as well as skills and the learning through which these develop. From the further extension of the *chaîne* to include the location of finished goods, it becomes possible to draws wider conclusions about the societies that distributed and consumed these material objects, connecting their manufacture to the cultures that produce them. Dobres (1999) describes the *chaîne opératoire* as 'a powerful conceptual framework... providing technology studies with both the empirical rigour they require and the human face they deserve' (1999, 124). In such conceptualisations, the *chaîne* not only identifies the stages used to transform raw material into useable objects but elaborates such aspects of their societal context as the transmission of expertise through families or apprenticeship (Lewis and Arntz 2020). The *chaîne opératoire*: "considers all technological and social elements of a spe-

cific commodity from the procurement of raw materials to the finished item and extends further into its distribution and subsequent sociocultural biography ... in particular relationships and networks that are brought into being through the various steps of making things" (Rebay-Salisbury et al. 2014, pp. 1-2).

Given our interest in the extended relationships connecting craft practices, discourses, VET, employment and society, educational applications of the *chaîne opératoire* appear entirely justified. The application of this method seems especially apt in educational settings that create material objects: Wright (2016) has examined a curriculum and its pedagogies in an art setting through this methodology. In this paper, we extend the approach further, aiming to capture its significance in both the practices of craft learning and in contemporary policy. The artefacts we describe here are the papers and speeches that laid the foundations of 'technical education' policy in England, and the data that illustrates how this has evolved in the years since the earliest announcements summoned up a spirit of 'arts and crafts'. We outline the stages by which these reached the current position. We then extend to the societal aspects of our *chaîne,* in the shape of the economic and social distribution of the equivalent of artefacts and activities: the mode of production of commodities and the share of wealth that both shape and are reproduced by educational practice.

RESULTS AND ANALYSIS: THE CHAÎNE OPÉRATOIRE OF ENGLISH TECHNICAL EDUCATION

The reforms described by the UK government as 'technical education' comprise two major strands: a reframing of apprenticeships and the introduction of work-based placement learning

for full-time students. The latter were central upper-secondary 'technical' qualifications described as 'T Levels' in imitation of the general education 'A-level'. In the policy discourse, for example in government publications, these policies are associated with specific reports: Alison Wolf's (2011) review of further education, focused on full-time VET; Doug Richard's (2012) apprenticeship review and the Independent Review of Technical Education (2016) led by Lord Sainsbury. These reports are generally prefaced by a ministerial introduction noting both their originality and their commonality with other proposals.

Yet a study of these policies based on the *chaîne opératoire* enables us to see this history differently. The authorship of policies did not begin with the collection of evidence by these commissions but with the development of discourses preparing the ground for these changes. Ministers and civil servants had already laid the ground for these reforms, introducing the language of technical education, advocating for the strengthening of vocational routes, long before any panellists took up their tools. Indeed, Fuller and Unwin (2011) note that this process began even before Conservative-led governments came to power in 2010. Conservative politicians engaged with stakeholders, including researchers, as they sought to develop alternatives to the centralised performative targets favoured by the previous New Labour governments. The same authors also perceptively point to a process that began under New Labour: educational forms which laid the ground for a market diversification (such as the problematic 'University Technical Colleges) tended to result in a stratification of education.

However, for our purposes the most significant activity of policymakers in this period was the development of discourses

that, in various forms, argued for the value of vocational aspects of learning. This provides the first stage of our *chaîne opératoire*. Discourses of craft were mobilised in this stage of policy development, especially in the period after the formation of a Conservative-led coalition government in 2010. Central to this discussion was a speech by Michael Gove to the Edge Foundation announcing the Wolf Review. Gove (2011) eulogised 'practical craft skills,' citing Crawford (2009) on the 'intrinsic richness of manual work - cognitively, socially, and in its broader physical appeal' alongside SenneTt's (2009) similarly 'wonderful book.' Deprecating the target-driven approach of New Labour, Gove counterposed the intrinsic merit of practical learning that the former government had not understood. It a telling passage he argued that:

> Some qualifications that were called vocational are actually pseudo-academic: attempting to recreate the cognitive skills associated with the accumulation of abstract knowledge rather than developing the entirely different but equally rich cognitive skills associated with practical and technical learning.
>
> Insecurity about the real value of craft meant that vocational learning was, in some people's eyes, legitimised by being made academic (Gove 2011).

Whilst Gove included customary references to the VET systems of the UK's competitors, this passage specifically cast 'practical education' as antithetical to generalised or theoretical knowledge, rather than the learning across institutional and employment environments which most European VET combines. Tellingly, this hymn to the 'practical' was accompanied by references

to a wide variety of educational provision: new 'free schools,' University Technical Colleges, apprenticeships with blue-chip employers. Whilst rehearsing the merits of the practical for one stratum of the population, different 'market choices' were being placed on display for others. John Hayes (2010) followed Gove with a richer vein of artistic reference whilst calling for an 'Arts and Crafts revival'. Yet his references to 'great men' who had valued practical activity and exaltation of craft virtues mainly referenced an age when few of the poor attended school at all.

This harking back to a lost age was widely repeated in the next phase of the policy *chaîne*. This operation comprised the creation of the guiding texts which have shaped VET policy for England. In all cases these texts were woven with the participation of noted authorities, who were credited with the brilliance of having created entirely new artefacts. Doug Richard had been a television celebrity entrepreneur; Alison Wolf a trenchant and powerfully connected critic of low-value vocational qualifications proliferating under New Labour; Lord Sainsbury a philanthropist with a record of giving to educational causes. In each case, a wholly positive government response to their proposals was published, with the Sainsbury Review accepted in an extensive government response, the 'Skills Plan' (DBEIS/DfE 2016), published the same day. This reflects the degree to which prior government thinking emerged in these reports. It should be mentioned that references to ancient craft continued, with Doug Richard's (2012) 'End-Point Assessment' justified with reference to mediaeval apprenticeship practice. For the professional development of VET teachers, a 'Further Education Guild' was countenanced (eventually, more prosaically, becoming the Education and Training Foundation).

These proposals engaged very little with the inherent practices of craft discussed above: a far more important purpose was to propose a convincing alternative to expensive general education routes, especially at higher levels. Apprenticeship reforms replaced frameworks of qualifications with 'standards' written by 'trailblazer groups' that included employers. These could be extensive requirements including qualifications, or minimal two-page summaries of expected outcomes. The Sainsbury Review (Independent Panel for Technical Education 2016) proposed to reorganise further education around 15 routes, streamlining the system and replacing qualifications deemed too 'academic.' Its qualifications were to be approved by panels grouped with apprenticeships under an Institute for Apprenticeships and Technical Education: they included the addition of substantial 'industry placements.' The government response argued that this was a wholesale replacement of VET's '13,000 qualifications, many of them of little value' (Independent Panel on Technical Education 2016, 6) and effectively offered 'every young person... two choices: the academic or the technical option' (DBEIS/DfE 2016, 7).

The next operational phase can be described as a period of testing and clarification. In this phase of the cycle, the ideas put forward at the stage of text creation were gradually converted into the practical realities of educational practice and labour markets. In the same phase, the idealised notions of a refashioned system of technical education replacing bureaucratised, impoverished and worn vocational practices gradually gave way to the realities of a more stratified system. For apprenticeships, this testing phase took the form of approving the new standards. What happened next had already become clear before some of

the best-known apprenticeships had new standards approved, as earlier work summarises:

> ... the balance of the apprenticeship system had tilted decisively towards higher levels, in the funding available for higher levels of qualification, in the number of 'standards' approved at Level 4 and above, and in the distribution of new starts. [...] By the end of February 2021, the number of standards validated stood at 163 at Level 2; 246 at Level 3; and 341 at Level 4 and above. In two years, between 2016/17 and 2018/19, the number of apprenticeships at higher levels more than doubled from 36, 600 to 75,100; those at Level 3 fell from 197,700 to 174,700; those at Level 2 nearly halved, from 260,700 to 143,600 (Foley 2020). This shift attracted opposition partly because the higher-level schemes often simply accredited the prior knowledge of the workforce: 38.2% of apprentices in 2016/17 had been employed for over 12 months before starting their apprenticeship (DfE 2019; Fuller and Unwin 2017) (Esmond and Atkins 2022, 82-83).

Emerging differences in the experiences of apprentices, reflecting the social status of different routes, had already become apparent in early stages of practice for the new standards (Esmond 2020). The supposition that the more advantageous apprenticeships at higher levels would be increasingly available to more advantaged groups has since been confirmed even on routes that normally offer better opportunities for disadvantaged groups, such as IT (Smith et al. 2021).

For the T Levels, testing and clarification also included approval of qualifications and here too elements of stratification

emerged. However, the more significant distinctions were in the placement experiences on offer to full-time students. These were negotiated individually and as such owed much to the personal connections that students were able to call on in negotiating favourable placements. However, significant differences also emerged in the type of placements on offer in different industries. Even before the first trials, early data had already indicated the contrasts in opportunities between those in advantaged, in-demand routes, mainly for young men on STEM-based routes (Esmond 2018). These were confirmed when the first trials of model placements began, as emerged from the official report (Newton et al. 2018). Perhaps the most significant finding of these trials was the way in which young people were prepared for employment rather than for any kind of systematic learning:

> Learner preparation activities focused on employability. The learner preparation that providers devised aimed to develop employability skills and attributes including soft skills, as well as to provide input on route or industry specific issues... The preparation programme offered by the national support organisation [the charity designing most placements in this trial] was not intended to be route-specific and focused on employment preparation and employability skills and attributes. It also contained an option for a short spell of volunteering. At a broad level, preparation programmes covered similar themes – CV writing, interview preparation, generic employability skills - and providers were confident of covering these requirements using in-house provision in the future. This focus on employability skills appeared well matched to employers' needs (Newton et al. 2018, 68).

The last sentence summarises the essential nature of these placements. Most were centred on the production needs of the individual workplace and offered little opportunity to encounter new knowledge or learn how to extend this in work settings. Large numbers of students were initially excluded from these routes because of low levels of general education qualification. Ironically, those students on routes that can most authentically be described as craft, on the 'Craft and Design' route, have been postponed to the latest introduction possible, with one of the three pathways already closed. Craft has become perhaps the most inappropriate possible description for these reforms, as a route-specific evaluation of the same study reveals:

> Learners were sometimes placed in the relevant industry but not in a placement where they could practice their specific creative skills. Potentially this could impact on their motivation and engagement with the placement (IES/iCeGS 2019).

These difficulties are most specific to students on creative and digital routes, which provide the poorest fit with notions of placement in an industrial setting: a pattern of learning widely used in British 'polytechnics' up to the 1970s but increasingly rare given the decline of manufacturing.

The final stage of the *chaîne opératoire* sequence is unfolding in England now, in the shape of the educational practices emerging on these new VET routes. The number of starts in the first years of these qualifications has remained low. Uncertainty remains about the future of these students but it can be asserted that this will be profoundly different according to the social class, gender and ethnicity of vocational students (Esmond

and Atkins 2022). Despite frequent mention in policy circles of 'vocational pedagogy,' 'dual professionalism' and other allusions to educational practices rooted in working practice, the further education sector in England is characterised by a widespread lack of clarity about how these should be understood. A prominent phrase in the policy discourse refers to 'the skills employers need' and explanations of how broader educational aims might be achieved are almost entirely absent, including in what have now become the relatively marginalised subjects grouped as design and craft.

In more technology-focused approaches to the *chaîne opératoire*, those the archaeologist Kuipers (2018) describes as 'hard,' or focused simply on artefacts, this would bring to the end our discussion of technical education policy. Yet this account of policies ostensibly animated by craft-like engagement in meaningful practice, yet ending in routinisation and new inequalities, surely raises further questions about how these policies led to such undesirable outcomes. In the 'soft' version of *chaîne opératoire,* 'as if people mattered' (Dobres 2010 in Kuipers 2018) the aim is to discover the craft worker and the society to which they belong. The following section therefore briefly discusses the context of these reforms before discussing their wider implications.

CONTEXT AND DISCUSSION

The *chaîne opératoire* discussed above has mapped the process by which discourses that reference a broader concept of learning and work have ended for too many vocational learners with the drudgery of socialisation into the routines of work, preparing them for lives of low-paid work and insecurity. Yet mapping the process alone cannot explain why events took this path.

To complete this picture requires attention to the broader context within which VET policy takes shape in each country. Whilst such outcomes have been characterised in terms of policy shortcomings or failures to learn from mistakes, or the peculiarities of VET in Anglophone countries, this focuses our attention on the agency of policy actors. The dominant feature of the latter countries, especially the USA and UK, has been a persistent advance of inequality over the last 40 years. As Piketty (2020) has demonstrated in extensive detail, these are the countries where the shares of the wealthiest pinnacle of society increased most dramatically, whilst the shares of the lower half have fallen furthest. The role of education has not been to reverse this widening inequality but to provide an ideological cover. For much of society in the developed countries, this cover is provided by discourses of social mobility. Yet, as Piketty (2020) demonstrates, inequalities in wealth are more than ever reinforced by differences in earned income, rather than the *rentier* incomes of the past; and these are mediated by educational inequalities. These inequalities confer access to different occupations and professions, refracted through the stratified education systems in which VET includes those students destined for lesser rewards and inferior life chances: the 'duality' of VET includes dual roles of preparing young people (and, to a lesser extent, adults) for work, and of educating those deemed 'failures' on general education pathways. In the English case described here, and to lesser extents elsewhere, we see inequality advancing *within* VET.

Within this widening social inequality, middle layers of society remain, on whom the most privileged are reliant for their continuing domination. Despite rapid falls in manufacturing,

which are more pronounced in the UK than in almost any other industrialised nation, these activities continue to provide substantially to economic output. Moreover, even where technology has done away with many manufacturing jobs, technical roles provide a small number of sought-after opportunities to maintain living standards. These make a marginal contribution to the prospects facing the mass of young working-class people, even compared to other developed countries with stronger manufacturing bases. Nevertheless, these manufacturing survivals enable a rhetoric of craft to be sustained. The society revealed by the *chaîne opératoire* has been shaped by a globalised and tertiarised (increasingly service-based) economy and an economy in which VET has been marginalised in comparison to general education. Nevertheless, in a period where globalisation has faltered and a splintering of national identities has precipitated such fissures as Brexit, VET survivals and revivals remain possible.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The example of 'technical education' reforms in England illustrates the possibility of using the *chaîne opératoire* to analyse changes in educational policy and practice. If policy texts, placements evaluations and participation data can be regarded as stages in the life-cycle of educational practice, the same is no doubt possible for other cases of policy and practice, and other applications of the *chaîne opératoire* may be possible within VET. What is notable in this case is the way that discourses of craft proved especially hollow: of the attributes associated with craft, only those that reinforce social differentiation proved rel-

evant. This does not of course mean that other understandings of craft have no meaning for the future of VET. On the contrary, this account should serve as a warning not to engage with these discourses lightly.

This in turn raises the question of what insights might emerge from a more sustained exploration of craft concepts in future educational research. Discourses of craft have not only sustained the varied societal meanings referenced in the largely English literature discussed here. Elsewhere, including in Europe, craft has associations not only with forms of work organisation and society but with distinctive approaches to learning associated with handicrafts or conservatories (e.g., Martinusssen 2005). Especially in England but also in other countries, learning at work is too often assumed to be an automatic or autonomous process that takes place in forms and sequences determined by production requirements and the preferences of the employer. Research into practices associated with craft may yet play a role in deepening our understanding of work as a locus for education that has its own purposes, autonomy, aims, logics and networks of actors. These understandings may enrich not only the learning experiences of VET students but their capacity to play a full part in work and in society as adult men and women.

REFERENCES

Adamson, G. (2007). *Thinking Through Craft*, Oxford: Berg.

Adamson, G. (2010). *The Invention of Craft.* London: Bloomsbury.

Avis, J. (2020). *Vocational Education in the Fourth Industrial Revolution: Education and Employment in a Post-Work Age*. London: Palgrave.

Avis, J. (2022) Anti-work, TVET and employer engagement. *Journal of Education and Work* 35(5)585-598). Doi: https://doi.org/10.1080/13639080.2022.2092606

Avis, J., Atkins, L., Esmond, B. & McGrath, S. (2021). Re-conceptualising VET: Responses to Covid-19. *Journal of Vocational Education & Training* 73(1),1-23. https://doi.org/10.1080/13636820.2020.1861068

Billett, S. (2011). *Vocational Education: Purposes, Traditions and Prospects.* Dordrecht: Springer.

Black, A. & Burisch, N. (eds.). (2020). *The New Politics of the Handmade: Craft, Art and Design.* London: Bloomsbury.

Cedefop (2020a). *Vocational education and training in Europe, 1995-2035: Scenarios for European vocational education and training in the 21st century.* Luxembourg: Publications Office of the European Union.

Cedefop. (2020b). How are European Countries Managing Apprenticeships to Respond to the COVID19 Crisis? Synthesis Report Based on Information Provided by Cedefop Community of Apprenticeship Experts. Cedefop. Retrieved from https://www.cedefop.europa.eu/files/cedefop_community_apprenticeship_experts_synthesis_how_are_european_countries_managing_apprenticeships_to_respond_to_the_coronavirus_crisis.pdf 22nd April 2022.

Chan, S. (2013) Learning through apprenticeship: belonging to a workplace, becoming and being, Vocations and Learning, 6(3): 367–383.

City & Guilds. 2021. *Electrotechnical Craft.* Qualifications guide. Retrieved from https://www.cityandguilds.com/qualifications-and-apprenticeships/building-services-industry/electrical-installation/2365-electrotechnical-craft#tab=information&acc=level2 Accessed 22nd January 2022.

Crawford, Matthew. B. 2009. *Shop Class as Soulcraft: An Inquiry into the Value of Work.* New York: Penguin Press.

DBEIS (Department for Business Innovation and Skills)/DfE (Department for Education). (2016). *Post-16 skills plan*. Cm 9280. https://www.gov.uk/government/publications/post-16-skills-plan-and-independent-report-on-technical-education

Denicola, A.O., & Wilkinson-Weber, C.M. (2016). Introduction: Taking Stock of Craft in Anthropology. In *Critical Craft: Technology, Globalization, and Capitalism,* edited by C.M. Wilkinson-Weber & A.O. Denicola, pp. 1–16. London: Bloomsbury Academic.

Dobres, M.-A. (1999). Technology's links and chaînes: the processual unfolding of technique and technician, pp. 124–46, in M.-A. Dobres, M.-A. and C. R. Hoffman (eds.), *The Social Dynamics of Technology: Practice, Politics, and World Views.* Smithsonian Series in Archaeological Inquiry. Washington DC: Smithsonian Institution Press.

Duemmler, K., Caprani, I. & Felder, A. 2020. The challenge of occupational prestige for occupational identities: Comparing bricklaying and automation technology apprentices in Switzerland. *Vocations and Learning* 13(3): 369–388. Doi: https://doi.org/10.1007/s12186-020-09243-3

Esmond, B. (2018). 'They get a qualification at the end of it, I think.': Incidental workplace learning and technical education in England. *Journal of Vocational Education and Training, 70*(2), 193–211.
Esmond, B. (2020). Emerging apprenticeship practitioner roles in England: conceptualising the subaltern educator. Vocations and Learning, 13(2), 179-196. https://dx.doi.org/10.1007/s12186-019-09233-0.
Esmond, B. Atkins, L. (2020). VET Realignment and the Development of Technical Elites: Learning at Work in England, International Journal for Research in Vocational Education and Training, 7(2), 193-213, doi. org/10.13152/IJRVET.7.2.4
Esmond, B. & Atkins, L. (2022). *Education, Skills and Social Justice in a Polarising World: Between Technical Elites and Welfare Vocationalism.* London: Routledge.
Fuller, Alison & Lorna Unwin. (2011). Vocational education and training in the spotlight: back to the future for the UK's Coalition Government? *London Review of Education*, 9(2), 191-204. http://dx.doi.org/10.1080/14748460.2011.585879
Gamble, Jeanne. (2010). Modelling the invisible: The pedagogy of craft apprenticeship." *Studies in Continuing Education, 23*(2), 185–200.
Gove, Michael. (2011). Speech to the Edge Foundation. Retrieved from https://www.gov.uk/government/speeches/michael-gove-to-the-edge-foundation
Graeber, D. (2018). *Bullshit Jobs.* London: Allen Lane.
Gregson, M. & Todd, B. (2019). Realizing standards of practice in VET. In *Handbook of Vocational Education and Training: Developments in the changing world of work,* edited by S. McGrath, M. Mulder, J. Papier & R. Suart. Cham: Springer.
Greiner, Clemens and Proepper, Michael. (2016). Hands, Skills, Materiality. Towards an Anthropology of Crafts. In *Migration, Networks, Skills: Anthropological Perspectives on Mobility and Transformation*. Edited by A. Wonneberger, M. Gandelsman-Trier & H. Dorsch. Pp. 209–230. Bielefeld: Transcript Verlag.
Hayes, J. (2010). The craft so long to lerne: Skills and their place in modern Britain. Speech to the Royal Society of Arts, Manufacturers and Commerce. Retrieved from: http://www.bis.gov.uk/news/speeches/john-hayes-skills-and-their-place
Hyland, T. (2014). Reconstructing Vocational Education and Training for the 21st Century: Mindfulness, Craft, and Values. *Sage Open 4*(1), Doi: https://doi.org/10.1177/2158244013520610
ILO (International Labour Organization). (2020). *ILO brief: A policy framework for tackling the economic and social impact of the COVID-19 crisis.* Retrieved from https://www.ilo.org/global/topics/coronavirus/impacts–and–responses/WCMS_739047/lang–en/index.htm
Independent Panel on Technical Education. (2016). *Report of the Independent Panel on Technical Education*. London: Department for Education.

IES/iCeGS (Institute of Employment Studies/International Centre for Guidance Studies). (2019). *Evaluation of T Level Industry Placements Pilot. Route reports.* Department for Education. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916869/Industry_placements_pilot_route_reports.pdf

Kidd, W., Viswarajan, S. and McMahon, A. (2022). Reflexivity for whom? The ethics of a craft identity and the know-how of supporting reflexivity on teacher education programmes. In Loo, S. (ed.) *Teacher educators in vocational and further education.* Cham: Springer.

Kokko, S. Kouhia, A. & Kangkas, K. (2020). *Finnish craft education in turbulence: Conflicting debates on the current National Core Curriculum.* Techne serien - Forskning i Slöjdpedagogik och Slöjdvetenskap. 27(1), 1 – 19.

Kuipers, M.H.G. (2018). *An archaeology of skill*. Abingdon: Routledge.

Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation* (Learning in Doing: Social, Cognitive & Computational Perspectives). Cambridge: Cambridge University Press.

Lemonnier, P. (1964). *Elements for an Anthropology of Technology.* Ann Arbor: University of Michigan Press.

Leroi-Gourhan, A. (1964). *Le geste et la parole.* 2 vols. Paris: Albin Michel.

Lewis, M. & Arntz, M. (2020). The chaîne opératoire: Past, present and future. *Archaeological Review from Cambridge 35*(1), 6-16.

Makovicky Nicolette. (2020). "The seduction of craft: Making and value in artisanal labour." *Journal of Material Culture 25* (3), 303-23. Doi:10.1177/1359183520903342

Marchand, T.H.J. (2008). "Muscles, morals and mind: Craft apprenticeship and the formation of person." *British Journal of Educational Studies*, 56(3), 245-271, DOI: 10.1111/j.1467-8527.2008.00407.x

Martinussen, A.O. (2005). Vidareføring av handlingsboren kunnskap (How action-based knowledge is passed on). Maihaugen 100 år – evig ung. Lillehammer: Årbok 2005.

Marx, K. & Engels, F. (1932/1976). The German Ideology. In K. Marx & F Engels, *Collected Works,* Vol. 5, pp.19-539. London: Lawrence & Wishart

Mjelde, L. & Daly, R. (2006). Introduction. In *Working knowledge in a globalising world: From work to learning, from learning to work,* edited by L. Mjelde & R. Daly, pp. 9-22. Bern: Peter Lang.

Munro K, & O'Kane C. (2022). The Artisan Economy and the New Spirit of Capitalism. *Critical Sociology. 48*(1):37-53. doi:10.1177/08969205211991195

Newton, B., Williams, J., Francis, R., Gloster, R., Buzzeo, J., Myford, M., Spiegelhalter, K. and Esmond, B. (2018). *Evaluation of the Industry Placements Pilot.* Research report. Department for Education. Available at https://assets.publishing.service.gov.uk/

Osnabruck Declaration. (2020). Declaration on vocational education and training as an enabler of recovery and just transitions to digital and green economies. European Commission/ BMBF (Federal Ministry of Education

and Research). Retrieved from https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf
Piketty, T. (2020). *Capital and Ideology.* Translated by Arthur Goldhammer. Cambridge, Ma: Harvard University Press.
Rebay-Salisbury, K., Brysbaert, A & Foxhall, L. (2014). Material cross-overs: introduction. In: K. Rebay-Salisbury, A. Brysbaert and L. Foxhall (eds), *Material Crossovers: knowledge networks and the movement of technological knowledge between craft traditions*, pp.1-6. London: Routledge.
Relly, S. J., Killip, G., Robson J., Emms, K., Klassen, M. and Laczik, A. (2022). *Greening Construction: A complex challenge for jobs, skills, and training.* London: Edge Foundation. https://www.edge.co.uk/documents/293/EDGE_Greening_construction_Report-Final.pdf
Richard, D. (2012). *The Richard Review of Apprenticeships.* London: School for Startups. London: Department for Business, Innovation and Skills. Retrieved from https://www.gov.uk/government/publications/the-richard-review-of-apprenticeships
Richardson, S. (1939). *The technical college: Its organization and administration.* Oxford: Oxford University Press.
Sanchez, Andrew. (2020). Transformation and the Satisfaction of Work. *Social Analysis 64* (3), 68–94. doi:10.3167/sa.2020.640305
Schwab, Klaus. (2017). *The Fourth Industrial Revolution.* New York, NY: Crown-Business.
Sennett R. (2008). *The Craftsman.* London: Penguin.
Smith, A. (1776/2012). *An inquiry into the Nature and Causes of the Wealth of Nations.* Ware: Wordsworth.
Smith, S., Taylor-Smith, E., Fabian, K., Zarb, M., Paterson, J., Barr, M. & Berg, T. (2021) A multi-institutional exploration of the social mobility potential of degree apprenticeships, *Journal of Education and Work, 34* (4), 488-503, DOI: 10.1080/13639080.2021.1946494
Sturt, G. (1923). *The Wheelwright's Shop.* Cambridge: Cambridge University Press.
UNESCO. (2003). *Convention for the Safeguarding of the Intangible Cultural Heritage.* UNESCO, 32nd session. Paris, 29 September to 17 October.
Väänänen, N. & Pöllänen, S. (2020) Conceptualizing Sustainable Craft: Concept Analysis of Literature. *The Design Journal, 23*(2), 263-285, DOI: 10.1080/14606925.2020.1718276
Vincent-Lancrin, S., Romaní, C. Cobo & Reimers, F. (eds.) (2022). *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers.* Paris: OECD Publishing, https://doi.org/10.1787/bbeca162-en.
Wellington, J.J. (1993). *The Work Related Curriculum.* London: Kogan Page.
Wenger, E. 1998. *Communities of Practice: Learning, Meaning and Identity.* Cambridge: Cambridge University Press.

Wright, E. (2016). From the life to the locked room: applying the Chaîne opératoire to the pedagogy of the copy. *Journal of Visual Art Practice 15*(2-3), 245-260, doi: 10.1080/14702029.2016.1228895

Winch, C. (2007). On becoming a teacher. In J. Dillon & M. Maguire (Eds.) *Becoming a teacher: Issues in secondary teaching.* 3rd edition. McGraw Hill-Open University Press.

Wolf, A. (2011). *Review of Vocational Education: The Wolf Report*. London: Department for Education. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf

International organisations and policy-making in VET systems of developing countries

Oksana Melnyk
University of Konstanz
Department of Economics
Universitätsstrasse 10, 78457, Konstanz, Germany
E-mail: oksana.melnyk@uni-konstanz.de

ABSTRACT:

Vocational education and training (VET) is considered to retain cultural patterns of work, vocations and vocation acquisition of a country and, thus, to be more resistant to changes in comparison with higher or secondary education sectors. One of the pillars of the stability of VET systems is actor constellations that are carriers of these cultural patterns. However, after World War II the influence of international organisations (IOs) as new actors in policy-making has started to be more obvious in matters of education, including VET.

This paper reviews the activities of IOs in vocational education and discusses the question of their influence on policy-making in this sphere from the institutionalist perspective with a special focus on developing countries and countries in transition. The theoretical findings suggest that these countries have not fully institutionalised VET systems and, thus, more recep-

tive to implement policies financed and disseminated by IOs, but these policies show dependencies on the activities of IOs and have varied degrees of sustainability.

KEYWORDS:

vocational education, policy-making, reforms, international organisations, educational aid.

INTRODUCTION

Education lies predominantly within the competence and responsibility of nation-states (Leuze et al., 2008). Policy-making in vocational education is more nationally defined than in secondary and higher education. Vocational education and training (VET) is considered to retain cultural patterns of work, vocations and vocation acquisition of a country and, thus, to be more resistant to changes in comparison with higher or secondary education sectors. Though countries may experience similar social pressure concerning youth socialisation and economic problems in the domain of skill supply, solutions how to plan and realise policies in VET for its effective functioning are diverse and determined by political, economic and historical traditions. One of the pillars of stability of VET systems with their policy patterns is an actor constellation that realises historically established steering and governing mechanisms.

After World War II and especially since the 60ties of the twentieth century the influence of international governmental and non-governmental organisations (in this paper referred to as IOs) as new actors in policy-making started to be more obvious

in matters of education, including VET. The neoliberal agenda once established in the economic sector also spread into other spheres including education (Connell, 2013). Neoliberalism is understood as an updated version of liberalism that originates from the economic theory and postulates the free reign of capital and market, private property and deregulation in economic and social relationships (Lakes & Carter, 2011; van Elteren, 2009). IOs became the main promoters of the neoliberal agenda in discourses, policies and organisation practices of educational institutions (Moutsios, 2009, p. 473). Policy-making processes in education were no longer defined solely by nation-states but overshadowed by the international influence (Grek, 2010; Leuze et al., 2008; Shahbaz & Tahir, 2014).

This influence became possible due to the growing interdependence of national economies, and social and cultural spheres. Globalisation brought the world closer to every nation but also made nation-states adjust to its flows of trade and production and migration of the labour force. Neoliberal approaches in the global economic world resulted in the rise of transnational corporations, on the one hand, and the advances in technologies prompted the appearance of the gig economy, on the other hand (Kaine & Josserand, 2019; Meirosu, 2020; Zwick & Spicer, 2018). Knowledge, skills and qualifications have gained new meanings and values on the market and in the social sector, thus, new expectations to education systems appeared. IOs started to provide tools for changes and reforms in education systems so they could best meet the needs of the global economy (Moutsios, 2009).

Since it is VET, which provides the population with relevant skills and appropriate qualifications for the labour market, it

has drawn a special attention from IOs. As an indicator of such attention may serve a considerable increase in international aid administered by IOs for vocational training in developing countries including countries in transition. Thus, the recent available in open access statistics of the Organisation of Economic Cooperation and Development (OECD) on the volumes of aid for education of developing countries by sub-sectors during 2005-2016 shows that vocational training is the only sector for which official international aid had grown more than four times within 10 years: from 375 million to 1,34 billion US dollars (OECD, na). Considering such impressive financial means directed at vocational education of these countries, a question arises what influence IOs have on development of vocational education and how they realise this influence on policy-making. The study is focused on developing countries and countries in transition as defined by the Standard Country or Area Codes for Statistical Use (M49) as of 2020 (United Nations Conference on Trade and Development, 2020). The question of influence of IOs on VET systems and their policy-making have been actively addressed by scientists (Akkari & Lauwerier, 2015; Ayonmike, 2019; Bartlett, 2013; McGrath, 2012; Middleton & Ziderman, 1997; Mikulec, 2021; Schröder, 2019; Shahbaz & Tahir, 2014) and important findings have been made. This paper, however, aims to look and explain what role IOs play in policy-making in VET systems from the institutionalist perspective. It has a theoretical character and analyses existing research findings on this topic through the lens of neo-institutionalism and historical institutionalism.

The paper is built as follows: as the first step, the theoretical framework to the research question is introduced. After it, roles,

instruments and measures of IOs are outlined in the next section. In the last part, the reactions of vocational education systems to global paradigms promoted by IOs are analysed and discussed on some examples of developing countries and countries in transition. Using the institutionalist approach, theoretical assumptions of such reactions are concluded. The paper fin¬ishes with a conclusion section in which the main statements are summarized and an outlook for further research is sketched.

INSTITUTIONALIST PERSPECTIVES ON IOS AND VET DEVELOPMENT

IOs and their activities are analysed within the context of globalisation. Dale (2000) distinguishes two approaches to the issue of globalisation and education: the "Common World Educational Culture" and the "Globally Structured Agenda for Education". The "Common World Educational Culture" originates from neo-institutionalism and considers education as a construct of the world society, which shares common global culture and models. Here it is worth mentioning that the world culture is greatly defined by Western philosophies and ideologies. Western modernity shaped norms and values, which are centred on the modern legal state and the individual with their rights and freedoms. Since the origins of the global culture are rooted in the Western developed countries, consequently, the influence of the global world culture is more obvious in the non-Western developing countries. Unlike the approach of the "Globally Structured Agenda for Education", which draws on the international political economy and considers education through the capitalist economy lens, education in the "Common World

Educational Culture" approach is seen as a resource to achieve the freedoms and values (Dale, 2000, p. 429). According to the world culture theory, the global education models spread around the world and diffuse with models of modern nation-states. As a result, the education models undergo the process of institutional isomorphism and convergence (Verger et al., 2012).

The empirically proven evidence of this theory cited by this scientific school is the expansion of mass schooling in African countries, which has not been related to the level of development (Meyer et al., 1977), and the establishment of the higher education area (Ramirez, 2012). IOs by spreading, disseminating or imposing models and norms among and on national states play one of the principal roles in setting universal policies on the global level and fostering the convergence of education systems (Boli & Thomas, 1997; Steiner-Khamsi, 2012).

However, when it comes to the policy-making in vocational education systems, there is a considerable body of literature proving that unlike higher or secondary education the development of a vocational education system is more stable, adherent to its contexts and historical developments (Busemeyer, 2009; Deissinger, 2015; Gonon, 2016; Zlatkin-Troitschanskaia, 2005). In the example of the German VET system, Deissinger (2015) demonstrates the resistance of the system to the trends of modularisation and the introduction of the qualification framework, which resulted from the Europeanisation influence on VET systems. Though the German qualification framework was accepted in 2013, it has "no judicative function and it may be assumed [..] will remain a paper tiger in many respects" (Deissinger, 2015, p. 617). From the point of view of historic institutionalism, such a situation is explained by the path-de-

pendent development, which vocational education systems tend to follow. The theory of path dependant development comes from historical institutionalism. Path dependencies appear as a result of recurring practices in institutions in which maintenance and stability actors have interests. Actors develop working patterns and once developed they adapt to them and try to preserve them, thus, stabilising the system and avoiding deviations (Pierson, 2000). Changes, if they happen, are much defined by the wide social environment and by the characters of the actors themselves (Thelen, 2006). Appearance and development of four classical skill formation regimes (statist, liberal, segmentalist and collective) (Busemeyer & Trampusch, 2012) in advanced industrial democracies illustrates the path-dependent trajectories of vocational education systems. The constellation of actors (companies, social partners and the state), the division of their responsibilities in providing, governing and financing vocational education and the level of institutionalisation of these relationships are core factors, granting the stability of VET systems, their gradual change and adaptation to external wider environments.

Unlike developed industrialised countries with strong vocational traditions and institutions, developing countries and countries in transition have a much lower level of institutionalisation, which is also applicable to their VET systems. They find themselves either at the starting point or at critical junctures that open the possibilities for different developmental paths and institutional settings (Busemeyer & Trampusch, 2012). At this time, the continual support of stakeholders and policy actors has primary importance for skill formation systems so they can survive in the long term. The policy formulation in these times

is more receptive to changes and transformations caused by the global agenda and promoted by IOs.

TOOLS, MEASURES AND ROLES OF IOS

One of the roles of IOs is to supply policy-makers on the country level with ideas, goals and instruments on how to solve domestic issues using certain governance instruments. The ideas can produce a powerful impact on policy development and reforms and align the country's policy with the global policy paradigm. This paradigm as mentioned before is drawn mainly on Western ideologies and values, thus, the activities of IOs are underpinned by these philosophies.

IOs are considered as "central carriers of liberal and neoliberal cultural principles and have been central in promoting education reform to national systems around the world" (Bromley et al., 2021, p. 25). The diversity of ideologies guiding these organisations complements each other and creates the global paradigm of the world culture. The World Bank is strongly focused on spreading neo-liberal policies in education such as decentralisation, privatisation, and commodification of education services. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) concentrates on promoting humanistic ideas like individual empowerment, human rights and social justice. The International Labour Organisation (ILO) is dedicated to ensuring adequate skill development and economic efficiency. Similarly, the core agenda of OECD is the economic efficiency and development of human capital. The European Training Foundation (ETF) promotes reforms in the country's skill formation for the sake of economic growth

and prosperity. The mentioned agencies have a clear mandate in TVET, however, there are also other IOs that are active in vocational education but consider it as means to promote their specific agenda concerning sustainability, for example, the World Health Organisation (WHO) or the United Nations Environment Programme (UNEP) (Hollander, 2005). It must be also taken into account that IOs are open systems. They are inclined to change their policy promotion as reactions to the changing social and economic environments as well as the interests and preferences of powerful nation-states (Grek, 2010). Geographically, these IOs have different spheres of influence. UNESCO, UNICEF and the World Bank are important players in the policies of countries of the global South. The OECD has an influence on the development of education in countries of the global North (Akkari & Lauwerier, 2015). ETF operates in countries of the post-socialist and post-soviet blocs (Hollander, 2005).

Instruments employed to produce changes in education policies differ in different IOs. A goal and the main philosophy of an international actor define the scope of governance instruments at hand to influence national policy-making (Niemann, 2009).

Leuze et al. (2008) developed a typology of such instruments:

- *discursive dissemination* is used by IOs to initiate discussion on policy issues. The brightest example in the field of school education is publishing results of the PISA studies by the OECD, which ignite governments of nation-states to introduce reforms in schooling systems in order to catch up with other countries;
- *standard-setting* is employed by IOs to establish rules for state policy. It can take the form of hard and/or soft laws.

The hard laws are binding if states are members of an organisation or union or due to treaties they signed. When exercising soft laws, IOs can set standards or objectives achieving which requires normative changes on the systemic level;

- the instrument of *financial means* refers to transferring financial resources to a country for enabling it to implement a programme that is approved by IOs. This type is often used by the World Bank, which provides financial incentives (predominantly in form of loans) for the programme implementation that is in line with its goals;
- *coordinative activities* mean that IOs can co-manage and coordinate policy activities by bringing together all relevant actors and, thus, creating favourable conditions for fostering and speeding the implementation of projects and programmes;
- the aim of *technical assistance* is to foster the transfer of ideas, policies, and mechanisms on how to implement a specific policy in a national context.

Referring to vocational education, not all IOs' governance tools may be used in policy-making due to the specifics of this type of education and its affinity to national traditions. Measures are mostly defined by neoliberal trends in the economic sector due to tight connections to the economic sector. Thus, most initiatives have been striving to harmonise educational outputs and levels and labour market demands of the knowledge-based economy (for example, qualification frameworks). Also, employability and mobility of the workforce have become defining in policy discourses in vocational education policies. The level of

a country's development is another defining criterion for the instrument of influence. For transformations of VET policies in developed countries, discursive dissemination and standard-setting are usual means, while in developing countries and countries in transition VET policies are shaped with the help of financial means, technical assistance and coordinative activities.

