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INSIGHTS INTO "RESEARCH ON THE INTERNATIONALIZATION OF VOCATIONAL EDUCATION AND TRAINING"

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für Bildung
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Vorwort

Zum Abschluss des Förderprogramms „**Forschung zur Internationalisierung der Berufsbildung**“ (IBBF), gefördert durch das Bundesministerium für Bildung und Forschung, werden in diesem Konferenzband ausgewählte Ergebnisse aus den elf beteiligten IBBF-Projekten sowie der begleitenden Metamaßnahme MP-INVET vorgestellt. In den Beiträgen werden sowohl ausgewählte Forschungserkenntnisse der Projekte als auch innovative Modelle und Ideen für Entwicklungsperspektiven in diesem Forschungsbereich skizziert und diskutiert.

Insgesamt wird mithilfe der Beiträge aufgezeigt, wie die elf Forschungsprojekte des IBBF-Förderprogramms zur Stärkung und zum Ausbau der institutionalisierten Berufsbildung sowie der internationalen Berufsbildungskoooperation beitragen. Das Förderprogramm umfasst drei Forschungsschwerpunkte: (A) „Aktuelle Themen der Berufsbildungsforschung im Rahmen von Berufsbildungskoooperationen“, (B) „Forschung zu Voraussetzungen für erfolgreiche Berufsbildungszusammenarbeit in Ländern, mit denen eine BMBF-Berufsbildungskoooperation besteht, sowie in weiteren Regionen und Ländern“ und (C) „Entwicklung von gemeinsamen Pilotmaßnahmen zum Aufbau von Kapazitäten zur Berufsbildungsforschung in den BMBF-Partnerländern“. Dementsprechend werden die Beiträge der IBBF-Projekte nach diesen drei Schwerpunkten strukturiert. Den vierten Teil des Konferenzbandes bilden die Beiträge aus der begleitenden Metamaßnahme MP-INVET.

Mit diesem Konferenzband werden die Forschung und Ergebnisse der IBBF-Projekte sowie des Metaprojektes systematisch integriert, um ihre Sichtbarkeit sowie Anschlussfähigkeit an die nationale und internationale Berufsbildungsforschung zu erhöhen. Des Weiteren werden Transferansätze der Ergebnisse und Erkenntnisse aus dem IBBF-Förderprogramm auf verschiedenen Ebenen in die Forschung, die Berufsbildungspraxis und die Berufsbildungspolitik aufgezeigt.

Wir möchten zum einen uns bei allen Autorinnen und Autoren für die Beiträge bedanken, welche spannende Einblicke in dieses Programm bieten. Zum anderen möchten wir dem BMBF für die Finanzierung des Förderprogramms IBBF sowie dem DLR Projektträger für die kontinuierliche Begleitung dieses Vorhabens danken.

Mainz, Dresden, Bremen

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Förderschwerpunkt A

Aktuelle Themen der Berufsbildungsforschung im Rahmen von Berufsbildungskooperationen

Competence-based Curriculum in the Chinese and Russian Commercial Vocational Education: From Planning to Implementation

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1. Introduction

Worldwide, the competence-based approach (CBA) has become a widely-used means for addressing heterogeneous needs in national Vocational Education and Training (VET) systems (Hodge, Mavin & Kearns, 2020; Argüelles & Gonczi, 2000). Although the development of competence-based education has been researched worldwide, most of these studies focus on the analysis of national discourses and reform efforts related to competence-based VET. Empirical studies on the actual didactic-curricular planning and didactical-methodological implementation of the CBA are still scarce, especially those that examine the phenomenon from a comparative perspective across countries. Against this background, this study, conducted in the context of the project “CodeVET,”¹ investigates and compares the competence-based approaches in commercial VET in Russia and China. In recent decades, the CBA was introduced in this area of the education system as a part of the modernisation strategies of VET.

¹ Project CodeVET – Competence development in VET. A comparative analysis of intended and implemented curricula in the field of business administration – is funded by the German Ministry of Education and Research.

This paper aims to answer two main questions: Which didactic features of the CBA are identified in the VET curriculum documents in China and Russia? How are these features implemented in teaching-learning processes?

2. Theoretical background and methodology

Our research uses the curriculum concept as a theoretical basis for exploring CBA in VET. In the literature on education, there is no common definition of curriculum; for this research, a three-level classification of the curriculum (Van den Akker et al., 2010) was selected as the most suitable of various conceptualisations. More precisely, the “intended and implemented curriculum” definitions of UNESCO International Bureau of Education (2013), were used as working definitions.

The embeddedness of CBA in intended and implemented curricula was analysed in a two-stage approach. First, curriculum documents on national and college levels were collected and analysed, using qualitative content analysis (Kuckartz, 2019). In Russia, 5 national and 106 local documents from 10 colleges were collected, in China 6 national and 110 documents from 10 colleges. For the analysis of implemented curriculum, interviews with teachers, and semi-structured observation was conducted, to provide a comprehensive perspective of the teaching-learning processes. In Russia, 14 interviews were conducted and 24 academic hours were observed, in China 18 interviews and 24 hours.