McGrath (2012) distinguishes five main measures used internationally to reform public VET systems into more effective skill formation regimes with the purpose to make them more accountable to business and guarantee higher chances of employability of VET learners: systemic governance reforms to provide employers with bigger possibilities to shape VET policies; qualification frameworks to ensure better transparency and mobility within vocational training systems; quality assurance systems to develop internal working quality standards acceptable for stakeholders; new funding mechanisms and managed autonomy for public providers that give more power and freedom in the decision-making process to VET providers.

IOs can exercise their influence at different stages of policy-making: agenda-setting, policy formation, policy decisions and policy implementation. Global actors usually try to affect policy-making during agenda-setting. The resulting decisions and their implementation are performed by national actors with the probable involvement of non-governmental actors (Jakobi, 2009). However, they can also be directly involved in policy formation as experts when defining concrete objectives, evaluating operational elements of policy etc.

REACTIONS OF VET SYSTEMS TO GLOBAL PARADIGMS

Reactions of VET systems to the activities of IOs in influencing policies depend on many factors and are extremely difficult to model or predict. From the analysis of developing and launching national qualification frameworks, it is possible to conclude that developed countries with established and institutionalised skill formation systems required more time to introduce national qualification frameworks at least on the normative level. At the same time, countries in transition managed in a shorter time either to design or even introduce the national qualification frameworks in their legislation (see reports European Training Foundation, 2011; UNESCO Institute for Lifelong Learning [UIL] et al., 2019). Vocational education systems in developing countries and countries in transition tend to more actively implement changes and reforms fostered by IOs. However, there is a problem with such reforms because in a long-term perspective they show different degrees of sustainability. For example, radical reconfigurations of the VET system in Chile from a state-controlled into a market-oriented one (1973-1989) were restricted by contextual factors and revealed "a mediated influence of global paradigms in national policy changes" (Valiente et al., 2021, p. 289).

The mentioned tools and instruments provide a partial explanation why the influence of IOs on VET systems in developing countries and countries in transition often resides on the normative level and faces problems at the operational level. Since technical assistance and financial means are commonly used tools of influence, then changes and reforms in vocational education tend to be dependent on the donors' assistance. Thus, for

instance, TVET projects implemented in Jamaica and Ghana empirically proved to have "ideological dependency" on donors' assistance (Powell, 2001, p. 429). The research on the effectiveness of reform implementation in Eastern Europe, Central Asia, Northern Africa and the Middle East, conducted by the European Training Foundation, confirms that in a third of the 25 investigated countries changes implemented in VET policies happen to be detached from real needs and situations of the specific national contexts and demonstrate a "track record of dependency on official development assistance" (Milovanovitch, 2019, p. 305). It leads to the realisation of the changes in the policy on the normative level at best and questions their sustainability after programmes or projects are finished. Changes, driven by different and probably even opposite motivations and explicit and implicit goals of both parties IOs, on the one hand, and the local actors, on the other hand, may produce adverse effects and undermine the sustainability of transformations. International assistance in reform implementation in the Western Balkans failed to achieve its objectives because of long chains of involved actors that had different incentives ranging from altruistic motifs of taxpayers of the donor countries to pragmatic motivations of the actors in the domestic recipient country to quickly fix internal problems with the external help (Bartlett, 2013). Changes in educational policy and reform process are "the first step in an uncertain journey of implementation. What finally emerges from this journey may only faintly resemble what was envisioned" (Williams & Cummings, 2005, p. 27). Implementation of policies disseminated by IOs undergoes a process of localisation and customisation of these policies that are defined apart from economic and social conditions of

the context also by norms and cultural patterns of national policy actors. Therefore, patterns of policy change bear imprints of philosophies and ideas of IOs but also patterns of core societies.

Mechanisms of the indirect influence on VET policies have better chances to produce sustainable results because the pragmatic interests of the local stakeholders and policy-makers are absent, thus, policy changes are more relevant to the needs of the context. The example of policy transfer fostered by IOs to the adult education policies of Slovenia, a central European country with the socialist past, proves that in favourable conditions there is hardly a necessity to impose and disseminate changes top-down or encourage it financially. IOs have promoted policy transfer and presented themselves as risk experts, who are able to manage the risks Slovenia is or could be facing (Mikulec, 2021). It means activities of IOs have far better effectiveness and sustainability when they are defined by the context of the country rather than the agenda of IOs. To secure the sustainable development of a policy in a country it must be not decoupled from the needs and expectations of the realities of this country. Thus, more attention and support must be paid to grassroots initiatives in vocational education. Ayonmike (2019) in the study on the role of industry and IOs in the development of technical and vocational education in Nigeria comes to the conclusion that local policymakers should foster collaboration between the local industries and IOs, thus, making policy changes drawn on the needs and expectations of the local agents instead of implementing the transformations that probably would be more suitable to the agenda of IOs but would be detached from the contexts. Empowering vocational teachers and promoting cooperation between vocational teachers, industries and international edu-

cation promises good prospects for positively transforming VET policies in a relevant way. In the example of the Association of Southeast Asian Nations (ASEAN) member countries, Paryono (2015) states that creating a platform for sharing concerns of vocational teachers with stakeholders and IOs can bring changes in the quality of vocational teacher training that will bring benefits to various stakeholders of the TVET system across the region and beyond.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The analysis of the influence of IOs on policy-making and development of VET systems in developing countries and countries in transition from the institutionalist perspective shows that, unlike the policy changes in higher and secondary education, which is subject to the influence of the neoliberal paradigm and globalisation (Mantzou, 2019), policy-making in VET is stronger defined by national traditions of vocation acquisition, cultural norms and social perceptions of work and its role in the life of an individual and a society (Gonon, 2009, 2016). The economic sector probably more than any other sphere is shaped by neoliberalism. However, when it comes to vocational education, which has stronger connections to the economic sector than other types of education, policy changes and reforms show different patterns. That is largely conditioned by the path dependent development of VET systems. Countries with strong traditions and institutionalisation in vocational education show bigger resistance to the agenda set by IOs (for example, introduction qualification frameworks). On the contrary, developing

countries, which usually have low degrees of institutionalisation in VET governance and policies, tend to be more susceptible to the influence of IO's activities and their agenda. However, it refers predominantly to the normative level, i.e. reforms and changes stay in the legislative realm but their implementation may have a low degree of effectiveness. If it happens such changes can hardly be sustainable in a long-term perspective.

Unlike the influence on skill formation of developed industrialised countries, IOs exercise their influence on VET policy-making in developing countries and countries in transition in the form of technical assistance, coordinative activities and financial means. It does not exclude the other tools of IOs, however, they call forth comparatively low reactions from policy-makers of developing countries.

Though the effects of education international aid in the form of small projects might be modest on national policy-making, they still have importance at the local level (schools or regions). Such local changes when accumulated may influence the policy agenda in a country by spreading grassroots initiatives. They create favourable conditions for incremental changes in which policies and reality are not decoupled.

Since institutions are made up of actors and policy and changes are determined to some extent by cultural characters, philosophies and motifs of these actors, it might be relevant for further research to investigate and compare internal and external motivations of actors in international assistance and cooperation that is IOs and local domestic actors in VET systems. It might provide some answers to the question of the sustainability and effectiveness of IOs' activities in different contexts. It would be useful to conduct a cross-country qualitative compar-

ative analysis to identify other factors that define policy changes in VET in developing countries and its dependency on international education assistance.

REFERENCES

Akkari, A., & Lauwerier, T. (2015). The education policies of international organizations: Specific differences and convergences. *PROSPECTS*, *45*(1), 141–157. https://doi.org/10.1007/s11125-014-9332-z

Ayonmike, C. S. (2019). Role of industry and international organisations in improving technical vocational education and training in Nigeria. *Makerere Journal of Higher Education*, *10*(1), 61–72. https://doi.org/10.4314/majohe.v10i1.4

Bartlett, W. (2013). International assistance programmes and the reform of vocational education in the Western Balkans: sources of policy failure. *Southeastern Europe*, *37*(3), 330–348. https://doi.org/10.1163/18763332-03703005

Boli, J., & Thomas, G. M. (1997). World culture in the world polity: A century of international non-governmental organization. *American Sociological Review*, *62*(2), 171–190. https://doi.org/10.2307/2657298

Bromley, P., Overbey, L., Furuta, J., & Kijima, R. (2021). Education reform in the twenty-first century: declining emphases in international organisation reports, 1998–2018. *Globalisation, Societies and Education*, *19*(1), 23–40. https://doi.org/10.1080/14767724.2020.1816159

Busemeyer, M. R. (2009). *Die Europäisierung der deutschen Berufsbildungspolitik : Sachzwang oder Interessenpolitik?* Friedrich Ebert Stiftung. https://library.fes.de/pdf-files/id/ipa/06512.pdf

Busemeyer, M. R., & Trampusch, C. (2012). The comparative political economy of collective skill formation. In M. R. Busemeyer & C. Trampusch (Eds.), *The Political Economy of Collective Skill Formation* (pp. 3–40). Oxford University Press.

Connell, R. (2013). The neoliberal cascade and education: an essay on the market agenda and its consequences. *Critical Studies in Education*, *54*(2), 99–112. https://doi.org/10.1080/17508487.2013.776990

Dale, R. (2000). Globalisation and education: demonstrating a "common world educational culture" or locating a "globally structured educational agenda"? *Educational Theory*, *50*(4), 427–448.

Deissinger, T. (2015). International education policy: Its influence on the conception of VET and the VET system in Germany. *Research in Comparative and International Education*, *10*(4), 607–621. https://doi.org/10.1177/1745499915613248

European Training Foundation. (2011). *Implementation arrangements for national qualification frameworks of qualifications and the role of stakeholders and institutions: an ETF working document.* European Training Foundation.

Gonon, P. (2009). Reformsteuerung, Stabilität und Wandlungsfähigkeit der Berufsbildung – "Laboratory Federalism" als Motor der Bildungsreform in der Schweiz. In U. Lange, S. Rahn, W. Seitter, & R. Körzel (Eds.), *Theorie und Empirie Lebenslangen Lernens. Steuerungsprobleme im Bildungswesen* (pp. 249–265). VS Verlag für Sozialwissenschaften / Springer Fachmedien Wiesbaden GmbH Wiesbaden.

Gonon, P. (2016). Zur Dynamik und Typologie von Berufsbildungssystemen: Eine internationale Perspektive. *Zeitschrift Fur Padagogik (Beiheft)*, *62*(3), 307–322.

Grek, S. (2010). International organisations and the shared construction of policy 'problems': problematisation and change in education governance in Europe. *European Educational Research Journal*, *9*(3), 396–406. https://doi.org/10.2304/eerj.2010.9.3.396

Hollander, A. (2005). The perspectives of the international agencies. *PROSPECTS*, *35*(3), 303–310. https://doi.org/10.1007/s11125-005-4270-4

Jakobi, A. P. (2009). Global education policy in the making: international organisations and lifelong learning. *Globalisation, Societies and Education*, *7*(4), 473–487. https://doi.org/10.1080/14767720903412275

Kaine, S., & Josserand, E. (2019). The organisation and experience of work in the gig economy. *Journal of Industrial Relations*, *61*(4), 479–501. https://doi.org/10.1177/0022185619865480

Lakes, R. d., & Carter, P. A. (2011). Neoliberalism and education: An Introduction. *Educational Studies*, *47*(2), 107–110. https://doi.org/10.1080/00131946.2011.556387

Leuze, K., Brand, T., Jakobi, A. P., Martens, K., & Nagel, A.-K. (2008). *Analysing the two-level game: International and national determinants of change in education policy making* (TranState Working Papers No. 72). Bremen: Universität Bremen, Collaborative Research Center 597 - Transformations of the State.

Mantzou, P. (2019). European and international organizations in educational policy: The OECD and policy by numbers. *Journal of Contemporary Education, Theory & Research*, *3*(1), 25–30. https://doi.org/10.5281/ZENODO.3598712

McGrath, S. (2012). Vocational education and training for development: A policy in need of a theory? *International Journal of Educational Development*, *32*(5), 623–631. https://doi.org/10.1016/j.ijedudev.2011.12.001

Meirosu, D. (2020). Informality, neoliberalism and the gig economy in Chile. In L. Mella Méndez (Ed.), *Regulating the platform economy: International perspectives on new forms of work* (pp. 62–69). Routledge.

Meyer, J., Ramirez, F. O., Rubinson, R., & Boli-Bennett, J. (1977). The World Educational Revolution, 1950-1970. *Sociology of Education*, *50*(4), 242–258. https://doi.org/10.2307/2112498

Middleton, J., & Ziderman, A. (1997). Overview: World Bank policy research on vocational education and training. *International Journal of Manpower*, *18*(1/2), 6–28.

Mikulec, B. (2021). The influence of international intergovernmental organisations on Slovenian adult education policies. *International Journal of Lifelong Education*, *40*(1), 37–52. https://doi.org/10.1080/02601370.2021.1871674

Milovanovitch, M. (2019, September 2). Reforming VET in Eastern Europe, Central Asia, Northern Africa and the Middle East: Patterns of risks and reform implementation. In B. E. Stalder & C. Nägele (Eds.), *Trends in Vocational Education and Training Research.Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (II, pp. 303–311). Zenodo. https://doi.org/10.5281/zenodo.3371543

Moutsios, S. (2009). International organisations and transnational education policy. *Compare: A Journal of Comparative and International Education*, *39*(4), 469–481. https://doi.org/10.1080/03057920802156500

Niemann, D. (2009). *Changing patterns in German education policy making: the impact of international organizations* (TranState Working Papers No. 99). Bremen. University of Bremen, Collaborative Research Center 597: Transformations of the State.

OECD. (NA). *Aid to the education sector: Online database.* OECD. https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/education.htm

Paryono, P. (2015). Approaches to preparing TVET teachers and instructors in ASEAN member countries. *TVET@Asia*(5), 1–27. http://www.tvet-online.asia/issue5/paryono_tvet5.pdf

Pierson, P. (2000). Increasing returns, path dependence, and the study of politics. *American Political Science Review*, *94*(02), 251–267. https://doi.org/10.2307/2586011

Powell, M. (2001). A comparative study of TVET projects — implementation experiences from Jamaica and The Gambia. *International Journal of Educational Development*, *21*(5), 417–431. https://doi.org/10.1016/S0738-0593(00)00066-3

Ramirez, F. O. (2012). Growing commonalities and persistent differences in higher education: Universities between global models and national legacies. In H.-D. Meyer & B. Rowan (Eds.), *The New Institutionalism in Education* (pp. 123–142). SUNY Press.

Schröder, T. (2019). Berufsbildung aus der Sicht internationaler Organisationen. In R. Arnold, A. Lipsmeier, & M. Rohs (Eds.), *Handbuch Berufsbildung* (pp. 739–752). Springer VS. https://doi.org/10.1007/978-3-658-19312-6_56

Shahbaz, M., & Tahir, A. (2014). International influences on education policy-making. In *Understanding Pakistan* (SPO discussion paper series, pp. 99–126): Strengthening Participatory Organization.

Steiner-Khamsi, G. (2012). Understanding policy borrowing and lending: Building comparative policy studies. In G. Steiner-Khamsi & F. Waldow (Eds.), *World yearbook of education series. World yearbook of education 2012: Policy borrowing and lending in education* (pp. 1–17). Routledge.

Thelen, K. A. (2006). Institutionen und Sozialer Wandel: Die Entwicklung der beruflichen Bildung in Deutschland. In J. Beckert, B. Ebbinghaus, & A. Hassel (Eds.), *Transformationen des Kapitalismus* (1st ed., pp. 399–423). Campus Verlag.

UNESCO Institute for Lifelong Learning, European Centre for Development of Vocational Training, European Training Foundation, United Nations Educational, & Scientific and Cultural Organisation. (2019, June 13). *Global inventory of regional and national qualifications frameworks 2019.: Volume 2: National and regional cases*. Italy. UNESCO. https://uil.unesco.org/lifelong-learning/recognition-validation-accreditation/global-inventory-regional-and-national

United Nations Conference on Trade and Development. (2020). *Handbook of statistics: The World by development status*. United Nations Publications. https://unctad.org/system/files/official-document/tdstat45_en.pdf

Valiente, O., Sepúlveda, L., & Zancajo, A. (2021). Development paradigms in the institutional configuration of vocational education and training in Chile (1964-2005). *Journal of Vocational Education & Training*, *73*(2), 278–294. https://doi.org/10.1080/13636820.2020.1833076

van Elteren, M. (2009). Neoliberalization and transnational capitalism in the American mold. *Journal of American Studies*, *43*(2), 177–197. http://www.jstor.org/stable/40464377

Verger, A., Novelli, M., & Altinyelken, H. K. (2012). Global education policy and international development: an introductory framework. In A. Verger, M. Novelli, & H. K. Altinyelken (Eds.), *Global Education Policy and International Development: New Agendas, Issues and Policies* (1st ed., pp. 3–32). Continuum.

Williams, J. H., & Cummings, W. K. (2005). *Policy-making for education reform in developing countries: Contexts and processes* (Vol. 1). Scarecrow Education.

Zlatkin-Troitschanskaia, O. (2005). *Dynamik und Stabilität in Berufsbildungssystemen – Eine theoretische und empirische Untersuchung von Transformationsprozessen am Bei- spiel Bulgariens und Litauens*. Peter Lang.

Zwick, A., & Spicer, Z. (2018). Good or bad? Ridesharing's impact on Canadian cities. *The Canadian Geographer / Le Géographe Canadien*, *62*(4), 430–436. https://doi.org/10.1111/cag.12481

Understanding the 'meaning' of VET institutions in their Historical, social andcultural context in Europe from an interdisciplinary perspective

Isabelle Huning
School for Business and Society
University of York
Heslington, York
YO10 5DD, United Kingdom
Isabelle.huning@york.ac.uk

ABSTRACT:

In the aim to understand differences of VET institutions across Europe, this chapter explores the historical development and institutionalisation of respective systems. VET systems greatly vary in set up and prestige across Europe. Aiming to explore and understand these differences, existing research focuses on the categorisation of such differences as well as potential influences. The latter includes economic factors, aspects of political economy as well as cultural and social influences. Some accounts include the meaning of specific terms, such as apprenticeships, in context of language. It is agreed that each VET system follows their unique historical path, which makes going back in time inevitable to understand today's differences. The comparative accounts on VET systems are based on various scholarly traditions and literature branches.

Committed to an interdisciplinary approach, this chapter draws together various approaches to advocate for a holistic understanding of how VET systems became what they are today. It relies on a literature review, considering empirical and theoretical sources from VET, policy, social policy, educational, historical, linguistic, sociological, economic and political science research. It particularly looks at the role of apprenticeships, as they can be considered the historical origin of today's VET systems.

The results provide detailed insight into how respective institutions emerged over time, and how political bargaining processes shaped their trajectory. They further show that it is not only political and economic aspects that influence such systems but also sociological and cultural influences. Cultural influences include social and cultural values associated with apprenticeships, occupation, craftsmanship, training, moral education, and the status of youth in society. At the same time, these findings are often discussed in isolation from each other, with little reference to literature beyond their own discipline.

The chapter concludes that a holistic understanding of contemporary VET systems requires an inclusive perspective, recognising various disciplines and traditions. It calls for an increased recognition of other disciplines' research to do so. One compelling aspect is the consideration of the listed cultural values associated with VET in institutional research. To understand longitudinal developments of VET systems, it is crucial to consider the role of these values in the development of VET systems, and their reputation beyond historical accounts of formal institutionalisation. The chapter closes with a set of suggested questions that extends existing frameworks in comparative VET research.

KEYWORDS:

institutional characteristic, history, cultural factor, comparative analysis

INTRODUCTION

Comparative research of VET in Europe faces a large variation of systems, institutions and pathways across the continent. Each country's VET system follows its own logic, has its own history, and is based on their own path dependencies. All are subject to highly individual exogenous and endogenous social, political, economic, and cultural influences. In the aim to understand this variation consideration of these contextual facets is inevitable, and has been recognised by various research traditions. Literature in political sciences and sociology on political economy explores the societal context of skill formation, and VET. Scholars argue that markets, education and vocational education systems are deeply embedded in political and social institutional arrangements, responsible for redistribution and regulation (among others, Busemeyer and Trampusch, 2012; Iversen et al., 2000; Streeck and Yamamura, 2002).

Related research indicates that it is central to understand these facets in their historical context. Some sources offer a compelling perspective by analysing the institutional evolution of skill formation systems from a historical comparative view, to understand respective developments. They highlight that VET systems are not only shaped by contemporary systematic and institutional influences, but also by their distinct path dependencies (Ashton and Green, 1996; Emmenegger and Seitzl, 2019;

Finegold and Soskice, 1988; Hall and Soskice, 2001; Mahoney and Thelen, 2010). This focus marks an important contribution to understanding how today's VET institutions became what they are. They further underpin the need to look back in order to understand the present.

The institutional perspective, however, provides little insight into rather informal social and cultural influences, such as values associated with such institutions and how they influence the institutionalisation process. Research suggests that political bargaining processes that accompany institutional change rely on ideas and perceptions about VET institutions, and associated values that the bargaining actors hold (Mazenod, 2016).

Such a conceptual view is provided by another branch of literature, especially in sociology, and history. Authors who adhere to this school of thought argue that VET-related institutions (such as apprenticeships) are also associated with a specific concept and meaning beyond their organisational details. This is inspired by the insight that VET is more than a product of economic and political interest. To name a few, VET is also associated with the history of apprenticeships as measure for moral and civic education (Prak and Wallis, 2020), inspired by pedagogical concepts (Gonon, 2019), and basic concepts and definition of skills and knowledge (Brockmann, Clarke, and Winch, 2008; Mazenod, 2016, 2018). As part of the transition system, it is further linked to the understanding and status of youth within society. How youth is perceived influences the shape and content of transition, hence, VET systems (Chevalier, 2016; Niemeyer, 2007).

This chapter establishes the argument that all literature strands contribute important pieces to the puzzle of VET sys-

tems and how they emerge, but that these pieces are rarely put together. Relying on a literature review, conducted from 2020 to 2022, it argues that respective findings are mainly discussed in isolation from each other with little reference to literature beyond their own discipline. It marries the historical institutionalisation literature with accounts on concept and meaning of VET and apprenticeships and shifts the focus from the development of formal settings to the influence and negotiation of concept and meaning that is associated with VET and apprenticeships along the institutionalisation process.

In doing so, this work sheds light on the complex array of differences. It advocates for an interdisciplinary approach to gain a holistic understanding of the emergence of VET systems and contemporary differences. To do so, it suggests a set of questions that invites to recognise and critically analyse the role of cultural and social values in the historical. institutionalisation process of VET systems.

The remainder is structured as follows. A brief description of methodological implications is followed by discussion of the need to go beyond formal institutional constellations, and look at social historical, social, and cultural aspects. Especially in the context of the convergence-divergence debate, it is inevitable to look at path dependencies when comparing VET systems. Afterwards, the variety of skill formation systems and institutionalisation theory is explored to understand institutional differences from an economic and political perspective. This is followed by the consideration of selected social and cultural nuances that shape the meaning and concept of VET institutions. This includes the linguistic and sociological concept of VET and apprenticeships, associated social and cultural values,

especially regarding occupation, crafts, training, and education, as well as a close look at the status of youth in society and how it influences the meaning and concept of VET. The conclusion derives implications for future research, presented in eight guiding questions, and underpins the relevance to understand in depth the development of VET institutions as cultural concepts over time.

METHOD

This review focuses on literature related to VET systems, their distinct characteristics and related comparative research. It is the result of several search rounds, which rely on keyword searches, back tracing bibliographies of identified sources, and on existing literature reviews. Alongside the search process, keywords were refined and adjusted to accommodate differing vocabulary across research disciplines. As most parts of the review were conducted during the COVID-19 pandemic, it benefited from the utilisation of academic online search engines, such as Google Scholar, BASE (the Bielefeld Academic Search Engine database), and YorSearch (the University of York Library). The result was an array of empirical and theoretical sources associated with various research traditions and disciplines, including VET, policy and social policy, educational, historical, linguistic, sociological, economic and political science research. The identified sources were categorised by discipline, aim, and their main themes, which ranged from the institutionalisation of skill formation, to comparison of VET systems, history of apprenticeships, to understanding transition systems and the history of youth and education.

WHY LOOK AT VET INSTITUTIONS IN THEIR SOCIAL AND CULTURAL CONTEXT?

At first sight, there appears to be little need to look at individual VET systems and their distinct societal context. A growing body of literature describes a trend towards convergence of skill formation systems, presumably in response to globalisation and internationalisation (see, for example, Aarkrog and Jørgensen, 2008; Frommberger, 2019). The aim to increase employability of European citizens in a single labour market motivated a set of strategies various EU institutions and member states undertook to systematically homogenise skill formation systems across European countries (Ertl, 2002; Rauner and Smith, 2010). International labour market integration and mobility motivated various policies, especially in the European context, that cater to education mobility, cross-country transferability of degrees and qualifications, and transparency to increase learners' chances on international labour markets (Gonon, 2019; Shaw et al., 2016). Some specific examples are the Europass, the European Qualifications Framework (EQF), or the European Quality Assurance in Vocational Education and Training (EQAVET) introduced on EU level to promote transparency of qualifications (Cedefop 2020).

Another argument against the recognition of distinct VET systems is that countries inspire each other in their reform and policy-making process via continuous international and transna¬tional communication, policy borrowing as well as interaction between stakeholders, pol¬icymakers, and researchers (Aarkrog and Jørgensen, 2008; Frommberger, 2019; Wentzel, 2011). National education systems aim to increase flexibility and

permeability of their education systems (Deissinger et al., 2011; Rauner and Smith, 2010). This manifested, for example, in policy borrowing and transferring education systems, such as the dual apprenticeship system from Germany to other countries. National training providers expand their activities to international markets alongside the establishment of transnational education and training programmes, while scholars also report a successive opening of national education systems and VET systems to foreign students (Baumann and Krichewsky Wegener, 2019).

A harmonisation of education policies is another explicit aim of international and supranational organisations and institutions, such as the UNESCO, OECD, or ILO (International Labour Organisation). Such institutions either directly promote policy cooperation (among others, the European Union) or coordinate and organise education and vocational education on an international level (e.g. the TVeT Forum set up by the UNESCO International Centre for Technical and Vocational Education and Training (UNEVOC). This is accompanied by measures that encourage competition by creating international rankings of education and training systems. It includes the OECD's Programme for International Student Assessment (PISA) or the EU Education and Training Monitor. Both evaluate and compare member states' education and training systems by studying learning outcomes and labour market performance (European Commission, 2019; OECD, 2000). These developments suggest a convergence of VET systems in Europe and the world.

However, the concern that cross-country differences are erased in the evolution of skill formation systems does not survive the rigorous analysis of political debates in European

states, which are continuously diverging their systems in many aspects. The Cedefop (2020) report exemplifies this, as it identifies a continuous diversification of VET systems, with differing concepts of VET across EU member states. It indicates that named EU measures, such as EQAVET, are not widely recognised among European citizens. Even though the European Education and Training Framework 2020 actively encouraged cooperation between member states. It claimed to respect "the responsibility of the member states for the content of teaching and the organisation of education systems and their cultural and linguistic diversity" (European Union, 2009). Deissinger et al. (2011) suggest that similarities between VET systems only exist on the meta level, such as the insight that they are the product of long run developments and deeply embedded in countries' structures, and cultural contexts, e.g., manifesting in learning cultures that influence systematic set ups and make each VET system unique. This idea is further established by Rauner and Smith (2010). In reference to the dual apprenticeship system of the German speaking countries, they emphasise one should not regard it as a prototype ready to adopt, but as one VET system among others that is culturally rooted in history and society. These roots suggest once more than the societal context of skill formation is still of relevance and that international convergence is limited due to countries' culturally embedded training cultures. This is supported by scholars who highlight that convergence primarily focuses on regulating learning outcomes, and leaves the governance and organisation of teaching and learning process to considerations on national level or beyond (Fromberger, 2019; Pilz, 2016; Rauner and Wittig, 2010). The literature emphasises that the process of convergence is rather

restricted by path dependencies created by historical trajectories shaped by previous policies, formal and informal rules (North, 1991; Culpepper, 2005; Busemeyer and Vossiek, 2016). Cahuc and Hervelin (2020) support this impression, claiming that distinct institutional features explain the success of specific schemes and the failure of others. They find that apprenticeships, which work well in German speaking countries (Germany, Austria, and Switzerland) where they contribute to constantly low levels of youth unemployment, are not successful in integrating youth into the labour market in France. They explain this variation with differences in specific institutional features, such as the establishment of collaboration between schools and public employer services, which has a long-standing tradition in Germany but not in France.

The literature, contrary to globalists' visions, witnesses failing attempts to transfer policies from one country to another (Cedefop, 2020). Cahuc and Hervelin (2020) and Ryan (2000) hypothesise that international tendencies to adopt VET policies from other countries fail because of the missing set of governing institutions and the failure to first understand the specific socio-economic contexts in which the institutions succeeded. While the literature indicates significant effort on EU level to support comparability of VET systems across the EU, it demonstrates systems' persistence and diversity. This is explained by VET systems being deeply embedded in country-specific societal context and history. It implies the need to look at each country's distinct institutional constellation, but also calls for more specific accounts on the meaning of societal embeddedness.

INSTITUTIONAL VARIETY, INTERPLAY, AND CHANGE

The reviewed literature often associates societal embeddedness with influential economic and political structures. This influence is conceptualised by different roles and levels of involvement of state and market in different VET settings (Busemeyer and Trampusch, 2012; Crouch et al., Cedefop, 2020). A more complex typology is provided by Crouch et al. (1999). In some countries, the state is actively involved in vocational education and training and holds a powerful position, e.g., via policies, centralised certification, standardisation, or regulated training schemes. In other countries, the degree of public commitment to vocational training is low to non-existent. In these cases, market-based training is often provided, firms are involved in training, but do not have to be (Crouch et al., 1999). The existence of mixed approaches adds to the diversity of VET systems. Pilz (2016), for example, accounts for such diversity by distinguishing between systems with state dominance, company dominance, state and company dominance, and individualised systems (low state and company activity).

From an institutional perspective, one should think of the development of VET systems as an interplay of several institutional constellations. This interplay happens in countries' political economies. Over time, it leads to each unique system's constellation observable today. The accounts by Ashton and Green (1996) and Finegold and Soskice (1988) provide detailed information on the societal constellation skill formation systems emerged in. They support the identified complexity of skill formation systems and show that differences emerge in a diverse interplay of structural, social, and political variables.

The Variety of Capitalism literature (Hall and Soskice, 2001) sheds more light on the important role of history. It distinguishes two types of market economies that developed early on and influence VET settings. While in liberal market economies' firms coordinate their activities, they are more dependent on non-market relations in coordinated market economies. Liberal market economies are characterised by more hierarchical structures and competition in market arrangements, such as formal contracts, and are found in Anglo-Saxon states. In contrast, in coordinated market economies are rather relational (e.g. informal contracts) and embedded in a monitoring network, and rather represent European states (Thelen, 2019). Institutions provide formal and informal rules that shape or even steer actors' interactions, relationships, participation, and the coordination of their efforts within the institutional settings.

As institutions of nations' political economy, welfare state, labour market, as well as the skill formation system are interlinked with each other, and function as institutional complementarities. Changes within any of these domains consequently affect other institutions (Busemeyer and Trampusch, 2012). The interplay with social protection and skill formation within different types of capitalism, for example, suggests that welfare state measures, such as employment, wage and unemployment protection, form institutional guarantees needed by workers to invest in skills (Estevez-Abe et al., 2001). Iversen and Stephens (2008) explore a reinforcing relationship between skill formation, spending on public education, and social insurance. This mirrors not only the link between social provision and skill formation systems, established by Estevez-Abe et al. (2001). It also manifests the notion that political power relations beyond eco-

nomic actors matter. It shows that the shape of the political system influences skill formation arrangements (Iversen and Soskice, 2010; Iversen and Stephens, 2008). This research finds that political interests and power constellations within the context of institutional connections and co-dependencies are a powerful framework to understand the evolution of skill formation systems within their socio-economic context.

A growing body of literature emphasises distributional conflicts and bargaining as key drivers for institutional development and change in history (see for example Busemeyer, 2015; Thelen, 2004). Thelen (2004) distinguishes between three significant groups — employers of skill-intensive industries, traditional artisans, and early trade unions — who all shaped the development of skill formation along group internal conflict lines and bargaining situations between them. For the 20th century, the author highlights participation of employer organisations, labour unions and collective bargaining institutions. This branch of the literature provides insights into the constellation of VET systems, causal mechanisms that explain the development of systematic traits, and looks at political and economic constellations. It explains the formal development of skill formation, and helps to understand the institutional setup, which forces shaped those set ups and steered the different countries into different directions. It is assumed that institutions form and evolve via conflict over resource distribution and the question of who gets how much of the pie.

Deriving from these insights, Thelen and Mahoney (2015) establish the theory of gradual change within comparative historical analysis, which claims that institutions, hence, skill formation systems develop their shape over time, changing

constantly and only gradually rather than revolutionary. This literature supports the findings by Acemoglu and Pischke (1998) who take an economic perspective on that matter. By establishing a link between the political institutional settings of skill formation, the institutional evolution over time, and character of training settings.

In this branch, relying on political science and economic research, three important themes can be identified. First, VET institutions are embedded in a complex web of economic and political interests and rules. Second, VET institutions evolve over time. Third, in this process they influence each other and are influenced by other institutions of counties' political economies. Institutional complementarities are, for example, welfare provision, industrial actors, and market structures.

Revisiting the institutionalisation literature shows that social and cultural aspects as well as ideo¬logical and normative influences are respected (Busemeyer and Trampusch, 2012). Though, sources rarely go into much detail about resulting implications for their studies. For example, when Ashton and Green (1996) underline the importance of social parameters, it is not clear what they refer to beyond social interaction of actors involved in the development process of related systems. While Thelen (2004) meticulously follows the conflict lines within and between the identified relevant groups of economic and political actors, she does not provide information on the potential influence of cultural or social aspects beyond class division, and related institutional complementarities, that might affect the long-term evolution of skill formation systems. It would have been interesting to locate the role of the emerging conflicts between youth and state in Britain and in Germany, that go beyond class-related conflicts

and mirror strains within the countries' cultural belief systems regarding education, training, and youth. Thelen acknowledges individual constellations (such as a notorious contest between the Prussian Ministry of Education and Ministry of Trade regarding continuation schooling, in which the Ministry of Education emphasises a schooling system that facilitates ideological socialisation). However, these aspects form no primary part of the conceptual framework.

A closer look at the seminal analysis of these different aspects infers that much effort went into the conceptualisation of political and economic influences, while social influences are often reduced to aspects of class division and labour market policies that support workers security, subsequently motivating them to invest in and pursue training. Other social and even more so cultural influences are named but lack conceptualisation and analysis, hence they remain a diffuse aspect. Scholars agree on the relevance of certain aspects without identifying scope and potentially underlying mechanisms in the interplay with their institutional complementarities. This impression is shared with Pierson (2004) who emphasised that a limited set of drama personae and the presentation of a closed history are downplaying the role of contemporary context and temporal social mechanisms that influenced today's institutions. This reveals that it is not only active bargaining that shapes institutional shifts but also cultural and social perceptions about how the world and VET is and should be. These considerations highlight the need to expand the focus from the evolution of formal institutions to finer nuances of VET systems that make comparative research on the societal context of skill formation systems even more relevant.

THE IMPORTANCE OF CULTURAL NUANCES IN THE DEVELOPMENT OF VET SYSTEMS

To understand VET systems today, it is therefore necessary to look beyond the interaction processes, bargaining between relevant actors, or different stakeholders' motivations (Bathmaker, 2013). It is not enough to understand partisan interests and power relations to explore the institutionalisation of VET systems. To fully understand the evolution of VET systems within their social and cultural context, and future potential, it is inevitable to explore the meaning and concept of associated terms. It is also necessary to study the concept of VET and apprenticeships within the (vocational) education debate, what formal ideas are associated with the term, and what public agenda comes with it. Before concluding with implication for emerging issues in VET research, these aspects shall be explored in more depth.

LINGUISTIC AND SOCIOLOGICAL CONCEPT

VET systems are constructed by language and associated meaning. It is in the terms individuals and societies assign to specific aspects of each system, the definitions of these terms, and the description of mechanisms, connections, or interactions. These are shaped by distinctive cultural settings, and vary across countries (Brockmann et al., 2008; Cedefop, 2017; Winch, 2012). One linguistic as much as cultural example is the term skills itself, as it has different meanings in different cultural circles. Skills are understood to be measurable outcomes for education processes. While its definitions suggest a clear and international categorisation of learning outcomes, a closer look at countries'

understanding of skills based on their definition of learning. In a general statement. Ruhs (2011) argues that the skills term remains empirically vague and difficult to conceptualise. This is not only true for measurement---especially non- cognitive, or social and emotional skill here impose particular challenges (Heckman and Rubinstein, 2001) – but also for cross-country comparative analysis. Shaw et al. (2016) here exemplify that while students training for a specific occupation can easily compare their basic trade related knowledge, the skills they learn within their trade might vary as they are influenced by local economic supply and demand, but also cultural demands. Giving the example of a hairdresser, they explain their skills vary according to culturally related hair styles and preferences. While this is true for education, the close relation to occupational local structures make especially VET and the inherent practical skill prone to cultural influence (Shaw et al., 2016).

The institutional setup is closely linked to countries' linguistic understanding of relevant terms, hence, VET systems ground on different concepts. England's education system is skill based, with skills in the English culture representing individual attributes that are measurable as a learning outcome (Brockmann et al., 2008). To use the words of Shaw et al. (2016, p. 90), skills in the UK are the "practical can do aspect of a vocational qualification". The German education and VET system are knowledge-based, and deeply embedded in the culturally implemented understanding of general education (allgemeine Menschenbildung), coined by Wilhelm von Humboldt, the leading designer of the Prussian education system. VET is therefore understood as an integral part of general education, including elements of citizenship and cultural socialisation. Vocational education here

served as an instrument for the moral and civil education of youth within an occupation (Gonon, 2019). Even the most general understanding of VET (while prevalent in both countries) differs. While German policymakers perceive VET as an education for an occupation, their British counterparts target the employability of individuals. These nuances show that culture can already influence the systematic arrangements via language and cultural understanding of terms and institutions (Brockmann et al., 2008).

It is not only across countries but also within countries that related concepts vary. Campanelli and Channell (1994) discuss the challenges arising from different understandings of training in different contexts on the micro-level, as it is defined differently by different stakeholders. They particularly highlight a discrepancy between the understanding of the term by the general population and training professionals, with the former using the term in a narrower sense. The definition further varies between groups, such as employers and employees or "with different occupational groups, age groups, and genders" (Campanelli and Channell, 1994, p. 51). This is amplified by Bathmaker (2013), who explores the influence of different stakeholders on the definition of knowledge in VET qualifications in England. They conclude that different stakeholders aim to establish their own definitions and levels of knowledge in qualification frameworks. This suggests that general definitions and assumed concepts of related terms should not be taken for granted in the institutionalisation process. To understand related processes, one should also have a close eye on what concepts are provided along the process, how are they negotiated, which concepts are dominant, and how do they change over time?

CULTURAL AND SOCIAL VALUE OF APPRENTICESHIPS AND VET

Apart from different linguistic meanings, the concept of apprenticeships and VET is further shaped by the associated prestige and status of each pathway in relation to others. This is emphasised by the concept of stratification by Allmendinger (1989) takes cultural and social aspects into account. It considers public commitment to VET systems, and stratification within value-based social occupational hierarchies. These operationalise public support and link it to cultural values as relevant components of VET systems. This allows the conclusion that the associated status and value of occupations and crafts influence respective decisions and the bargaining process along with the institutionalisation of VET systems. Hence, prestige and status are another part of understanding what apprenticeships are and mean in society. This is reflected in the chances that parents assign to them as a certification measure to educate their children and prepare them for a successful career and life.