The analysis focuses on specific aspects of curriculum planning and implementation relevant to CBA as conceptualised in the Revised Model of Comprehensive Competence-Based Vocational Education (Revised CCBE Model) of Sturing et al. (2011). The Model served as the foundation for the creation of an analysis framework, however, adapted to national contexts, and thus as a common lens for examining the complex phenomenon of the CBA². Categories for qualitative content analysis, as well as for construction of interview guidelines and observation protocols, were mainly derived from the principles of the Model. The focus of this paper is only on principles related to teaching and learning in competence-based education, such as *practical learning in an authentic environment, self-steering, self-selection, individual approach and teacher role*, as well as *cooperative learning*.

² See Chen (2021) for a comprehensive explanation of model adaptation.

3. Results

3.1 Results for Russia

Analysis of CBA in Russian VET has revealed that the curricular documents analysed contain very limited prescriptions concerning didactical-methodological implementation of features of the CBA. The only explicit prescription concerning CBA which could be found in some curricular documents, prescribes the use of interactive, active and project-orientated learning methods. No other general guiding principles for the organisation of teaching-learning processes are mentioned in the curricula. Therefore, explicit prescriptions relating to various didactical principles of the Model of Sturing et al. (2011) namely, learning in an authentic environment, self-steering, self-reflection, cooperative learning and individual approach could rarely be found. However, various curricular statements are relevant to principles. Authentic learning experiences, understood as practical training both inside and outside of colleges in an appropriate environment, are prescribed by the curriculum. The practical training in companies is foreseen in the professional cycle of the programme as separate phases. Furthermore, an alternation of theoretical and practical learning sessions is specified within courses. Few curricula contained provisions explicitly prescribing facilitation of self-steered learning processes and self-reflection. No statements which prescribe or indicate that the teacher should act as facilitator, coach and mentor were found. Prescriptions on adaptation of guidance to students learning needs and individual characteristics, mainly refer to the needs of special students, such as students with disabilities. Cooperative forms of learning are prescribed by various curricula.

The analysis of implemented curriculum from the teacher's perspective, has revealed that there is no agreement among teachers on the meaning of competence, CBA or its implementation. For many of them, the concepts are confusing and unclear. There is an agreement among different teachers, however, that practical learning is a crucial aspect of competence-based learning processes. Other didactic principles of the CCBE Model are not mentioned by the teachers. However, the results of the analysis of teachers' narratives of their teaching-learning practices, show a wide variety of practices which may be regarded as an implementation of the CBA principles of the CCBE model in their classrooms. Although some of the teachers advocate self-direction and self-reflection, others see them as either not appropriate in the Russian educational context or difficult to implement. Teachers' perceptions of their own roles vary as well, whereby some teachers still see themselves rather as knowledge

transmitters, others see themselves as facilitators of the learning processes. Cooperative learning is, however, commonly supported and reported to be implemented.

In addition to interviews, the analysis of observation brought varied results. What became obvious is that lessons take place in traditional classroom arrangements, which have little in common with the occupational environment. However, the learning environment resembles professional practice to some extent due to the use of computers and professional software in lessons. The teachers observed had very similar structures of the lessons, including alternation of practical and theoretical learning. As for facilitation of self-steering, there are very few opportunities provided for students to co-determine their learning processes. However, the autonomous learning phases are actively integrated with the learning process. The teachers' guidance is in general very intensive. However, some of the teachers plan learning processes in a way that students are the main active participants, while others still have a dominant role in the learning process. Some teachers integrate explicit self-reflection practices, while others don't. As for cooperative learning, different practices could be found in lessons of all teachers, however, their extent varies significantly.

3.2 Results for China

Didactical principles of CBA were found to be diversely embedded in the Chinese VET curricula analysed. There are both direct and indirect manifestations regarding the didactical principles, however, these statements are formulated mainly as didactic recommendations rather than obligatory provisions. The connection between theory and practice is highlighted explicitly in curricular documents of all colleges and is to be achieved through both professional courses in college and practical training in companies. The former provides students with practical learning arrangements in college, through carrying out tasks in simulated working situations and applying the theoretical knowledge they have acquired. The latter allows students to gain practical experience in relevant working fields. The teacher's role as facilitator and mentor, and the adjustment of teaching guidance according to the individual needs and characteristics of students, are not prescribed explicitly. However, some professional core courses are recommended to be layered to meet the needs of student groups at different levels.

The analysis of teacher interviews reveals that there is a connection between teachers' understanding of CBA and their teaching experience. While some novice teachers interviewed had little idea of competence-based VET, the experienced

teachers had a better understanding of it, mainly related to curriculum development, which should involve the derivation of competencies from practice. Some teachers emphasised their changing roles toward being a facilitator of the learning process, while others still considered that their main responsibility is to impart knowledge. Although many teachers reported various practices involving practical activities or cooperative learning in their lessons and had positive perceptions of them, only a few teachers regarded them as part of the CBA. As for the differentiated guidance, most teachers interviewed didn't express a positive opinion about it. The most-mentioned factors standing in the way of its implementation are organisational conditions, like the number of students in the class and a non-supportive attitude toward it in some colleges.

Analysis of the results from classroom observation, showed that implementation of the didactic approach regarding practical learning was dependent on learning content. The professional basic courses had visibly fewer practical learning activities than the professional core courses. Moreover, the observed classes of logistics training programs had significantly more practice-orientated training arrangements than those of accounting programs. Further, cooperative learning was also only observed in those practice-orientated logistics core courses. In line with what the teachers said in the interviews, there were no learning activities observed with differentiated guidance to meet the need of individual students. Self-reflection activities like reviewing of learning outcomes before class or summarising after class, were implemented similarly by the teachers in the lessons observed. The facilitation of self-steering in learning processes was not observed in any lessons.

4. Discussions and conclusion

4.1 Different national contexts – comparison of results

The analysis in both national contexts revealed that some principles of the CBA, as conceptualised by the model, are still implemented by the teachers, even though these are not explicitly — or only to a limited extent — prescribed in the curricular documents analysed. Most of the curricula don't contain comprehensive didactic explanations for the implementation of CBA. Along with this, teachers do not have a clear and common understanding of the competencies and CBA, as well as of their implementation. This is also reflected in various guidance styles and different practices within national contexts, for instance, practices of self-reflection or cooperative learning. In both national contexts, self-steering is not common in curriculum

documents, and either not implemented, or implemented to a limited extent in the classroom. It is difficult to implement due to a lack of flexibility in the written curricula, providing limited opportunities for teachers to adopt it. Therefore, according to the programmes analysed, students have little opportunity to co-determine different aspects of their learning, such as their own learning pace or learning contents, as the CCBE Model suggests.

Further, various differences exist in the embeddedness of the features of the CBA in curricular documents, and in implementation processes between the cases analysed in Russia and China. Russian teachers, in general, have a positive attitude toward differentiated guidance, and some of them complain about organisational obstacles to its implementation. In contrast, Chinese teachers find it didactically inappropriate or not favourably viewed by the colleges. While in the Russian case the learning space is mainly a classroom with little resemblance to professional practice, in the Chinese case the practical learning takes place partly in a simulated professional environment. In that respect, a principle of the CBE, which foresees that learning activities should take place in various meaningful, concrete practice settings (Sturing et al., 2011), is implemented in both national contexts through practical phases in the companies and, in Chinese cases to a greater extent than in Russian, through training in college.

4.2 Teachers as agents of change

Successful implementation of the CBA is a challenging task in every VET system. Since they influence the motivation of students, and are responsible for creating the learning environment where competencies are to be developed, teachers and trainers can play an essential role in this process (OECD, 2009). Since the curriculum is implemented by teachers, successful implementation of various educational innovations, such as CBA in a classroom, depends on them, and, more specifically on how they understand the approaches, interpret the concepts which are central to them, and further translate their knowledge into teaching-learning processes (Misbah et al., 2019). Therefore, teachers should not be seen as plain translators of the curriculum instructions, because it depends to a large extent on teachers if, and to what extent, the intended curriculum is implemented as envisaged, or not. Priestley et al. (2012) see the teachers as “agents of change” when it comes to the curriculum making. They are, as individuals, actively creating educational processes and learning environments according to their personal and professional beliefs and attitudes (Handal and Herrington,

2003; OECD, 2009). Therefore, identifying the possible discrepancies between teachers' beliefs and concepts behind principles of the competence-based education, can help in developing strategies to resolve them. Teachers need to have a comprehensive understanding of the CBA, in order to be able to implement it in their teaching practice. As the results showed, different understanding, or lack of understanding of the didactical principles of organisation of teaching-learning processes in competence-based VET, lead to varying practices regarding their implementation.

In both national contexts the teachers should be better prepared for the implementation of the CBA during their professional training processes, as well as receive support during their teaching practice. Furthermore, clarification of the CBA and didactic principles of its implementation is necessary in order for teachers to have a clear understanding of what is expected of them and their guidance of the students, in order to achieve the desired result, namely competence development of students.

5. Conclusions

The analyses show the differences in the understanding of competence and implementation of CBA at all levels. Equally important is the finding that there are clear discrepancies between the intended and implemented dimension. For the success of reform measures and the further development of VET, here with a view to modernising vocational learning processes, flanking activities are required that also start at the implementation level. It is a great challenge for reform intentions in VET to reach the implementation level. In addition, there is no systematic information available so far in VET on the extent to which intended and implemented competencies are actually acquired by learners (achieved curriculum). In this respect, there is still a great need for research in order to develop the necessary knowledge for VET, which has been available for general education for a long time.

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Quality Development of Vocational Education and Training in India: Supporting and Restraining Factors

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1. Introduction

In line with constant high economic growth in India, the country has placed emphasis on skill development for more than two decades. Prevalent policies did target the development of the system in terms of quantity and access. However, in the light of the demand for well-qualified personnel, the quality of vocational education and training (VET) gained importance, yielding various attempts to improve the system. Specifically Industrial Training Institutes (ITIs) have been in the focus of improvement measures initiated by the Indian government as well as international organisations (Wessels & Pilz, 2018). Even so, such institutions continue to display problems in the quality of training, and graduates lack qualifications and skills demanded by industries and trades (Sharma, 2018). Problems rooted primarily in the system and in society cannot be solved at the institutional level alone. Still, past efforts of quality improvement that displayed a clear top-down focus have not proven overall effective (Pilz & Regel, 2019). At the same time, there exists a research gap considering quality development processes at the individual institute level in India and no systematic data are collected on learning and teaching processes (Tara et al., 2016). Thus, in this study, the meso and micro level of institutional development is targeted in line with the evaluation of a quality measurement framework that bases on existing theories and approaches of quality development in VET (Ramasamy et al., 2021). Past approaches in

systematic quality improvement in education and training have shown, that the knowledge and consideration of internal and external context factors are essential for effective and sustainable school improvement processes (Hallinger & Heck 2011; Stoll, 1999). Hence, this paper centres on the question of which factors facilitate and promote as well as restrain institute-driven quality development in training institutes in India. For this purpose, ten interviews were held with directors of ITIs in Delhi.