Mazenod (2016) highlights that the status of apprenticeships depends on the view on alternative pathways, such as university education. The higher the status of other pathways, the lower the status of apprenticeships and vice versa. It is not just the temporary prestige and value assigned to VET pathways, in contrast to other educational options. Concept and value are further driven by historically grown images of occupation and craft that do not necessarily reflect content and image of each pathway today. This is supported by Cedefop, 2017, which developed a framework to classify VET systems of EU countries. It focuses on the entire range of upper secondary VET and iden-

tifies four prevalent patterns: work-based or dual initial training (e.g., Denmark, Germany or Austria); initial vocational education (e.g., Bulgaria, Spain, Malta or Romania); further training (e.g., Ireland and UK-England); as (part of) lifelong learning (e.g., France or Finland). What is interesting about this framework is the conceptualisation of the four identified patterns, as it includes criteria that are associated with societal values. It aims to capture the social and cultural position of the prevalent training types in the respective society. This is, for example, reflected in the description of the work-based or dual initial training patterns. It states that "VET is considered to be based on practical knowledge and 'learning by doing' for young people (recognised as apprentices) to become members of an occupation/profession (initiation) with distinct occupational or professional ethos and occupational rights." (Cedefop, 2017, p. 28). This reveals a quasi-romantic understanding of VET, in particular apprenticeships, associated with specific occupational related rituals and images implemented in the concept of respective pathways. These images are often closely linked to an idolised idea of craftsmanship, transported over decades and stemming from a glorified understanding of occupation and craft in the Middle Ages (Sennett, 2008). These insights contrast a purely economically or politically driven concept of apprenticeships. It further raises the question of how these romantic, almost mythological concepts of earlier versions of apprenticeships influence the development of VET systems to the day.

These occupation, pathway, and craft related values are supplemented by the status of youth as the primary target group of initial VET. Research from social and economic history reveals a dualist function of apprenticeships as the mediaeval origins

of modern VET systems. Vocational Education and apprenticeships are not only an economic and political phenomenon but also a tool to prepare disobedient and unruly youth for a culture and state-conform life. From the apprentice perspective, apprenticeship, and their association with market and often city controlling guilds became rather attractive, as they symbolised an entry ticket to urban life and attached privileges. Life in the city was often highly restricted by controlling guilds. Apprenticeships were one way to become a member (Prak and Wallis, 2020). Hence, today's VET systems originate in an institution that was not only installed for the acquisition of human capital but also on a cultural idea of how and where youth should be educated beyond vocational education.

This hints to a thought-provoking aspect of VET institutionalisation. If the origins of VET systems were commonly associated with this social function of citizen education and privilege, based on cultural ideals, how far did this part of apprenticeships influence institutional development and European divergence? It calls for a detailed conceptualisation and exploration of these youth-related components as a potential influence on institutional evolution over time.

Such a detailed account of the influence of these ideological para¬digms on institutional development is yet missing. This is especially interesting, as the development and divergence of VET systems in Europe co-occurs with the emergence of intergenerational conflicts between youth and the old elites in the government. A wide discussion around that matter can be found in historical youth studies. The literature identifies various intergenerational conflict lines between economic and political interests and the living conditions of youth. Along this

conflict, policies were introduced that criminalised youth and prioritised the moral education of such (Gillis, 1981; Hasenclever, 1978, Prak and Wallis, 2020). These sources highlight the important role of education and school in these developments. In connection with the original understanding of VET institutions also being a tool for moral and civic education, it would be interesting to understand the respective connection between youth status, youth policies, and VET policies.

The hypothesis is that established social function of VET institutions could have provoked the idea that they are not only economically beneficial but also socially, e.g., by providing an instrument to educate youth morally within an institution that was already established for such a cause. This could have justified the involvement of the state in regulation and financing VET, which happened in Europe at the same time in different ways in other policy branches, such as youth care and general education (Böhnisch, 2012; McCoy, 1998).

For sociologists, this impression is particularly reinforced by research on youth transition (see, for example, Chevalier, 2016; Niemeyer, 2007; Walther, 2006). Focussing on welfare provision, Chevalier (2016) states that welfare provision for youth depends on how youth is perceived in society, and whether it is associated with adulthood or childhood. It correlates with skill provision, specifically, if skill provision is inclusive and targets all youths, or if it is exclusively focused on specific groups. Chevalier (2016) argues that this cultural understanding differs along the lines of the typologies developed by comparative VET research and Varieties of Capitalism research. While Chevalier (2016) does not specifically focus on VET, welfare provision is assumed to be an institutional complementarity. It is further eli-

gible to assume that VET is part of the transition process from school to work. Therefore, it is reasonable to conclude that VET systems are further influenced by the status of youth in society.

This includes specific norms and beliefs particularly related to young people, such as "normative guidelines and institutionalised discourse" about what youth is, how young people should behave and how a supposedly `normal' transition process should look like (Niemeyer, 2007, p. 121). Niemeyer (2007) particularly highlights the significance of "demands and expectations on young people" (p. 131). This extends the findings from the Variety of Capitalism literature and finds that education, social policies, and employment are related and influence institutional settings. Beyond this, the approach can show the role of corresponding norms and values that are likely to have an influence on VET systems. The paper emphasises the power of informal institutions, norms, and belief systems particularly related to what youth is, how young people should behave and what a 'normal' transition process looks like. This is reflected in the categorising dimension asking for cultural perceptions of youth and social perception of youth unemployment. While Niemeyer (2007) primarily focuses on youth transitions, the discussion has important implications for the institutionalisation of VET systems. It broadens the focus of the set of institutional complementarities, from employment policies to youth policies within countries' welfare states as influential for related institutions, and VET systems are considered one of them. Above that, with the concluding question about the influence of the cultural beliefs on institutional developments, she highlights the need for a detailed account of these influences, not only in the future but also with a focus on the past. Niemeyer's approach

stems from historical consideration and appreciates historical developments but does not trace back these trajectories. However, social, and economic historical research makes this focus even more promising to add to the understanding of countries' VET trajectories.

CONCLUSION: TAKING AN INTERDISCIPLINARY PERSPECTIVE

Institutionalisation theory provides a useful framework for locating VET systems in a historical context. It is most useful to understand and compare their development across decades, identify crucial timeframes and changes. It helps to identify relevant actors and stakeholders and estimate their role in the institutionalisation process. However, the understanding of VET systems and relevant processes often appears too simplified and stylised. This is reflected in a broad acknowledgement of cultural and social influences, without a clear definition of such.

Research on concepts, meaning and value of apprenticeship and VET demonstrates that related systems do not solely grow on the grounds of economic and political actors. This includes a historic understanding of apprenticeships associated with occupation and craftsmanship, but also an institution for moral and civic education. This is closely linked to the perspective on youth of society, and the question of how they should be educated. While this branch contributes insightful typologies and categories to the understanding related patterns, it, so far, provides few accounts on the historical development of such values and potential path dependencies.

The isolation of each branch within their discipline can be overcome by integrating insights from one branch into the

other's research. This can be achieved by recognising social and cultural values of VET systems in the exploration of the institutionalisation process. This requires the focus on particular aspects as well as the conceptualisation of such influences.

A starting point could be the following guiding questions.

- (How) are arguments constructed around the historical 'legacy' of apprenticeships (or other VET institutions), occupations, and craftsmanship by relevant actors in the bargaining process?
- To what degree are these associations strategically used to advertise other ideas and policies?
- Are systematic aspects/ policies discussed in reference to youth?
- What goal/ benefit/function is ascribed to aspect/policy in reference to youth? e.g., in relation to civic, moral, vocational education, training, youth unemployment?
- How are youth and VET policies described? For example, are they described as positive, negative, in relation to economic/ labour market issues (such as youth unemployment), identified youth's needs and status of youth?
- To what extent are associations strategically used to advertise other ideas and policies?
- (How) do related descriptions/ interpretations/narratives change over time?

These suggested questions take up the insights from research on values, especially associated with occupation, craftsmanship and youth. At the same time, they focus on the institutionalisation

process. They allow the recognition of respective positions of relevant actors, which can then contribute to the bigger picture of institutionalisation. The benefit of combining both strands of research into one framework is twofold. On the one hand, it can contribute to the understanding of institutional development by focussing on described socio-cultural historic aspects. By recognising the highlighted values and estimating their influence on the institutionalisation process, a more vivid picture of institutional evolution within social and cultural context can be painted. On the other hand, it allows us to understand concepts, values, and meaning of VET and apprenticeships within a historical, but also institutional context. Understanding concepts advertised by involved actors allows to trace back respective conceptual changes and persistence over time and reflects on the instrumentalization of such values in the bargaining process.

REFERENCES

Aarkrog, V., and Jørgensen, C. H. (2008). Introduction: Divergence and Convergence in education and work. In V. Aarkrog and C. H. Jørgensen (Eds.), *Divergence and Convergence in Education and Work*. Peter Lang Verlag.

Acemoglu, D., and Pischke, J.-S. (1998). Why Do Firms Train? Theory and Evidence. *The Quarterly Journal of Economics*, 113(1), 79–119.

Allmendinger, J. (1989). *Educational systems and labor market outcomes. European Sociological Review* (Vol. 5). 231–250.

Ashton, D., and Green, F. (1996). *Education, training, and the global economy*. E. Elgar.

Bathmaker, A.-M. (2013). Defining 'knowledge' in vocational education qualifications in England: an analysis of key stakeholders and their constructions of knowledge, purposes and content. *Journal of Vocational Education and Training*, 65(1), 87–107. https://doi.org/10.1080/13636820.2012.755210

Baumann, F.-A., and Krichewsky Wegener, L. (2019). The internationalisation of VET : German VET providers abroad – Transfer vs. pragmatism ? In: F. Marhuenda and M. J. Chisvert-Tarazona (Eds.), *Pedagogical Concerns and Market Demands in VET. Proceedings of the 3rd Crossing Boundaries in VET*

conference, Vocation. Vocational Education and Training Network (VET-NET), 251–260.
Böhnisch, L. (2012). *Sozialpädagogik der Lebensalter: Eine Einführung*. Beltz Juventa.
Brockmann, M., Clarke, L., and Winch, C. (2008). Knowledge, Skills, Competence: European divergences in Vocational Education and Training (VET) - the English, German and Dutch Cases. *Oxford Review of Education*.
Busemeyer, M. R. (2015). *Skills and Inequality: Partisan politics and the political economy of education reforms in Western welfare states*. Cambridge University Press.
Busemeyer, M. R., and Trampusch, C. (2012). *The Political Economy of Collective Skill Formation*. Oxford University Press.
Busemeyer, M. R., and Vossiek, J. (2016). "Mission impossible"?: Aufbau dualer Berufsausbildung in England und Irland. WSI-Mitteilungen, 69 (2016), 4. - pp. 254-263.
Cahuc, P., and Hervelin, J. (2020). Apprenticeship and Youth Unemployment. IZA Discussion Paper No. 13154, SSRN. https://ssrn.com/abstract=3579246 or http://dx.doi.org/10.2139/ssrn.3579246
Campanelli, P., and Channell, J. (1994). Training: An exploration of the word and the concept with an analysis of the implications for survey design. Department of Employment Research Series No. 30, Department of Employment.
Cedefop (2017). The changing nature and role of vocational education and training in Europe. Volume 1. Conceptions of vocational education and training: an analytical framework. https://www.cedefop.europa.eu/en/publications/5563
Cedefop (2020). Vocational education and training in Europe, 1995-2035: Scenarios for European vocational education and training in the 21st century. Cedefop reference series. Publications Office of the European Union. http://data.europa.eu/doi/10.2801/794471
Chevalier, T. (2016). Varieties of youth welfare citizenship: Towards a two-dimension typology. Journal of European Social Policy, 26(1), 3–19.
Crouch, C., Finegold, D., and Sako, M. (1999). Are skills the answer? : the political economy of skill creation in advanced industrial countries. Oxford University Press.
Culpepper, P. (2005). Institutional Change in Contemporary Capitalism: Coordinated Financial Systems since 1990. World Politics, 57(2), 173-199.
Deissinger, T., Heine, R., and Ott, M. (2011). The dominance of apprenticeships in the German VET system and its implications for Europeanisation: a comparative view in the context of the EQF and the European LLL strategy. Journal of Vocational Education and Training, 63(3), 397–416.
Eichhorst, W., Rodríguez-Planas, N., Schmidl, R., and Zimmermann, K. F. (2015). A Road Map to Vocational Education and Training in Industrialized Countries. ILR Review, 68(2), 314–337.

Emmenegger, P., and Seitzl, L. (2019). Collective Action, Business Cleavages and the Politics of Control: Segmentalism in the Swiss Skill Formation System. British Journal of Industrial Relations, 57(3), 576–598.
Ertl, H. (2002, March). The concept of modularisation in vocational education and training: The debate in Germany and its implications. Oxford Review of Education. Taylor and Francis Group.
Estevez-Abe, M., Iversen, T., and Soskice, D. (2001). Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State. In P. A. Hall and D. Soskice (Eds.), Varieties of Capitalism, The International Foundations of Comparative Advantage (pp. 145–183). Oxford University Press.
European Commission (2019). Education and Training Monitor 2019. https://education.ec.europa.eu/sites/default/files/document-library-docs/volume-1-2019-education-and-training-monitor.pdf
European Commission (2020). EU policy in the field of vocational education and training | Education and Training. https://ec.europa.eu/education/policies/eu-policy-in-the-field-of-vocational-education-and-training-vet_en
European Union (2009). Consolidated version of the Treaty on the Functioning of the European Union. Part three: Union policies and internal action. Title XII: Education, Vocational Training, Youth and Sport. Article 165 (ex Article 149 TEC).12008E165, Official Journal of the European Union 115, 09/05/2008, 0120 -0121. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12008E165&from=MTFinegold, D., and Soskice, D. (1988). The Failure of Training in Britain: Analysis and Prescription. Oxford Review of Economic Policy, 4(3), 21–53.
Frommberger, D. (2019). Berufliche Bildung im Vergleich. Historische Unterschiede und internationale Trends. In Berufsbildung zwischen Tradition und Moderne, 297–314. Springer Fachmedien.
Gillis, J. R. (1981). Youth and History: Tradition and Change in European Age Relations, 1770–Present. Academic Press.
Gonon, P. (2019). Berufsbildung und Globalisierung: Vom Kerschensteiner-zum Kompetenz-Modus. Springer.
Gonon, P., and Maurer, M. (2012). Educational policy actors as stakeholders in the development of the collective skill system: The case of Switzerland. In: M. R. Busemeyer and C. Trampusch (Eds.), The Political Economy of Collective Skill Formation, 126–149. Oxford University Press.
Hall, P. A., and Soskice, D. (2001). Varieties of Capitalism The Institutional Foundations of Comparative Advantage. (P.A. Hall and D. Soskice,Eds.). Oxford University Press.
Hasenclever, C. (1978). Jugendhilfe und Jugendgesetzgebung seit 1900. Vandenhoeck und Ruprecht.
Heckman, J. J., and Rubinstein, Y. (2001). The importance of noncognitive skills: Lessons from the GED testing program. American Economic Review, 91(2), 145–149.

Iversen, T., Pontusson, J., and Soskice, D. (2000). Unions, Employers, and Central Banks: Macroeconomic Coordination and institutional Change in Social Market Economies. Canbridge University Press.
Iversen, T., and Soskice, D. (2010). Real exchange rates and competitiveness: The political economy of skill formation, wage compression, and electoral systems. American Political Science Review, 104(3), 601–623.
Iversen, T., and Stephens, J. D. (2008). Partisan Politics, the Welfare State, and Three Worlds of Human Capital Formation. Comparative Political Studies, 41(4/5), 600–637.
Mahoney, J., and Thelen, K. (2010). Explaining Institutional Change: Ambiguity, Agency, and Power. Cambridge University Press.
Mazenod, A. (2016). Education or training? A comparative perspective on apprenticeships in England. *Journal of Vocational Education and Training*, 68(1), 102–117.
Mazenod, A. (2018). Lost in translation? Comparative education research and the production of academic knowledge. Compare: A Journal of Comparative and International Education, 48(2), 189–205.
McCoy, L. (1998). Education for Labour: Social Problems and Nationhood. In G. Lewis (Ed.), Forming Nation, Framing Welfare, 94–138. Routledge.
Niemeyer, B. (2007). Between school and work-dilemmas in European comparative transition research. European Journal of Vocational Training, 41(2), 116–136.
North, D. C. (2005). Understanding The Process Of Economic Change. Princeton University Press.
OECD (2000). Measuring Student Knowledge and Skills: The PISA 2000 Assessment of Reading, Mathematical and Scientific Literacy. Education and Skills. https://www.oecd.org/education/school/programmeforinternationalstudentassessmentpisa/measuringstudentknowledgeandskillsthepisa2000assessmentofreadingmathematicalandscientificliteracy-publications2000.htm
Pierson, P. (2004). Politics in Time: History, Institutions, and Social Analysis. Princeton University Press.
Pilz, M. (2016). Typologies in Comparative Vocational Education: Existing Models and a New Approach. Vocations and Learning, 9, 295–314.
Prak, M., and Wallis, P. (2020). Introduction: Apprenticeship in Early Modern Europe. In: M.
Prak and P. Wallis (Eds.), Apprenticeship in Early Modern Europe, 1-19. Cambridge University Press
Rauner, F., and Smith, E. (2010). Rediscovering apprenticeship: Research findings of the International Network on Innovative Apprenticeship (INAP). Springer
Rauner, F., and Wittig, W. (2010). Education Comparative and International Differences in the Organisation of Apprenticeship in Europe: findings of a

comparative evaluation study. Research in Comparative and International Education, 5(3), 237–250.
Ruhs, M. (2011). Who Needs Migrant Workers? The potential role of an independent expert commission in future EU labor immigration policy. In: Karlsson, J. and Pelling, L. (eds.), Moving Beyond Demographics: Perspectives for a *Common European Migration Policy*, Compas, 57-68.
Ryan, P. (2000). The Institutional Requirements Of Apprenticeship: Evidence From Smaller EU Countries. International Journal of Training and Development, 4(1), 42–65.
Sennett, R. (2008). The Craftsman. Allen Lane.
Shaw, A. J., Shaw, K. J., and Blake, S. (2016). Examining barriers to internationalisation created by diverse systems and structures in vocational education and training. International Journal for Research in Vocational Education and Training, 3(2), 88–105.
Streeck, W., and Yamamura, K. (2002). Germany and Japan in the 21st Century: Strengths into Weaknesses. Cornell University Press.
Thelen, K. (2004). How Institutions Evolve: The Political Economy of Skills in Germany, Britain. Cambridge University Press.
Thelen, K. (2019). Transitions to the knowledge economy in Germany, Sweden, and the Netherlands. Comparative Politics , 51(2), 295-315(21).
Thelen, K., and Mahoney, J. (2015). Introduction. In: K. Thelen and J. Mahoney (Eds.), Advances in Comparative-Historical Analysis, 3–38. Cambridge University Press.
Walther, A. (2006). Young Regimes of youth transitions Choice, flexibility and security in young people's experiences across different European contexts. Nordic Journal of Youth Research, 14(2), 119–139.
Wentzel, J. (2011). An Imperative to Adjust? Skill Formation in England and Germany. An Imperative to Adjust? Springer VS.
Winch, C. (2012). Research in Vocational Education and Training. British Journal of Educational Studies, 60(1), 53–63.

Meritocracy as a catalyst for the devaluation of vocational education and training

Vera Braun
University of Konstanz
Department of Economcis
Chair of Business and Economics Education I
Fach 127
78457 Konstanz
Germany
E-mail: vera.braun@uni-konstanz.de

ABSTRACT:

The paper presents a research project that investigated the relationship between meritocracy and vocational education and training. In many countries, it can be observed that vocational education and training is not held in high social esteem and that a vast majority of young people prefers to go on to higher education. What is conspicuous here is a pronounced orientation towards the meritocratic principle. In the study, an ideal type of the relationship between meritocracy and vocational education and training was created, based on a synthesis of theoretical elaborations on performance/achievement, the merit principle, values and structures. According to the results, a meritocratic orientation acts as a catalyst for developments that contribute to

the devaluation of vocational education and training. This leads, among other things, to vocational education and training only insufficiently fulfilling its qualification function and the employment market complaining of a shortage of skilled workers with a simultaneous surplus of academics.

KEYWORDS:

Ideal type, Meritocracy, Social Standing of Vocational Education and Training (VET)

INTRODUCTION

In many countries around the world we can see rising enrolment ratios for tertiary education: for example in Sweden there is a rise from 42.4 % in 1995 to 67.0 % in 2017, in Germany from 45.3 % (in 1995) to 70.2 % (in 2017), in the UK from 48.3 % (in 1995) to 60.0 % (in 2017), in the European Union from 40.4 (in 1995) to 71.0 (in 2019), in the US from 79.2 % (in 1995) to 88.2 % (in 2017) (World Bank, 2022). This trend goes hand in hand with a problematic and concerning shortage of skilled workers and craftsmen (e. g. Sweden: Kuczera/Jeon, 2019; Germany: Schönfeld et al., 2020; UK: Wright, 2016; USA: Cappelli, 2015). Especially in countries without societal conceptions such as *Beruf,* vocational education and training "continues to suffer from low status and negative societal sentiments" (Billet, 2014, cf. Hillmert & Jacob, 2002; Hyslop-Marginson, 2001; Deissinger, 1994). The paper argues, that one of the reasons for attitudes of disregarding vocational education and training as "lower" education is a pronounced orientation toward the meritocratic performance principle.

There is some evidence in the literature that an orientation towards meritocratic logic has an unfavorable effect on vocational education (Braun, 2022; Deißinger, 2019; Frommberger, 2009, 2012; Georg, 1998; Hörner, 1994; Ott, 2015). Lutz showed this already in 1988 using France as an example. More recently, Sandel (2020) relates meritocracy to the trend toward academization in relation to the USA. A systematic analysis of the relationship between meritocracy and disregard of vocational education and training is still pending.

This paper is dedicated on gaining a better understanding of the underlying mechanisms that seem to deprive vocational education and training on upper secondary school level (VET) of its functionality for society (For a more detailed, German-language version see Braun (2022).

First, the theory section explains in more detail what is meant by (education-based) meritocracy and the meritocratic performance principle. This principle has an impact on value attitudes, evaluation of educational pathways and eventually the structures of educational systems. Therefore, the first step of our analysis is doing a synthesis of theories linking performance/attainment, values, structures, and the educational system. Against this background, the results of an ideal type construction of the link between meritocracy and vocational education are presented. It is described, which value logic, mechanisms and characteristics shape it.

The theoretical explanations (chapter 2 and 3) largely refer to German authors, but not necessarily to the German context, because they are overarching theories that were not developed specifically in relation to Germany.

(EDUCATION-BASED) MERITOCRACY

Meritocracy can be defined in a broader and in a narrower sense (Braun, 2022). In a broader sense it assumes that the merit principle is applied as an allocation mechanism to determine opportunities, rewards, status, etc. (Heckhausen, 1974). The central characteristic of the meritocratic ideal is that power, scarce social positions and goods are distributed via the merit principle (Arzberger, 1988; Gruber, 2016; Hadjar, 2008). The merit principle is a basic norm of modern societies that influences all social subsystems (Dröge et al., 2008; Gruber, 2016; Neckel et al., 2005) and is deeply inscribed in our understanding of justice (Gruber, 2016). It stands for not relying on alternative, askriptive characteristics that are judged to be unjust and illegitimate. These include for example, family, ethnic or social origin, financial strength of the family, network of relationships, gender, religious affiliation, class privilege, popularity, etc. (Dröge et al., 2008; Hadjar, 2015; Matei & Popa, 2010; Young, 1961). In contrast to these characteristics, the merit principle stands as a distributional basis for equal opportunities (Becker & Hadjar, 2017).

The application of the merit principle for the allocation of positions in society aims at the formation of an efficient elite or an allocation of people to social tasks according to their performance. In this process, positions are thought of as hierarchical and linked to a certain income that increases with the level of the position. The monetary incentive, according to the theory, ensures the motivation for maximum performance, which serves the good of all members of a society. Provided the "governed" believe in its legitimacy, the merit principle justifies and legiti-

mises social inequality (Hadjar, 2008; Hoffer, 2002; Hondrich, 1984; Schimank, 2017). Members of society accept differentiations of wealth, income and social prestige under the condition that they are based on differences in talent, merit, skills, motivation and effort (Matei & Popa, 2010; Young, 1961). In order to enable the optimal filling of positions and to select the most capable, there is a need for a generally accepted definition of merit and an objective measurement of it that results in recognised, valid certificates (Hagedorn, 2013).

In a narrower sense the definition of meritocracy refers to these certificates. It consists of the link between educational success and employment, which is characteristic of any modern society. Hereby differences in educational careers and degrees justify a correspondingly different positioning on the labour market (Georg & Sattel, 2006). This gives a special meaning to certificates of the education system: those who achieve a "high" educational qualification have better prospects of getting a "high" position, status and salary. The certificates serve as proofs of the overall capabilities of their holders. They provide the evidence of merits. The merits equal educational achievement respectively the certificated performance a student showed.

In German, there is a term that encompasses merit as well as performance, attainment and achievement – "Leistung". In order to avoid misunderstandings and to maintain a certain clarity, the following will use "Leistung" as useful collective term. Moreover, meritocracy is henceforth understood as meritocracy in the narrower, education-based sense, embedded in the broader understanding of meritocracy. The focus is not on the reproduction of social inequality, but on the education-based principle of "Leistung".

LINKING "LEISTUNG", VALUES, STRUCTURES AND EDUCATION SYSTEMS

For an analysis of the connection between the appreciation respectively valuation of VET and meritocracy, we need theories that connect "Leistung" and the principle of "Leistung" with values. Because the education system is at the forefront of determining "Leistung", these concepts need to be linked to the education system und its structures (cf. Braun 2022).

At first, let's take a look at the concept of "Leistung" and clarify what it actually means. "Leistung" only exists in the minds of people. You cannot touch it, beause it consists of an action. If someone evaluates the action and thus attributes a certain value to it, it becomes a "Leistung". The evaluation is dependent on values and norms that are applied. Values and norms are a matter of culture and social cohabitation. Thus, the definition and evaluation of "Leistung" have a social and a cultural dimension that is based on shared values (Heid, 1992, 2012; Schlie, 1988; Zabeck, 1972).

The value of certain actions declared as "Leistung" depends on the definition of "Leistung". Consequently, it is assumed that the core to be examined, which decides on the significance and standing of VET in meritocracies, consists of the value attributed to certain educational qualifications as proof of "Leistung" in comparison to other educational qualifications (Braun, 2022).

Due to the outstanding role of shared values and value judgements in our context, we have to analyse next, what values are and how they manifest themselves in structures of the education system and in the measurement and certification of "Leistung".

Values determine actions. Actions of actors interact and result in structures. Structures provide the framework for further actions and thus are reproduced. There is a socially recognised, culturally dependent value of "Leistung" that is based on a specific value logic. "Value logic" means the specific way in which values, value-bearers and value attitudes are related to each other. Systems and their orders are essentially determined by culturally justifiable patterns and values, on the basis of which actors evaluate situations and carry out actions. Value attitudes are reproduced via the system structures. Teachers and pupils as parts of the educational system are bound to the culturally and systemically determined value of "Leistung" (Braun, 2022; Fend, 2009; Heid, 2006; Kraft, 1951; Schimank, 2009, 2010). The socially recognised value of "Leistung", which is based on certain value attitudes, can be seen, for example, in the stratification of the education system and the value of educational qualifications (Braun, 2022). According to Georg and Sattel, stratification determines the vertical and horizontal differentiation of educational pathways and the "degree of separation between general and vocational education as well as access selection to vocational training pathways" (Georg & Sattel, 2006, pp. 126, translated from German). This suggests that there is a connection between values, actions and (systemic) structures that is relevant to the research interest of this paper. The first question is how values are generally expressed in structural differentiation mechanisms of societies and what role the education system plays in this. As the following section shows, the aspect of "Leistung" takes on an important function in this context (Braun, 2022).

Structures emerge from the interaction of (value-based) actions of different actors, which produces a stable pattern.

Because structures set a framework for actions, they affect actors and their decisions and can reproduce themselves in this way (Schimank, 2010). Structures can occur as system structures if they represent stable, possibly institutionalised patterns and can be clearly delineated as units from their environment (Ziemann, 2009). Systems interact with each other as subsystems and assume certain functions in the overall system of society, for the fulfillment of which they specialise in (Eichmann, 1989). Since actions are based on values and structures are cumulative actions, values indirectly influence systems, each of which has its own organisational structures (Braun, 2022; Schimank, 2010; Ziemann, 2009). Since actors can only be and remain part of a system if they adhere to systemic specifications, systems can sustain themselves in the long term (Schimank, 2009). In addition, systems transport values and norms via structures and modes of functioning, which guide actors' actions (Schimank, 2009, 2016). The following sections explain how this works in detail.

The culturally constructed values and standards give rise to action-guiding *evaluative orientations* (Endruweit & Lüdtke, 2013, p. 492). They express themselves in *binary codes* that control the interplay of actors' actions (Schimank, 2009). *Evaluative orientations* become *binary codes* when they are generalised to a large extent on the factual and temporal level and can be applied in numerous different, but limited to one domain, situations. In differentiated form, they have a high degree of power to order society because they determine actions and possess an "absolute – comprehensive and unquestioned – interpretive sovereignty" (Schimank, 2009, pp. 194 translated from German). *Binary codes* fix actions in their valence and have unconditional validity within their respective subsystems (Schimank, 2009,

p. 196). Actors are subject to them as a *functional imperative* (Esser, 2000, p. 77). However, they usually do not perceive this as such because it appears as natural. It dictates their assessment of situations and their actions without creating any doubts in their minds, because the contingency of social structures is concealed. As a result, the code reproduces itself again and again and proves to be extremely durable (Schimank, 2009).

This becomes clearer if we consider the example of the educational system. As the logic of the education system, Fend explicates the difference of knowledge and non-knowledge, thus distinguishing it from the economic logic of maximising utility and the scientific logic of finding the truth (Fend, 2009). In education-based meritocracies, the educational system has, among other things, the task of selecting according to "Leistung". In doing so, it uses the binary code *better/worse* (Eichmann, 1989; Luhmann, 2008). That is, selection takes place by evaluating who accomplishes the acquisition of knowledge and values *better* or *worse* (Kurtz, 2007). According to Schimank (2009), there are *programs* at various levels that serve to operationalise the respective *binary codes* of subsystems and provide actors with guidelines for their actions. Consistent with the culture to which they belong, mental systems are stored in the memory of actors. The latter consist of mental models that depict typical situations and serve as guidelines for action, which Esser calls *scripts for action* (Esser, 2000). Normative specifications, as a segment of a *program* structure, are responsible for indicating how action should be taken. They manifest themselves as institutionalised structures of expectations in laws and formal as well as informal norms (Schimank, 2009). Norms, in turn, provide guidelines for actions that result from certain values and goals and help

actors to orient themselves (Lamnek, 2002). Thus, normative specifications form sociocultural guidelines (Braun, 2022).

Within the education system, *programs* are responsible for determining the educational content to be learned or defining learning objectives. *Programs* can, but do not have to, be linked to the economic system. That is, educational curricula for specific educational programs can be aligned in terms of content with occupations or skills needed in the economy. However, depending on their characteristics, there may also be links to other reference systems that are related to education and place societal demands on the educational system (Luhmann, 2008). "In the selection context of the educational system, everything can be linked to everything, provided that it is evaluated" (Luhmann, 2008, pp. 197, translated from German), because evaluation in itself is sufficient to be able to select, regardless of what exactly is evaluated (Braun, 2022).

As Fend explains with reference to Luhmann, subsystems (as subsystems of the overall system of society conceived as superordinate) communicate with each other and adapt to each other. This happens by incorporating and integrating expectations of other subsystems into their own functionality. In this way, subsystems try to maintain themselves as such. The education system communicates with the economy and politics. Accordingly, the qualification function of the education system can be understood as a consequence of an affiliation with the employment system (Fend, 2009). However, it can be concluded that the other functions of the education system, for example the enculturation, allocation or integration function (Fend, 2009), also determine the content that is taught there, which can make the orientation to the economy less relevant (Braun, 2022). This is

where the code *teachable/not teachable* comes into play, which goes far beyond the work activity reference and comes into play alongside the selection code *better/worse* in the education system (Kurtz, 2007; Luhmann & Lenzen, 2002). Depending on the connections to other subsystems, the objects of mediation in the educational system may vary, with the result that the content of the service to be provided and its evaluation diverge from one educational system to another (Braun, 2022). Within an educational system, however, an objectification of social knowledge emerges (Vollmer, 1996). In other words, subsystems require their participants to act in certain ways. These are mediated by the structures of the subsystems, which align with the code of the subsystem and its functions. The actors do not question the system's specifications because they are shaped by the system and perceive its specifications as correct or are not aware that there might be alternative courses of action. In this way, they support the system and its code with their actions, whereby the system reproduces itself (Braun, 2022).

The definition of "Leistung" or success is enforced by the groups that have the power of definition and receive general validity, which is consolidated by *consent and agreeme*nt and can only exist in the long run because it represents a "fiction made socially credible" (Hitzler, 2003, p. 787, translated from German). The example of socialisation by "Leistung" (Fend, 2009; Heid, 2012) and the shaping of actors' actions by codes (Schimank, 2009) shows that an internalisation of (systemic) structures and the value orientations they contain takes place, even if they were not originally created on the basis of socially shared values but in negotiation processes (Braun, 2022). As Heid (2012) has shown, the frames of reference used in the

assessment of "Leistung" appear to be natural and are not open to discussion.

Due to predetermined norms and expectations as well as a "need for basic certainty of expectations" and benefit considerations, actors subordinate themselves to the "cultural guiding idea" of subsystemic codes (Schimank, 2009, p. 210, translated from German). This applies, among other things, to the education system with its degrees, from which a certain benefit is expected (Schimank, 2009). Educational qualifications can represent a norm to which, among other things, expectations regarding career, status and social recognition are linked (Braun, 2022). Since actions that are directed in the same way and follow the logic of the code to be applied in the context of the action are aggregated and situations are interpreted according to the system logic, a reproduction of system structures occurs in which the intentions and practices of individual actors are irrelevant (Schimank, 2009, p. 209). This makes statements and conclusions possible on a more general level than the individual (Braun, 2022).

With regard to the question of the value of VET in contrast to general or academic education, the implemented culturally constructed value logics, i.e. values that are arranged according to cultural guidelines and relate to each other in a culturally determined way and influence structures, have an effect. They determine which types of schools take on which function and assign them their status (Braun, 2022).

Overall, it can be observed that different societies have very different structural characteristics and contingency measures, but that "the codes as permanently identically reproducing nuclei" do not differ (Schimank, 2009, p. 199 translated from

German). This means that, as a rule, the subsystems of different societies have the same codes, but their structuring can sometimes diverge greatly (Braun, 2022).

Due to the contingency of structures and their dependence on values that diverge from culture to culture, it makes sense to abstract and describe the relationship between education-based meritocracy and VET at an ideal-typical level. The level of abstraction should be chosen in such a way that contingent structures and characteristics are conceivable at subordinate levels (Waldow, 2019). In particular, it is necessary to find out which value logic meritocracies presuppose with regard to the value of educational qualifications, how this value logic is expressed in structures and systems, and how it relates to the value of VET in meritocracies.

IDEAL TYPE OF MERITOCRACY AND VET

METHOD

The method applied is an ideal type construction according to Weber (1968a). It aims to bring out the uniqueness of an overarching social or historical phenomenon on the basis of empirical reality (Deißinger, 1998; Hempel, 1984). By analysing causes, functional relationships and interconnections of individual appearances of a phenomenon and assembling the individual appearances, a logically contradiction-free whole is created. It sets itself apart from reality by one-sidedly going to extremes and ignoring other influences. Nevertheless, it is not a normative ideal, but an idealised, abstracted entity based on real appearances. It serves as "pure" type, as a yardstick for reality comparisons (Hirsch Hadorn, 1997; Weber, 1968b; Winckelmann, 1969) that makes phenomena theoretically tangible.

With the construction of the ideal type, the present work pursues the intention of extracting a value logic that characterises the connection between meritocracy and VET and is linked to certain structural characteristics and systemic functions to be found. The aim is to create a heuristic interpretation scheme (Winckelmann, 1969) against the theoretical background presented (see Chapter 2), which provides a theoretical setting of what characterises the connection between meritocracy and VET. For our epistemological interest, the goal is not to work out singularities of countries, but to find a scheme that theoretically captures the relationship we are looking for on an abstract, higher level "above" reality. Real types differ from country to country. The comparison with the ideal type expresses the degree to which societies follow the characteristics identified as meritocratic with regard to the value of VET (Braun, 2022). The steps taken to construct the ideal type are based on methodic instructions of Hirsch Hadorn (1997), Albert (2007), Wittek (2006), Burger (1976) and Hempel (1984), which were integrated and modified for the present study (Braun, 2022).

To arrive at an ideal type, the following steps were worked through:

- Step 1: Obtaining data material from meritocratic countries by literature analyses
- Step 2: Bundling relevant individual appearances and features of meritocracy and VET found in step 1
- Step 3: Inserting the features found in step 2 into the framework of the theory synthesis
- Step 4: Formulation of *logic of values* based on the results of step 3

- Step 5: Actual ideal type construction describing the role and value of VET in a meritocracy

Normally, ideal types refer to the empiricism considered internationally. For example, Weber based his ideal type of bureaucracy on different countries (Weber 1921). Suitable countries for the ideal type construction must be those that exhibit extreme meritocratic traits, in order to be able to examine what is special about meritocracy in contrast to other forms of rule (cf. Weber, 1968a; Hirsch Hadorn, 1997). The study chose two counties as examples for the construction of ideal types: Japan and France. Both are known to be meritocratic to a high extent (Eswein, 2016; Lüsebrink, 2018) and there was sufficient literature available about their VET systems. The fact that they are located in different cultural regions of the world give the necessary breadth to the consideration, so that the ideal type does not become too narrowly focused on one country or one cultural area (Braun, 2022). Based on the individual phenomena of both countries, two value logics were created (step 1 to 4 were followed for Japan and France separately), which were then combined on an ideal-typical level (step 4) and linked to structural characteristics and functions of the educational system in a meritocracy, especially VET (step 5).

RESULTS

In both France and Japan, it could be confirmed that a devaluation of VET through the meritocratic principle of "Leistung" has taken place (Braun, 2022). The combination of the two value logics of Japan and France (See Braun (2022) for the

country-specific value logics of Japan and France and a more detailed description of the ideal type) resulted in the following value logic on an ideal-typical level (Braun, 2022):

"Leistung" becomes a value carrier because of the principle of "Leistung". It has a high value, so that "Leistung" becomes an essential value. Value hierarchies of persons, institutions, companies, etc. emerge and become more and more differentiated. Educational institutions acquire a high value if they qualify for "higher" educational courses or "high" professional positions.

Educational institutions compete for prestige and try to get the highest possible places in the rankings. For this purpose, it is important to select the high achievers among the students. Thus, there is large number of demanding examinations that are carried out. They determine teaching and learning processes and their results are also of great importance for the learners. In consequence, selection takes on a dominant function in educational processes.

Selection-relevant achievements ("Leistung") refer to general, theoretical, cognitively demanding content. VET is classified as "low" education for "low achievers". This attitude is taught by the mechanism that guides low achivers to "lower" educational courses such as VET. It is reinforced by the recruitment strategies of companies who prefer garduates of "higher" educational courses.

There is an erosion of the meritocratic principle because the economic system is forced to rely on the selection of the educational system. The latter, however, does not certify professional skills but a certain intellectual potential of "Leistung" and, as far as the "higher" courses of education are concerned, detaches itself from its qualification function.