2. Quality Development in Indian VET

In India, little research on institutional-driven school development exists. Specifically in the area of VET, no considerable recent empiric data are available. Considering the quality of ITIs, the International Labour Organization (ILO) did a large study on the efficiency of institutes in Orissa, Andhra Pradesh and Maharashtra. Based on their results, the organization outlined an agenda for the reform of ITIs, including greater autonomy for institutions and the introduction of an accountability framework (ILO, 2003). The World Bank launched an extensive report about the Indian VET system in 2008, which did also target the role and quality of training in ITIs (World Bank, 2008). At the same time, the bank started to engage in the initiative of upgrading single ITIs to Centres of Excellence (CoE) which should function as role models and benchmark (Pilz & Regel, 2021). The intensive engagement of international organizations came in line with major improvement initiatives by the Indian government, starting with the first skill development policy in 2009. However, past measures put a clear focus on input-based, top-down steering policies for quality development, partly resulting in a mismatch of measures and local stakeholder needs (Dyer, 2005). Approaches for distinct self-driven school development have not been included in improvement policies so far.

2.1 School Improvement Research

Internationally, school improvement research draws on different theoretical perspectives (Hallinger & Heck, 2011). Regarding systematic quality management in educational institutions, research into the school as organisation (Hopkins et al., 2014)) and school effectiveness research (Scheerens & Bosker 1997; Scheerens et al., 2013) are to be named as major traditions with significant impact. The latter identified specific factors and their influence on the performance of schools. Still, these factors operate and interact at different levels and intensity. Such interdependencies are hardly quantifiable (Dubs, 2003; Hopkins, 1996), contributing to the high complexity of

improvement processes. From the perspective of organisational development, there is still a research and knowledge gap on how educational institutions can practically improve effectiveness (Feldhoff et al., 2016). Hallinger and Heck (2011) note that the role of contextual conditions for school improvement processes have been taken into account only recently, stating that specifically internal and external environmental conditions need to be considered for practical development in institutions. While environmental conditions are assumed to be of particular relevance for school improvement processes in general, VET institutions may differ significantly in their contexts and impact factors from schools at different levels of general education. Findings from traditional areas of school improvement research may not be entirely transferrable to VET. Particularly in India, VET institutions operate under specific and diverging circumstances compared to general education. As such, more research is needed to contribute to how VET institutions can develop quality effectively.

2.2 The Capacity of VET Institutions for Improvement Processes

School development is primarily considered a social process at the level of the institution itself (Feldhoff et al., 2016). Factors that promote or restrain improvement build upon comprehensive systematic quality management procedures may be located within the individual institution's "capacity" to engage in change and development processes (Stoll 1999, 2009). Taking specifically internal and external context into consideration, Stoll (2009) defines capacity as "the power to engage in and sustain continuous learning of teachers and the school itself for the purpose of enhancing student learning, influenced by individual teachers within a school; the school's social and structural learning context; and the external context" (Stoll, 2009, 116–117). Marks and Louis (1999) followed by Marks et al. (2000) developed a model of internal school capacity for managing change based on six dimensions. These target the organisational *structure of schools, shared commitment and collaborative activity, knowledge and skills, leadership, feedback and accountability* and *teacher empowerment*. Feldhoff (2011) extended the model, adding a seventh dimension of *exchange with the school environment*. The current study builds upon the extended model of school capacity (Feldhoff 2011; Marks et al., 2000), as specifically interlinkages to the institutional environment in form of trade and industry as well as other education and training institutions have been identified as highly relevant in related VET contexts (Li & Pilz, 2019).

3. Methodology

Context conditions were examined in different formats as part of a comprehensive qualitative research design based on a design-based research approach (McKenney & Reeves, 2019). To identify factors that relate to the institutional capacity for quality improvement processes, 10 semi-structured interviews were held with school directors in ITIs in Delhi. The interview guideline theoretically draws upon the model of internal capacity for school development (Feldhoff, 2011; Marks et al., 2000). Data were analysed by means of the documentary method (Bohnsack et al., 2010), combined with a succeeding qualitative comparative analysis based on the identified deductive and further inductive categories (Nohl, 2010). The chosen methodological approach is of particular importance in the present environment: Theories and findings are put into their culturally specific context as the documentary method locates the origin and effect of the social structure in the actions of the actors themselves. In addition, the approach allows an intensive analysis of each individual interview, so that individual statements are to be analysed and interpreted in the respective entire interview context before extracted and systematised by categories (Nohl, 2010). Here, a focus was placed on the institutional management, due to the relevance of leadership for school improvement processes (Hallinger, 2003).

4. Results and Discussion

4.1 Approaches to Quality Development

In the following section, three single cases of institutes will be presented in detail. Cases represent major themes regarding approaches to quality development identified and extracted from the entire sample. Specific cases illustrate different institutional procedures and conditions, and picture as well as illuminate relevant aspects that have an impact on quality improvement processes in the local VET context. Each of the ten interview cases showed a clear tendency towards one of the described themes.

Quality Assurance by Meeting Prescribed Standards

The first exemplary interview example was held in an ITI with close industry collaboration and involvement. The participants state the institute as one of the best in the local area. Interestingly, within the interaction, a distinguished organisational quality culture and related processes shaped by the institutional management could not be traced. The depicted perception of education and training quality relied solely on

maintaining given standards and meeting quantitative performance indicators like drop-out rates. Apart from that, quality assurance structures and standards seemed to be shaped by the involved industry partners only.

Institutional-driven Systematic Quality Improvement Approaches

In the second example, a comprehensive perception of education and training quality became apparent. Furthermore, specific approaches and processes were formulated that related to the systematic analysis of institutional context conditions and the formulation of institutional strategies and objectives. Responsibilities for quality improvement were clearly formulated at the level of the training institute. In addition, informal and formal mechanisms for collaborative leadership, e.g. in forms of meetings and systematic feedback, were depicted.

Customer Orientation as Driver for Quality Assurance

The third case describes a private ITI. In the interview, a clear focus on student satisfaction was formulated, the student is regarded as the customer that the ITI is catering to. Formal and informal learner feedback is collected on a regular basis. For this ITI, a high number of extracurricular activities were stated and a specific focus was set on the wellbeing of female students. At the same time, a lack of genuine development objectives became apparent. In this case, quality assurance showed a rather reactive than self-directed profile.

4.2 Promoting and Restraining Factors for Quality Improvement Processes

Within the comparative sequence analysis of the 10 interviews taken, relevant aspects have been identified that relate to the research focus on promotion and restraining factors for quality improvement processes at the level of the individual VET institute's capacity for improvement.

Within the dimension of *shared commitment and collaborative activities*, factors that became prevalent related to the perceptions of and the approaches to education and training quality of actors, the present "institute culture" and the "pedagogical concept" at the institutional as well as at the individual level. Targeting the area of *leadership and management*, factors identified related to "taking responsibility for quality", the "vision and mission" of ITIs as well as "goals and objectives". Factors that relate to the dimension of *exchange with the institutional environment* were identified in "industry collaboration" and "collaboration with other ITIs". The *organisational structure* of ITIs is highly shaped by administrative standards and requirements, which do also restrict autonomous organisational development as well as aspects relating to

the dimension of *teacher empowerment*. However, taking into consideration that every training institute that took part in the study operates under similar administrative conditions in a highly structured and hierarchized VET system, the role of leadership at the institutional level became apparent as clear differences in the processes of –and approaches to– quality improvement could be witnessed within the identified categories. Although the small sample size and the geographical limitation of the study does not allow for generalisation, results still acknowledged the role of individual actors as well as local context conditions formulated by past school improvement research. These findings are of specific interest in the context of a highly structured and hierarchized system like the Indian one, which differs considerably from typical contexts where school improvement policies evolved. Here, further research will be needed to clarify impact factors, potentials and boundaries of self-driven quality improvement In India. Within the specific country context, future studies need not only to cover higher numbers of institutes but also consider different geographical regions to provide for socioeconomic differences of the subcontinent.

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Förderschwerpunkt B

Forschung zu Voraussetzungen für erfolgreiche Berufsbildungszusammenarbeit in Ländern, mit denen eine BMBF-Berufsbildungskoooperation besteht, sowie in weiteren Regionen und Ländern

Multi-sided Analysis of Needs of TVET Students in Problem Solving Skills in South Africa

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1. Introduction

1.1 Scope and Purpose

Approximately 600 German companies are located in South Africa (Federal Foreign Office, 2019). Among these are for example BASF, Bayer, Bilfinger Berger, BMW, DHL, Deutsche Bank, Lanxess, Mercedes Benz, MTU, SAP, Siemens, ThyssenKrupp, Volkswagen and Schaeffler, and many more (Federal Foreign Office, 2019). These companies have production plants in South Africa and offer training to their staff, and in some cases to externals as well (Federal Foreign Office, 2019). German companies in South Africa have created over 100.000 jobs in the country (Federal Foreign Office, 2019).

TVET (Technical and Vocational Education and Training) plays an important role in the preparation of prospective employees despite the delays in tackling improvements to education (World Economic Forum, 2020) including TVET. Moreover, TVET has been among the top 20 starter sectors for young people (World Economic Forum, 2020). In order to allow TVET students to connect disciplinary learning with

workplace application (Council on Higher Education, 2011), problem solving skills are actively incorporated into TVET curricula.

Problem solving skills refer to the 21st century skills and are one of the Top 10 Skills of 2025 (World Economic Forum, 2020). Furthermore, problem solving has stayed at the top of the global agenda with year-on-year consistency (World Economic Forum, 2020). Based on these reports, the TVET sector in South Africa has to pay particular attention to the development of TVET students' problem solving skills.

However, different stakeholders in TVET have different views on the development of TVET students' problem-solving skills.

The purpose of the paper is to model TVET students' problem solving skills on the multi-sided needs analysis of TVET students' problem solving skills.

It should be noted that a multi-sided needs analysis includes the views and opinions of experts, students, teaching staff, and a wider community, including companies (Ahrens et al., 2020; Kuehn & Zascerinska, 2022). A multi-sided needs' analysis allows for the designing a relevant training programme or a professionalisation course for TVET lecturers (Ahrens et al., 2021).

1.2 Process Overview

TVET students' problem solving skills are modelled on the following:

- i) implementation of theoretical analysis of problem solving skills,
- ii) online interviews with TVET lecturers and
- iii) 20 semi-structured interviews with the representatives of 18 companies (including German companies) carried out in South Africa in 2021.