Educational programs and institutions that are lower in the hierarchy, are associated with low career opportunities because they are a sign of low "Leistung" for their participants. Educational programs and institutions of VET are avoided as far as possible. In terms of content, they do not correspond to what is culturally associated with good "Leistung". This results in negative selection, which assigns low-achieving students to the "lower" (vocational) types of education and does not admit them to "higher" courses of education. Qualifications at the secondary level lose value, since those educational certificates that open up the best career opportunities, i.e. those of "higher", tertiary education, are valuable. Negative selection reinforces the low value of VET, which further reduces the career opportunities of its graduates.

The education system adapts to the economy, which prefers to hire generalists who have been labeled as high performers by the education system. This is because the status of the educational institutions depends on the "Leistung" of their graduates.

This further devalues vocational content and pushes it out of the education system. The certificate holders of "higher" educational programs are increasing because efforts to create equal opportunities are leading to more formal permeability and an overall "higher" level of education in society. In addition, vocationally oriented courses of education at university level are more likely to be established. However, these remain below the value of the more general ones because they are connections to low-value VET at the secondary school level, in which only the low-achievers participate. In order to upgrade them, their content and structure are adapted to the logic of the general education system and they become a poorer type of general education.

VET has above all a social function, which includes enabling lower-performing students to complete their education. As a result it is not recognized as a high performer and does not represent a real alternative for high-achieving students.

Regarding the structures of the education system, three phases can be distinguished on an ideal-typical level (Braun, 2022):

During the first phase, the meritocratic principle is established. Educational certificates and professional positions are linked. There is an emphasis on selection that aims on creating a rather small elite of high achievers. Only few students gain access to "higher" education. The education system is characterised by little permeability. In particular VET and general education respectively academic education are sharply separated from each other. VET represents an educational cul-de-sac and is perceived as "lower" education compared to general education with relatively high esteem. Nevertheless, VET still has a quite good standing because there are not many who have a "higher" education degree.

In phase 2, educational expansion and marginalisation of VET occur. Due to a strong emphasis on equal opportunities, which are a condition for the legitimacy of the meritocratic principle, a broad opening of "higher" courses of education is taking place. In consequence, VET is losing popularity to a large extent. In favour of promoting equal opportunities, greater permeability is implemented in the education system. Connections of VET courses to more general, "higher" or academic courses are created. This results in a generalisation of the content of VET. In this way, VET increasingly loses its significance for the labor market, and its original profile. It degenerates into a poorer kind of general education. This leads to dysfunctionalities in the

overall social system, such as a surplus of graduates and a shortage of skilled workers.

Because of the dysfunctionalities, phase 3 unadopts an attempt to make VET more attractive and to emphasise its equivalence to other, more general educational courses. Attempts are made to upgrade VET respectively to compensate for the disadvantages that have arisen, e.g. through further (counterproductive) adaptation to general education or academic courses of education or integration of internships in academic curricula. Usually, these internships are not focused on learning skills, but on getting to know the professional world. As a result, they have no real qualifying value. There is a trend toward certifying informally acquired competencies as well, which can be seen as a departure from the education-based meritocratic principle that relies on formal education.

ANALYSIS AND DISCUSSIONS

According to Webers categorisation, meritocracy is one of the legitimate forms of rule (Braun, 2022; Weber, 1968a). As a legitimate form of rule, the legitimacy of the meritocratic principle and thus its social acceptance is a cornerstone of its lasting existence. The means to this end is the promotion of equal opportunity, which is therefore treated in the above ideal type as a part of, and not as an antithesis to, selective meritocratic elitism. Equality of opportunity and elitism are understood as opposing poles, spanning a continuum within meritocracies on which a certain social balance must be achieved and maintained if a meritocracy is to be preserved in the long run.

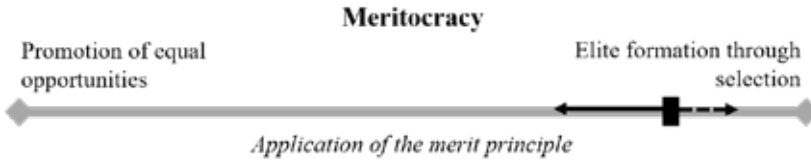


Figure 1. Meritocratic continuum (Braun, 2022, p. 198, translated version)

Historically, at least as far as Japan and France are concerned, the "regulator" (in black) usually moves from the far right further and further to the left, i.e. from elite formation in the direction of equal opportunities (symbolised by the arrow with the with a solid line). Theoretically, a movement in the direction of elite formation is also conceivable, for example, if hardly any selection takes place due to measures to promote equal opportunities.

If the "regulator" is too far to the right, the legitimacy of the meritocracy is lost and it becomes unstable; if it is too far to the left, little or no selection takes place and the difference between elite and mass is blurred beyond recognition, so that it is no longer possible to speak of a meritocracy.

The positioning of the "regulator" affects the structures of the educational system. If the "regulator" is far to the left (see Fig. 1), the education system tends to be less selective and very permeable. The measurement and evaluation of "Leistung" is perceived in a differentiated way, i.e. the comparison of "Leistung" relates to the individual and her or his former "Leistung". Educational programs and types are differentiated horizontally, making different degrees equivalent. There are few admission restrictions,

so individual support is not based on high "Leistung" and all students receive the same level of support. (Braun, 2022).

In contrast, the education system tends to be highly selective and not very permeable when the "regulator" is far to the right. The measurement and evaluation of "Leistung" is the same for everyone so that comparisons of individual "Leistung" can be made. Thus, it can be accurately classified whose "Leistung" was better or worse. Educational programs and degrees are differentiated vertically. This means that highly differentiated educational hierarchies are created that reflect different levels of education. The scope of support for the individual is tied to his or her "Leistung", because only those who perform very well receive more and higher education. (Braun, 2022).

Just like Deissinger concludes, our results also confirm that "meritocracy in its functionally independent form is articulated in such a way that it elevates the formal over the substantive, i.e.: It is not a matter of the usability of the content of the qualification process, but rather that of its formalised result. In other words, it is not about the usability of the content of the qualification process, but rather about that of its formalised outcome" (Deißinger, 2019, p. 55, translated from German).

The findings are consistent with Sandel's (2020) remarks in his book on meritocracy in the United States. Additionally, they are related to the distinction between "Fachmensch" (professionally trained person) and "Kulturmensch" (culturally educated person) made by Weber (1921), for example. The "Kulturmensch" is more compatible with the hierarchising meritocratic logic than the "Fachmensch", which follows the principle of qualification and thus differentiates primarily horizontally. Together with the culturally conditioned separation of mental and physical work

(Dewey, 1993), which classifies cognitive work as of higher value, the growing enforcement of the meritocratic principle, which marginalises VET, can thus be explained (Braun, 2022).

The mentioned educational expansion, and also other facets analysed, cannot only be attributed to the meritocratic principle. It is also a consequence of political efforts to increase graduation rates to meet the projected needs of the labour market and other factors (Braun, 2022; Lutz, 1979). The present study has tried to take a one-sided meritocratic perspective and to exclude other influences in order to make the specific characteristics of this principle visible. (Braun, 2022).

CONCLUSIONS

It can be concluded that in meritocratic societies, VET at upper secondary school level is ideal-typically marginalised. This is because VET is perceived as inferior to general or academic education – in meritocratic educational hierarchies, VET ranks below general or academic education and does not offer equal social status and opportunities in the labour market. However, as long as large parts of the population have a vocational qualification as their highest qualification, VET has an important role and a relatively high status. In order to safeguard the legitimacy of the meritocratic principle of "Leistung", the promotion of equal opportunities has come to the fore over time. One of its effects is to open up "higher" education to more and more adolescents. The more adolescents have the option of taking "higher" degrees, the fewer opt for VET. This leads to a negative selection into VET, which further reduces its status and attractiveness. The educational policy attempt to make VET more

attractive by making it compatible with the general or academic education system ensures that its content is adapted. This robs VET of its qualificational strength and degrades it to a transit station to "higher" education, in which the acquired vocational competences have little, if any, significance.

The ideal-typical extreme form shown does not occur in reality in this way. Other influences and principles are at work here that are not "meritocratic," such as the German concept of "Beruf". However, the more a society tends toward meritocracy, the more a devaluation of VET is foreseeable.

In view of the existing surplus of graduates and shortage of skilled workers, it is time to strengthen the quality and qualification profile of VET courses. In terms of labour market policy, there is a need for better framework conditions for apprenticeships, especially for professions in the care and social sectors. Last but not least, the generally high drop-out rates internationally can be interpreted as an indication that studying is not the right path for everyone. - It is to be hoped that society will come to the conclusion that a degree course is not the better, "higher" path compared to VET, but rather a different one that, completely value-free, suits some better, but not others.

REFERENCES

Albert, G. (2007). Idealtypen und das Ziel der Soziologie, *Berliner Journal für Soziologie, 17*(1), 51–75.

Arzberger, K. (1988). Über die Ursprünge und Entwicklungsbedingungen der Leistungsgesellschaft. In K. O. Hondrich (Ed.), *Krise der Leistungsgesellschaft? Empirische Analysen zum Engagement in Arbeit, Familie und Politik* (pp. 23–49). Westdeutscher Verl X. https://doi.org/10.1007/978-3-322-83716-5_2

Becker, R., & Hadjar, A. (2017). Meritokratie – Zur gesellschaftlichen Legitimation ungleicher Bildungs-, Erwerbs- und Einkommenschancen in mod-

ernen Gesellschaften. In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (1st ed., pp. 35–59). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91711-5_2
Billett, S. (2014). The standing of vocational education: sources of its societal esteem and implications for its enactment. *Journal of Vocational Education & Training, 66*(1), 1–21. https://doi.org/10.1080/13636820.2013.867525
Braun, V. (2022). *Der Zusammenhang zwischen Meritokratie und beruflicher Bildung.* Springer VS. https://doi.org/10.1007/978-3-658-36827-2
Burger, T. (1976). *Max Weber's theory of concept formation*. Durham, NC.
Cappelli, P. H. (2015) Skill Gaps, skill shortages, and skill mismatches: Evidence and arguments from the United States, *ILR Review, 68*(2), 251–290. https://doi.org/10.1177/0019793914564961
Deissinger, T. (1994). The evolution of the modern vocational training systems in England and Germany: A comparative view. *Compare: A Journal of Comparative Education, 24*(1), 17–36.
Deißinger, T. (1998). *Beruflichkeit als "organisierendes Prinzip" der deutschen Berufsausbildung*. Markt Schwaben.
Deißinger, T. (2019). Beruflichkeit und "meritokratische Logik": Konvergenzen und Divergenzen aus bildungspolitischer und komparativer Sicht. In J. Seifried, K. Beck, B.-J. Ertelt, A. Frey (Eds.), *Beruf, Beruflichkeit, Employability* (pp. 47–68). wbv.
Dewey, J. (1993). *Demokratie und Erziehung. Eine Einleitung in die philosophische Pädagogik* (3rd ed.). Beltz.
Dröge, K., Marrs, K., & Menz, W. (2008). Rückkehr der Leistungsfrage. Leistung in Arbeit, Unternehmen und Gesellschaft – zur Einleitung. In K. Dröge, K. Marrs, & W. Menz (Eds.), *Rückkehr der Leistungsfrage: Leistung in Arbeit, Unternehmen und Gesellschaft* (pp. 8–19). Nomos Verlagsgesellschaft. https://doi.org/10.5771/9783845268736-8
Eichmann, R. (1989). *Diskurs gesellschaftlicher Teilsysteme: Zur Abstimmung von Bildungssystem und Beschäftigungssystem*. Deutscher Universitätsverlag. https://doi.org/10.1007/978-3-322-84031-8
Endruweit, G., & Lüdtke, H. (2013). Orientierung, evaluative. In W. Fuchs-Heinritz, R. Lautmann, O. Rammstedt, & H. Wienold (Eds.). *Lexikon zur Soziologie* (3rd ed., p. 492). VS Verlag für Sozialwissenschaften.
Esser, H. (2000). *Soziologie: Spezielle Grundlagen. Band 2: Die Konstruktion der Gesellschaft*. Campus-Verlag.
Eswein, M. (2016). Wandel des japanischen (Berufs-)Bildungssystems von der "Kultivationspädagogik" zur "Fachschulung"? *Bildung und Erziehung, 69*(2), 227–244. https://doi.org/10.7788/bue-2016-0208
Fend, H. (2009). *Neue Theorie der Schule*. VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91788-7
Frommberger, D. (2009). "Durchlässigkeit" in Bildung und Berufsbildung: Begriff, Begründungen, Modelle und Kritik. *bwp@,* (Profil 2), 1–18. https://www.bwpat.de/profil2/frommberger_profil2.pdf

Frommberger, D. (2012). Von der Berufsbildung in die Hochschulbildung (Dritter Bildungsweg): Eine berufs- und wirtschaftspädagogische Einordnung unter besonderer Berücksichtigung aktueller Rahmenwerke zur Förderung von Übergängen und Durchlässigkeit. *Zeitschrift für Berufs- und Wirtschaftspädagogik, 108*(2), 169–193.

Georg, W. (1998). Berufs- und wirtschaftspädagogische Perspektiven. *Bildung und Erziehung, 51*(1), 59–66. https://doi.org/10.7788/bue.1998.51.1.59

Georg, W., & Sattel, U. (2006). Berufliche Bildung, Arbeitsmarkt und Beschäftigung. In R. Arnold, A. Lipsmeier, & M. Rohs (Eds.), *Handbuch Berufsbildung* (pp. 219–232). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-658-19312-6_19

Gruber, O. (2016). "Leistung" – Gestaltungsprinzip gesellschaftlicher und politischer Inklusion? *Österreichische Zeitschrift für Politikwissenschaft, 45*(1), 13. https://doi.org/10.15203/ozp.1089.vol45iss1

Hadjar, A. (2008). *Meritokratie als Legitimationsprinzip: Die Entwicklung der Akzeptanz sozialer Ungleichheit im Zuge der Bildungsexpansion*. VS Verlag für Sozialwissenschaften. https://link.springer.com/content/pdf/10.1007/978-3-531-90959-2.pdf

Hadjar, A. (2015). Ursachen und Formen von Bildungsungleichheiten. In M. Hofmann, L. Boser Hofmann, A. Bütikofer, & E. Wannack (Eds.), *Lehrbuch Pädagogik. Eine Einführung in grundlegende Themenfelder* (pp. 148–176). hep verlag.

Hagedorn, U. (2013). Leistung oder Erfolg? Berufsbildungspolitische Deutungsmuster und die prinzipielle Ausrichtung der Berufsausbildung. *bwp@,* (25). http://www.bwpat.de/ausgabe25/hagedorn_bwpat25.pdf

Heckhausen, H. (1974). *Leistung und Chancengleichheit*. Hogrefe.

Heid, H. (1992). Was" leistet" das Leistungsprinzip? *Zeitschrift für Berufs- und Wirtschaftspädagogik, 88*(2), 91–108.

Heid, H. (2006). Werte und Normen in der Berufsbildung. In R. Arnold, A. Lipsmeier, & M. Rohs (Eds.), *Handbuch Berufsbildung* (pp. 33–43). VS Verlag für Sozialwissenschaften.

Heid, H. (2012). Der Beitrag des Leistungsprinzips zur Rechtfertigung sozialer Ungerechtigkeit. *Vierteljahresschrift für Heilpädagogik und ihre Nachbargebiete, 81*(1), 22–34.

Hempel, C. G. (1984). Typologische Methoden in den Sozialwissenschaften. In E. Topitsch (Ed.), *Logik der Sozialwissenschaften* (pp. 85–103). Kiepenheuer & Witsch.

Hillmert, S., & M. Jacob (2002). Social inequality in higher education: Is vocational training a pathway leading to or away from university?, *European Sociological Review, 19* (3), 319–334.

Hirsch Hadorn, G. (1997). Webers Idealtypus als Methode zur Bestimmung des Begriffsinhaltes theoretischer Begriffe in den Kulturwissenschaften. *Journal for General Philosophy of Science, 28*(2), 275–296. https://doi.org/10.1023/A:1008207612359

Hitzler, R. (2003). Erfolgskriterien. Versuch einer Begriffsbestimmung. In J. Allmendinger (Ed.), *Entstaatlichung und soziale Sicherheit: Arbeitsgruppen-, Sektionssitzungs- und Ad-hoc-Gruppen-Beiträge*. Leske + Budrich.

Hoffer, T. B. (2002). Meritocracy. In D. L. Levinson, P. W. Cookson, & A. R. Sadvonik (Eds.), *Education and sociology: An encyclopedia* (pp. 435–442). Routledge.

Hondrich, K. O. (1984). Der Wert der Gleichheit und der Bedeutungswandel der Ungleichheit. *Soziale Welt, 35*(3), 267–293. http://www.jstor.org/stable/40877416

Hörner, W. (1994). Auf dem Weg zur "lernenden Gesellschaft" ? *Bildung und Erziehung, 47*(3), 283–304. https://doi.org/10.7788/bue.1994.47.3.283

Hyslop-Margison, E. J. (2001). An assessment of the historical arguments in vocational education reform, *Journal of Career and Technical Education, 17*(1), 23–30.

Kraft, V. (1951). Die Grundlagen einer wissenschaftlichen Wertlehre (2nd ed.). Springer. https://doi.org/10.1007/978-3-7091-5765-7

Kuczera, M./Jeon, S. (2019). Vocational Education and Training in Sweden, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris. https://doi.org/10.1787/g2g9fac5-en

Kurtz, T. (2007). Bildung und Erziehung in der soziologischen Theorie. *Zeitschrift für Erziehungswissenschaft, 10*(2), 231–249. https://doi.org/10.1007/s11618-007-0029-4

Lamnek, S. (2002). Norm. In G. Endruweit & G. Trommsdorff (Eds.), *Wörterbuch der Soziologie* (pp. 386–389). Lucius & Lucius.

Luhmann, N. (2008). *Ökologische Kommunikation: Kann die moderne Gesellschaft sich auf ökologische Gefährdungen einstellen?* (5th ed.). VS Verlag für Sozialwissenschaften.

Luhmann, N., & Lenzen, D. (2002). *Das Erziehungssystem der Gesellschaft*. Suhrkamp.

Lüsebrink, H.-J. (2018). *Frankreich. Wirtschaft, Gesellschaft, Politik, Kultur, Mentalitäten: Eine landeskundliche Einführung* (4th ed.). J.B. Metzler. https://doi.org/10.1007/978-3-476-04329-0

Lutz, B. (1979). Die Interdependenz von Bildung und Beschäftigung und das Problem der Erklärung der Bildungsexpansion. In J. Matthes (Ed.), *Sozialer Wandel in Westeuropa: Verhandlungen des 19. Deutschen Soziologentages in Berlin 1979* (pp. 634–670). Campus Verlag. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-136564

Lutz, B. (1988). Bildung im Dilemma von leistungselite und Chancengleichheit. Notizen zur Geschichte des französischen Bildungssystems, *Arbeitspapier 4 des Sonderforschungsbreichs 333 der Universität München,* München. http://nbn-resolving.de/urn:nbn:de:0168-ssoar-100636

Matei, A. I., & Popa, F. M. (2010). Meritocratic aspects concerning civil servant career - Comparative study in Central and Eastern European countries.

NISP Acee Annual Conference, 2010, May, 12-14, Warsaw, Poland. https://doi.org/10.2139/ssrn.1597849
Neckel, S., Dröge, K., & Somm, I. (2005). Das umkämpfte Leistungsprinzip. Deutungskonflikte um die Legitimationen sozialer Ungleichheit. *WSI Mitteilungen,* (7), 1–8. doi.org/10.5771/9783845268736-42
Ott, M. (2015). *Lernwegoffenheit in der französischen Berufsbildung: Zum Potenzial von Outcome-Orientierung*. Springer VS. https://doi.org/10.1007/978-3-658-07731-0
Sandel, M. J. (2020). *Vom Ende des Gemeinwohls: Wie die Leistungsgesellschaft unsere Demokratien zerreiß*t. S. Fischer.
Schimank, U. (2009). Wie sich funktionale Differenzierung reproduziert – eine akteurtheoretische Erklärung. In P. Hill (Ed.), *Hartmut Essers erklärende Soziologie: Kontroversen und Perspektiven* (pp. 201–224). Campus-Verlag.
Schimank, U. (2010). *Handeln und Strukturen: Einführung in die akteurtheoretische Soziologie* (4th ed.). Beltz Verlagsgruppe.
Schimank, U. (2016). *Handeln und Strukturen: Einführung in die akteurtheoretische Soziologie* (5th ed.). Beltz Verlagsgruppe.
Schimank, U. (2017). Leistung und Meritokratie in der Moderne. In S. Reh & N. Ricken (Eds.), *Leistung als Paradigma: Zur Geschichte und Theorie pdagogischer praktiken* (pp. 19–42). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-658-15799-9_2
Schlie, F. (1988). Die Vielfalt der Leistungsbegriffe. In K. O. Hondrich (Ed.), *Krise der Leistungsgesellschaft? Empirische Analysen zum Engagement in Arbeit, Familie und Politik.* (pp. 50–67). Westdeutscher Verlag. https://doi.org/10.1007/978-3-322-83716-5_3
Severing, E., & Teichler, U. (2013). *Akademisierung der Berufswelt? Berichte zur beruflichen Bildung.* W. Bertelsmann Verlag.
Schönfeld, G., Wenzelmann, F., Pfeifer, H., Risius, P. ,& Wehner, C. (2020). Ausbildung in Deutschland – eine Investition gegen den Fachkräftemangel. Ergebnisse der BIBB–Kosten–Nutzen–Erhebung 2017/18, *BIBB Report,* 1, Bonn.
Vollmer, H. (1996). *Die Institutionalisierung lernender Organisationen: Vom Neoinstitutionalismus zur wissenssoziologischen Aufarbeitung der Organisationsforschung. Soziale Welt, 47*(3), 315–343. http://www.jstor.org/ stable/40878158
Waldow, F. (2019). Akteurkonstellationen und die Gerechtigkeit von schulischer Leistungsbeurteilung. In J. Bellmann & H. Merkens (Eds.), *Bildungsgerechtigkeit als Versprechen: Zur Rechtfertigung und Infragestellung eines mehrdeutigen Konzepts* (pp. 255–277). Waxmann.
Weber, M. (1921). *Wirtschaft und Gesellschaft*. Mohr Siebeck.
Weber, M. (1968a). Die drei Typen der legitimen Herrschaft. In J. Winckelmann (Ed.), *Methodologische Schriften. Studienausgabe* (pp. 215–228). S. Fischer.

Weber, M. (1968b). Die "Objektivität" sozialwissenschaftlicher und sozialpolitischer Erkenntnis. In J. Winckelmann (Ed.), *Methodologische Schriften. Studienausgabe* (pp. 1–64).
Winckelmann, J. (1969). Idealtypus (2nd ed.). In W. Bernsdorf (Ed.), *Wörterbuch der Soziologie* (pp. 438–441). Enke.
Wittek, R. (2006). Abnehmende Abstraktion, Idealtypen, Erklärungslogik und Theorieverständnis bei Weber und der erklärenden Soziologie im Vergleich. In R. Greshoff, & U. Schimank (Eds.), *Integrative Sozialtheorie? – Esser – Luhmann – Weber* (pp. 419–443). VS Verlag für Sozialwissenschaften.
World Bank (2022). DataBank. Education Statistics. Gross enrolment ration for tertiary education, both sexes. https://databank.worldbank.org/indicator/BAR.TER.CMPT.25UP.ZS?id=c755d342&report_name=EdStats_Indicators_Report&populartype=series# (retrieved 23/09/2022)
Wright, C. F. (2017). Employer organizations and labour immigration policy in Australia and the United Kingdom: The Power of politcal salience and social institutional legacies, *British Journal of Industrial Revolution, 55*(2), 347–371. https://doi.org/10.1111/bjir.1221
Young, M. (1961). Es lebe die Ungleichheit. Auf dem Wege zur Meritokratie. Econ-Verlag.
Zabeck, J. (1972). Das Leistungsprinzip als Regel sozialer Interaktion und seine Bedeutung für Betrieb und Schule. *Die Deutsche Berufs- und Fachschule, 68*(2), 81–100.
Ziemann, A. (2013). Systemtheorie. In G. Kneer & M. Schroer (Eds.), *Handbuch soziologische Theorien* (pp. 469–490). Springer VS. https://doi.org/10.1007/978-3-531-91600-2_22 (Original work published 2009)

Inclusion in workplace learning: exploring inconsistencies between policy-making and praxis

Manos Pavlakis
Stockholm University, Department of Education
Athens, Greece
E-mail: manos.pavlakis@edu.su.se

ABSTRACT:

of the consequences of the pandemic. A recent systematic review revealed certain factors that play a significant role in cultivating an inclusive learning environment in the workplace: the increasing use of online education, exploitation of different learning methods, the role of leadership, and the need to increase diversity – improve inclusion practices in the workplace. The purpose of this study was to build on the data of the previous review and further examine the issue of inclusion in workplace learning, considering all new developments in the field. The research followed a twofold direction: on the one hand, texts, recommendations, and directives from official institutions at the European and international levels were crosschecked concerning the abovementioned factors that affect inclusion in workplace learning. Simultaneously, data from interviews shed some more light on specific issues, such as the emphasis given to the extensive use of distance learning over improving diversity practices

in the workplace. The research concludes with concerns regarding the extent to which policies designed are finally successfully implemented in the field.

KEYWORDS:

Workplace learning, inclusion, policy-making, VET.

BIBLIOGRAPHICAL NOTES

Manos Pavlakis is a Lecturer of Adult Learning and Leadership at Frederick University and a postdoc researcher at the Department of Education at Stockholm University. His research interests focus on vocational training, workplace learning, teachers' training, and soft skills development. He has been involved in several European and international projects related to non-formal and informal learning and has authored the educational material for the international e-learning project YouReCa, which was nominated for the UNESCO youth label of quality and excellence in 2013.

1. INTRODUCTION

Undoubtedly, the pandemic of Covid-19 brought considerable changes in every form of human activity and led to new developments in the field of work and education. The sudden and abrupt closure of workplace activities and education/training arenas of any type and level soon gave way to new forms of communication and interaction. Working from home and distance education have intensified to such an extent that the

pre-pandemic situation is now a distant past for most. In this newly formed framework of workplaces' operation, the meaning of distance learning acquires particular importance if it comes to the inclusion factor. How have the recent changes affected the learning development of employees, who were used to starting from a disadvantaged position, even before the pandemic? What measures were taken for workers with lower skills, people with language difficulties, older people less familiar with digital tools, and people with no access to the internet or suitable equipment when remote working?

A recent study (Pavlakis, 2022) specifically addressed the issue of inclusion in workplace learning and focused on research work conducted from the beginning and during the pandemic. The main results of this study highlighted the need to discuss further the importance of inclusion in workplace learning and the influencing potential of certain factors. In particular, essential concerns were expressed:

a) To what extent has the increasing use of distance and online education/training made learning easier or created more barriers for low-skilled employees?
b) What is the value of using different learning methods?
c) To what extent were diversity practices re-designed to ensure that workers have access / more possibilities to engage in learning activities without constraints?
d) How supportive is the role of leadership in organizations concerning the above?

A first point is vital before proceeding: the concept of workplace learning is a particular issue that may go beyond the boundar-

ies of more formal or standardized processes, as offered by various relevant training providers. Within the framework of this study, the approach taken to the concept of workplace learning is very close to the view that 'learning can refer to skill acquisition, personal transformation, collective empowerment, or a host of other phenomena [and] workplace can be an organization, a website, a kitchen table, even a car' (Fenwick, 2008, pp. 18-19). From the above, it becomes clear that workplace learning happens everywhere, within an organizational context and scope, and can take different forms and types.

By making this assumption, this study does not focus as much on the different forms that workplace learning can take, including apprenticeships, on-the-job training, structured training, and opportunities offered by external providers, but also on other non-formal or more informal types of learning, including coaching, mentoring, job shadowing (OECD, 2010). Instead, the purpose of the text below is to contribute to the discussion of whether the intense rhythm of the digitization of learning, together with changes in the workplace, such as remote work, creates space for dialogue on the need to form a new pedagogy in the workplace. This workplace pedagogy will consider the significant changes that have taken place in the field, the consequences of the increasing use of distance learning, and the implications for employees who find themselves from different starting points. The primary tool to achieve this research goal will be examining possible gaps between policymakers and those working in the field.

2. 2 EMERGENCIES AND CHALLENGES IN WORKPLACE LEARNING

The current situation during the post-pandemic period brings to the fore new data and a series of issues that need to be discussed. The emergence of distance education and training has been considered a significant opportunity to make a much more considerable amount of knowledge accessible to more people in a much faster way.; however, it is still being questioned whether this expectation can be achieved without collateral damage.

2.1 INDICATIONS OF A NEW PARADIGM SHIFT?

Thomas Kuhn's (1962) work on scientific revolutions and the reference to the term paradigm shift brought real innovation to how we understood the development of the sciences until then. In the last decades, the entry of Technologies into the sciences of Education created the conditions to open the dialogue of a new scientific revolution. This dialogue is re-considered in the last years of the COVID-19 pandemic, bringing the paradigm shift back to the fore. Two reasons have contributed to this direction: a) the intensification of the use of digital learning and its integration, now as a permanent practice, in many different forms and training actions that are designed and implemented in the context of organizational needs, and b) the increase of remote work in many job positions of various sectors and industries.

The popularity of digital learning in work environments has been around for a while. During the last years, and much earlier the appearance of the pandemic, organizations, universities, and educational / training institutions have made great use of

digital learning on various types and occasions. The beginning of the first decade of the 21st century has created the condition for online and digital learning to become an integral part of educational design (Desai, Hart & Richards, 2008). Noticeable shifts from traditional roles of teacher/trainer, such as knowledge transmitter, to roles, such as learning facilitator, coach, and co-learner, were recorded during the following years (Anderson, 2010), while relevant reports in all areas of education are constantly increasing, especially during the post-pandemic period. References, such as in the field of Higher Education and the way university teachers perceive their role and their interaction with students in the current distance and digitalized environment (Antera & Pavlakis, 2021) or in Technical and Vocational Education and Training (TVET), where e-learning seems to be a promising alternative pedagogy (Pangeni & Karki, 2021) are merely indicative of an ever-increasing tendency by field theorists to interpret changes and developments in education as a potential paradigm shift.

Without a doubt, the degree to which one could argue that we are facing a paradigm shift in workplace learning is questionable; however, there are indications of these kinds of anomalies Kuhn (1962) recognized. New challenges are offered as an opportunity to reflect on current practices, considering limitations and prospects. Changes in the workplace need to be accompanied by changes in how learning is generally perceived, particularly for disadvantaged or low-skilled employees.

2.2 OR THE EMERGENCE OF A NEW WORKPLACE PEDAGOGY?

In any case, regardless of the impact of the effects of the pandemic, such as the promotion of work from home and the intensification of the digitization of learning, this process was not without pain. Limited access to quality education, the need for technology adaptation, social inequalities, and high dropout were just some consequences of a so-called forceful paradigm shift from face-to-face to online-distance education (Kunwar, Shrestha, & Phuyal, 2022). The importance, therefore, of an inclusive learning environment in the workplace is a challenge VET and learning professionals in organizations need to address (Pavlakis, 2022), especially when the inherent obstacles in the creation of the pedagogical culture in the technology era have been already noted down (Desai, Hart & Richards, 2008), many years before this sudden and forceful situation.

Before delving deeper into the issue of inclusion in workplace learning, it is worth looking more systematically at the boundaries and areas of interest in workplace learning. Generally, workplace learning is part of the broader discussion within the field of Vocational Education and Training. However, for many, it stands alone, if not completely autonomous, at least sufficiently distinct. Brandi & Iannone (2021), in their intensive literature review, find significant correlations between workplace learning and the industry of Human Resources (HR) executives/experts, some of which are regarded as VET professionals: skills development, incentives and the design of work are three elements which find common ground among workplace learning and HR.

Almost two decades earlier, Illeris (2003) underlined that learning is a process that leads to permanent capacity change when it concerns interaction processes between the person and the environment that include an integration of the following dimensions: cognitive, emotional, and social-societal. The last dimension was particularly emphasized later in the work of Billett & Choy (2013), who:

> underscored that theories of learning in the workplace need to include socio-cultural and material variables to construe coherence, as the location of learning extends beyond our classifications of off- or on-the-job, as wider contextual factors come into coaction Brandi & Iannone (Brandi & Iannone, 2021, p. 318).

From the above, we can conclude that learning in the workplace is essential to ensure the existence and interaction of different dimensions, with the emotional and social ones being significant. At the same time, the issue of cohesion also emerges as a determining factor. Things get more complicated if we add to this discussion the various aspects that learning in the workplace can take: situated, informal and incidental, with the last one to include learning from experience, non-routine actions, creativity stimulations, and critical reflection upon actions (Watkins & Marsick, 1992). Experienced colleagues are considered significant others and take over different roles as supervisors, mentors, coaches, or educators, contributing to the learning and development of employees in the same organizational context (Ceelen, Khaled, Nieuwenhuis, & de Bruijn, 2021).
Considering the initial discussion regarding the emergency and the quite forceful imposed way of distance and digital learn-

ing during the pandemic, maybe it is time to re-consider a new workplace pedagogy, the foundations of which do not need to be re-invented, rather inspired by the theoretical framework of Adult Education and the principles adult learning:

> A workplace pedagogy is founded in [these] participatory practices and needs to account for how workplaces invite access to activities and guidance and how individuals elect to participate in what the workplace affords (Billet, 2002, p. 27).

There seems to be an expectation that all stakeholders of workplace learning (organizations, HR / VET professionals, and employees, as learners) will adapt to the new situation that the pandemic, as an accelerator, has brought. While the degree of readiness of all the above is still under discussion, the main question, which is also the research question of this study, remains: to which extent does the intentionally increasing use of distance and digital learning contribute to inclusive learning in the workplace or unfortunately reinforce exclusion, especially among the more disadvantaged?

3. METHODOLOGY

Inspired by the abovementioned question, the research followed a qualitative approach a) by examining secondary data and b) by interviewing experts in the field to crosscheck data and make relevant correlations and conclusions. This paper is the follow-up of previous research (Pavlakis, 2022), which was based on a systematic review of articles published in scientific journals between the beginning of 2020 and the end of 2021, to include

the first reactions from the COVID-19 pandemic impact. The study examined how institutions, enterprises, HR professionals, and VET trainers responded to the new challenges and how they supported workers less likely to be involved in learning activities. Major themes identified in this study formed the basis of the current research: the increasing use of online education, the exploitation of different learning methods in the workplace, the support and reinforcement of the learning role of leadership, and the increase of diversity practices in the workplace.

Having addressed these main issues based on scholarly articles, current research goes a step further and aspires to scrutinize policymakers' responses to deeper examine the degree to which theory meets practice. Initially, secondary data were collected through the sites of two major organizations related to workplace and learning: the International Labor Organization (ILO) and the European Centre for the Development of Vocational Training (Cedefop). ILO was selected because of its international character and ability to collect data worldwide and formulate policies globally. At the same time, Cedefop is the leading organization at the European level in terms of vocational education and training policies. A thorough search of texts, brief policies, recommendations, and reports from both ILO and Cedefop published during two years, from the beginning of the pandemic till the end of April 2022, was conducted and resulted in 19 papers in English, 11 of which from Cedefop and eight more from ILO, in all of which there was a reference to at least one of the factors, as previously discussed, that influence inclusion in workplace learning (see Table 1).

Table 1. Overview of selected papers from Cedefop & ILO

	Title	Type	Year	Organization
1	Vocational education and training as a life jacket	Briefing note	2022	Cedefop
2	Championing the skills revolution	Briefing note	2022	Cedefop
3	Shifting our perspective on learning	Briefing note	2022	Cedefop
4	Trends, transitions, and transformation	Briefing note	2021	Cedefop
5	Adapting business practices to new realities in the middle of a crisis: first findings from the COVID-19 European company survey	Working paper	2021	Cedefop
6	Apprenticeship governance and in-company training: where labor market and education meet: Cedefop community of apprenticeship experts: short papers	Working paper	2021	Cedefop
7	Digital transitions in lifelong guidance: rethinking careers practitioner professionalism: a CareersNet expert collection	Working paper	2021	Cedefop
8	How are European countries managing apprenticeships to respond to the COVID-19 crisis?	Synthesis report	2020	Cedefop
9	Online working and learning in the coronavirus era	Briefing note	2020	Cedefop
10	Empowering people to cope with change	Briefing note	2020	Cedefop
11	A digital gap during COVID-19 for VET learners at risk in Europe.	Synthesis report	2020	Cedefop
12	World Employment and Social Outlook. Trends 2022	Flagship Report	2022	ILO

13	How to strengthen informal apprenticeship systems for a better future of work?: Lessons learned from comparative analysis of country cases	Working Paper	2022	ILO
14	Understanding patterns of structural discrimination of migrant and other workers in some countries of South and West Asia	Report	2022	ILO
15	Shaping skills and lifelong learning for the future of work	Conference paper	2021	ILO
16	World Employment and Social Outlook. The role of digital labour platforms in transforming the world of work	Flagship Report	2021	ILO
176	Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training	Report	2021	ILO (& World Bank)
18	Distance and Online Learning During the Time of COVID-19	Policy brief	2020	ILO
19	COVID-19, jobs and the future of work in the LDCs: A (disheartening) preliminary account	Working Paper	2020	ILO

Additional to the secondary data collection, interviews with experts in the field were designed to shed some more light on specific issues, including the emphasis given to the extensive use of distance learning, as presented already in the literature review, over certain practices which could create a more inclusive learning environment in the workplace, such improving diversity practices in organizations. An expert panel was formed to explore similar issues in-depth. People taking part

in the interviewing process were invited to reflect on their individual experiences and present their views. The expert panel method is an interview-based research that involves individuals with well-recognized expertise in a specific field and is used as a valuable additional research tool in qualitative research (e.g., Galliers & Huang, 2012; Lewthwaite & Nind, 2016).

The panel consisted of seven people from various positions/roles within the VET system, who were interviewed in April 2022. All the participants had many years of experience in their field of expertise, deep knowledge, and understanding of VET and workplace environments (see Table 2). There is no claim regarding the generalizability of preliminary findings in terms of a comprehensive view of issues under examination. However, the data collected are expected to provide valuable insights for future research studies.

Table 2: Expert participants

	Job title / Role	Expertise in	Organization/ Sector
1	Researcher	Research on VET	European Agency
2	University Professor	Adult education, VET	University
3	Executive Director	Adult education, workplace learning	Enterprises Institute of a National Confederation of Professionals
4	Project Manager	VET EU projects coordination	Private sector
5	Learning & Development Manager	Workplace learning, HR	Third Sector
6	VET trainer	VET, Electronics	Freelancer
7	HR Business Partner	HR, workplace learning	Multinational Corporation

Ethical issues were considered, such as respect for privacy and confidentiality, since the people who were interviewed are considered to be, at least to a certain extent, public figures in their field of expertise and activity. All data initially stored in a secured digital place was destroyed at the end of the research. In addition, there was a concern regarding possible language issues originating from translation interpretations, and all participants were asked to respond in English. All data was anonymized.

4. RESULTS

In this section, the main findings from the secondary data collection and analysis will be presented together with the responses of the experts who agreed to take part in the interview. Findings were categorized and presented in different thematic axes, which interrelate with the main themes that emerged in the study, which sparked interest in examining more in-depth the prerequisites for inclusive workplace learning (Pavlakis, 2022).

4.1 WHO WAS MAINLY AFFECTED AND THE USE OF ONLINE-DIGITAL LEARNING

Immediately after the beginning of the pandemic and the subsequent restrictions in the workplace, learning was not at the heart of the core activities organizations and institutions were carrying out. According to an ILO & World Bank (2021) survey in 126 countries, an overwhelming majority (up to 98% of those who responded) reported a disruption of work-based learning due to the closure of enterprises. As expected, the growing use of digital learning was the issue that emerged as an immediate response by organizations of any size and at every level to address the effects of the pandemic, according to the research of reports, working papers, and briefing notes both of Cedefop and ILO.