2. Theoretical Framework

The theoretical analysis allows for the defining of TVET students' problem solving skills on the basis of the "problem" novel definition being: a challenge and an opportunity on the one hand, as well as a gain and a possibility on the other hand (Zascerinska et al., 2020), in comparison to a problem identified as a challenge only (Salsberg, 2003). Such a definition of the "problem" allows the defining of students' problem solving skills as the ability and experience to turn a challenge or opportunity into a gain and possibility or, in other words, an individual solves a problem if s/he is able to transform a disadvantaged situation into a favorable gain (Zascerinska et al., 2020).

3. Empirical Study

3.1 Study Design

The question that enabled the empirical study was formulated in this way: What are views of TVET lecturers and company representatives on problem solving skills and sub-skills required from TVET students for studying and working?

The purpose of the study was to compare the views of TVET lecturers and company representatives on problem solving skills and sub-skills required from TVET students for studying and working.

Data was collected via online interviews with TVET lecturers and 20 semi-structured interviews with the representatives of 18 companies (including German companies) carried out in South Africa in 2021. Semi-structured interviews with the representatives of companies were used as the researchers had obtained the initial knowledge on the research field (Kroplijs & Raščevka, 2004). The semi-structured interview included the following questions:

- What kinds of competencies would you prefer that the students bring from the TVET-colleges?
- So, what are some of these competencies do you deal with in your company?

20 respondents from 18 companies in South Africa took part in the interviews.

Four key events were organized in 2021 with the online participation of TVET lecturers:

- 1st online colloquium on the “TVET-Leaders” in the Western Cape Region (April 2021),
- 2nd online colloquium on the “Professional development of TVET lecturers: Establishing a Community of Practice with the Western Cape TVET colleges” (May 2021),
- TVET-Conference @ Tshwane University of Technology (TUT), South Africa: Tasks with TVET Experts from South Africa (October 2021),
- Online “Speed-interviews” with TVET practitioners from Western Cape Region (December 2021).

Here is a short description of the event and the key questions and topics for the dialogical exchange:

1. 1st online colloquium on the “TVET-Leaders” in the Western Cape Region (April 2021)

- What are the most critical needs and requirements for TVET lecturers entering into the colleges?

In the meeting with the TVET leaders many ideas were generated by the discussions. There the realization was made that the researchers would explore creative and alternative research methodologies to meet the goals of the research project and that they would create an appreciative exchange format for all. The purpose of the virtual meeting with the TVET leaders was achieved as there was a broad agreement that colleges would work with the CAPE-VET researchers. Invitations to subsequent meetings and webinars received favourable responses.

2. 2nd online colloquium on the “Professional development of TVET lecturers: Establishing a Community of Practice with the Western Cape TVET colleges” (May 2021)

- Discuss a day in the life of a TVET lecturer in 2021.
- Characterise the ideal skills and qualifications required by TVET lecturers.
- What are your hopes for a good community of practice for TVET?

3. TVET-Conference @ Tshwane University of Technology (TUT), South Africa: Tasks with TVET Experts from South Africa (October 2021)

- What are the big challenges facing the TVET colleges at the moment?
- Scale the 2 statements (strongly disagree to strongly agree). Statements/categories and results of the TVET experts from the TUT TVET-conference were “mirrored” by the TVET practitioners from Western Cape Region in the following sessions of the speed interviews and at the same time served to estimate the use of problem solving skills.

The collected data was processed via the use of the frequency of problem solving skills and related sub-skills such as challenge, opportunity, possibility, and gain in the interviews.

For the identification of problem solving sub-skills, the collected data were analyzed with the help of the interpretive paradigm. The researchers’ interpretation of the respondents’ replies was based on looking for the words “challenge, opportunity, gain, and possibility” forming the definition of problem solving as well as the words relevant to those.

The processed data was analyzed through the comparison of the frequency results of problem solving skills, on the one hand, in the interviews carried out with TVET lecturers and, on the other hand, with company representatives in South Africa.

3.2 Study Results

The virtual interviews with college lecturers were categorized in accordance with the discussed topic related to TVET. The categories included

- Industrial and practical linkages
- Lecturer training
- Exchange of good practice
- Qualifications
- Information and Communications Technology (ICT)
- Language and Diversity
- Legacy of the past impacting on the TVET college sector.

3.3 Findings of the Study

The interviews with TVET lecturers did not uncover that TVET students' problem solving skills are recognised as a priority as the interviewees did not refer to problem solving skills specifically as a challenge for students. The results of the interviews with the representatives of German companies revealed that problem solving skills in industry are crucial as they were pointed several times by the respondents. However, the interviewees did not specify sub-skills in problem solving.

4. Conclusions

The theoretical and empirical analysis carried out within the present research supports the conclusion that TVET students' problem solving skills are of a great importance. The comparison of the results of the theoretical analysis and empirical study allows for the conclusion that the development of TVET students' problem solving skills require more concerted efforts from the stakeholders in TVET in order to provide TVET students with problem solving skills.

The multi-sided analysis of TVET students' problem solving skills allows the researchers to conclude that there is a discrepancy between the educational theory and educational practice aimed at fostering TVET students' problem solving skills. This discrepancy is identified to be the gap between existing educational theories on problem solving skills and TVET lecturers' knowledge and skills of teaching problem solving skills to TVET students. TVET lecturers' professionalization and teacher training could bridge the gap in the efficient implementation of teaching methodologies and methods for the development of TVET students' problem solving skills and sub-skills.

The study has some limitations. The limitation is the inter-connections that have been set between problem solving, on the one hand, and challenge, opportunity, gain, and possibility, on the other hand. The limitation is that only TVET lecturers and companies' representatives in South Africa took part in the study. The limitation also is that the data processing was mostly based on the use of frequency.

Future work will encompass TVET policy makers, TVET students and other relevant stakeholders for determining problem solving sub-skills necessary for TVET graduates' working in companies and industry. Implications on the advancement of TVET students' problem solving skills will be proposed. The implications will be jointly elaborated in close cooperation between all the TVET stakeholders including lecturers, educational managers, students, companies' representatives, educational policy makers and all other interested parties. A mixed method study will be carried out in order to compare study results from both qualitative and quantitative perspectives. The search for a balance between the qualitative and quantitative methods in data processing and analysis will be implemented. Comparative studies of TVET students' problem solving skills in different countries will be carried out, too.

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Ownership Practices by Local Actors: The Case of Dual Vocational Education in Mexico

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1. Introduction

In the course of reforming its vocational educational system on an intermediate skill level in the 2010s, Mexico implemented a dual system approach to improve the collaboration between companies and vocational schools. By linking classroom-based and workplace-based training, practical competences are to be imparted to the learners. This reform was also inspired by the German vocational education system (e.g. Fuchs et al., 2021; Vogelsang et al., 2022; Vogelsang et al., 2021). The newly implemented programmes also included the interrelation between university and companies (Graf et al., 2014). Dual programmes are already being implemented in several regions of Mexico (Wiemann & Fuchs, 2018).

In order to offer dual programmes to both learners in vocational schools and universities, different actors are involved such as vocational education organisations, companies, local community groups or government (Seddon & Billett, 2004; Oliver, 2010). Coordination of the involved players is necessary for the implementation of dual concepts (Oliver, 2010). Pierre and Peters (2005) focus on five steps of coordination, defining and selecting goals, decision-making, resource mobilisation, instruments and implementation and feedback. These five steps of coordination are promoted or inhibited by various factors, such as political, cultural, social or economic conditions of the country (Oeben & Klumpp, 2021; Ratnata, 2013; Stockmann, 2014). However,

there is no scientific insight into what promotes or hinders the implementation of dual programmes in Mexico from a Mexican perspective (Vogelsang et al., 2022). This paper addresses this research gap by focusing on the involved domestic actors in Mexico, which play a significant role in the implementation of dual programmes. Therefore, this paper examines the question:

Which facilitating / hindering factors influence the coordination of actors in the Mexican vocational education system from the local perspective of domestic actors?

The following presents the methodological, the findings and a summary of the results.

2. Methodology

This qualitative study was conducted by an interdisciplinary research team (two senior and two junior researchers) from the disciplines of vocational education and of economic geography. Literature research, direct contact and recommendations by other actors allowed to conduct the 63 semi-structured expert interviews with Mexicans working locally. These interviews were conducted via phone calls, online as well as face-to-face with Mexican experts from different touristic and industrial organisations between August 2019 and February 2022. The research focus was on the states of Baja California, Baja California Sur, Estado de México and Quintana Roo. The interviews were conducted with experts from 8 government organisation, 20 chambers and associations, 15 companies, 20 educational organisations (vocational education, higher education). The experts were Human Resource managers and student coordinators of companies from the tourism and industry sectors as well as coordinators and heads of government organisations, chambers and associations. Furthermore, the interviewees included principals, coordinators and teachers of educational organisations. The expert interviews, which lasted around 40 to 120 minutes, were conducted in Spanish, recorded, and transcribed. The transcripts were analysed following the approach of Kuckartz and Rädiker (2019). In the following sections, the selected quotations are translated into English.

3. Findings

According to Pierre and Peters (2005), it is important to first **select and define common goals**. The Mexican interview partners' main goal is to offer dual

programmes in order to train skilled workers. Due to the dual concepts, learners acquire competences that the industry needs. The interviewees said that offering dual programmes is useful for the individual stakeholders, but it is even more important for the companies to offer vocational education to attract their future employees. The interviewees show, that the **decision-making** process is made by the Mexican stakeholders in different bodies. For example, there are annual meetings of all members of an organisation or chamber, different monthly committees or also commissions of chambers and organisations. Also there are coordinating councils where vocational education organisations exchange ideas with Mexican organisations and companies, for example, on possible adaptations of the curricula. The described meetings are also useful for the **feedback process** in Mexico, where the decision-making and implementation steps are brought together, where goals are discussed and evaluated (see also Pierre & Peters, 2005).

In order to promote dual training, **the mobilisation of resources** is fundamental. According to Pierre and Peters (2005), different resources are needed. A Mexican educational organisation commented that financial resources are sometimes low, especially in public schools. It is a facilitating factor if the students at the educational organisations can study with the equipment that is also used in the industry and also offer suitable study programmes for the local industry. Besides the type of school, it is not only beneficial for the school or university to have a good reputation but also for the companies and thus have strengthened relationships with each other. In addition, enough teachers have to be available to conduct vocational education programmes in educational organisations and companies. Some interviewees said, that the teachers have to understand the programme, be convinced of it and offer their students enough time. These in turn are also considered one of the resources, since they will be taken over by companies once they graduate, as an educational organisation announced. Furthermore, some of the chambers involved in vocational education can have their own offices and staff in different states. The goal is not only to promote vocational education itself, but also offer support to companies and other organisations.