Among others, Technical VET (TVET) systems and structures faced an additional challenge since they had to deal both with the necessity to remain operational and the need to find solutions for practical training, which could not be supported through digital platforms, leading finally to a 30% of TVET institutions ceasing operations entirely, according to an ILO

report (2021a). Thus, the main aim highlighted in many reports presented in this study was the balanced development of labor market needs and relevant skills. As another Cedefop report points out, it is essential 'to keep pace with the digitalization of the European economy, VET is incorporating a range of digital skills, responding both to occupation-specific and transversal skill needs' (Cedefop, 2022a, p. 1).

Hence, it is no surprise that all 19 texts included in this study mentioned the need for organizations and VET systems to use digital platforms, promoting distance education and training. This emergent response during the first phase of the pandemic was a necessity, especially for the least developed countries, according to an ILO report, which stressed the need for a 'shift to online learning and exceptional measures to minimize disruptions to technical and vocational education and training and work-based learning' (Parisotto & Elsheikhi, 2020, p. 20). The experts' opinions converge on the above and confirm the immediate reaction of organizations and bodies to the continuation of the learning activities. Indicative responses include the following:

> *Online education became more of a need than a choice*
> (University Professor)

> *Our organization provided already online learning; however, we noticed the need for more online learning at different levels*
> (Learning & Development Manager)

> *We invested in the design of a new e-learning platform*
> (HR Business Partner)

> *[We responded] by increasing the systematic use of digital training through specific applications of online communication [and] we created a co-working space, and consequently, we had the opportunity to advance the level of our synergy and cooperation as well as the overall effectiveness of our work* (Executive Director)

However, even in more developed countries with longer traditions of VET and workplace learning, childhood diseases did appear almost everywhere. Among the main problems revealed during the phase of emergent response were recorded the absence of access to the internet and relevant equipment for distance learning, the lack of digital skills by employees, the poor experience in creating digital teaching content, especially for teaching practical components (Cedefop, 2020b). In addition, the researcher, a member of the group of experts in this study, confirmed these challenges and stated:

> *Research conducted in my organization showed that in several cases, learners have insufficient digital skills and insufficient access to equipment to participate in online education; therefore, they are left behind in the education process. Opportunities to improve their digital skills and better access to equipment are seen as prerequisites to the increasing use of online education in sight of creating inclusive learning environment* (Researcher)

PPeople affected by the consequences of the sudden and forced transition to remote work and distance / digitalized learning belong to various groups, as confirmed by experts who were interviewed. For instance, it seems that *'the ones affected the most were middle-aged employees that have been left back on digital*

skills acquisition', as the VET trainer suggested, who continues, pointing out the social-emotional dimension of this impact:

> *The inclusion in the work setting was put to the test since a significant number of employees and managers needed to work remotely. Some of them lacked digital hard and soft skills to keep up with this transformation; thus, they felt stressed and excluded. This also led to psychological consequences such as loneliness, depression, and burnout!* (VET Trainer)

The view expressed above agrees with what other people from the experts' panel also claimed they experienced during the beginning of the pandemic. In particular, those who were affected most were:

> *... older learners mainly and people living in rural areas where the internet is not always available. Additionally, trainees and new employees were mostly affected by this situation*
> (Project Manager)

Low skills levels come as a response also for the Learning and Development Manager, who points out that 'low skilled and low educated were affected mainly and they were out of work or found it hard to adjust'. As she claims, the consequences were evident for both trainees and trainers since the whole learning experience acquired different characteristics:

> *Covid and the digital transformation that this situation accelerated was a condition that further developed the gap between people with privileges and those who do not have them. One import-*

ant consequence of this situation is that not being present 100% is now the norm for all digital bursts of content, live or asynchronous. Learning is scattered and disrupted by multiple engagements, and being present is now the most powerful and valuable asset in business and work. Generally, being engaged in a learning/development activity is more challenging, and professionals are usually tired if not burnt out (Learning & Development Manager)

Other responses focus on the way for parents to keep the work-life balance: *'Parents did struggle a lot especially when they had no opportunity for support or help, and they had to respond as professionals/learners and parents at the same in the same place'* (University Professor), while in general, as the Researcher stresses, the consequences of the transition mentioned above was a complexity vulnerable groups of people had to overcome, even before the appearance of Covid-19:

Learners at risk and vulnerable groups (e.g., refugees) - the social and digital gap that existed before the pandemic for such groups of learners became even more prominent during and after the pandemic because often such groups have no access to adequate equipment, plus insufficient digital skills. Therefore, the learning process was interrupted for them. Also, apprenticeship placements were cut, having an impact on learners' motivation to stay in VET (Researcher)

4.2 THE EXPLOITATION OF LEARNING METHODS

It is a fact that much of the responsibility for restoring the

learning process in the workplace fell on the shoulders of HR experts, educational instructors and designers, trainers, mentors, coaches, and learning consultants, who found themselves in unprecedented circumstances. The greatest challenge identified in several texts analyzed in the present study is the need for trainers to develop digital skills. As is underlined, technology and new business models reshaped jobs and skill needs, thus contributing to the transformation of 'the way we work and learn' (Cedefop, 2021, p. 4). Moreover, since COVID-19 accelerated the digital transformation of economies and societies, the importance of digital skills not only for workers as learners but also for trainers was highlighted, an ILO report notes:

> *Investing in skills and reshaping education and training –including investing in the capacity of teachers and trainers by leveraging digital technologies and innovative methods while supporting the rights and improved working conditions of teachers and trainers – are seen as critical elements of recovery measures across the world* (ILO, 2021a, p. 12).

Indeed, the landscape has been redefined, and workplace trainers are not an exemption. As the most recent Cedefop briefing note declares, 'teaching methods and practices have radically changed in the past 2 years, requiring teachers and trainers to update and upgrade their digital skills' (Cedefop, 2022a, p. 4). Within this new framework, there is a need for all people engaging in the design and implementation of learning activities in the workplace to adopt a mixed learning methodology that uses new trends in technologies and, thus, offers more holistic learning solutions. According to another Cedefop (2022c) report,

although training courses/seminars remain a dominant mode in workplace learning, learning from colleagues and learning by doing (trial and error) are methods that gradually gain people's interest in charge in organizations.

In summary, recent changes imposed by the pandemic's consequences created opportunities for workplace trainers and learning designers to reconsider their work. This opportunity framework can now be interpreted as a:

> *Capacity development for teaching and learning on the use of blended learning involves a combination of face-to-face and remote training, online and offline instruction, and also high-tech, low-tech, and no-tech solutions, depending on the local and national contexts and the changing skills needs of industries and enterprises. In addition, peer-to-peer learning both for teachers and for students can be encouraged with a view to learning from previous challenges, exchanging good practices for teaching and learning, and providing mutual support* (ILO & World Bank, 2021, p. 49).

The VET trainer seems to reflect on the first period of the pandemic, and although he does not forget the initial reaction and the need to adjust to the situation, he then shares some bites of optimism when referring to actions taken from his perspective:

> *As the main problems were out of our control, we just adapted the learning practice to the realities of the participants... but this affected, in many cases, the interactivity and compromised the educational relation*

[and then]

> *... more projects, more participation, more activities for different disadvantaged groups, a more inclusive network with new methods and techniques, new protocols to widen opportunities, peer tutoring, and necessary* (VET Trainer)

Moreover, there is always the social dimension of learning, as Illeris (2003) argues, which should be remembered, and in this case, it seems that needs to be added. To what extent the access to online learning is a panacea? A Cedefop synthesis report on seven European countries reveals:

> *The current crisis has shown that* ***there is no digital inclusion without social inclusion****. Marginalized and vulnerable learners are less likely to be involved in distance learning procedures; disconnecting for extended periods may lead them to drop out of their VET program* (Cedefop, 2020b).

There is no doubt that the necessity for a new workplace pedagogy is in front of us. This pedagogy seems to make use of the basics in the education and training of adults: the 'use of different learning methods, including face-to-face sessions combined with learning by doing and experimental learning, or taking the role of mentor and mentee in a tailored-learning program' (Project Manager) or more simply, as another expert suggests:

> *Engaging [learners] in a range of activities including online, synchronous, and asynchronous learning, combined with in-person*

activities [...] Select a wide range of possible learning experiences and give a choice to the learner to find what is appropriate for him/her (Learning & Development)

4.3 THE ROLE OF LEADERSHIP

As already mentioned, the support and continuous encouragement of the leadership for the engagement -without exclusions- of employees in learning activities and their continuous support was a demand during the pandemic. In any case, the role of leadership -in terms of management hierarchy including supervisors, immediate managers, directors, but also HR and learning & development executives, who make decisions regarding the training strategy of the organizations- does not seem to get the attention, at least in the selected Cedefop and ILO reports and policy papers, someone would expect. What is generally accepted is that the focus of organizations, mainly during the first phase of the pandemic, was the force to adapt as soon as possible to a new normality, which included at a remarkable degree -if not exclusively- coordinated efforts and a shift to online learning.

During this shift, it seemed necessary for organizations to take into consideration the management of 'digital gaps between learners from different socioeconomic backgrounds' and take relevant actions, a Cedefop report says (2021, p. 3). Findings from another Cedefop survey of 1.200 organizations across Europe reveal a change of focus of corporate training strategy even from 2020, with 45% of the respondents reporting increased concern on supporting individual employees, while one in three companies show interest and shifted their atten-

tion to boost training participation overall (Van Loo, Eiffe, & Van Houten, 2021).

In another case, leadership support can be translated into a series of incentives for employees to engage in learning activities, some of which presuppose a consensus between State(s), Labour Unions, and organizations. As a Cedefop briefing note states:

> *There are many financing and cost-sharing schemes targeted at individuals and companies, regulated by national or regional legislation, through collective agreements, or at the local or company level. These include training funds based on company levies, tax incentives, grants, vouchers, individual learning accounts, saving schemes, loans, training leave, and payback clauses* (Cedefop, 2020a, p. 2).

However, engaging and supporting learners during the pandemic and the sudden transition to distance learning was not easy for many organizations, another global report says. Findings indicate a lack of motivation of managers, who had to deal with a heavier workload of trainers who, in turn, needed to adopt a new methodology together with increased difficulties of low digitally skilled employees (ILO & World Bank, 2021). In any case, general recommendations are suggested for the direction of 'the improvement of human resource management practices and greater investment in people' (ILO, 2021a, p. 66) and the continuous professional development of trainers and managers to enable learners to thrive (ibid, p. 73).

Participants of the expert panel have a few to say regarding the role of leadership in creating an inclusive learning environment in the workplace. For some of them, there is the belief that

interaction and social bonds, crucial elements of learning, were affected to a great extent and leadership's role was limited:

> *Many trainees were put aside or even dismissed from their positions, whereas new employees never had the chance to meet their new colleagues and build a team spirit* [...] (Project Manager)

For others, the leadership simply followed the needs of the time and tried to face the challenges arising from the pandemic, adapting the new data to the existing training/learning & development strategy of their organization while simultaneously keeping working with managerial issues. For instance:

> *There was a necessity to overcome fast a lack of digital skills among the employees. New ways of communication had to be adopted, such as new ways of conducting meetings, dealing with colleagues, etc.- Managers had to confront the absence of socializing as it used to be and the lost sense of belonging in a team., thus had to develop new ways of running their teams and still create an inclusive* (HR Business Partner).

Finally, there were also cases of organizations that immediately tried to respond to the challenges and effectively manage the situation by making the most of all available resources and research data. Indicatively:

> *Leadership assigns trainers to train new employees, monitor their progress, and suggest improvements in their work. We increase diversity through the international partnerships we create in the projects we work on (Learning & Development Manager)*

[or]

Our organization tried to remain active during the quarantine period; thus, we significantly increased the online education provision through the organization of many educational workshops and seminars for our target groups. We researched and learned to use several online tools for the organization of interactive workshops (VET Trainer)

4.4 MEASURES/POLICIES TAKEN TO INCREASE INCLUSION IN WORKPLACE LEARNING

Similarly, with the previous item under examination, the role of leadership in creating an inclusive workplace learning environment, the review and analysis of texts chosen in this study brought back few data regarding the degree to which organizations recognize the need to invest in increasing diversity and improving inclusion practices in the workplace. Indeed, connecting an equal opportunity for every worker to access skills and learning to sustainable development was also one of the main concerns expressed at the recent International Labour Conference. The issue of barriers to equal access was clearly described:

[they] may arise from a lack of suitable educational frameworks or financial provisions; stereotypes and discrimination; or negative context factors (socioeconomic backgrounds, employment status, or regional differences, among others). People living and working in rural and remote areas and the informal economy often face multiple barriers. Physical barriers include a lack of

learning infrastructure (remoteness from training centers, no appropriate buildings, no female restrooms, for example), limited accessibility for people with disabilities, or long and unsafe journeys to training institutions (especially for girls or women). Non-physical barriers include social discrimination (religion, gender, age, disability, among others); language barriers (ethnic minorities); inflexible schedules (which place people with care responsibilities at a disadvantage); cultural stereotypes leading to stereotypical choices of trades in TVET; non-inclusive learning environments (lack of female trainers/instructors or training materials); or barriers of a legal nature (refugees, migrants among others) ILO (2021a).

However, most reports and policy papers examined in this study swear by the name of online, distance and digital learning, as an antidote to the consequences of the pandemic more than a way of dealing with inclusion on the spot. For example, investing in developing high-tech and low-tech distance learning platforms is an indication to ensure access by all learners, according to a recent ILO & World Bank (2021) report. Being included as a learner in the workplace presupposes access to digital infrastructure and connectivity and getting support in terms of social adaptation to the dynamic technological challenges (ILO, 2021a). This, in turn, has benefits for the organizations as well, since 'the organizational performance of many companies has improved through innovations facilitated by open source platforms, as well as through access to a global pool of workers with diverse skills via digital labor platforms', an ILO Flagship Report claims (ILO, 2021b).

On the contrary, one year later, another ILO Flagship Report pointed out the immediate need for organizations to pay atten-

tion to disadvantageous groups and provide incentives to accumulate human capital, focusing on training – reskilling, and upskilling. This process, the Report continues, is expected to be critical throughout the crisis and recovery while at the same time recognizing that:

> *The closing of schools, colleges, and skills training institutions for prolonged periods in many countries has weakened learning outcomes, and this will have cascading long-term implications for the employment and further education and training of young people, especially those who have had limited or no access to online learning opportunities* (ILO, 2022, p. 3).

Let us take the discussion to the level of the opinions expressed by the experts. It is evident that facing the consequences of the sudden digital transformation and the impact of the pandemic in workplaces was an issue of disagreement among the experts who consisted of the panel group. For some of them, organizations found themselves in a difficult position to adjust as soon as possible in a new situation, with no previous experience dealing with such emergencies. Increasing inclusion in workplace learning was a luxury for many. The researcher's response left no room for misinterpretation: 'Nothing [happened] apart from distance learning'. As another expert from the panel described it in more words:

> *The truth is that not much happened. Initially, all focus was on planning and organizing the remote working scheme. Right after that period of the first few months, all work needed to be done effectively, almost as before, without putting an adequate sum*

of effort to evolve into an inclusive learning environment in the (Project Manager)

On the contrary, those voices defend the strategies of immediate decisions to deal with the crisis. According to an executive of a multinational organization, decisions in larger organizations sometimes are taken immediately in the name of the need to respond to the pressure and without wasting much time: new equipment, fast track trainings for digital skills, and coaching sessions to management on how to deal with their teams under challenging circumstances were some of the actions taken (HR Business Partner). The same optimism and a greater degree of confidence regarding the measures taken to face the impact of the pandemic and the digital transformation successfully are also expressed below:

The main initiatives aiming to the continuation of the plans for in-company training were (a) the organization of digital courses through synchronous learning applications (mainly Zoom, Skype, and Webex), (b) the development of an e-learning platform of our organization and (b) the development of digital skills of the staff targeting to the effective use of the new digital infrastructures (Executive Director)

We created a guide that targets trainers working with people who need support, including people with disabilities, to be more productive, creative, and autonomous. We also aspire to increase workplace diversity and reduce biases around disabilities by training managers to include people with disabilities in their (Learning & Development Manager)

5. CONCLUSIONS

There is no doubt that the number of participants in the empirical research is quite limited and only indicative of the different kinds of stakeholder positions/fields each one represents. Hence, the claims of the people interviewed are not offered as wide-sweeping statements about what is needed to support inclusion in workplace learning and are not offered for broad generalizations. However, data collected through the expert panel and findings from ILO and Cedefop texts provide valuable insights that could be used or compared with other research work. With regards to the interview participants, not surprisingly, a pretty strong differentiation in their views is recorded. As expected, different angles of a pretty complex issue, that is, creating an inclusive workplace learning environment, were presented by all seven experts and, together with data collected through ILO and Cedefop reports and policy briefs, were expected to shed some light and contribute to a broader discussion.

First, it seems there is no common ground in dealing with inclusion in workplace learning. Depending on each organization's background, point of reference, or field of interest, the concept of inclusion may take on different characteristics. However, in almost all cases, data collected within this study reveal a tendency of policy-making organizations and people in the field to attribute characteristics of panacea to the increasing use of digital and distance learning in the workplace.

It seems that most organizations and employees needed more time to be ready for the sudden and forceful pressure of using digital learning. In many cases, organizations lagged behind in infrastructure and related processes, while employees needed to

develop new skills to cope with new challenges. Therefore, as mentioned earlier, the importance of a new pedagogy in the workplace is crucial in successfully addressing the challenges that have arisen in recent years in a holistic, learning-wise way. Within this framework, digitalization of learning should be more than welcomed, though dealt with concern and care regarding the opportunities and the barriers it creates, especially for vulnerable groups of people, including immigrants, less privileged, older people, low digital skilled, parents, who have experienced already the consequences of the pandemic and the sudden, forced digital transition.

Secondly, getting single measures with a fragmentary character leads to limited prospects. Instead, it takes coordinated approaches to make support policies for workplace learning more effective, as Cedefop (2022b) insists. Three critical issues can be noted at this point: 1) the utilization of different methods, techniques, and tools that will make the learning process a valuable experience for employees and an indisputable comparative advantage for companies, 2) recognition of the vital role of leadership in creating an inclusive workplace learning environment, an argument which did not get the attention from the analysis of the 19 policy papers and reports of two significant policymakers (ILO & Cedefop), while previous literature review has highlighted (Pavlakis, 2022) and it is at least at a certain degree reflected at experts' views, and 3) the value of balanced growth of both inclusion and learning, as central components of people development in the workplace. Organizations and individuals during the beginning of the pandemic were struggling to survive. Therefore, in the recovery process, and as things got better, prioritization was given to restoring learning activities. Two years later, after experiments, errors, and trials, it is time for companies and

institutions to re-design their inclusion and diversity practices and ensure that workers will not be excluded from any form of learning in or off-site.

We indeed are not fully aware of whether this period is regarded as a paradigm shift; however, digital learning is now used more intensely and holistically by all people involved in learning activities within an organization, no matter whether it is about classroom training or on-the-job, apprenticeship, mentoring or other. Significant challenges are near in the future: First, organizations need to strengthen the degree of readiness and improve their performance and innovation capacity. Secondly, employees need to unlock their potential in the workplace by being open to new changes and, of course, getting all the support they need. From an adult education perspective, learning consists of specific components, such as motives, attitudes, methods, and influences from the broader context people belong. It may be time to re-consider learning in the workplace and emphatically reflect on a recent Cedefop briefing note suggestion: 'Jobs do not only shape learning: learning also shapes jobs' (Cedefop, 2022c. p. 4).

REFERENCES

Anderson, J. (2010). *ICT transforming education a regional guide*. Bangkok: UNESCO.

Antera, S. & Pavlakis, M. (2021). University Teaching in the Covid era: Is this the dawn of a new Paradigm Shift? *Virtual pre-conference in association with AEGT2021*. International Society for Comparative Adult Education. 3 June 2021.

Billett, S. (2002). Toward a Workplace Pedagogy: Guidance, Participation, and Engagement. *Adult Education Quarterly*, 53(1), 27-43.

Billett, S. and Choy, S. (2013). Learning through work: emerging perspectives and new challenges. *Journal of Workplace Learning*, Vol. 25 No. 4, pp. 264-276.

Bosc, I., Lerche, J., Shah, A., Fajerman, M., & Wadhawan, N. (2022). Understanding patterns of structural discrimination of migrant and other workers in some countries of South and West Asia. *Report*. Geneva, ILO. Retrieved on 01/05/2022 from https://www.ilo.org/global/publications/books/WCMS_844072/lang--en/index.htm.

Brandi, U., & Iannone, R. L. (2021). Approaches to learning in the context of work–workplace learning and human resources. *Journal of Workplace Learning*, *33*(5), 317-333.

Cedefop (2022a). Vocational education and training as a life jacket. *Briefing note*. April 2022. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9168.

Cedefop (2022b). Championing the skills revolution. *Briefing note*. January 2022. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9164.

Cedefop (2022c). Shifting our perspective on learning. *Briefing note*. January 2022. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9159.

Cedefop (2021). Trends, transitions, and transformation. *Briefing note*. April 2021. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9157.

Cedefop (2020a). Empowering people to cope with change. *Briefing note*. December 2020. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9153.

Cedefop (2020b). Online working and learning in the coronavirus era. *Briefing note*. July 2020. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/en/publications/9148.

Cedefop et al. (2021a). Apprenticeship governance and in-company training: where labor market and education meet: Cedefop community of apprenticeship experts: short papers. Luxembourg: Publications Office of the European Union. *Working paper*; No 3. http://data.europa.eu/doi/10.2801/065622.

Cedefop et al. (2021b). Digital transitions in lifelong guidance: rethinking careers practitioner professionalism: a CareersNet expert collection. Luxembourg: Publications Office of the European Union. *Working paper*; No 2. http://data.europa.eu/doi/10.2801/539512.

Cedefop (2020a). How are European countries managing apprenticeships to respond to the COVID-19 crisis? Synthesis report based on information provided by Cedefop community of apprenticeship experts (p. 17). Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/files/cedefop_community_apprenticeship_experts_synthesis_how_are_european_countries_managing_apprenticeships_to_respond_to_the_coronavirus_crisis.pdf.

Cedefop (2020b). A digital gap during COVID-19 for VET learners at risk in Europe. Synthesis report on seven countries based on preliminary informa-

tion provided by Cedefop's Network of Ambassadors tackling early leaving from VET. Retrieved on 01/05/2022 from https://www.cedefop.europa.eu/files/digital_gap_during_covid-19.pdf.
Ceelen, L., Khaled, A., Nieuwenhuis, L., & de Bruijn, E. (2021). Pedagogic practices in the context of students' workplace learning: a literature review. *Journal of Vocational Education & Training*, 1-33.
Desai, M. S., Hart, J., & Richards, T. C. (2008). E-learning: Paradigm shift in education. *Education*, *129*(2).
Fenwick, T. (2008). Workplace learning: Emerging trends and new perspectives. *New directions for adult and continuing education*, (119), 17-26.
Galliers, R. D. & Huang, J. C. (2012). The teaching of qualitative research methods in information systems: an explorative study utilizing learning theory. *European Journal of Information Systems*. 21, 119–134. doi:10.1057/ejis.2011.44.
Illeris, K. (2003). A model for learning in working life. *Journal of Workplace Learning*, Vol. 16 No. 8, pp. 431-441.
ILO (2022). World Employment and Social Outlook. Trends 2022. *ILO Flagship Report*. Geneva, ILO.
ILO (2021a). Shaping skills and lifelong learning for the future of work. *International Labour Conference 109th Session*. ISBN 978-92-2-132403-4. Retrieved on 23/10/2021 from https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_813696.pdf.
ILO (2021b). World Employment and Social Outlook. The role of digital labour platforms in transforming the world of work. *ILO Flagship Report*. Geneva, ILO.
ILO (2020). Distance and Online Learning During the Time of COVID-19. *Policy brief*. Geneva, ILO. Retrieved on 01/05/2022 from https://labordoc.ilo.org/discovery/fulldisplay/alma9950958908026 76/41ILO_INST:41ILO_V2.
ILO & World Bank (2021). Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training. ISBN 978-92-2-033117-0. Retrieved on 23/10/2021 from https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_766557.pdf.
Kuhn, T. (1962). *The Structure of Scientific Revolutions* (1st ed.). Chicago, IL: The University of Chicago Press.
Kunwar, R., Shrestha, A. K., & Phuyal, S. P. (2022). The Impact of Force Paradigm Shift in Teaching and Learning Higher Education in Nepal: A Study on Behavior Perspective. *European Journal of Education and Pedagogy*, *3*(2), 12-17.
Lewthwaite, L. & Nind, M. (2016). Teaching Research Methods in the Social Sciences: Expert Perspectives on Pedagogy and Practice. *British Journal of EducationalStudies*, 64:4, 413-430, DOI: 10.1080/00071005.2016.1197882.

OECD (2010). *Learning for Jobs*. Synthesis Report of the OECD Reviews of Vocational Education and Training. Available online at https://www.oecd.org/education/skills-beyond-school/Learning%20for%20Jobs%20book.pdf.

Pangeni, S. K., & Karki, G. (2021). E-Learning Initiatives at CTEVT: An Attempt at Innovation and Paradigm Shift in TVET Pedagogy. *Journal of Technical and Vocational Education and Training*, *1*, 134-147.

Parisotto, A., Elsheikhi, A. (2020). COVID-19, jobs and the future of work in the LDCs: A (disheartening) preliminary account, *ILO Working Paper 20.* Geneva, ILO. Retrieved on 01/05/2022 from https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_764268.pdf.

Pavlakis, M. (2022). Workplace learning during the pandemic: challenges for inclusion for VET professionals. In. L. Moreno Herrera, M. Teras, P. Gougoulakis & J. Kontio (Eds) *Migration and Inclusion in Work Life – The Role of VET*. Emerging Issues in Research on Vocational Education & Training, vol. 7. VETYL Research Group, Stockholm University.

Van Loo, J.; Eiffe, F. and Van Houten, G. (2021). *Adapting business practices to new realities in the middle of a crisis: first findings from the COVID-19 European company survey*. Luxembourg: Publications Office of the European Union. Cedefop working paper; No 5. http://data.europa.eu/doi/10.2801/92218.

Watkins, K.E., and Marsick, V.J. (1992). Towards a theory of informal and incidental learning in organizations. *International Journal of Lifelong Education*, Vol. 11 No. 4, pp. 287-300.

Factors related to workplace learning and congruence with organizational goals and values: Empirical findings from Estonia, Finland and Italy

Petri Nokelainen*
University of Tampere
Faculty of Education and Culture
Åkerlundinkatu 5, 33100, Tampere, Finland
E-mail: petri.nokelainen@tuni.fi

Milla Räisänen
University of Helsinki
Faculty of Educational Sciences
Haartmaninkatu 3, 00014, Helsinki, Finland
E-mail: milla.raisanen@helsinki.fi

Angelo Riviezzo
University of Sannio
Department of Law, Economics, Management and Quantitative Methods
Via delle Puglie 82, 82100, Benevento, Italy
E-mail: angelo.riviezzo@unisannio.it

Gilda Antonelli
University of Sannio
Department of Law, Economics, Management and Quantitative Methods
Via delle Puglie 82, 82100, Benevento, Italy
E-mail: gilda.antonelli@unisannio.it

ABSTRACT:

This study investigated technical area employees' experiences of factors related to workplace learning and congruence with organizational goals and values in the context of Job Resources-Demands model (JD-R) (Demerouti et al., 2001). Cross-sectional data was collected with an online survey in 2020-2021. The sample consisted of 486 employees (225 females, 46.3%) from three countries: Estonia (n = 188, 38.7%), Finland (n = 123, 25.3%), and Italy (n = 175, 36.0%). Participants responded to "Expansiveness of the Workplace as a Learning Environment Survey" (WLES) by James and Holmes (2012). This study used four of the seven WLES factors (measured by 12 items): Challenging and developing work tasks (a = 0.85); resources to help learning (a = 0.71); recognition as an expert and a learner (a = 0.74); congruence with organizational goals and values (a = 0.70). Results of measurement invariance tests indicated that the four factor structure was valid for both merged and country-specific data. Results of structural equation modeling showed that congruence with organizational goals and values as an exogenous variable was statistically significantly positively related to three endogenous variables: Challenging and developing work (R^2 = .39); resources to learning (R^2 = .46); recognition as an expert and a learner (R^2 = .56). Resulting four factor model should be measured in the future studies alongside with the factors related to the JD-R model to investigate possible effects of job resources (related to workplace learning opportunities) on job strain (e.g., stress and burnout) and work engagement.

KEYWORDS:

workplace learning, recognition, congruence, cross-cultural, survey

INTRODUCTION

Any variation of a popular opening phrase for the past decades in several scientific articles - "working life is changing" - is certainly true today. Europe has faced since March 2020 the effects of global COVID-19 pandemic and is currently in 2022 experiencing the largest war in Europe since the Second World War. The concequences of the pandemic for the European working life have been tremendous: jobs have been reduced in a number of occupations (e.g., travel and restaurant services) and distance work has increased dramatically. On top of that, the current war in eastern Europe will change the global working life through various factors, including providing safe life, education and employment for war refugees and securing Europe's military safety and energy supply in the future. For many blue and white collar workers these recent developments, together with ubiquitous digitalization trend (e.g., Billett, 2021; Nokelainen, Nevalainen et al.,2018b), have led to the need to learn new job-related skills or even train for a new field.

Modern research of *workplace learning* (WPL), focusing on both formal and informal forms of learning (e.g., Manuti et al., 2015), provide one viable way of understanding challenges such as those described above. Fuller and Unwin (2003, 2004) have made a distinction between *expansive and restrictive learning environments* where the former is characterised by employee

autonomy related to work tasks, participation in collective decision-making and development of communities of practice and the latter is characterised by the lack of autonomy, routine work and isolation from decision-making and development of work community. In addition, factors related to *well-being at work* in the context of human resources (HR) research play an important role as uncertainty about the future (e.g., job insecurity) increases. In this context, understanding of *job demands* and *job resources* gives us tools to understand dual processes leading to *job strain* (even burnout) or *engagement* (e.g., Schaufeli, 2021). As these two approaches share similar interests of developing employees learning and well-being at work, Brandi and Iannone (2021) call for research that addresses interrelationships between these two research fields. Synthesis of the results of their scoping review show that "HR is output-oriented and looks to learning as capital for enterprises, while WPL centres more upon the individual (in a cultural context) and encompasses the human dimension of learning as something enriching the whole of life, including work life." (p. 329).

The current study investigated Estonian, Finnish and Italian employees' (n = 486) experiences of four WPL factors including challenging work tasks, resources to learning, recognition of expertise and congruence with organizational goals and values. The data was collected with an online "Expansiveness of the Workplace as a Learning Environment Survey" (WLES) by James and Holmes (2012). These factors stemming from the expansive properties of learning environments (Fuller & Unwin, 2003, 2004) were contextualized into Job Demands-Resources (JD-R, see, e.g., Demerouti et al., 2001; Schaufeli & Bakker, 2004) framework. The research questions were formulated as

follows: RQ1 "Are the measurement properties of WLES equivalent across the employee groups from three countries?"; RQ2 "How congruence with organizational goals and values is related to challenging and developing work, resources to learning and recognition as an expert and a learner". To address these RQ's, measurement invariance and relationships between individual and environmental factors related to expansive learning environments were investigated. The individual factor in the present study was employees' congruence with the organization and the environmental factors were job resources, recognition and learning resources.

THEORY AND METHODS

THEORY

Workplace as an expansive learning environment

Fuller and Unwin (2004) argue that workplaces are important sites for learning as they create opportunities for (or barriers to) learning. For that reason it is important to analyse their expansive – restrictive features as learning environments. Although their model draws from Lave and Wenger's (1991) situated learning theory, it also takes formal workplace into consideration (Fuller & Unwin, 2004). Fuller and Unwin have shown (2003, 2004) that an expansive learning environment is likely to increase the quantity and range of opportunities for employee participation and learning. Nevertheless, it is important to acknowledge that (1) employees have different abilities to both identify and utilise available learning conditions (Ellström et al., 2008) and that (2) participation and learning are not situationally determined, as individuals elect how they engage in workplaces (Billett, 2004),

that is, they can eventually choose whether or not to engage in the learning process (Billett, 2001).

The WPL features of Fuller and Unwin (2003) model fall into two categories of (1) *the organizational context and culture* (e.g., work organization, job design, job control and distribution of knowledge and skills) and (2) *employee learning* (through engaging in different forms of participation). The current study focuses on these categories through four factors: 1) Challenging and developing work tasks; 2) Recognition as an expert and a learner; 3) Resources to help learning; 4) Congruence with organizational goals and values.

The *first factor* related to challenging and developing work tasks has two dimensions: versatile work tasks that require problem-solving and decision-making. According to Rausch et al. (2015), problem solving activities related to challenging work facilitate learning in the workplace as they promote acquisition of domain-specific problem solving skills. Billett (2015) notes that engagement in decision-making alongside with problem-solving promotes WPL. Research has indicated that satisfaction of basic psychological needs (autonomy, competence and relatedness, see Deci & Ryan, 2000) is positively related to work that is challenging and includes decision-making authority (Puhakka et al., 2021). Autonomy in work tasks increases job perfomance as employees have the opportunity to influence the work content, the order in which the tasks are performed, and the time spent on them (e.g., Demerouti et al., 2015). Problem-solving and decision-making (autonomy) are linked as "... learning from cooperative, collaborative problem solving requires that the problem solver remains the process owner even when other people are involved in each step of the problem solving process ..." (Rausch et al., 2015, p. 452).

The *second factor*, recognition, is related to managerial (or non-managerial) personal (or group level) monetary (or non-monetary) rewards for individual (or group) efforts and work accomplishment to recognize and reinforce the desired in-role (or extra-role) behavioural involvement displayed by an employee (or by a group) (e.g., Boudrias et al., 2014; Brun & Douglas, 2008; Montani et al., 2020; Stajkovic & Luthans, 2003). Recognition enables employees to experience increased competence and personal control on their job, which promote a higher congruence between the work activities and the self (self-concordance, see Sheldon & Elliot, 1999) that is conducive to a higher sense of meaningfulness (Montani et al., 2020). Current research highlights the benefits of non-monetary recognition on several work-related outcomes (review by Brun & Dugas, 2008), indicating that it may increase psychological well-being, engagement, on-the-job learning and job satisfaction.

The *third factor*, providing resources to learning in the workplace, is related to having access to a variety of resources in the workplace, for example, a mentor/coach, other workers, materials, customers, competitors, suppliers, qualifications and training (James & Holmes, 2002). Virtanen et al. (2014) state that the opportunity to receive individual guidance seems to be the most important factor in producing successful workplace learning outcomes. Billett (2001) presents two forms of guidance: *Direct guidance* involves close interaction between more experienced workers and learners, while *indirect guidance* is accessed in everyday work activities when the physical arrangements assist workplace learning and provide access to observing and listening more experienced co-workers and peers.

The above mentioned task-related (challenging and developing work tasks) and environmental (recognition as an expert and a learner, resources to help learning) WLES factors contribute to the development of employees' professional and vocational knowledge (Pylväs et al., 2020). Based on earlier research (e.g., Nokelainen, Rintala et al., 2018; Puhakka et al., 2021), *the first research hypothesis* is that these three WLES factors are positively related to each other (H1a). We also hypothesise that this finding is consistent in all three countries of the current study (H1b).

The *fourth factor*, congruence, refers to the alignment of employees' and organizations goals and values (e.g., Supeli & Creed, 2014). It can be seen as a part of person–organization fit (P–O Fit) that contains also personality congruence, and knowledge–skills–abilities (Abdalla et al., 2018). Some research results suggest that goal congruence might be even more critical for P-O Fit than values and personality congruence (Supeli & Creed, 2014). Current research (Sørlie et al., 2022) acknowledges the important trait-level moderating role of congruence (related to person-environment and person-organization fit) between task-independence (autonomy) and job performance. Although mainly referring to values congruence, Sørlie et al. (2022) suggest that it should be used more actively for personnel selection. In the present study, congruence refers to both goals and values. Based on earlier research (e.g., Nokelainen, Rintala et al., 2018; Puhakka et al., 2021), *the second research hypothesis* is that the four factor structure presented above is present both in the merged data from the three countries (H2a) and in the country-specific data (H2b).

Job demands and resources

According to earlier research, the relationships between job control, resources, rewards and job demands have an effect on work-related well-being and professional development (e.g., de Jonge & Kompier, 1997; Karasek, 1979; Siegrist, 1996; Wrzensniewski et al., 2013). Quite popular Job Demand-Control Model (DCM) by Karasek (1979) contains two of these components. *Job demands* are explained by the work rate, availability, time pressure, efforts needed and difficulty of various work tasks. *Job control* is about how much employees can decide about what kind of work duties they will do and how to organise their time to complete these duties. According to DCM, job strain increases when job demands increase and job control lacks autonomy. Another popular model, the effort-reward imbalance (ERI) model (Siegrist, 1996) explains increased job strain with an imbalance between high *job demands* and low *rewards* (e.g., salary and career progress).

According to Bakker and Demerouti (2007), these two models oversimplify the reality and connect increased work-related ill-being to different (non-overlapping) factors (DCM: lack of autonomy, ERI: lack of esteem reward and security/career opportunities). As this causes problems in constructing a holistic view on job strain (or stress), they suggest that JD-R model (Demerouti et al., 2001) should be used instead. Strengths of JD-R are that it allows different occupations to have their own specific working characteristics (classified into job demands and job resources), and it constitutes a model that may be applied to various occupational settings. According to JD-R, job strain (e.g., leading to burnout) develops when a set of *job demands*

(e.g., workload and interpersonal conflict) are high and when a set of *job resources* (e.g., job control and performance feedback) are limited.

JD-R contains two paths (see Figure 1), *health impairment (stress) process* and *motivational process*. Following the stress process path, we see that (as noted in both DCM and JD-R) job resources may buffer the impact of job demands on job strain (Demerouti et al., 2001; Karasek, 1979). The difference between DCM and JD-R is that the former explains the buffering effect with increased autonomy while the latter allows interactions between different types of job demands and job resources to explain decreased or increased job strain (Bakker & Demerouti, 2007). The original motivational process path (Demerouti et al., 2001) led from reduced job resources to disengagement. Later, the resources were seen as positive and they led to different desired outcomes, such as, commitment (Bakker et al., 2003), engagement (Schaufeli & Bakker, 2004) and motivation (Bakker & Demerouti, 2007). Departing from other models, JD-R states that when job demands are on a medium or high level, they may have a positive "boosting" effect on the relation between abundant job resources and engagement. However, reducing job demands to a low level only affects the stress process, for example, reducing risk of burnout. According to Schaufeli (2017), one should concentrate on increasing job resources to have the both stress *and* motivational processes to work in an optimal way (reducing job strain *and* fostering engagement).

Figure 1. Workplace learning factors in the context of JD-R model (adapted from Bakker et al., 2003; Demerouti et al., 2001; Fuller & Unwin, 2003; James & Holmes, 2012; Schaufeli, 2015; Schaufeli & Bakker, 2004; Van den Broeck et al., 2008; Xanthopoulou et al., 2009)

Stress process
Mental
Emotional
Physical
Etc.
Job demands
Job strain
Motivational process
Work resources: Challenging and developing work tasks
Environmental resources: recognition as an expert and a learner, resources to help learning
Job resources
Personal resources
Congruence
Engaging leadership
Basic psychological needs satisfaction
Work engagement
Organizational outcomes

As Figure 1 shows, the JD-R model has been extended over the years with *basic psychological needs satisfaction* (autonomy, competence, relatedness, see Van den Broeck et al., 2008), *personal resources* (self-efficacy, self-esteem, optimism, see Xanthopoulou et al., 2009) and *engaging leadership* (leadership behavior that facilitates, strengthens, connects and inspires employees, see Schaufeli, 2015). Van den Broeck et al. (2008) showed that satisfaction of basic psychological needs (based on SDT theory, see Deci & Ryan, 2000) mediate the relationships between job demands and job strain, job resources and job strain, and job resources and engagement. A longitudinal study indicated that high levels of job and personal resources are equally important to support positive development of intrinsic motivation and engagement: "... employees who are self-efficacious, optimistic and believe that are important for the organization are most likely to experience high levels of work engagement." (Xanthopoulou et al., 2009, p. 241). Authors argue that job resources, personal resources and work engagement relate reciprocally. Schaufeli (2015) showed that engaging leadership (stimulating employees' sense of basic psychological needs) had an indirect effect on job strain (burnout) and engagement via job demands and job resources. Schaufeli (2015, 2021) suggested that engaging leadership 1) fosters employees' basic psychological needs for autonomy, competence (growth) and relatedness (connectedness) and 2) supports positive development of *congruence* (convergence of individual and organizational goals and values, see, e.g., Supeli & Creed, 2014). Recent longitudinal research by Sørlie et al. (2022) showed that employees' congruence with the organization's values strengthens the positive relationship between job autonomy and job performance.

JD-R as a widely used HR model does not contain an explicit component of workplace learning (and related opportunities), but instead it has some factors that support learning embedded into sub-components of job resources: feedback, participation, rewards, supervisor support (Demerouti & Bakker, 2001), job control (Bakker et al., 2003), colleagues support (Bakker & Demerouti, 2007) and mentoring (Hu et al., 2020). In addition, P-O Fit (persons alignment/congruence with organizational goals) is seen in the JD-R framework as supporting factor for job resources (Sørlie et al., 2022). Clearly, the first WLES factor, challenging and developing work tasks, relates to job control via its second dimension, decision-making. The second WLES factor, recognition, is related to JD-R models rewards. The third WLES factor, providing resources to learning in the workplace, is related to mentoring as a job resource in JD-R. Lastly, the fourth WLES factor, congruence, is related to P-O Fit by positively supporting accumulation and activation of job resources. Bolded dashed-line variables in Figure 1 indicate the measured WPL constructs of the current study in the JD-R framework. As the JD-R constructs were not measured in this study, the aim of the current study was merely to stimulate discussion about their potential role in the JD-R framework. Although the earlier research in WPL framework has not used congruence as a predictor for the three previously mentioned task-related and environmental WLES factors (related to job resources), Nokelainen, Rintala et al. (2018) and Puhakka et al. (2021) found positive correlations (r = .30 - .55) between these factors. Based on these findings and the results from Schaufeli (2015) and Sørlie et al. (2022), *the third research hypothesis* (H3a) is that the congruence with organizational goals and values is a positive predictor of job

resources related to workplace learning (implemented via three factors: challenging and developing work tasks, recognition as an expert and a learner, and resources to help learning). Moreover, we assume that these positive associations also exist in the separate data for each country (H3b).

METHODS

PARTICIPANTS

The data for this study comprised 529 employees from three countries (239 females, 45.2%): Estonia (n = 203, 38.4%), Finland (n = 127, 24.0%), and Italy (n = 199, 37.6%). Participants worked in six different companies (two from each country), representing technical sector workers from several fields: Retail sale and manufacturing of electrical equipments (Estonia), software development and consulting (e.g., construction, town planning and traffic) (Finland), and intelligent lightning systems and industry automation (Italy). After multivariate normality (MVN) investigation (see below), the data used for the analyses comprised 486 participants (225 females, 46.3%).

INSTRUMENT

Participants responded to a cross-sectional "Expansiveness of the Workplace as a Learning Environment Survey" (WLES) online survey by James & Holmes (2012) in 2020-2021. The survey was conducted in each country in a similar form and the language used was English. The original survey contained seven factors measured with 21 items: 1. Participating and understanding your workplace, 2. Performing tasks in your work, 3.

Resources available to help you learn your work, 4. Judgement, decision-making, problem solving and reflection, 5. Experience, tasks & career progression, 6. Status as a worker and a learner, 7. Organisational development. For this study, the sixth factor was separated into two factors: 6. Recognition as an expert and 7. Recognition as a learner. Exploratory factor analysis (EFA) with maximum likelihood estimation and oblimin rotation was performed with the *jamovi* (The jamovi project, 2021) program to the current cross-cultural data as, firstly, the survey had been previously mostly used with various Finnish student and employee samples (e.g., Lehtonen et al., 2022; Nokelainen, Rintala et al., 2018; Puhakka et al., 2021), and secondly, the previous studies had shown that especially the fourth and fifth factor's Cronbach's alpha values were below the desired .7 level (most probably due to multidimensionality, see Puhakka et al., 2021). Results of the EFA confirmed a four factor solution with 12 items (see Table 1). The original factor structure was mostly retained with the exception of merging four factors into two: Challenging and developing work tasks contains items from the second and fourth factors (see above), and Recognition as an expert and learner contains items from the sixth and seventh factors. As Table 1 shows, alpha values of the new factor structure were satisfactory. All the items were measured with a five-point response scale from 1 ("Totally disagree") to 5 ("Totally agree").

Table 1. Factors and items of the Expansiveness of the Workplace as a Learning Environment Survey (WLES)

Challenging and developing *work tasks* ($\alpha\alpha$ = 0.85)	
wle2.1	I tackle complex problems in my work
wle2.2	My work is not one-sided, I am expected to use a versatile set of skills in my work
wle4.2	I am allowed to make decisions of my own in my job
wle4.3	Solving problems related to my area of expertise is an essential part of my work
Resources to help learning ($\alpha\alpha$ = 0.71)	
wle3.1	I receive feedback/mentoring/coaching at work (for example from other workers)
wle3.2	I have access to necessary resources to help me learn (e.g., other workers, materials, customers, ...)
wle3.3	I am encouraged to gain qualification(s)
Recognition as an expert and a learner ($\alpha\alpha$ = 0.74)	
wle6.1	I receive acknowledgement from colleagues or superior(s) of my expertise
wle6.2	My colleagues or superior(s) recognize me as an expert of my field
wle7.1	I receive acknowledgement from colleagues or superior(s) for developing my expertise
Congruence with organizations goals and values ($\alpha\alpha$ = 0.70)	
wle8.	My own vision of how the field I am working on should develop in the future is in line with the vision of this workplace wle8.2 The business related goals of the workplace are in line with my own goals to develop my professional skills

STATISTICAL ANALYSES

The data were examined for missing values with the *mice* (van Buuren & Groothuis-Oudshoorn, 2011) and *finalfit* (Harrison et al., 2021) *R* programs. There was no need to consider imputation as the analysis showed that the most dominant pattern (n = 528, 99.8%) represented the complete data.

Multivariate normality (MVN) among the four WLES factors was analysed with the *MVN* program (Korkmaz et al., 2014). The analysis suggested omitting 43 participants (original n was 529), resulting to the final data of 486 participants (225 females, 46.3%). Proportional sample from each country remained quite close to the original data: Estonia (n = 188, 38.7%), Finland (n = 123, 25.3%), and Italy (n = 175, 36.0%).

Regarding the RQ1, investigation of the measurement invariance (MI, Byrne et al., 1989) was important in this cross-cultural study as the survey had been mostly used with Finnish (e.g., Puhakka et al., 2021) and UK samples (James & Holmes, 2012). MI test investigates if the survey items measure the same constructs for all 3 countries in this study (Chen, 2007). According to Putnick and Bornstein (2016), *configural (pattern) invariance* refers to the same number of factors and pattern of loadings for all 3 countries in this study. *Metric (weak) invariance* refers not only to the same items loading on the same factors for all countries, but also having the same actual magnitude of loadings across countries for each respective survey item. *Scalar (strong) invariance* is a constrained version of the metric invariance where both the factor loadings and intercepts are assumed to be equal across countries. Established scalar invariance justi-

fies mean comparisons across the three countries in this study. Although there is also a fourth type of MI (*residual or strict invariance*) to test equality of factor variances and individual items residual variances across groups, it is seldom studied as it represents a highly constrained model (rarely achieved in practice) and it is not a prerequisite for testing mean differences between groups (Putnick & Bornstein, 2016). MI testing was based on a confirmatory factor analysis (CFA) model with the weighted least square mean and variance adjusted (WLSMV) estimator (as the items were measured with an ordinal scale). In the model, all 12 manifested variables (survey items) were indicators for the four latent variables (workplace as learning environment scale factors). MI was tested with chi square difference test ($\Delta\chi^2$) and the inspection of differences of scaled Comparative Fit Index (ΔCFI) and scaled Root Mean Square Error of Approximation (ΔRMSEA) estimates. The latter part of the analysis was conducted as many researchers argue that $\Delta\chi^2$ is too sensitive for large sample sizes (> 300, see, e.g., Chen, 2007; Cheung & Rensvold, 2002). As there was no previous invariance model to compare against, the configural invariance was investigated by the model fit indices (CFI should be > .90 and RMSEA should be < .08, see, e.g., Hu & Bentler, 1999).

Regarding the RQ2, structural equation modeling (SEM, see, e.g., Bollen, 1989) with WLSMV estimator was used to investigate how the exogenous factor (congruence with organisational goals) was related to the three endogenous factors (challenging and developing work, resources to help learning, recognition as an expert and a learner). According to Selig et al. (2008), text general approaches for modeling between-culture differences and similarities are multiple group mean and covariance

structures (MACS) modeling (e.g., Little, 1997) and multilevel SEM (ML SEM; e.g., Hox, 2010). We chose to use MACS as the number of countries on the present study was small and our goal was to compare structural relations across the countries. CFA and MACS analyses were conducted with the *lavaan* program (Rosseel, 2012) in the *R* statistical computation environment (R Core Team, 2020; RStudio Team, 2016).

RESULTS

DESCRIPTIVE STATISTICS

Descriptive statistics of the WLES factors are presented in Table 2. The means and standard deviations across the three countries show that Estonian and Finnish employees were mostly on the same level for each factor and self-assessed all four factors higher than Italian employees.

Table 2. Descriptive statistics

	Challenging and developing work tasks *M*(SD)	Resources *M*(SD)	Recognition *M*(SD)	Congruence *M*(SD)
Merged data (*n* = 486)	4.11(0.798)	3.78(0.806)	3.44(0.825)	3.76(0.772)
Estonia (*n* = 188)	4.33(0.597)	3.85(0.815)	3.60(0.820)	3.81(0.831)
Finland (*n* = 123)	4.50(0.553)	3.92(0.703)	3.66(0.784)	3.85(0.671)
Italy (*n* = 175)	3.60(0.864)	3.61(0.839)	3.11(0.756)	3.63(0.762)

CORRELATIONS

Spearman rank-order correlations (66 correlation pairs) for the whole sample are presented in Table 3. As expected, all 12 items in the merged data (n = 486) correlated positively with a range from 0.09 to 0.65 (r_M = 0.37; r_{SD} = 0.121). Effect sizes were mostly above the medium level (r > |.30|, see Cohen, 1988). In addition, the correlation matrixes for each three countries were investigated. Results were similar, all WLES items correlated positively.

Table 3. Spearman rank-order correlations among the 12 WLES items (merged data)

	2.1	2.2	4.2	4.3	3.1	3.2	3.3	6.1	6.2	7.1	8.1
wle2.1											
wle2.2	0.66										
wle4.2	0.59	0.51									
wle4.3	0.63	0.57	0.64								
wle3.1	0.18	0.19	0.22	0.12							
wle3.2	0.32	0.33	0.41	0.31	0.38						
wle3.3	0.29	0.26	0.37	0.30	0.40	0.50					
wle6.1	0.32	0.30	0.40	0.37	0.41	0.43	0.45				
wle6.2	0.49	0.36	0.58	0.55	0.26	0.40	0.38	0.58			
wle7.1	0.34	0.26	0.35	0.32	0.36	0.41	0.44	0.61	0.58		
wle8.1	0.39	0.37	0.41	0.37	0.22	0.38	0.33	0.44	0.44	0.44	
wle8.2	0.30	0.30	0.38	0.30	0.20	0.43	0.34	0.40	0.31	0.35	0.51

Note. See Table 1 for item descriptions.

Table 4 presents the Pearson product moment correlations among the four WLES factors for the whole (merged) data and for each country separately. In parallel with the hypothesis H1a, all three task-related (challenging and developing work tasks)

and environmental (recognition as an expert and a learner, resources to help learning) WLES factors correlated positively (medium to large effect sizes) in the merged data (n = 486, r range from 0.38 to 0.60). As Table 4 shows, also the hypothesis H1b was supported as the country specific correlations were all positive among these factors.

Table 4. Pearson correlations among the four WLES factors

	Challenging and developing work	Resources	Recognition
Merged data (n = 486)			
Resources	0.56		
Recognition	0.38	0.60	
Congruence	0.46	0.55	0.44
Estonia (n = 188)			
Resources	0.43		
Recognition	0.40	0.62	
Congruence	0.58	0.60	0.43
Finland (n = 123)			
Resources	0.38		
Recognition	0.34	0.59	
Congruence	0.37	0.49	0.50
Italy (n = 175)			
Resources	0.62		
Recognition	0.25	0.47	
Congruence	0.22	0.32	0.36

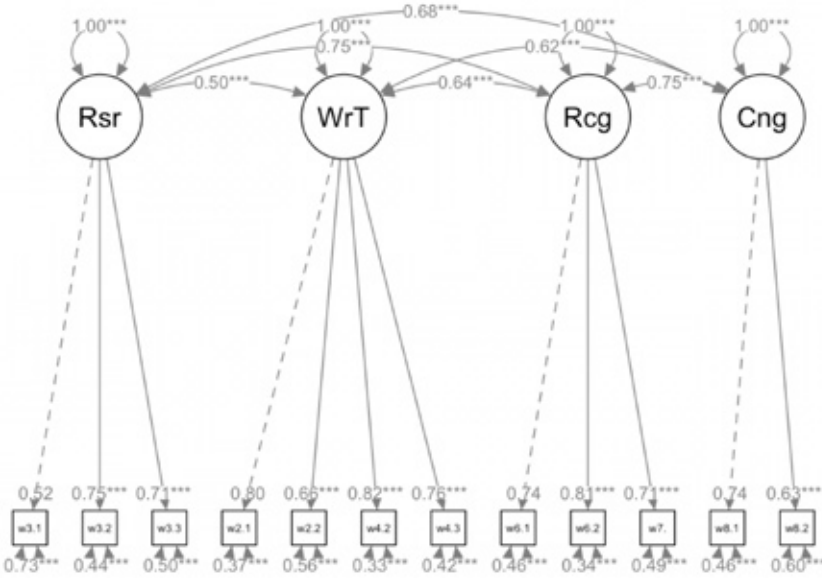
RQ1: ARE THE MEASUREMENT PROPERTIES OF WLES EQUIVALENT ACROSS THE EMPLOYEE GROUPS FROM THREE COUNTRIES?

The RQ1 investigated if the four factor WLES performs equal as well in all three groups (Estonia, Finland, Italy) in the sample. The aim was to determine whether the specified CFA model (see Figure 2) was present in the merged data (hypothesis H2a) and there were no fundamental differences in the dimensionality of WLES across the country-specific data (H2b) (see, e.g., Marsh et al., 2018). Results showed support for H2a as the model was configurally invariant: CFI (0.926) was above .90 and RMSEA (0.064) was below .08.

The metric invariance was supported by the CFI (0.919) and RMSEA (0.064) values. In addition, the difference between both scaled CFI (0.007) and RMSEA (< 0.001) values were below the desired threshold levels (ΔCFI < .01, ΔRMSEA < .015, see Chen, 2007). However, perhaps due to the large sample size (> 300), the chi-square difference test between the configural and metric models was statistically significant ($\Delta\chi^2$ = 43.223, df = 27, p = 0.025). We conclude that the metric invariance holds in this international three group data, i.e., the manifested variables (WLES survey items) were related to the latent variables (four WLES factors) in the same way in all groups (see, e.g., Marsh et al., 2018).

Scalar invariance was not supported by the chi-square difference test, $\Delta\chi^2$ = 108.974, df = 27, p < 0.001. This was also indicated by the CFI (0.884) value and the CFI difference between the metric and scalar invariance models (ΔCFI = 0.035). However, the RMSEA difference was small enough to support scalar invariance (ΔRMSEA = 0.009).

Figure 2. Confirmatory factor analysis model of the WLES factors and related indicators.



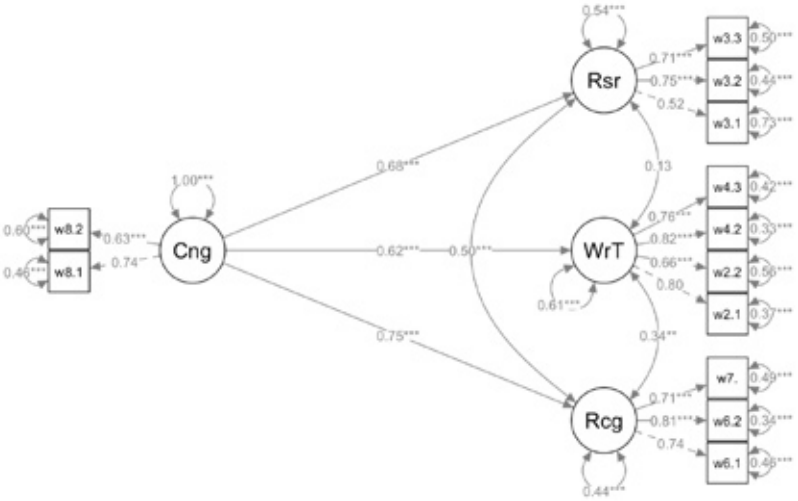
Note. Rsr = Resources to learning, WrT = Challenging and developing work tasks, Rcg = Recognition as expert and learner, Cng = Congruence with organizational goals and values.

Also H2b was supported through establishment of both configural and metric invariance as the number of latent variables (four factors) and both the pattern and magnitude of loadings of latent variables on indicators were similar across the data from the three countries. This allows, relating to the RQ2, further investigation of the relationships between latent variables across different countries (e.g., Hirschfeld & von Brachel, 2014).

RQ2: HOW CONGRUENCE WITH ORGANIZATIONAL GOALS AND VALUES IS RELATED TO CHALLENGING AND DEVELOPING WORK, RESOURCES TO LEARNING AND RECOGNITION AS AN EXPERT AND A LEARNER?

Figure 3 shows the visualization of the standardized results of MACS analysis that investigated relationships between resources to learning, challenging and developing work, recognition as expert/learner and congruence with organizational goals and values. The model in Figure 3 is based on the sample of 486 participants (after multivariate normality tests) from three countries (Estonia $n = 188$, Finland $n = 123$, Italy $n = 175$).

Figure 3. Three country data (n = 486) structural equation model of Resources to learning, Challenging and developing work, Recognition as an expert and a learner and Congruence with organizational goals and values (standardized estimates).



Note. Rsr = Resources to learning, WrT = Challenging and developing work tasks, Rcg = Recognition as an expert and a learner, Cng = Congruence with organizational goals and values.

Results (see Table 5) showed support for the hypotheses H3a and H3b: the exogenous variable (congruence with organizational goals and values) had a statistically significant positive

relation with all three endogenous variables in all four models (merged data, Estonia, Finland and Italy). In the merged data, standardized regression slopes between the exogenous variable and thee endogenous variables were as follows: Challenging and developing work tasks ($\beta\beta$ = 0.623, *S.E.* = 0.047, $p < .001$); resources to learning ($\beta\beta$ = 0.679, *S.E.* = 0.053, $p < .001$); recognition as expert/learner ($\beta\beta$ = 0.750, *S.E.* = 0.048, $p < .001$). Although the regression coefficients were all positive and quite large, we conclude that congruence had the smallest effect on the challenging and developing work tasks and largest effect on the recognition as an expert and a learner. The exogenous variable explained 38.87% of the challenging and developing work tasks variance, 46.06% of the resources to learning variance and 56.25% of the recognition as expert and a learner variance.

The results of the Finnish and Italian data corresponded to the results obtained from the merged data (Table 5). The results of the Estonian data differed from others by having the greatest impact of congruence on challenging and developing work tasks and weakest impact on resources to learning.

Table 5. Standardized estimates of the four factor WLES model

	Merged data (*n* = 486)	Estonia (*n* = 188)	Finland (*n* = 123)	Italy (*n* = 175)

	Est.(S.E.)	Est.(S.E.)	Est.(S.E.)	Est.(S.E.)
				Factor Loadings
WorkTasks				
wle2.1	0.80(0.04)***	0.59(0.07)***	0.82(0.10)***	0.80(0.05)***
wle2.2	0.66(0.04)***	0.53(0.08)***	0.77(0.10)***	0.62(0.07)***
wle4.2	0.82(0.04)***	0.76(0.07)***	0.63(0.09)***	0.82(0.06)***
wle4.3	0.76(0.04)***	0.64(0.07)***	0.71(0.09)***	0.80(0.05)***
Resources				
wle3.1	0.52(0.05)***	0.48(0.07)***	0.50(0.10)***	0.50(0.09)***
wle3.2	0.75(0.05)***	0.83(0.06)***	0.69(0.09)***	0.64(0.08)***
wle3.3	0.71(0.05)***	0.72(0.07)***	0.65(0.12)***	0.84(0.07)***
Recognition				
wle6.1	0.74(0.04)***	0.73(0.06)***	0.88(0.08)***	0.79(0.06)***
wle6.2	0.81(0.04)***	0.77(0.05)***	0.86(0.08)***	0.71(0.06)***
wle7.1	0.71(0.04)***	0.75(0.06)***	0.65(0.09)***	0.81(0.06)***
Congruence				
wle8.1	0.45(0.05)***	0.38(0.08)***	0.54(0.09)***	0.31(0.11)**
wle8.2	0.39(0.05)***	0.42(0.08)***	0.41(0.08)***	0.31(0.12)**
				Regression Slopes
Congruence				
WorkTasks	.62(0.05) ***	.80(0.06) ***	.48(0.09) ***	.65(0.09) ***
Resources	.68(0.05) ***	.63(0.07) ***	.69(0.10) ***	.74(0.11) ***
Recognition	.75(0.05) ***	.75(0.06) ***	.69(0.07) ***	.72(0.11) ***
				Fit Indices
χ2	88.75	46.06	41.43	46.60
df	48.00	48.00	48.00	48.00
p-value	0.00	0.55	0.74	0.53
RMSEA	0.08	0.07	0.08	0.07
C.I. lower	0.07	0.05	0.05	0.04
C.I. upper	0.09	0.09	0.10	0.09
p-value	0.00	0.06	0.07	0.10
CFI	0.93	0.93	0.89	0.95
SRMR	0.05	0.06	0.07	0.06
Scaled χ2	185.03(48)***	92.90(48)***	82.30(48)**	86.24(48)**

Note. + Fixed parameter, * p<0.05, ** p<0.01, *** p<0.001.

Lower section of Table 5 presents the fit indices for the three-country data (n = 486). *Absolute fit indices* tell how well the model explains the data (Kline, 2016). The model was complex enough not to simplify the reality as the *RMSEA* (Root Mean Square Error of Approximation) value 0.077 (*C.I.* = 0.065 - 0.089) was below the .08 threshold level (Kaplan, 2000) for the merged data. Also the *SRMR* (Standardized Root Mean Square Residual) value (0.049) below .05 (Kline, 2016) indicated that the overall difference between the observed and predicted correlations was small. Although the p-value (< 0.001) of χ^2 test was below the desired .05 value (a known issue with large samples), the relative χ^2 (3.85) value was good (< 5, see Marsh & Hocevar, 1985). *Incremental fit measures* compare the proposed model (default model) to a baseline model (independence model) that all other models should exceed. The Comparative Fit Index (*CFI*) value of 0.928 (above the level of .90, see Hu & Bentler, 1999) shows that the proposed model has a discrepancy that is 92.77% of the way between the (terribly fitting) independence model (0%) and the (perfectly fitting) saturated model (100%). Country specific fit indices were also satisfactory except for the *SRMR* values for all countries (that were systematically above the .05 level) and the *CFI* value (below .90) for the Finnish data. Our overall conclusion is that the four factor WLES model fits well to the merged data and (with some reservations) to the country specific data.

DISCUSSION

In the present study, we investigated how technical area employees' experienced factors related to workplace learning in relation to congruence with organization's values and goals. Cross-sectional data that was collected in 2020-2021 from three countries (Estonia n = 188, Finland n = 123, Italy n = 175) showed that congruence was a significant predictor of 1) challenging and developing work tasks, 2) resources to help learning and 3) recognition as an expert and a learner in both merged and country specific data.

Based on earlier studies (e.g., Nokelainen, Rintala et al., 2018; Puhakka et al., 2021), the first research hypohesis proposed that both task-related (challenging and developing work tasks) and environmental (resources to help learning, recognition as an expert and a learner) expansive workplace learning factors (Fuller & Unwin, 2003) correlate positively and significantly with each other. This was confirmed for the data from the three countries in the present study with correlational analysis. The second research hypothesis suggested, based on earlier research (e.g., Nokelainen, Rintala et al., 2018; Puhakka et al., 2021), that the model of four factors (including congruence with organizational goals and values) and 12 observed variables is valid in the three country-specific data of this study. This hypothesis was confirmed with measurement invariance testing. Confirmation of these two hypotheses suggest that the four factor expansive workplace learning model has application value also with cross-cultural data. Based on previous research (Nokelainen, Rintala et al., 2018; Puhakka et al., 2021; Schaufeli, 2015; Sørlie et al., 2022), the third research hypothesis proposed that the congruence with organizational goals and values is a positive predictor of job resources related to workplace learning. Also

this was confirmed in both merged and country-specific data in the present study with structural equation modeling.

In the past research literature, several suggestions have been made to improve practical applicability of future workplace learning studies. *First*, as the changes affecting working life highlighted earlier are global, it is appropriate to look at the factors affecting workplace learning and well-being at work in a cultural context. Fischer (2009) notes that in order to explain differences in work behaviour and attitudes, it is not enough to look only at the level of the employee, but also the culture in which the employee is situated should be taken into consideration. *Second*, Manuti et al. (2015, p. 13) call to "... look at workplace learning in practice and in specific industries and workplaces, not just in theory" as there is considerable variation in both practices and end goals where they aim. This notion calls for empirical research of WPL. *Third*, a recent review (Brandi & Iannone, 2021, p. 329) of both human resources (HR) and workplace learning (WPL) approaches to learning in the context of work noticed that "HR is output-oriented and looks to learning as capital for enterprises, while WPL centres more upon the individual (in a cultural context) and encompasses the human dimension of learning as something enriching the whole of life, including work life." This notion leads to an increasing need for studies that aim to investigate relationships between the central concepts of WPL and HR models. The current study addressed these issues by 1) obtaining a cross-cultural sample of workers from three countries, 2) drawing its results from an empirical data that was focused on technical sector, and 3) placing workplace learning factors (Fuller & Unwin, 2003) in the context of widely applied human resources model (JD-R, Demerouti et

al., 2001).

LIMITATIONS OF THE STUDY

The first limitation of the present study was that the findings gave voice only to technical sector workers in Estonia, Finland and Italy. *The second limitation* was that the data were obtained via convenience sampling from the employees who belonged to six companies that were part of a [project name excluded] project in 2020-2022. *The third limitation* was that all measurements were based on self-assessment. *The fourth limitation* of the study was that the employees represented companies in the technology sector whose products differed quite much (e.g., software development vs. retail sale). However, the participants of the present study were both blue- and white-collar workers. *The fifth limitation* was that although congruence was presented as an exogenous (predictor) variable, the cross-sectional design did not permit any causal interpretations of the findings. *The sixth limitation* of the study was that although workplace learning (WPL) was considered in the framework of human resources (JD-R), variables related to the latter were not included in the analysis.

CONCLUSIONS

The main findings of this study were: 1) expansive workplace learning factors related to work resources (challenging and developing work tasks) and environmental resources (resources to learning, recognition as an expert and a learner) were present in cross-cultural context (empirical data from Estonia, Finland and Italy), and 2) congruence with organizational goals and val-

ues had a strong positive relation with work and environmental resources factors both in merged and country-specific data.

Development of congruence could be supported by 1) helping employees to adjust their expectations to match with the reality at the workplace, 2) setting clear goals, a purpose and value that can be shared and understood by the employee, 3) showing how employees' roles contribute to the purpose of the organization, and 4) allowing employees to recognize and follow life goals that have personal value (e.g., Nadler & Tushman, 1992; Supeli & Creed, 2014). When work allows to have participative role in fulfilling the purpose for the organization, employees can easier understand how they fit in and can contribute to the goals, which will help them to feel connected to a greater good, and allowing to feel a sense of purpose.

SUGGESTIONS FOR FUTURE RESEARCH

The limitation of the present study, i.e. that the WLES and JD-R factors were not measured in the same context, should be addressed in the future. In addition, data should be collected from more than three different countries. The work fields/sectors of the participants should be standardized as well as possible. Wherever possible, longitudinal designs should be preferred, as well as measurements other than those based on self-assessment (e.g., video recordings and physiological measurements). In the future, we would like to see (quasi) experimental (intervention-based) designs.

REFERENCES

Bakker, A., & Demerouti, E. (2007). The Job Demands- Resources (JD-R) model: State of the art. *Journal of Managerial Psychology*, *22*, 309—328.
Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606.
Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, *13*(5), 209–2014.
Billett, S. (2004). Learning through work. Workplace participatory practices. In A. Fuller, A. Munro, & H. Rainbird (Eds.), *Workplace Learning in Context* (pp. 109-125). Routledge.
Billett, S. (2015). Work, discretion and learning: processes of life learning and development at work. *International Journal of Training Research*, *13*(3), 214-230.
Billett, S. (2021). Mediating worklife learning and the digitalisation of work. *British Journal of Educational Technology*, *52*, 1580–1593.
Bollen, K. (1989). *Structural Equations with Latent Variables*. John Wiley & Sons.
Brandi, U., & Iannone, R. L. (2021). Approaches to learning in the context of work – workplace learning and human resources. *Journal of Workplace Learning*, *33*(5), 317-333.
Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin*, *105*(3), 456.
Cangur, S., & Ercan, I. (2015). Comparison of Model Fit Indices Used in Structural Equation Modeling Under Multivariate Normality. *Journal of Modern Applied Statistical Methods*, *14*(1), Article 14. https://digitalcommons.wayne.edu/jmasm/vol14/iss1/14/
Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*(3), 464–504.
Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255.
Deci, E. L. & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 319-338.
Demerouti, E., Bakker, A. B., & Halbesleben, J. R. B. (2015). Productive and counterproductive job crafting: A daily diary study. *Journal of Occupational Health Psychology, 20*(4), 457–469.
Demerouti E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The Job Demands–Resources model of burnout. *Journal of Applied Psychology*, *86*, 499—512.
Ellström, E., Ekholm, B., & Ellström, P.-E. (2008). Two types of learning environment: Enabling and constraining. A study of care work. *Journal of Workplace Learning*, *20*(2), 84–97.

Fischer, R. (2009). Where Is Culture in Cross Cultural Research? An Outline of a Multilevel Research Process for Measuring Culture as a Shared Meaning System. *International Journal of Cross Cultural Management*, *9*(1), 25–49
Fuller, A. & Unwin, L. (2003). Learning as Apprentices in the Contemporary UK Workplace: creating and managing expansive and restrictive participation. *Journal of Education and Work*, *16*(4), 407-426.
Fuller, A., & Unwin, L. (2004). Expansive learning environments: Integrating organizational and personal development. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 126–144). Routledge.
Fuller, A., & Unwin, L. (2010). 'Knowledge workers' as the new apprentices: The influence of organi- sational autonomy, goals and values on the nurturing of expertise. *Vocations and Learning*, *3*(3), 203–222.
Hair, J. F., Anderson, R. E., Tatham R. L., & Black, W. C. (1995). *Multivariate Data Analysis*. Fourth edition. Prentice Hall.
Hermida, R. (2015). The problem of allowing correlated errors in structural equation modeling: concerns and considerations. *Computational Methods in Social Sciences*, *3*(1), 5-17.
Hirschfeld, G., & von Brachel, R. (2014). Improving Multiple-Group confirmatory factor analysis in R – A tutorial in measurement invariance with continuous and ordinal indicators. *Practical Assessment, Research, and Evaluation*, *19*(7), 1-12.
Hlavac, M. (2018). *stargazer: Well-Formatted Regression and Summary Statistics Tables*. R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
Hox, J. (2010). *Multilevel analysis. techniques and applications*. Routledge.
Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.
James, S., & Holmes, C. (2012). *Developing vocational excellence: Learning environments within work environments*. SKOPE Research Paper 112. University of Oxford.
The jamovi project. (2021). *jamovi* (Version 1.6) [Computer Software]. Retrieved from https://www.jamovi.org
Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, *34*, 183–202.
Kaplan, D. (2000). *Structural Equation Modeling*. Sage.
Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Fourth edition. Guilford Press.
Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.
Lehtonen, E., Nokelainen, P., Rintala, H., & Puhakka, I. (2022). Thriving or surviving at work: how workplace learning opportunities and subjective career success are connected with job satisfaction and turnover intention? *Journal*

of Workplace Learning, *34*(1), 88-109. https://doi.org/10.1108/JWL-12-2020-0184
Korkmaz, S., Goksuluk, D., & Zararsiz, G. (2014). MVN: An R Package for Assessing Multivariate Normality. *The R Journal*, *6*(2).
Little, T. D. (1997). Mean and Covariance Structures (MACS) Analyses of Cross-Cultural Data: Practical and Theoretical Issues. *Multivariate Behavioral Research*, *32*(1), 53-76.
Manuti, A., Pastore, S., Scardigno, A. F., Giancaspro, M. L., & Morciano, D. (2015). Formal and informal learning in the workplace: A research review. *International Journal of Training and Development*, *19*(1), 1–17.
Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher-order factor models and their invariance across groups. *Psychological Bulletin*, *97*, 562–582.
Marsh, H. W., Guo, J., Parker, P. D., Nagengast, B., Asparouhov, T., Muthén, B., & Dicke, T. (2018). What to do When Scalar Invariance Fails. *Psychological Methods*, *23*(3), 524-545. https://doi.org/10.1037/met0000113.
Nadler, D. A., & Tushman, M. L. (1992). Designing organizations that have good fit: A framework for understanding new architectures. In D. A. Nadler, M. S. Gerstein, & R. B. Shaw (Eds.), *Organizational architecture: Designs for changing organizations* (pp. 39–57). Jossey-Bass.
Nokelainen, P., Nevalainen, T., & Niemi, K. (2018). Mind or machine? Opportunities and limits of automation. In C. Harteis (Ed.), *The impact of digitization in the workplace: An educational view* (pp. 13-24). Springer.
Nokelainen, P., Rintala, H., & Pylväs, L. (2018). Apprentices' adaption and innovation styles in relation to dimensions of workplaces as learning environments. In L. Moreno Herrera, M. Teräs, & P. Gougoulakis (Eds.), *Emerging issues in vocational education & training: Voices from cross-national research* (pp. 370–388). Stockholm University Press.
Puhakka, I., Nokelainen, P., & Pylväs, L. (2021). Learning or leaving? Individual and environmental factors related to job satisfaction and turnover intention. *Vocations and Learning*, *14*, 481-510. https://doi.org/10.1007/s12186-021-09275-3
Putnick, D. L., & Bornstein, M. H. (2016). Measurement Invariance Conventions and Reporting: The State of the Art and Future Directions for Psychological Research. *Developmental review*, 41, 71–90.
R Core Team (2020). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.
Rausch, A., Schley, T., & Warwas, J. (2015). Problem solving in everyday office work - a diary study on differences between experts and novices. *International Journal of Lifelong Education*, *34*(4), 448-467.
Raykov, T., & Marcoulides, G. A. (2000). *A First Course in Structural Equation Modeling*. Lawrence Erlbaum Associates.

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2), 1-36. http://www.jstatsoft.org/v48/i02/

RStudio Team (2016). *RStudio: Integrated Development for R*. RStudio, Inc., Boston, MA URL http://www.rstudio.com/.

Schaufeli, W. B. (2021). Engaging Leadership: How to Promote Work Engagement? *Frontiers in Psychology*, *12*, 754556.

Schaufeli, W. B. & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293—315.

Schaufeli, W. B. (2015). Engaging leadership in the job demands-resources model. *Career Development International*, *20*(5), 446-463.

Schumacker, R. E., & Lomax, R. G. (2004). *A Beginner's Guide to Structural Equation Modeling*. Second edition. Lawrence Erlbaum Associates.

Selig, J. P., Card, N. A., & Little, T. D. (2008). Latent variable structural equation modeling in cross- cultural research: Multigroup and multilevel approaches. In F. J. R. van de Vijver, D. A. van Hemert, & Y. H. Poortinga (Eds.), *Multilevel analysis of individuals and cultures* (pp. 93–119). Taylor & Francis Group/Lawrence Erlbaum Associates.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout and engagement: the role of basic psychological need satisfaction. *Work Stress*, *22*, 277–294.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources and work engagement. *Journal of Vocational Behavior*, *74*, 235—244.

Training in a dual mode: Cooperation structures and procedures in actors' networks in Mexico

Matthias Pilz
Chair of Economics and Business Education
University of Cologne
Herbert-Lewin-Str. 2 * D-50931 Cologne, Germany
matthias.pilz@uni-koeln.de

ABSTRACT:

In Mexico, a dual education system has been implemented by the national government in recent years. In the international context, the challenges of cooperation between companies and vocational education providers have already been explored. However, there are only very limited research findings to indicate the necessary principles for cooperation. Accordingly, our research question is: What principles are necessary for cooperation between different actors in Mexico?

The presented research includes a qualitative survey of expert interviews. The interview partners can be assigned to different regional, national as well as international actor types: German/Austrian/Swiss organisations, Mexican national authorities, Mexican organisations, vocational education organisations and companies. All interviews were transcribed and the results explored using qualitative content analysis.

The study shows that different principles are needed to ensure that cooperation does not come to an end. Furthermore, new insights can be gained, such as the importance of contracts between companies and vocational education and training organisations.

KEYWORDS:

Mexico, dual training, actors, cooperation

INTRODUCTION

In the literature on the transfer of vocational education and training, there has been a lack of consideration for the conditions for successful cooperation between actors in the vocational education system (Li & Pilz, 2021). In the existing publications, vocational education researchers identified a need for further research in this regard (Posselt et al., 2012; Stockmann, 2013). This paper seeks to identify and analyse the necessary principles for successful cooperation. Cooperation is to be examined, in particular, in the context of dual training activities. This is because the complexity and number of actors involved poses a particular challenge. Here, dual practices are not to be understood singularly as dual training along the lines of apprenticeships in German-speaking countries. Rather, a broad approach is to be pursued that encompasses various forms of cooperation between different places of learning. Therefore, not only dual cooperation practices between companies and vocational schools are included but also those between companies and universities or those between vocational schools and training

centres (Pilz & Wiemann, 2021; Wiemann & Pilz, 2020; Wiemann & Fuchs, 2018).

In this study, the focus is on Mexico. For several decades, there has been a growing interest in high-quality training in Mexico, which imparts practice-relevant competences through the interlinking of school-based and in-company training. Dual vocational education practices are intended to help modernise the vocational education system and support foreign companies' branches regarding skilled workers. In the past the Modelo Mexicano de Formación Dual (MMFD) was established and other dual concepts were developed and implemented (Wiemann, 2020; Wiemann & Fuchs, 2018). In this respect, there is already interplay between different stakeholders in Mexico.

This paper focuses on the cooperation between the different actors in establishing dual training structures. The particular importance of coordination between different stakeholders has been cited in the cooperation agreement between Germany and Mexico: "Improving 'state-business' cooperation (...). Improving dual vocational training in schools and companies" (BIBB, n.d.).

In the next chapters existing findings and theoretical approaches are discussed. This is followed by a presentation of the author's own research procedure and a description and discussion of the findings. The article concludes with some general remarks.

The presented research is based on the larger study "DualReg: Locally rooted – worldwide linked up: Mexico – Success conditions for transfer of vocational education and training and dual practices" (funded by the German Federal Ministry of Education and Research). I would like to express my deepest thanks

to my project colleagues Prof. Dr. Martina Fuchs, Natascha Röhrer and especially Beke Vogelsang for providing research input, empirical data and supporting the writing of the chapter.

THEORETICAL APPROACH

In international vocational education research, there have been only a few conceptual approaches and empirical findings that show the principles needed for successful cooperation in dual approaches. Although discourse exists that calls for "proceeds with steps to take to ensure 'successful' partnerships" (Davies & Hentschke, 2006, p. 211), within vocational education research further research is needed in this regard (Callan & Ashworth, 2004).

Callan and Ashworth (2004, p. 60) write: "Successful training partnerships regularly review how well the partnership is meeting industry needs. (...) Building trust will be central to the success of the training partnership." Moreover, some authors argue that the success of a partnership is determined by several other factors (Atchoarena, 1999; Bünning & Schnarr, 2009; Mitchell, 1998; Pilz, 2017): The interface between the private and public sectors plays just as much a role as a functioning legislative, executive and judiciary. This includes the state recognition of training certificates or their financing. For a successful cooperation not only external factors are relevant but also those that play a role within the cooperation partners. Accordingly, there is a range of literature that "proceeds with steps to take to ensure 'successful' partnerships" (Davies & Hentschke, 2006, p. 211). Kanter (1994, p. 96) argues: "successful partnerships manage the relationship, not just the deal".

One example focusing exclusively on vocational education is the study by Billett et al. (2007). These authors conducted interviews in Australia to identify principles needed for cooperation. Despite these initial findings, there needs to be an exploration of the important principles in the Mexican vocational education system that contribute to successful cooperation, which have not yet been researched for the country. The work of Billett et al. (2007) is thus the starting point for this paper because they focus on the needed principles, state them explicitly and do not treat them as a side issue. Furthermore, Billett et al. (2007) include different collaborations in their study based on their genesis (community partnership, enacted partnership, negotiated partnership), so that a broader perspective is evident in their work.

In their empirical study, Billett et al. (2007) detected five principles for cooperation between actors in the vocational education system to work. The principles mentioned are not only seen as necessary during the implementation phase, but also for the ongoing operation of training.

The first principle is "building and maintaining shared purposes and goals". Within this principle, the different interests and concerns of the individual actors are first identified to subsequently agree on common intentions. Each goal is derived from a local problem/concern or demand. For example, the study shows that a partnership was formed because local actors in the vocational education system were dissatisfied with the quality of vocational education that existed in the region until then. Moreover, the intentions may become more concrete in the course of the cooperation due to the interactions. To achieve the planned intentions, it is necessary that individuals from the

various organisations get involved voluntarily. It is only through their commitment and cooperation that the formation of social partnerships can be achieved. There must be a realisation that something positive can be created by means of cooperation and that cooperation can be useful.

Within the first principle, additional factors have to be taken into account because of the diverse and partly competing interests of the individual actors, among other things. Likewise, financing—who bears what costs—seems to be an aspect to be considered. After identifying a common goal, different approaches to solving the problem can be developed. However, an identified problem may provoke different responses from the actors, which in turn may cause tensions between the participants. As a result, agreement is needed on how to make the project successful. Finally, successes should be celebrated so that cooperation continues and is further strengthened.

Notably, it is not only the celebration of successes that strengthens cooperation but also the establishment of a strategic plan that can build trust and take different needs into account. This can illustrate the direction of activities for each participant.

According to Billett et al. (2007), the second principle is "building and maintaining relationships with partners". To build relationships, there must be trust and commitment from all. Mutual respect is important. For relationships to continue in the future, they should be supported and strengthened. Open and honest communication contributes to strengthening relationships. Personal networks are particularly important here. In contrast, formal network of relationships that are created due to government regulations are described as challenging. Possible reasons for this are the dissatisfaction of the actors with regard

to the given distribution of roles or different ideas about the form of a partnership.

Not only the mutual exchange of information is important for building relationships. The feeling of being able to achieve something through cooperation can strengthen the relationship building process. Furthermore, through contact with each other, a common consensus can be found in case of disagreements. Likewise, appreciation of success is seen as helpful in strengthening cooperation. The time invested by partners is another crucial factor. The long duration of a relationship also enables trust to be built or deepened.

Finally, Billett et al. (2007) cite the following to support connectedness: "incremental introduction of new processes and goals is likely to assist manage the staged development of social partnerships (...)". On the other hand, if there are guidelines on how to achieve certain agendas, for example, this can hinder a relationship and lead to less commitment. A possible reason for the rejection of guidelines might also be negative experiences from in the past.

The third principle of cooperation mentioned by the researchers is "building and maintaining capacities for partnership work". This includes the involvement of the cooperation partners to build an infrastructure and to ensure the necessary resources to achieve the defined goals. If problems are ignored or too few resources are available, goals may not be achieved. Therefore, over time, new partners should also be recruited, who in turn maintain relationships with the community and other sponsors. This will enable the infrastructure to be managed. It is also important to ensure that collaboration can be influenced by the stakeholders so that collaboration lasts in the long term.

Individuals contribute to the capacity of a partnership, as do organised meetings where exchanges take place among partners. Communication should also prevent the pursuit of individual interests and prove that it is a 'real partnership' as it is organised bottom-up rather than top-down. Therefore, when working with the government, which partner has what influence should be clarified.

"Building and maintaining partnership governance and leadership" is listed as the fourth principle. Governance supports the development of a social partnership. However, the structure/design of governance varies as the structure is adapted by the objectives as well as the purpose of the cooperation. However, to promote cooperation, the joint creation of rules is necessary to define the roles of the partners, among other things. This also clarifies who has what influence to achieve the defined goal. This approach is intended to prevent the pursuit of one-sided interests. This is why a certain sensitivity for action is important, as action that is not coordinated in advance can cause mistrust or concern among other cooperation partners. To build trust, open and equal communication between partners must be encouraged.

The actor who has the leading role within the cooperation must first practise this function. Therefore, constant reminders of the defined goal are useful. Nevertheless, leadership takes on a significant function because it engages, involves or acts through the partners.

The last principle listed is "building and maintaining trust and trustworthiness". To build trust, partners should be involved and available information shared. The needs and expectations of all stakeholders must be identified and respected. Evidence of

trust can be provided by commitment or goodwill. The establishment of a strategic plan is also fundamental to promoting trust. Thus, not only the sharing of information is considered fundamental, but also active participation and adherence to agreements. Above all, contact must be sought with those actors who do not participate in the promised cooperation. In connection with the last principle, honesty and respect are essential.

The five principles described here serve as a basis for our own research work in Mexico.

METHODOLOGY

The study examines conditions for long-term, successful vocational training cooperation, both for the industrial and tourism sectors. Both sectors were selected because they are of particular economic importance in Mexico. Moreover, this allows for consideration of both the industrial sector and the service sector.

For the specification of the conditions for success, a regionally differentiated view is always necessary, which also includes the national level and international cooperation in a multiscalar manner. The regional characteristics are due to the local economic structure, the network of stakeholders involved and the institutional arrangements. The research project considers two areas. First, the industrial area in the central highlands (Mexico City metropolitan area) as a region experienced in terms of vocational training cooperation in comparison to the urban area of Tijuana with the maquiladora industries (focus on assembly, with the purpose of re/further export to the USA and Canada). Second, the more touristic regions of Quintana Roo on the Yucatán Peninsula and Baja California Sur.

Considering the explorative research interest, an open research design was chosen. This consisted of semi-structured interviews with the relevant actors (Adams, 2015). The guideline of the expert interviews is based on literature research addressing actor constellation and cooperation theory of vocational education, as well as context related literature research about Mexico and its vocational education system (Billett & Seddon, 2004; Etzkowitz & Leydesdorff, 1995; Oliver, 2010; Wiemann, 2020). The selected interview partners were chosen through literature research and direct contact as well as through recommendation by other actors.

In a pilot study in 2019 and the main study from 2020 to 2022, a total of 110 expert interviews were conducted. The actors included 18 German/Austrian/Swiss organisations active in vocational education provision, 31 Mexican organisations, including official bodies, 23 vocational education providers and 38 Mexican and international companies. Due to the COVID-19 pandemic, both in person and video call interviews were conducted.

The interviews were conducted in Spanish or German and were audio recorded. Subsequently, the interviews were transcribed. The findings presented here were achieved by means of a qualitative content analysis (Kuckartz & Rädiker, 2019) of the material with a special focus on the cooperation structures and procedures necessary for the success of dual training practices. For this publication, select quotes have been translated into English.

PRESENTATION AND DISCUSSION OF THE FINDINGS

The central findings are presented and discussed below. The findings are structured according to the five principles of the cooperation by Billett et al. (2007).

BUILDING AND MAINTAINING SHARED PURPOSES AND GOALS

The first principle "building and maintaining shared purposes and goals" by Billett et al. (2007) plays an important role in vocational education in Mexico, as various interviewees point out the importance of setting common goals. As Billett et al. (2007) outlined, various actors active in the Mexican vocational training system can agree on a common goal due to a local problem: the shortage of skilled workers. The common goal is the implementation of dual practices to train specialists, among other things. During goal setting, it is crucial that all relevant stakeholders are involved, and the different ideas are brought to a common consensus. The German-speaking actors in particular point out that the Mexican conditions must be observed when dual concepts are developed. Accordingly, it is important that the dual concepts fit the region. For example, the German dual system cannot be adopted without adaptations in Mexico due to different legal settings, institutional logics and also different training cultures (Wiemann & Fuchs 2018; Pilz & Wiemann, 2021; Pilz 2009). The respective dual concept must therefore fit the country. In addition, when setting goals, it is important that the various actors take time for this process. A German-speaking actor explains:

> "The first talks got out of hand because they somehow had ideas, we had concrete ideas, normally the experts or the international cooperation partners have more concrete ideas, and to somehow make a common denominator out of that, you also need time with the partner so that they say of their own accord, ah ok, that's exactly what I need." (I_12, German Organisation)

Furthermore, it is noticeable that tourism companies rarely cooperate with each other to train skilled workers together. Tourism companies have developed their internal training concepts so that they provide company-specific training and further education for their own employees. Due to further training options, the employees have substantial opportunities for advancement. In contrast, opportunities for advancement in industrial companies are more limited, as many positions are only filled by people with a university degree.

BUILDING AND MAINTAINING RELATIONS WITH PARTNERS

The second principle "building and maintaining relations with partners" is also considered elementary for the Mexican vocational education system. All of the stakeholder groups surveyed point to the great importance attached to relationships with cooperation partners. Communication is particularly important in Mexico to strengthen mutual relationships. To talk to each other, personal meetings are often organized, or communication is carried out over the phone, video call, WhatsApp or e-mail.

German-speaking actors point out that personal meetings with Mexican actors are particularly important, since this not only builds a closer relationship with the actors but also promotes joint work. To build such a close relationship with the other actors, it is also important to exchange information about personal matters, such as child rearing or home life. From the point of view of some German-speaking actors, the COVID-19 pandemic has made it difficult to establish and maintain relationships, as face-to-face meetings were not possible.

Communication is also necessary with regard to the common objective, as this allows agreements to be made. In addition, it is important for the cooperation partners to communicate their respective expectations. One interviewee explains:

> "That there is always communication, that we can always have a meeting. (...) As long as there is that part of communication, we can get better results from each member." (I_2, Company)

To promote the relationship between the two places of learning (vocational training organisations and companies), there are contact persons in the respective organisations. In the companies, the personnel managers are the responsible persons, in the vocational training organisations responsible contact persons are also named to facilitate communication between the two actors. Companies and vocational training organisations also exchange information by means of written reports. In these reports, the companies document what the trainees have learned in the companies. In addition, learners are often evaluated in these reports. The vocational training organisations receive feedback on the learning status of the individual learners through these reports.

BUILDING AND MAINTAINING CAPACITIES FOR PARTNERSHIP WORK

In Billett et al. (2007) "building and maintaining capacities for partnership work" is mentioned as the third principle. Within this principle there is a need for different resources and an infrastructure to achieve the common goal. All of the stakeholder groups interviewed also signalled the need for resources and infrastructure so that dual practices can be offered in Mexico.

With regard to the available infrastructure, the German-speaking actors in particular point to the political instability in Mexico, because a new national government is elected every six years. All people who worked in the previous government are replaced. For this reason, it is important to create structures that remain in place even if the people responsible are replaced. However, elections do not only affect the stability of the structure at the national level but also affect regional elections in the individual states. This aspect is therefore closely linked to the previous principle of "building and maintaining relations with partners", because new relationships must always be established with the new responsible persons.

Various resources are also needed at the micro (educational) level. Among other things, adequate equipment in the vocational training organisations is important. In addition, teachers need to be well trained and retrained to teach and train learners. According to various actors, the skills are not always taught sufficiently. A company expressed its dissatisfaction as follows:

> "I know some teachers who teach English (...). I have to say that (...) the level is quite, quite low. And it's clear that if the

> teachers have a low level, what should they pass on? The pronunciation is not good. (...)" (I_67, Company)

BUILDING AND MAINTAINING PARTNERSHIP GOVERNANCE AND LEADERSHIP

The fourth principle, "building and maintaining partnership governance and leadership" is also considered essential in Mexico. However, the focus is on the respective role understanding of the actors. The cooperation partners must therefore know what role they play within the cooperation. The respective understanding of roles is important both at international and regional level. A German organisation said that while the Mexican actors are in favour of supporting the international actors, they still want to make their own decisions:

> "What I notice is that the Mexicans want to create their own structures. Of course they want support and advice, but they want to decide for themselves how to set themselves up and how to implement it. That also comes across very strongly." (I_18, German Organisation)

Understanding one's own role is also important at the regional level so that cooperation in Mexico can be successful. Several companies pointed out that vocational education organisations need to prepare learners for the practical phases. This preparation is necessary so that they behave appropriately, for example with regard to customer contact. In this context, communication again plays a key role, as it allows expectations to be expressed towards the other partner. Tourism companies in particular explained

that failure to meet their expectations means that they cancel or do not renew the contracts with the training organisations. Since the tourism companies usually offer many and comprehensive internal training courses, they are not necessarily dependent on cooperation with vocational training organisations.

BUILDING AND MAINTAINING TRUST AND TRUSTWORTHINESS

As in Billett et al. (2007), trust and trust-building are mentioned as a fundamental principle for the Mexican vocational education system. The German-speaking actors in particular consider this principle to be very important for building closer relationships with the Mexican actors.

According to various stakeholders, trust can mainly be fostered through regular meetings and through both honest and open communication. Everyone involved must be informed about the processes. The procedures should be clear or agreed upon for the actors and all actors should be included. Such agreements are particularly crucial when changes are made. The actors should also be open to other ideas and suggestions. Only through such procedures can mutual trust be strengthened. In addition, trust builds over time and is therefore not present from the beginning. A company stated:

> "So I think it is very important to build trust, and you do that by meeting each other, by getting to know each other, by not being stubborn and saying we want to do it one-to-one, but by adapting a bit and staying open. So I think that's the absolute cornerstone for making any progress at all." (I_17, Company)

Trust in learners also plays an important role within companies. Learners receive information about the company during their on-the-job experience, which is why companies advocate for longer workplace experience to build trust with the learners and share more information.

INTERIM CONCLUSION

It can be seen that the five principles of Billett et al. (2007) are also considered important by the interviewees for the Mexican context. Table 1 shows the results in aggregated form:

Principles by Billett et al. (2007)	What is necessary for Mexico?
1. Shared purposes and goals	Dual practices as a solution to problems (e.g. skilled workers)
2. Building relations with partners	Communication, face-to-face meetings
3. Capacities for partnership work	Structures, equipment, financial resources, human resources
4. Partnership governance and leadership	Knowledge of the roles
5. Trust and trustworthiness	Honesty, time period, continuity of cooperation, regular exchange

Table I. The five necessary principles according to Billett et al. (2007) in the Mexican context

The evaluation of the interviews also revealed that the five principles reported by Billett et al. (2007) are not sufficient for cooperation in dual training activities in Mexico. The interviewees named several other important aspects for successful coopera-

tion, which can be illustrated using three additional principles. The three principles are: Contracts between the learning venues, status of youngsters as learners and adaptation of qualitative labour market needs. These three principles will now be discussed in more detail.

CONTRACTS BETWEEN THE LEARNING VENUES

The first additional principle is "contracts between the learning venues". For dual practices to be offered in Mexico, the contracts between vocational education organisations and companies play a fundamental role. This contract assures companies that learners will retain student or pupil status. Thus, no contract between the learner and the company is necessary. By guaranteeing student/pupil status, the companies do not have to pay the learners a wage. In addition, the learners have insurance coverage based on their student or pupil status. This offers companies protection, as they do not have to pay in the event of an accident. The contract between these two actors is very general and includes all legal bases:

> "The agreements that are signed (...) cover in general terms all the legal aspects that we have to comply with." (I_78, Company)

In addition, the agreement between the vocational training organisations and the companies often includes the duration of the practical phase (number of months) for the learners, or how many hours the learners have to complete in the company. Both industrial and tourism companies prefer longer practical phases

of several months, so that training periods that are beneficial to learning and also profitable are possible for the companies. However, the agreements do not contain any specifications as to what the learner should learn in the company.

In the company, the respective department heads are mainly responsible for the training of the apprentices. The HR managers are responsible for the learner's coordination process. The personnel managers thus maintain contact both with the department heads to whom the learner was assigned and with the vocational training organisations.

STATUS OF YOUNGSTERS AS LEARNERS

The principle "status of youngsters as learners" is closely linked to the previous principle. Since the learners continue to have their student or pupil status, no contract is concluded between the learners and the company. However, there is a risk that companies will take advantage of the learners and see them as cheap labour, especially when the workload is very high. The vocational training organisations are also aware of this danger and want to prevent their learners from being exploited. Instead, according to the vocational training organisations, the focus should be on learning in the world of work. The learners should gain practical experience and develop further. In addition, the trainees should be able to carry out the day-to-day activities of the company and feel valued. A vocational education organisation explains:

> "Unfortunately, over many years, the idea of dual practices was that [the companies] needed free labour, free employees, and we are working to counteract this with the commitment of the

> companies, making the students feel that their time is valuable there (...)." (I_55, Vocational education organisation)

Many interviewees from the companies also emphasized that they value the learners and see them as employees during their stay in their company. For this reason, for example, the learners—like all other employees—should take part in the planned training courses. Accordingly, for many companies, the focus is on supporting learners. However, the time at which the learners have their practical phase is crucial for the companies, because the companies do not always have exciting projects on which the learners can work:

> "To have a project in which to integrate people. We don't have projects all the time. We could not open the door to everybody all the time." (I_44, Company).

It is therefore clear that many companies are aware of their responsibility towards the learner.

ADAPTATION OF QUALITATIVE LABOUR MARKET NEEDS

As a third additional principle, "adaptation of qualitative labour market needs" is important for the Mexican context. This principle covers the inclusion of company needs in the curricula of the vocational education organisations. According to this, vocational education organisations need to determine what content is important for the economy and what should be taught to the

learners in the vocational education organisations. As a result, a few interviewees noted that a meeting between vocational education organisations, companies and sometimes other organisations is organized so that the actors can exchange views on current trends. For this reason, some universities have established their own committees to promote the exchange of learning content between the actors. However, the committees can only give recommendations and advice, the decision-making authority lies with the vocational education organisations and the responsible authorities. Some actors complained that certain aspects of the curricula cannot be changed. According to one actor, the link between business and vocational education organisations can be even closer. In addition, the actor noted the slow adaptation of the curricula to the company's needs as an obstacle:

> "One of the things that would be most important is for universities to design their curricula more closely to the needs of the professional world. You need to get the business world and the academic world together (...). The world today is changing extremely fast, and the academic world is extremely slow." (I_21, Mexican organisation)

According to this, the actors in Mexico would have to work more closely together to jointly coordinate the curricula.

From these statements it becomes clear that in the Mexican context three additional principles are necessary for successful cooperation. The three principles are briefly summarized in Table 2.

Extension of the concept of Billett et al. (2007)	What is necessary for Mexico?
Contracts between the learning venues	Protection / insurance through contracts
Status of youngsters as learners	Reference person, no cheap labour
Adaptation of qualitative labour market needs	Exchange with the private sector, collective development of curricula

Table II. Addition of three principles for successful cooperation in Mexico

CONCLUSION

The findings clearly show how complex the factors for successful cooperation in dual training concepts are. In addition to regulatory requirements and institutional structures, clear curricular specifications are also necessary. However, the subject-oriented factors, such as the necessary trust and integrated communication also play a major role. In summary, it can be stated that successful cooperation goals and prerequisites are required at the macro level as well as the meso and micro levels. At the same time, the factors interact across all levels. Thus, intensive communication is a prerequisite for the development of curricula related to the labour market and for building trust.

The findings also show that dual training practices can function successfully if the factors outlined above are taken into account. This is true within the Mexican context if these practices are defined further and designed differently than in the German-speaking area (for further findings, especially of German companies in Mexico, cf. Pilz & Wiemann, 2021; Vogelsang & Pilz, 2021).

The study also shows that concepts or approaches implemented in one country cannot be transferred to other countries without being confirmed. Just as training concepts cannot be transferred from one country to another without reflection (see Gessler et al., 2019; Li & Pilz, 2021; Pilz, 2016), analytical concepts or models cannot be transferred without an adjustment to the respective country contexts.

It should be noted that the findings are subject to some limitations. First, only a few regions in Mexico and only a limited number of actors there were interviewed. Second, only two economic sectors were in focus. An extension would be necessary to ensure that the statements apply to all of Mexico. In addition, the actor constellations should be examined using differentiated conceptual approaches. This would allow for more detail to be recorded of the structures and processes of successful cooperation in the context of dual training practices.

Despite these limitations, the chosen research method has proved its worth. In order to analyse the cooperation structures and procedures in actors' networks, an intensive survey of the actors is helpful. When this approach is used, it becomes possible to adequately capture not only the formal structures and processes but also informal and especially culturally shaped communication and cooperation aspects. Consequently, the method can also be recommended for the investigation of similar questions in other countries. However, in addition to thorough research of structuring documents (such as ordinances or cooperation agreements), on-site observation should be carried out as an accompanying measure. In the present project, important additional information and impressions regarding the cooperation activities and conditions could be gathered by visiting

the training institutions, companies and involved government agencies and associations on site (affected by the Corona situation realisation happened only after the interviews and due to ongoing data analysis results are not included in this article).

Finally, the results provide evidence-based information on the further development of dual practices. This is relevant for the actors involved at the level of the concrete implementation of the dual training activities and the political decision-makers in the field of vocational training both in Mexico and the German-speaking countries.

REFERENCES

Adams, W. C. (2015). Conducting semi-structured interviews. In K. E. Newcomer, H. P. Harty, & J. S. Wholey (Eds.), *Handbook of practical program evaluation* (pp. 492–505). Wiley.

Atchoarena, D. (1999*). Getting the stakeholders involved: partnership at work in three countries from Africa, Asia and Eastern Europe*. UNESCO/IIEP.

Billett, S., Ovens, C., Clemans, A., Seddon, T. (2007). Collaborative working and contested practices: forming, developing and sustaining social partnerships in education. *Journal of Education Policy, 22*(6), 637–656. https://doi.org/10.1080/02680930701625288

Billett, S., & Seddon, T. (2004). Building community through social partnerships around vocational education and training. *Journal of Vocational Education & Training, 56*(1), 51–68. https://doi.org/10.1080/1363682040020024 5

Bünning, F., & Schnarr, A. (2009). Forging strategic partnerships between stakeholders in TVET: implications for the Vietnamese vocational education and training system. In Federal Ministry for Economic Cooperation and Development (Ed.), *Linking vocational training with the enterprises: Asian perspectives* (pp. 11–18). InWEnt – Internationale Weiterbildung und Entwicklung gGmbH.

Bundesinstitut für Berufsbildung (BIBB) (n.d.). *Deutschland unterstützt Weiterentwicklung der dualen Berufsausbildung in Mexiko*. https://www.bibb.de/de/39046.php

Callan, V., & Ashworth, P. (2004). *Working together: industry and VET provider training partnerships*. National Centre for Vocational Education Research.

Davies, B., & Hentschke, G. (2006). Public-private partnerships in education: insights from the field. *School Leadership and Management, 26*(3), 205–226. https://doi.org/10.1080/13632430600736977

Etzkowitz, H., & Leydesdorff, L. (1995). The triple helix – university-industry-government relations: a laboratory for knowledge-based economic development. *EASST Review, 14*(1), 14–19.
Gessler, M., Fuchs, M., & Pilz, M. (Eds.). (2019*). Konzepte und Wirkungen des Transfers Dualer Berufsausbildung*. Springer VS.
Kanter, R. M. (1994). Collaborative advantage: the art of alliances. *Harvard Business Review, 72*(4), 96–108.
Kuckartz, U., & Rädiker, S. (2019). *Analyzing qualitative data with MAXQDA: text, audio, and video*. Springer Nature Switzerland AG.
Li, J., & Pilz, M. (2021). International transfer of vocational education and training: a literature review. *Journal of Vocational Education and Training*. Advance online publication. https://doi.org/10.1080/13636820.2020.1847566
Mitchell, A. (1998). *Strategic training partnerships between the state and enterprises*. International Labour Office.
Oliver, D. (2010). Complexity in vocational education and training governance. *Research in Comparative and International Education, 5*(3), 261–273. https://doi.org/10.2304%2Frcie.2010.5.3.261
Pilz, M. (2009). Initial vocational training from a company perspective: a comparison of British and German in-house training cultures. *Vocations and Learning*, 2(1), 57-74. https://doi.org/10.1007/s12186-008-9018-x
Pilz, M. (2016). Training patterns of German companies in India, China, Japan and the USA: what really works? *International Journal for Research in Vocational Education and Training, 3*(2), 66–87. https://doi.org/10.13152/IJRVET.3.2.1
Pilz, M. (2017). Policy borrowing in vocational education and training (VET) -VET system typologies and the "6 P strategy" for transfer analysis. In M. Pilz (Ed.) Vocational Education and Training in Times of Economic Crisis: Lessons from Around the World (pp. 473-490). Springer International.
Pilz, M., & Wiemann, K. (2021). Does dual training make the world go round? Training models in German companies in China, India and Mexico. *Vocations and Learning, 14*(1), 95–114. https://doi.org/10.1007/s12186-020-09255-z
Posselt, T., Salameh, N., Preissler, A., & Hudak, S. (2012). *Treibende und Hemmende Faktoren im Berufsbildungsexport aus Sicht deutscher Anbieter*. Fraunhofer MOEZ.
Stockmann, R. (2013). *Metaevaluierung der Berufsbildung: Ziele, Wirkungen und Erfolgsfaktoren der deutschen Berufsbildungszusammenarbeit*. Waxmann.
Vogelsang, B., & Pilz, M. (2021). Conditional factors for training activities in Chinese, Indian and Mexican subsidiaries of German companies. *European Journal of Training and Development, 45*(4/5), 419–435. https://doi.org/10.1108/EJTD-04-2020-0066
Wiemann, J., & Fuchs, M. (2018). The export of Germany's "secret of success" dual technical VET: MNCs and multiscalar stakeholders changing the skill

formation system in Mexico. *Cambridge Journal of Regions, Economy and Society*, *11*(2), 373–386. https://doi.org/10.1093/cjres/rsy008

Wiemann, K., & Pilz, M. (2020). Transfer research as an element of comparative vocational education and training: an example of factors influencing the transfer of dual training approaches of German companies in China, India and Mexico. In M. Pilz & J. Li (Eds.), *Comparative vocational education research: enduring challenges and new ways forward* (pp. 199–219). Springer VS.

Wiemann, K. (2020). Mexico. In P. Grollmann, D. Frommberger, U. Clement, T. Dreißinger, U. Lauterbach, M. Pilz, & G. Spöttl (Eds.), *International handbook of vocational education and training*. BIBB.

Perceptions of quality and the shaping or misshaping of vocational education: the case of T level qualifications in England

Kevin Orr*
Huddersfield University Centre for Research in Education and Society (HudCRES)
University of Huddersfield
Queensgate, Huddersfield
HD1 3DH
UK
K.Orr@hud.ac.uk

Rachel Terry
Huddersfield University Centre for Research in Education and Society (HudCRES)
University of Huddersfield
Queensgate, Huddersfield
HD1 3DH
UK
R.Terry@hud.ac.uk

* Corresponding author

ABSTRACT:

T level technical qualifications for 16–19-year-old students (International Standard Classification of Education level 3) were introduced in England in 2020. Ten T levels are currently available and more are planned, each one corresponding to a specific occupational area. The claim that T levels are high quality is central to their introduction and politicians have repeatedly described them as "gold standard". That claim of quality is associated with T levels being developed "in collaboration with employers and businesses"; and quality is also linked to the form of their final assessment. Significantly, the quality of T levels is also associated with their stated equivalence to A levels, which are long established academic qualifications. This paper draws on interviews with T level teachers to examine these perceptions of quality and how they have influenced the design and delivery of T levels, leading to some divergence from their technical focus. We conclude by arguing that beyond a rhetoric of skills and employment, perceptions of quality in English vocational education and training (VET) including T levels, reflect the values of society, especially the primacy of academic and university-based education, and that consequently T levels will struggle to gain favour among young people or wider society.

KEYWORDS:

qualifications; assessment; quality; curriculum design

1. INTRODUCTION

T levels are new fully-funded, technical qualifications that were first introduced in England in 2020 and by 2024 there will be 15 distinct T level routes, each corresponding to a specific occupational area (Department for Education, 2022a) such as construction, education and childcare, and business administration. The government is keen for more young people to choose vocational routes to fill skills gaps in the economy, and so T levels have been produced to that end. These qualifications are set at ISCED level 3 and they are aimed at 16-19 year-olds in their final two years of compulsory education. In England, this is "a highly regulated phase of education dominated by formal qualifications" (Wolf, 2011, p. 19) and, accordingly, T levels are highly regulated formal qualifications that have been designed as a "high-quality technical option" (DBIS, 2016, p. 6) equivalent to academic A levels, which have been established for around seventy years and which are the qualifications by which all others at level 3 in England are measured (people will ask, 'how many A levels is it worth?'). Currently, BTEC National Diploma qualifications, which were established in the 1970s by the Business and Technology Education Council, are the most popular vocational qualifications for 16-19-year-olds in England (Gicheva & Petrie, 2018, p.12), though many students use them to gain access to higher education (Universities and Colleges Admissions Service, 2021) rather than to the workplace. Indeed, from their instigation, BTECs have been regarded as only "quasi vocational" (Wolf, 2011, p.128) or a "middle qualification" (Kelly, 2017, p.10) incorporating a "blend of theoretical and practical learning" (Tomlinson, 2004, p.78) that differentiated them

from A levels. Within this context of existing qualifications for 16-19-year-olds, explored more fully later in this paper, the government has sought to emphasise that T level qualifications are distinctive vocational qualifications in that they have been designed with employers to meet the needs of employers. That involvement of employers is, in turn, associated closely with the claims made for T levels' high quality. Though schools are being encouraged to offer T levels, Further Education (FE) colleges have been in the vanguard of their introduction. There were 163 general FE colleges in England at the time of this study (Association of Colleges, 2021), which offer mainly vocational as well as some academic courses for young people and adults, and the providers of the first two waves of T levels to be introduced so far are overwhelmingly from among those colleges.

In the spring and summer of 2021, we carried out a study to better understand two related elements of T levels: how successfully the purpose and distinctiveness of T levels were being communicated to those who will teach them; and how teachers were preparing to teach T levels differently or otherwise from other courses. What emerged from that study was a discrepancy in perceptions of quality among two important stakeholders in T levels, the government and T level teachers. In this paper we explore what is understood by quality according to the government's policies and documents related to T levels, and how that understanding is operationalised in the rationale for and design of these new qualifications. We then examine how quality is understood and operationalised by T level teachers. We find that claims to quality in the documents produced by government around the launch of T levels are explicitly connected to

their proximity to employers and employment, but also more implicitly to a conception of rigour more often associated with academic qualifications. We will firstly describe the origins of T levels and the unsettled context into which they have emerged before explaining their structure including their assessment. We will then examine the claims of quality made by the government before we turn to data gathered from T level teachers to better comprehend how they perceive the value of T levels and how that affects teachers' practice.

2.1 THE CONTEXT FOR THE INTRODUCTION OF T LEVELS

Wheelahan et al (2022, p.1) have noted how in many countries,

> Education policy discourse is based on skills. The extraordinary policy enthusiasm for skills is premised on an unwavering belief that skills are the solution to all social, economic and personal ills.

That enthusiasm and unwavering belief have been apparent in English policy for VET for decades. Over thirty years ago the architect of competence-based qualifications in England, Gilbert Jessup (1991, p.6), wrote this description of symbiotic contentment in relation to the then quite new National Vocational Qualifications (NVQs):

> Happily, the needs of individuals to realise their potential, to develop their skills and knowledge, to take on responsible and fulfilling work and to earn more money, seem to be largely compatible with the current needs of the country and the

> economy, for a workforce of more competent responsible, flexible and autonomous employees.

Unchanged, those same words could be written by a policymaker today about T levels, despite thirty years of instability in the English VET sector including the failed introduction of several sets of vocational qualifications. Pring et al. (2009, p.6) found that the post-war history of education in England had left a legacy which they summarise in five points:

1. "Persistent 'tri-partite mentality' that constantly threatens to revert to seeing young people as 'academic', 'technical/vocational' and, to be brutal, all the rest."
2. "Continuing failure to obtain parity of esteem between 'academic' and 'vocational qualifications except by distorting the very aims of the new courses."
3. "Ambivalence towards what is meant by 'vocational'."
4. "Inability to get the necessary recognition of new qualifications from employers and higher education."
5. "Transient nature of new qualifications"

Each of these points are evident in the introduction and reception of T levels. Indeed, specific to number three, the government no longer uses the word vocational for T levels, only the word technical (Sainsbury, 2016, p.23).

Over the past twenty-five years the four nations of the United Kingdom, England, Northern Ireland, Scotland and Wales have achieved substantial political autonomy through devolution, and education is one area of policy that is formally devolved to

the four national governments. This paper focuses on England, which has by far the largest population and is the only nation in the UK where T levels are being introduced. Significant differences are emerging between the British education systems, especially in VET but there is still much commonality (see Hodgson and Spours, 2019). Winch (1996, p.41) argued that the "British are relatively uninterested in education and the state of the education system both contributes to and reflects that relative lack of interest." That "relative lack of interest" is exacerbated by the elite sending their own children to exclusive private schools. According to the government's Social Mobility Commission (2019):

> Britain's most influential people are over 5 times more likely to have been to a fee-paying school than the general population. Just 7% of British people are privately educated, compared to two-fifths (39%) of those in top positions.

Pertinent to this paper is how the lack of interest in education identified by Winch is evident in the constant and careless manner of reform of VET in England, which forms the context for the introduction of T levels. Had policymakers been more interested in VET they might have paid more attention to where their predecessors had failed. Policy for VET in England has been caught in a contradiction between the government's market-led approach to post-16 education which has, for example, allowed awarding organisations to create new qualifications with little regulation, and the government's repeatedly stated intention to have a post-16 VET system that responds systematically to the needs of the economy (see Augar, 2019 for an account of

how competition has failed to address the needs of the economy). This contradiction is also reflected in Fleckenstein and Lee's (2018) analysis of the political economy of VET policy in England, which identified persistent failures by governments of the centre left and right to instigate lasting reform. Fleckenstein and Lee specifically blame this situation on those governments' industrial policies (such as they existed), which have stressed the supply side of skills for industry, through creating new vocational qualifications, for example, and ignoring the demand side for those skills, by neglecting the creation of jobs, for example. Criticisms of policy failure in the VET system have been made by the UK's Institute for Government, which cited the Further Education (FE) sector, where most VET is delivered in England, to illustrate the "tendency to recreate policies and organisations on an alarmingly regular basis" (Norris and Adam, 2017, p.3). Since the early 1980s there have been 28 major pieces of legislation that related to VET in England; there have been at least 50 government ministers with relevant responsibility; and no sector organisation in the VET sector has endured for more than a decade (ibid., 5). Orr (2020, p.103) described how England's FE sector, which as noted above delivers most VET provision,

> has been characterised by instability and policy churn for at least three decades during which time reform of vocational education and training... has been piled on top of reform, with few resulting in lasting change.

Symptomatic of this instability, just since 2005 and before the introduction of T levels in 2020, there were two other sets of VET qualifications introduced by the then government for

16-19-year-olds at level 3: Diplomas (in 2005) and Tech levels (in 2013). Echoing point five of Pring et al. (2009, p.6) those qualifications ultimately failed to leave even a dent on the education system despite much hyperbole and, for the Diplomas, the expenditure of enormous sums of money (see Isaacs, 2013).

Another significant consequence of that policy churn is the complexity of FE colleges' finances which has mutated with each policy so that one FE institution might have as many as twenty different funding streams (see Bathmaker and Orr, 2022, p.63). Exacerbating this complex financial situation is that overall government funding per student aged 16-18 in general FE and sixth-form colleges in England, which together accommodate the majority of students of that age, fell by 11% in real terms between 2010-11 and 2020-21 (Sibieta and Tahir, 2021, p.2). Into all of that political instability and financial insecurity the first waves of T Levels were thrust, even before the added difficulties posed by the COVID-19 pandemic in 2020. So, the recent history of VET in England does not bode well for T levels. Yet, the government, with a large parliamentary majority, has invested major resources in T levels and has placed great store on their eventual success, not least as part of their "levelling-up" policy to address regional inequalities. Above all, the government has stressed the quality of these new qualifications; indeed, the government's strategic guidance for the Institute for Apprenticeships and Technical Education (IFATE), the government body with relevant responsibility, in April 2021 (DfE, 2021a) mentions quality thirty-two times in thirteen pages.

2.2 THE EDUCATIONAL CHOICE FOR 16-YEAR-OLDS IN ENGLAND

The current government's vision of education is for 16-year-olds in England to select between academic A levels, apprenticeships or vocational T levels for the final two years of their compulsory education. Given that only around ten percent of 16-19-year-olds are not in education, employment or training (NEET), if T levels are to succeed, they will need to recruit students who would otherwise have taken other well-established routes, such as A levels or BTECs. That is a big ask because, echoing Pring et al's (2006, p6) second point, central to any understanding of the education system in England for 16-19-year-olds is the all-pervasive perception of VET qualifications as being second rate, especially compared with A Levels (James Relly, 2021). Consequently, VET qualifications attract students with weaker entry grades (Richmond, 2018, p.8), reinforcing the problem of parity of esteem between academic and vocational pathways. Richmond (2018) has accused awarding organisations of a race to the bottom in setting lower and lower entrance requirements to secure admissions to their many qualifications, further fuelling the problem. This behaviour among awarding organisations is a consequence of the government's market-led approach to education policy, though the government has complained about the subsequent confusing array of technical and vocational qualifications at level 3. They now wish to "simplify the current landscape" (DfE, 2021b, p.44) and so provide a clearer choice for young people to make at the age of 16. The government counted "over 4,000 [qualifications] approved at level 3 alone" (DfE, 2021c, p8). Many of these existing qualifications have similar content (Sainsbury, 2016) and

poor recognition among employers and within wider society. As Carneiro, et al., 2019, p.9) concluded:

> In countries [with] a less developed vocational system, the proliferation of vocational qualifications ... has weakened the signal of what the vocational education is providing and returns are less. This is exemplified by the UK experience.

Yet, in some respects the landscape in England may not be as complex as it first appears because post-16 education is dominated by relatively few qualifications. Just under 250,000 students completed level 3 BTECs in 2019, compared with about 245,000 who completed A-levels (BBC, 2021). There were, though, only 56,200 apprenticeship starts below the age of 19 in the year 2021-22 (National Statistics, 2022). Those figures swamp the 5450 T level starts in 2021, to add to the approximately 1300 who started in 2020 (DfE, 2021d). The government has not set targets for T level enrolments, and it always planned a slow roll-out to identify and address problems, but the numbers involved so far are small by any account. The roll-out has, moreover, been adversely affected by the pandemic which closed colleges and limited opportunities to promote these new qualifications. So, how will the government persuade students to choose T levels over A levels or BTECs? Most controversially, and despite significant opposition from across the political and educational spectrum, the government has threatened to withdraw funding from most level 3 vocational qualifications apart from T levels, including withdrawing funding from the popular BTECs and so make T levels the only vocational game in town. There has been some movement on this stated inten-

tion and the education minister has most recently suggested that only around half of such qualifications would lose their funding (Nott, 2022). Whatever the eventual decision on funding, to reiterate the point made above, students who would hitherto have selected a different qualification, such as BTEC, will need to be persuaded or forced to enrol on T levels if the new qualifications are to succeed where others have failed. Perceptions of quality of T levels may well determine that kind of selection.

3. THE STRUCTURE OF T LEVEL QUALIFICATIONS

T levels have their origins in the 2016 Report of the Independent Panel on Technical Education, referred to as the Sainsbury Review after the name of the panel's chair, David Sainsbury. In the terms adopted by Busemeyer and Trampusch (2012) to describe national systems for providing VET, England has no collective skills formation, it just has the apparent desires of employers. Illustrating that vividly, the Sainsbury Review was adamant about the leading role of employers in the construction of new technical qualifications:

> We want to give employers a much stronger role in setting standards and specifying the knowledge, skills and behaviours an individual needs in order to perform well in an occupation. Specifying the standards for college-based provision within each technical education route is not a role for officials in central government but for professionals working in, or with expert knowledge of, the relevant occupations, supported by experienced education professionals.
>
> (Sainsbury, 2016, p.10)

Five years later, the government's T Levels Action Plan restated this commitment that creating an "employer-led" qualification was central to T levels (DfE, 2021a, p.45), and that includes the selection of the specific curriculum for each T level. The subject content for each T level is created and agreed by a panel of "industry experts who work to define what key skills and knowledge a learner needs to cover during their two years of study" (IFATE, 2022a). By July 2021, over 250 employers had co-created outline content through T Level panels (DfE, 2021b). This recourse to employers and meeting their needs is crucial to claims for the credibility of T levels, but the different approaches and priorities of different panels have led to divergence in the types of content, how specific the content is, and how much time it will take to learn. The length of time indicated for the T level route associated with education and childcare comprises 844 guided learning hours in total, while the engineering and manufacturing design and development T level route comprises 1,360 guided learning hours. The overall balance of the delivery across the T levels is around 80 per cent college-based and 20 per cent workplace-based learning, the latter to be carried out while on placement.

The content of T levels is more substantial than for other existing equivalent level 3 vocational qualifications like BTECs. Each T level has a stated equivalence to three A levels and so, unlike BTECs, they cannot be combined with A levels. T levels are made up of three components as set out by IFATE. These three components are the,

- technical qualification (TQ) [which] is the main, classroom-based element. Students will learn about their cho-

sen sectors through a curriculum designed by employers and developed by an awarding organisation (AO)
- industry placement [which] runs for a minimum of 315 hours (45 days) overall and will give students practical insights into their sector and an opportunity to embed the knowledge and skills learned in the classroom
- English, maths and digital provision is also built into the classroom-based element of the T Level, meaning students will be given a solid foundation of transferable skills (IFATE 2022a)

Unlike existing BTECs which are continually assessed, T levels have written examinations set by the external awarding organisation at the end of each year, a skills competency test, and an employer set project to be completed during the placement. Students only achieve their T level award if they pass each element, which as our study indicates is a concern for T level teachers. Yet, that form of assessment which mimics A levels has also been linked to the quality of the T levels, and it is to the conception of quality that we now turn.

4. CONFUSION AND QUALITY IN ENGLISH VET

Winch (1996, pp.14-16) outlined the measures of quality that have been adopted from "manufacturing private practice by public sector education" in the UK. According to Winch, these are:

- formal measures of quality assurance, including national inspection regimes;
- customer response, including course evaluations by students;

- increased market orientation, which is most apparent in the UK's higher education system but is perceptible in competition between FE providers;
- increasing documentation, which is often associated with the first point, and which may include statistical comparisons or benchmarks for recruitment, achievement or outcomes.

Each of these measures can be seen in English VET, and particularly in the introduction of the new T levels. As mentioned above, this sector of education is very highly regulated so Ofsted, the government's educational inspectorate, will formally inspect providers of T levels, which will also be scrutinised by IFATE. All students in FE colleges complete satisfaction surveys, the results of which are often used to compete with rival institutions in the market for students. Each of these measures is associated with bureaucracy that many practitioners in FE find burdensome. But, while these measures founded in commerce may purport to gauge or assure quality, in this instance for T levels, none adequately define what quality is. As Winch (1996, p.17) argues, the educational relationship between teacher and student is different to a commercial one, because the teacher is seeking to change the student, she is not seeking a customer's return visit.

These measures with their roots in commerce also indicate successive governments' lack of trust in the VET system to produce what they deem to be the right kind of graduate with the right kind of aptitudes for the economy (Wheelahan and Moodie 2018, p.129). Winch (1996, p.1, original emphasis) notes that the "main issue driving modern concerns about quality is that of *accountability*" and for the government in England that

accountability for the quality of T levels is, above all, to employers. Therefore, as previously mentioned, the role of employers in their design and how employers recognize them are emphasised time and again in the specific context of their quality. For example, in the government's strategic guidance to IFATE cited above (DfE 2021a, section 3.2) is this request:

> In 2021-22, the Institute is asked to ensure that T levels are developed in accordance with the overarching technical education programme and are of a consistently high quality, in that they meet employers' needs and provide a strong educational platform for learners.

This approach follows decades of promoting the leadership of employers in VET policy, even though British employers take on less responsibility for training than, for example, their German counterparts (Busemeyer, 2015, p.78). Employers in England are also reluctant to spend money on training their employees (Mason, 2020), as demonstrated by the diminishing expenditure on skills development (Keep, 2020). So, within English VET, employers have what Gleeson and Keep (2004, p.50) referred to as "voice without responsibility." IfATE's website (2022c) states that they are actively recruiting for T level panel members who "are, without exception, outstanding representatives of the industries in which they work, carefully selected to undertake this important role." Yet, employers do not all speak with one voice even in the same sector and a glance at the members of the T level panels (DfE, 2022b) reveals that they are far from representative of industry in England, however committed to T levels they each may be. At around a dozen members

on each of the fifteen panels, how could they be representative of industries as diverse as construction or banking and finance?

So, beyond the rhetoric it remains questionable just how much influence employers have (and see Keep, 2006), which places doubt on how much employers can be true arbiters of quality in T levels.

All the above signifies that the quality of T levels is not well conceptualised or understood. As shall be described in the next section, meeting the requirements of employers is not how T levels are judged by the teachers we interviewed. General vocational education, as Bathmaker (2013) argues, is pulled in different directions, expected to enable progression both to employment as well as to higher education, and the latter is evident in our interviews with T level teachers. Sainsbury (2016) may have eschewed the terms of the academic/vocational divide, and the government may be stressing the distinctiveness of T levels, but comparisons with existing academic qualifications are still made by parents and potential students. Those comparisons pertain to perceptions of quality, even if implicitly, as the next section examines.

5.1 THE PERCEPTIONS AND PRACTICE OF T LEVEL TEACHERS

As noted previously, in 2021 we carried out a study* to better understand: how successfully the purpose and distinctiveness of T levels were being communicated to those who will teach

* The study was funded by the Education and Training Foundation

them; and how teachers were preparing to teach T levels differently or otherwise from other courses. That study highlighted the difference in perceptions of quality between government and teachers, which provide the focus of this chapter. Data was gathered through semi-structured interviews with T level teachers during the third term of the first academic year of T levels (2020-21) at a time when the country was still very much affected by the pandemic. All the teachers had been informed about the study and their rights, including the measures to anonymise them and their institutions, and they had each subsequently provided written consent for their involvement. While much teaching in FE colleges had by then returned to face-to-face sessions on campus, colleges were coping with many courses as well as placements being badly affected by the government's lockdowns and by individuals being required to self-isolate.

Altogether we completed fourteen online interviews of between 40 and 60 minutes with T level teachers at eleven FE colleges that were involved in wave one or two of the introduction of T levels: five teachers in construction courses; three in education and childcare; one in digital; two in health; and one in healthcare science. Participants in our sample had a very wide range of industrial experience before they had entered teaching ranging from one or two years to many decades. Most were near the beginning of their teaching careers, however, and some had been expressly selected to teach these new qualifications because of their enthusiasm and their talent for teaching. Importantly, most of these interviews took place before the government announced its intention to remove funding from other qualifications, including BTECs.

The interviews were transcribed and analysed to produce themes relating to, for example, perceptions of the new courses, available resources, decisions on planning, and assessment. One important theme we identified was quality in relation to the new courses, which we will expand on below. The interviews were characterised by participants' commitment to ensuring the success of these new courses. The nationally organised training provided had been particularly effective in the formation of a cohort of T level teachers who explicitly wish to collaborate to enhance their practice. Moreover, the major investment associated with T levels had helped to introduce the new courses; participants appreciated the smaller class sizes, the excellent resources, and the time to prepare that investment had enabled. Participants were positive about T levels and the very considerable investment in colleges for resources associated with T levels had encouraged these teachers to feel part of an important and well-supported initiative. Some, however, did consider that given the tiny number of students on T level courses at the time (around 1300 in the whole country), that investment was unsustainable.

In relation to perceptions of quality in T levels, three subthemes emerged: quality related to rigour, assessment, and exclusivity; the absence of quality related to employer engagement; and quality related to progression, especially to university study. We discuss each of these themes in turn.

5.2 QUALITY RELATED TO RIGOUR, ASSESSMENT AND EXCLUSIVITY

The broad level of the T level qualification was considered by interviewees to be higher than existing level 3 courses across all of the first and second wave subjects covered within this study,

and more comparable in some cases to a level 4 qualification. T levels were seen to be more rigorous because they demand more knowledge than comparable qualifications (for example of science for the health T level) but these greater demands were positively perceived by participants. As one teacher put it, "*it's not too much, but it is different and more extensive*". This also meant, however, that many of the participants did not perceive T levels as universal qualifications accessible to the mainstream of students attending FE colleges, in the way that BTECs are. One described them as a *"bit of a niche product"* and another described how they play a different role to BTEC in the field of education and childcare, for example. All our participants agreed that T levels were aimed at high-achieving students, which was reflected in the students they were recruiting to the programmes, and that perception of exclusivity was also associated with the perceived quality of the T levels. That is at odds with the government's intention that T levels become a universal qualification, however. Some perceived T levels to be too academic, however. A business teacher said: *"I do think that it's too academic a course. I think it is, personally, more like an A-level than an actual technical qualification that we already teach"*. We will return to this perception again.

One construction teacher compared the extensive placement period favourably with what is expected for BTEC in relation to involvement with employers, which was a view common to most of sample:

> *there's a lot more work placement involved, whereas there's not so much work placement in BTEC. So it gives them the industry*

knowledge, it gives them a taste of what it's going to be like, and if that's the route they want to take then they might think, "oh, I wanted to be a quantity surveyor but actually I've looked at project management and I'd prefer to go down that route".

Those long placements distinguish T levels and encapsulate their strong employer/employment ethos, but such long placements will be difficult to find if T levels are going to attract the kind of numbers currently involved with BTECs. T levels are also distinguished from other level 3 vocational courses by their end of year assessment, which is much more like A levels. Among our participants, this form of summative assessment was perceived to be especially problematic and restrictive to the expansion of T levels. One health teacher said:

being from a predominantly BTEC teaching background where coursework is the main assessment method to suddenly now be teaching an exam assessed qualification is quite daunting, and it just changes things. I like change and I like challenging myself so I don't mind that, I'm quite excited. But I know for other staff it's quite daunting.

A business teacher was less positive about the *"daunting"* demands of the final assessment for her students:

asking them to remember eight theories for one part of the assessment that again we didn't cover in Uni[versity], again baffles me, what they're asking them to learn. I think they're over-assessing and over-stimulating where it's not needed. They could potentially have four key theories and stick to the four key theories, which would work better

The conclusion of the health teacher quoted above that final high-stakes assessment *"just changes things"* is supported by how this element of the course is directly affecting recruitment because of the wish to only enrol students with a very high chance of success. Failing a T level was perceived to be more damaging for a student than failing a single A level because T levels are so large and because that failure may come right at the end of two years. Continuous assessment on other VET courses allows students to recover from weaker assessments through their courses, unlike T levels. All the colleges represented within the sample were asking for higher entry qualifications than for other similar level 3 courses, such as BTECs, for example in science for the health pathways. Many of the participants would like to have asked for even higher entry grades: *"We were debating a five but because of our catchment area then we probably wouldn't have any students coming onto the course."* Another explained, *"the problem is that in the areas we take the students from level five is quite high"*. These raised entry qualifications meant, as one participant put it, colleges were *"creaming off the better students"* for T levels. Arguably, this may be good for the image of T levels as demanding courses for high-flying students, which is integral to the government's plan for a high-quality VET qualification. But that positive image is vulnerable to the expansion of T levels and the need to attract mainstream students with lower prior achievement.

5.3 THE ABSENCE OF PERCEPTIONS OF QUALITY RELATED TO EMPLOYER ENGAGEMENT

As repeatedly described above, the official discourse of quality within T levels relies upon the involvement of employers in

their conception and design. While employer panels informed the content of T level curricula, there were no examples of any sustained or substantial collaboration with employers at college delivery level among the data we gathered from our fourteen participants in eleven institutions. Apart from the organisation of placements, which was quite separate from teaching in colleges, there was only evidence of ad hoc employer involvement in the delivery of the T levels, though participants were keen to make links with employers. Forming and maintaining links to employers may have been impacted by the pandemic, of course, but this finding suggests a gap between the presentation of T levels as being employer-led and how they are perceived and organised in practice by teachers. That gap further exposes the fragility of a justification of T levels' quality based on the involvement of employers because employers have only been peripherally involved in their delivery in these eleven colleges.

5.4 PERCEPTIONS OF QUALITY RELATED TO PROGRESSION

Like any qualifications, T levels are being judged by what they lead to, a place in university or a well-paid job, as demonstrated in the T level teachers' responses during our study. Progression from T levels onto employment or further study was considered to be problematic among our participants and that impinges on the perceived quality of T levels among teachers. Opportunities for progression onto apprenticeships, employment with training or further study were described as differing according to the expectations and traditions of the industries associated with each T level route; they do not differ according to the con-

tent of the qualification. Construction T level students might progress onto a degree apprenticeship, for example, but degree apprenticeships are much less common in childcare or in the digital industries. That lack of established progression pathways from T levels is especially problematic for entry to universities, which remains the aim of most 16-19-year-olds and especially those with the good entry grades that T levels have so far attracted. We have noted above that BTECs provide an established route into higher education, which T levels currently do not. The government has had to move to encourage universities to recognise T levels after many, including many of the top-rated universities, had declined to do so (Camden, 2022). That affects perceptions of quality among teachers, and students, far more than the involvement of employers in the design of T levels. Paradoxically, these occupationally focused qualifications are being judged by their acceptance by universities, rather than their acceptance in the workplace. Yet, for T levels to have parity with academic A levels in progression to HE could directly lead to academic drift (Kelly, 2017, p6.), which risks compromising their primarily technical and employment-focussed purpose (see Higham & Yeomans 2007). That is, it jeopardises their stated raison d'être.

6. CONCLUSION

The government has invested much money and effort into the development and implementation of T levels, which are crucial to their stated plans for improving opportunities for young people and for economic development in England. They have consistently stated that these qualifications are high quality, but

to be perceived to have quality, qualifications must have credibility among stakeholders. For the designers of T levels, the preeminent criterion for quality is what one group of stakeholders wants or is perceived to want; that group is employers. However, as discussed above, the involvement of employers in the design of T levels is based on the involvement of few people who only represent few employers; and involvement of employers in their delivery is, on the basis of our interviews, negligible. So, this foundation for quality is weak. Not only that, but employer involvement is also peripheral to how some T level teachers in our sample perceive quality.

So, what are perceptions of quality in VET qualifications such as T levels based on? To begin to address that we need to identify what such qualifications are for, and then we might judge how well they meet their purpose because quality has to relate to some criteria and context, whether explicit or assumed. Wheelahan and Moodie (2018, p.137) explain the three functions of qualifications, on which VET policy is predicated:

1. In the labour market, to help guide entry to workforce or higher occupational levels.
2. In education, to provide a pathway to further or higher study.
3. In society, as a preparation for independent life as an adult; to widen access to tertiary education; and to support social mobility by providing opportunities for meritocratic progression, especially for those who are disadvantaged.

By any of those criteria, T levels are yet to gain credibility, which may be because they are new and because other existing qualifications such as BTECs and A levels can be seen to adequately fulfil those three functions. Those are obstacles that any new qualifications must overcome if they are to become established as mainstream and those are obstacles that led to the failure of two other suites of VET qualifications like T levels since 2005. Simply asserting their quality was insufficient for them to gain credibility. This time, the government has sought to ensure that T levels are perceived to be demanding in terms of knowledge and that their assessment of knowledge mirrors practice in credible academic qualifications through having examinations. Yet, as Hyland (1994, pp.69-70) explains, "the assessment of knowledge in educational contexts rarely involves an evaluation of performance" that might be of use to employers. For Gamble (2018, p.38) this "is the conundrum that has bedevilled vocational education through the years". It is not a conundrum that the designers of T levels have addressed, but it is apparent in our data. The demands of knowledge and assessment which several participants in our interviews associated with their quality also rendered T levels for them as elite qualifications, not universal as planned by the government. For those participants, high quality meant elite, suggesting that universal qualifications could not have the same high quality. So, among our T level teacher participants, some may align with the government in perceiving the quality of T levels as being associated with their traditionally academic, examination-based form of assessment of knowledge. At the same time other participants complained that precisely these academic forms of assessment were pulling the qualifications away from their primarily vocational purpose.

Winch (1996, p24) provides a philosophical way forward in the following:

> If there is a distinctive approach to quality or worthwhileness in education, it should be concerned with the achievement of consensually negotiated and agreed aims within the context of an appropriate form of democratic accountability.

No such consensual negotiation has taken place for T levels. So they face the inequality of English society reproduced through education and particularly through the division of young people into "'academic', 'technical/vocational' and, to be brutal, all the rest" as Pring et al. (2006, p.9) suggested has occurred for over seventy years. While the academic route to university is favoured and valorised over alternative vocational routes, the academic route will be perceived as having more quality, and T levels will struggle to be accepted.

REFERENCES

Augar, P. (2019). *Independent panel report to the Review of Post-18 Education and Funding.* Her Majesty's Stationery Office.

Association of Colleges (AoC) (2021). *Key College Facts*. https://www.aoc.co.uk/sites/default/files/AoC%20College%20Key%20Facts%202021-22.pdf

Bathmaker, A. (2013). Defining 'Knowledge' in Vocational Educational Qualifications in England: An Analysis of Key Stakeholders and their Constructions of Knowledge, Purpose and Content, *Journal of Vocational Education and Training, 65*(1), 87-107.

Bathmaker, A.-M., Orr, K. (2022). Higher Vocational Education in England in the 2010s: Positioning, Purpose, and Possibilities in a Highly Stratified, High Participation System of Higher Education. In: E. Knight, A.-M. Bathmaker, A, G. Moodie, K. Orr, S. Webb, & L. Wheelahan, eds. *Equity and Access to High Skills through Higher Vocational Education. Palgrave*

Studies in Adult Education and Lifelong Learning (pp. 59-80). Cham: Palgrave Macmillan.

BBC (2021). *BTec results 2021: What are they and when are results out?* https://www.bbc.co.uk/news/education-49279219

Busemeyer, M. R. (2015). *Skills and Inequality: Partisan politics and the political economy of education reforms in western welfare states.* Cambridge University Press.

Busemeyer, M. R. & Trampusch, C. (2012). *The Political Economy of Collective Skill Formation*. Oxford University Press.

Camden, B. (2022, January 14). Confused and frustrated: Most universities reject first cohort of T Level students. *FE Week*. https://feweek.co.uk/confused-and-frustrated-most-universities-reject-first-cohort-of-t-level-students/

Carneiro, P., Dearden, L. & Vignoles, A. (2010). The Economics of Vocational Education and Training. *International Encyclopedia of Education 8*, pp. 255-261.

Department for Business, Innovation & Skills (DBIS) & Department for Education (DfE). (2016). *Post-16 Skills Plan*. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536043/Post-16_Skills_Plan.pdf

Department for Education (DfE). (2021a) *Strategic Guidance to the Institute for Apprenticeships and Technical Education.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/981555/Strategic_Guidance_to_the_Institute_for_Apprenticeships_2021_to_2022.pdf

Department for Education (DfE). (2021b). *T Level Action Plan 2020.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951488/T_Level_Action_Plan_2020_.pdf

Department for Education (DfE) (2021c). *Post-16 Qualifications at Level 3 in England: Policy Statement.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003821/Review_of_post16_qualifications_at_level_3_in_England_policy_statement.pdf

Department for Education (DfE) (2021d) *T level Action Plan 2021*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1042614/2021_T_Level_Action_Plan_Formatted_Clean_Version_15_Dec.pdf.

Department for Education (DfE) (2022a) *Introduction of T levels.* https://www.gov.uk/government/publications/introduction-of-t-levels/introduction-of-t-levels

Department for Education (DfE) (2022b) *Membership of T Level panels.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/959586/Panel_Members_update_Feb_2021.pdf

Gamble, J. (2018). From Labour Market to Labour Process, In S. Allais & Y. Shalem (Eds) *Knowledge, Curriculum, and Preparation for Work* (pp127-146). Brill Sense.

Gleeson, D, & Keep, E. (2004). Voice without accountability: The Changing relationship between Employers, the State and Education in England. *Oxford Review of Education 30* (1), 37-63.
Gicheva, N. & Petrie, K., (2018). *Vocation, Vocation, Vocation: The Role of Vocational Routes into Higher Education.* Social Market Foundation.
Hanley, P and Orr, K (2020). The recruitment of VET teachers and the failure of policy in England's further education sector, *Journal of Education and Work*, 32 (2), 103–114 doi.org/10.1080/13639080.2019.1617842
Higham, J. & Yeomans, D., (2007). Policy Memory and Policy Amnesia in 14-19 Education: Learning from the Past?. In: D. Raffe & K. Spours, eds. *Policy-making and Policy Learning in 14-19 Education* (pp. 33-60). Institute of Education, University of London..
Hodgson, A. & Spours, K. (2019). Further education and skills across the UK: new opportunities for policy learning? An introduction to the special issue, *Journal of Education and Work*, *32* (3), 215-223: https://doi.org/10.1080/13639080.2019.1621273
Hyland, T. (1994). *Competence, education and NVQs: Dissenting perspectives*. Cassell.
Institute for Apprenticeships and technical education (IFATE). (2022a). *What are T levels?* https://www.instituteforapprenticeships.org/t-levels/t-levels-the-institutes-role-news-updates/what-are-t-levels/
Institute for Apprenticeships and technical education (IFATE). (2022b). *Final Outline Content.* https://www.instituteforapprenticeships.org/t-levels/approved-t-level-technical-qualifications-and-final-outline-content/final-outline-content/ .
Institute for Apprenticeships and technical education (IFATE). (2022c). *Route Panels.* https://www.instituteforapprenticeships.org/about/how-we-do-it/route-panels/
Isaacs, T. (2013). The diploma qualification in England: an avoidable failure?, *Journal of Vocational Education & Training, 65* (2), 277-290.
James Relly, S. (2021). The Political Rhetoric of Parity of Esteem. *Oxford Review of Education, 47* (4), 513-528.
Jessup, G. (1991). *Outcomes: NVQs and the emerging model of education and training.* The Falmer Press.
Keep, E. (2006). State Control of the English Education and Training System_ playing with the biggest train set in the world, *Journal of Vocational Education and Training, 58* (1), 47-64.
Keep, E. (2020). Employers, the Ghost at the Feast. *Journal of Education and Work, 33* (7-8), 500-506.
Kelly, S. (2017). *Reforming BTECs: Applied General Qualifications as a Route to Higher Education*. Higher Education Policy Institute.
Mason, G. (2020). Higher Education, Initial Vocational Education and Training and Continuing Education and Training: Where Should the Balance Lie?. *Journal of Education and Work, 33*(7-8), 468-490.

National Statistics (2022). *Academic Year 2021/22, Apprenticeships and traineeships.* https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships-and-traineeships.

Nott, W. (2022, April 7). 'Significantly' less than half of AGQs like BTECs will get the chop, government concedes. *FE Week*. https://feweek.co.uk/significantly-less-than-half-of-agqs-like-btecs-will-get-the-chop-government-concedes/

Mason, G. (2020). Higher Education, Initial Vocational Education and Training and Continuing Education and Training: Where Should the Balance Lie?. *Journal of Education and Work, 33*(7-8), 468-490.

Orr, K. (2020). A future for Further Education, *Journal of Education and Work*, 33 (7-8), 507-514.

Pring, R., Hayward, G., Hodgson, A., Johnson, J., Keep, E., Oancea, A., Rees, G., Spours, K. & Wilde, S. (2009) *Education for All: The future of education and training for 14-19 year olds.* Routledge.

Sainsbury, D. 2016. *Report of the Independent Panel on Technical Education*. Department for Education.

Social Mobility Commission (2019) *Elitist Britain 2019: the education backgrounds of the UK's leading figures.* https://www.gov.uk/government/news/elitism-in-britain-2019

Norris, E. and Adam. R. (2017). *All Change: Why Britain is so prone to policy reinvention, and what can be done about it*. https://www.instituteforgovernment.org.uk/sites/default/files/publications/IfG_All_change_report_FINAL.pdf

Richmond, T. (2018) *A Qualified Success: An investigation into T-levels and the wider vocational system*. https://policyexchange.org.uk/wp-content/uploads/2019/02/A-Qualified-Success.pdf

Sibieta, L. and Tahir, I. (2021). *Further education and sixth form spending in England, IFS Briefing Document BN333*. The Institute for Fiscal Studies. https://ifs.org.uk/uploads/BN333-Further-education-and-sixth-form-spending-in-England.pdf

Straw, S. (2020). *How Aware Are Schools of T Levels? A Survey of Senior Leaders and Classroom Teachers*. National Foundation for Educational Research. https://www.nfer.ac.uk/media/3942/how_aware_are_schools_of_t_levels.pdf

Tomlinson, M. (2004). *14-19 Curriculum and Qualifications Reform: Final Report of the Working Group on 14-19 Reform*. Working Group on 14-19 Reform.

Universities and Colleges Admissions Service (UCAS) (2021). *Entry Provider-Level End of Cycle Data Resources*. https://www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-end-cycle-data-resources-2020/2020-entry-provider-level-end-cycle-data-resources

Wheelahan, L. and Moodie, G. (2018). What Should Vocational Qualifications Look Like if the Links between Qualifications and Jobs Are So Weak? In S. Allais & Y. Shalem (Eds), *Knowledge, Curriculum, and Preparation for Work* (pp. 127-146). Brill Sense.

Wheelahan, L., Moodie, G. & Doughney, J (2022). Challenging the skills fetish, *British Journal of Sociology of Education, 43*(3), 475-494. https://doi-org/10.1080/01425692.2022.2045186
Winch, C. (1996). *Quality and Education*. Blackwell.
Wolf, A. (2011). *Review of Vocational Education- the Wolf Report*. Department for Education.

PUBLISHING IN OUR RESEARCH BOOK SERIES

1. ABOUT THE RESEARCH BOOK SERIES

The research book series Emergent Issues in Research on Vocational Education and Training is a double-blind peer-reviewed publication. This research book series provides full open access to its content on the principle that making research freely and independently available to the science community and the public supports a greater global exchange of knowledge and the further development of expertise in the field of vocational education and training (VET). The research book series is independent from any non-scientific third-party funding and published with funding from the Department of Education, Stockholm University.

EDITORIAL TEAM

EDITORS

Professor Lázaro Moreno Herrera, Stockholm University, Sweden
Professor Marianne Teräs, Stockholm University, Sweden
Professor Petros Gougoulakis, Stockholm University, Sweden
Dr. Janne Kontio, Stockholm University, Sweden

EDITORIAL BOARD

Dr. Annica Isacsson, Haaga-Helia, University of Applied Sciences, Finland
Professor Christian Helms Jørgensen, Roskilde University, Denmark
Dr. Christof Nägele, University of Applied Sciences, Switzerland
Associate Professor Eleni Prokou, Panteion University, Greece
Professor Fernando Marhuenda, University of Valencia, Spain
Associate Professor Francesca Salvà Mut, University of the Balearic Islands, Spain
Professor Gun-Britt Wärvik, Gothenburg University, Sweden
Associate Professor Harm Biemans, Wageningen University, The Netherlands
Dr. Haryanti bt Mohd Affandi, National University of Malaysia, Malaysia
Professor Hiroshi Numaguchi, Daitobunka University Tokyo, Japan
Professor Juan Antonio Mena Lorenzo, University of Pinar del Río, Cuba
Professor Krista Loogma, Tallinn University, Estonia
Dr Maarit Virolainen, University of Jyväskylä, Finland
Dr. Magdolna Benke, University of Debrecen, Hungary
Professor Matthias Pilz, University of Cologne, Germany
Professor Michael Gessler, University of Bremen, Germany
Professor Miguel Pereyra, University of Granada, Spain
Dr. Natasha Kersh, University College London, United Kingdom
Professor Per Andersson, Linköping University, Sweden
Professor Petri Nokelainen, Tampere Universit, Finland

Professor Ramlee bin Mustapha, Sultan Idris Education University, Malaysia
Professor Stephanie Allais, University of Witwatersrand, South Africa
Professor Stephen Billet, Griffith University, Australia
Associate Professor Vibe Aarkrog, Aarhus University, Denmark
Associate Professor Victor Hernandez-Gantes, University of South Florida, USA
All members of the Editorial Board serve also as reviewers.

PUBLISHER

The research book series Emergent Issues in Research on Vocational Education and Training is published by the research group Vocational Education & Training (VET), at Stockholm University in cooperation with the European Research Network in Vocational Education and Training (VETNET) (umbrella organization: EERA European Educational Research Association).

SCOPE

Emergent Issues in Research on Vocational Education and Training covers all topics of VET-related research from pre-vocational education (PVE), initial vocational education and training (IVET), professional education and training (PET) and continuing vocational education and training (CVET). Some themes within these areas are as follows:

- Comparison of VET cultures and governance of VET systems

- Qualifications frameworks, competence-based education and training, and competence assessment
- Work-based learning, skills matching and apprenticeship
- Teachers' and trainers' professional development
- VET careers, school-to-work transitions, vocational guidance and counseling
- Green skills, green jobs, greening TVET and sustainable development
- Social issues in VET and social impact of VET
- Transversal skills and transferable skills
- Pedagogic and didactics in VET
- Digitalisation of work and learning, industry 4.0 and industrial internet of things
- Permeability of the education system, hybrid qualifications & dual studies
- History of VET

FREE AND INVITED SUBMISSION

Free chapter submission: Emergent Issues in Research on Vocational Education and Training accepts literature reviews, empirical studies, theoretical chapters, methodological chapters and case studies. A chapter should be about 6.000 to 8.000 words in length. Manuscript submissions are welcome following calls' deadlines. See guidelines for authors in a separated section.

PUBLICATION COSTS

Publishing in Emergent Issues in Research on Vocational Education and Training requires no processing charges or other publication fees (e.g. chapter submission charges). Publishing is free of costs.

PUBLICATION FREQUENCY

One or two volumes per year. Authors receive a printed copy. Print on demand available.

Why considering Emergent Issues in Research on Vocational Education and Training as a venue for your work?

- The research book series is connected to an international community of researchers and it is therefore highly appreciated within the international research community.
- The research book series is fully open access. Publication is 100 % free of costs (also no hidden costs).
- Authors retain copyright.
- Chapters undergo a rigorous double-blind peer-review.
- The book series is open for all authors worldwide. We are an open community of researchers.
- We use the LOCKSS system (Lot of Copies Keep Stuff Save), developed at Stanford University Libraries, and DOIs (digital object identifier, provided by Crossref) for each chapter to maintain permanent access to your work.

2. REVIEW PROCESS AND CRITERIA

A-PRE-SUBMISSION

Potential contributors should first submit an abstract that is reviewed by the editorial board as first acceptance step before submission of full contributions. Send your proposal via e-mail: vetbookseries@edu.su.se

B-SUBMISSION

The submission criteria are as follows:

- The submission has not been previously published, nor is it under simultaneous consideration by another book series.
- The abstract contains (a) context/purpose, (b) approach/methods, (c) findings/results and (d) conclusion/key message.
- The instructions in the Guidelines for Authors have been followed.
- Citations and references are in APA style (American Psychological Association referencing style)
- The author's(s') name(s) have been deleted from the text and do not appear in the file properties, to ensure a blind peer-review.
- The submission file is in Microsoft Word format.
- C-Integrity and originality check

Each submitted chapter undergoes first an academic integrity and originality check. For example PlagScan.

The extent to which a submission matches already published sources is indicated via percentages. The percentage is calculated by PlagScan. The decision after the integrity check is based on the following specific limits:

- 5% - 10% match: manuscript will be sent back to the author to revise the manuscript.
- 10% match: manuscript will be rejected.

D-INITIAL SCREENING

- Each submitted chapter undergoes after the integrity check an initial screening by the editors. Screening criteria are as follows:
- Chapter is within the scope of the research book series
- Author has ensured the integrity of a blind review
- Theory, methods and results are ready for the blind review
- The book series guidelines were followed (e.g. compliance with APA Style, 7th Edition)
- The chapter is suitable to address an international audience (e.g. grammar, style/clarity)
- Chapters that do not meet these requirements are rejected after screening.

E-DOUBLE BLIND PEER-REVIEW

Anonymized papers suitable for review are forwarded from the editorial office to at least two external reviewers. Review criteria are as follows:

- Ethics: The author has met research and publication ethics requirements.
- Relevance: The chapter is within the scope of the research book series.

- Framework: The theoretical/conceptual/empirical framework is clearly presented and explained.
- Problem statement: The problem statement is clearly presented and explained.
- Research questions: The research questions are clearly presented and explained.
- Research methods: The research methods are appropriate and clearly presented.
- Results/findings/conclusions: The results/findings/conclusions are adequately and clearly presented and discussed.

The reviewers recommend with an overall rating:

- Accept
- Minor revisions needed (neither accept nor reject)
- Major revisions needed (neither accept nor reject)
- Reject

F-FINAL DECISION

A third reviewer will be involved if the recommendations of the first two reviews are contradictory. The final decision is made by the editors.

3. GUIDELINES FOR AUTHORS

Chapters that do not comply with these guidelines cannot be accepted for review.

TWO CHAPTER VERSIONS

Please note that two chapter versions have to be submitted:

- The first version has to ensure a blind peer review, this means: (1) The author(s) name(s) must not appear in the whole chapter including references. We suggest to replace the names by "author". (2) The address and biographical notes must be erased.

- The second version has to be complete with all names appearing in the text and references. Please attach the second version as a supplementary file in the submission process named "non-blind version". The non-blind version should include an additional title page. The title page should include besides the title, (1) the name(s) of the author(s), (2) the E-mail address(es), mailing address(es) and affiliation(s), (3) a brief professional biography of not more than 100 words for each named author, (4) indication of the corresponding author.

Additionally, all figures (charts, diagrams, line drawings, photographic images, etc.) should be submitted as supplementary files with at least 300 dpi (therefore additional to the embedded figures in the submitted versions).

ENSURE A BLIND REVIEW

To ensure the integrity of the blind peer-review for submission to this book series book series Emergent Issues in Research on Vocational Education and Training, every effort should be made to prevent the identities of the authors and reviewers from being known to each other. This involves the authors, editors, and reviewers (who upload documents as part of their review) checking to see if the following steps have been taken with regard to the text and the file properties:

The authors of the document have deleted their names from the text, using "Author" and year used in the references and footnotes, instead of the author's name, chapter title, etc. In case of several authors, please make sure that no author can be identified during the blind review process.

With Microsoft Office documents, author identification should also be removed from the properties for the file (see under File in Word), by clicking on the following, beginning with File on the main menu of the Microsoft application: File > Save As > Tools (or Options with a Mac) > Security > Remove personal information from file properties on save > Save.

REQUIREMENTS

General requirements:

Language: Chapters which are not in proper English will not be accepted and the chapter will not be forwarded to the reviewers. If English is not your native language, we recommend a professional proofreading prior submission.

APA, 7th Edition: In-text citations and references have to be in APA style, 7th Edition.

Lengths: A chapter should be about 6.000 to 8.000 words in length.

Format: The Chapter has to be submitted in Word format. Use a normal font (e.g., 11-point Times Roman).

CHAPTER-SPECIFIC REQUIREMENTS

- Title: Please select an informative and specific title. In an international context, this usually means that the wider research context (region(s), country(ies)) should be mentioned.
- Abstract: An abstract should comprise 300-400 words. Important: The abstract has to be structured in four parts: (1) "context" or "purpose", (2) "approach" or "methods", (3) "findings" or "results", (4) "conclusion" or "key message".
- Keywords: Please choose and name 3–5 keywords. Carefully selecting the most appropriate keywords will enhance the ability of others to find your chapters. Please use keywords from "A guide to VOCEDplus subjects and keywords"
- Headings: The maximum number of levels is three.
- Figures and Tables: (1) All Figures have to be of high quality (> 300 dpi), legible and numbered consecutively. (2) All illustrations, figures, and tables should be placed within the text at the appropriate points. (2) All illustrations, figures, and tables should be numbered and should have a title. (3) The title of a table should be above the table and the title of a figure should be below the figure.

(4) All illustrations, figures, and tables should be cited in the text and should be explained. (5) References should be put in the legend.

- Abbreviations: If you use abbreviations, please define them. If the abbreviation is the name of an organisation, it should be written in full once.
- Footnotes and acknowledgements: You can use footnotes (but no endnotes) for additional information but not for the citation of a reference or for bibliographic details of a reference. A footnote should not contain figures or tables. Acknowledgments of grants, funds, etc. should be mentioned in a footnote at the beginning of your chapter.
- References: The Heading "References" is an unnumbered "Heading 1".

SUBMISSION

Send you proposal via e-mail: vetbookseries@edu.su.se

SUBMISSION PREPARATION CHECKLIST

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines:

- The submission has not been previously published, nor is it under simultaneous consideration by another book series.

- The authors' names have been deleted from the text and do not appear in the file properties to ensure a blind peer-review.

Abstract is structured in four parts comprising 300-400 words:
- context (alternative term: purpose)
- approach (alternative term: methods)
- findings (alternative term: results)
- conclusions (no alternative term)
- Keywords: 3-5 keywords. Carefully selecting the most appropriate keywords will enhance the ability of others to find your chapters.

- In-text citations and references are in APA 7th style.
- The submission file is in Microsoft Word format.

FURTHER INFORMATION

Publication ethics and malpractice statement:
The editorial team follows the guidelines of the Committee on Publication Ethics (COPE) and COPE guidelines for best practice.

PRIVACY POLICY

Our research book series follows the privacy policy of Stockholm University Press. Further information available at:
https://www.stockholmuniversitypress.se/site/privacy-policy/