The interviewees indicate that for several years numerous Mexican actors have already been working together in different constellations, which is particularly beneficial for the implementation of the programmes. In contrast, the non-participation of companies is a hindrance, as dual programmes can only be offered with companies.

Furthermore, **implementation** can only be successful by combining forces (see also Pierre & Peters, 2005).

4. Conclusion

As Mexican actors are continuously developing vocational education in Mexico, several facilitating and inhibiting factors on the coordination of the actors were shown in the paper in the context of Pierre and Peters' (2005) five steps of coordination (defining and selecting goals, decision-making, resource mobilisation, instruments and implementation and feedback process). The focus of the paper is on the perspective of Mexican actors, which includes not only educational organisations and companies, but also the government and authorities as well as chambers and associations that support, promote and work on the implementation of dual training. This research provides first insights for the implementation of vocational education models for other countries, although countries in Latin America, for example, cannot adapt the approach of Mexican actors as the countries themselves have different requirements and vocational education models.

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Supporting International Market Entry of VET Providers by International Business Model Design

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1. Introduction

The SEPT Competence Center at Leipzig University is researching the establishment of sustainable, economically oriented business models in foreign markets for VET providers. This seems even more relevant with the growing number of international companies and the increasing mobility of the workforce between economies. However, the commercial view of international VET cooperation as a service export has only been discussed to a very limited extent (Gessler et al., 2019; Strehle, 2019).

German VET providers are split on whether dual-oriented offerings represent a competitive advantage in other countries (iMOVE, 2019). In fact, only 25% of the organizations state that they also sell dual-oriented products or services abroad, although 37% state that such offerings are in demand. These statements support the fact of the very limited "exportability" of dual approaches (Euler, 2013, 2019; Gessler et al., 2019), but make clear that German vocational education and training is internationally known and in demand, which in turn speaks for a competitive advantage in aspects of marketing.

Considering this export weakness of German VET providers, new concepts and tools are necessary which could help to increase the number of VET providers successfully exploring the international market.

Therefore, we developed an international business model canvas that is able to reflect the challenges that especially export intenders face in the process of developing

their first international strategies. An international business model design could help export intenders to reduce failure rate and push VET providers to set-up long-term business strategies (rather than project strategies) creating also sustainable benefits for the foreign partners.

2. Theoretical background

With the emergence of literature from the field of entrepreneurship research, there have already been initial discussions on international business models of providers of vocational training and continuing education services. Current findings focus on case studies of active exporters investigating drivers and challenges of foreign engagement or the identification of business model typologies (Hilbig, 2019; Posselt et al., 2019; Abdelkafi & Salameh, 2014).

Products, services or customer communication must be adapted to the environment in the target market. This is strongly linked to the fact that education providers must also adapt their own business models, even if some would not call their activities that, to the conditions in the market and thus their strategies in order to be successful (Abdelkafi & Posselt, 2018; Hilbig & Nirenberg, 2019; Kühn et al., 2020; Posselt et al., 2019).

Our previous empirical work (Kassberg & Dornberger, 2022) analyses the required resources and capabilities of internationally active VET organizations (exporters) as well as those without any international experience, but intending to internationalize (intenders). While intenders seem to rely heavily on their strengths in the national market, experienced exporters give high priority to relational resources, intercultural communication and product adaption to the target market. The differences among these groups lead to the assumption that intenders would prioritize a different set of resources and capabilities when preparing for their first internationalization venture which could result in a failure or at least in a longer process of trial and error to adjust their internationalization strategy.

These findings indicate that support programs fostering the internationalization of VET providers should put more emphasis on the development of international business models that focus on relevant resource and competence development, applying tools that reflect the experiences of exporters and the challenges of intenders.

3. Methodology

A qualitative research approach was implemented, utilizing in-depth interviews with semi-structured questionnaires. The interviews were conducted with 17 German VET providers being active in international markets and having a specific interest in the exploration of the Vietnamese market. The structure for the questionnaire utilized was based on our international business model canvas presented in Figure 1. During the interviews, information regarding the international business model as well as the success factors to internationalize in foreign vocational training markets were collected.

4. Results

In individual discussions with internationally active education providers, it was pointed out that strategic partners and their integration into the international business model are of central importance.

Challenges that were specifically addressed when developing international business strategies are the lack of market research capacity as well as a limited direct customer contact. Paired with the difficulty of establishing or positioning an own brand in the target market it becomes quite demanding to establish long-term relationships.

The aim of partnerships is to harness those resources of expertise that are important for the target market but are not owned by the foreign provider. Local market knowledge, proximity to customer groups and communication with the target group as well as knowledge of their needs stand out. In combination with cultural competence and language skills, the cooperation partner is often responsible for marketing activities in the target market. Furthermore, the provision of infrastructure and administrative support is needed. From these observations, the discrepancy arises that although partnerships are considered extremely relevant in practice, providers of VET services may not pay enough attention to this at the beginning of their international expansion. This may manifest itself in a lack of acquisition of cooperation partners or cultivation of networks, which in turn could delay or cause the initial internationalization project to fail.

For this reason, we have developed a new variant of a business model framework for our research project that takes this aspect into account and considers both the value proposition to the end customer and the local strategic partner. With this tool the

development of an international business model can be supported by addressing the target market specifications, marketing channels covering acquisition as well as communication and retention for customers and strategic partners through the creation of a fitting value proposition.

Resources	Value Proposition Customer	Marketing and Communication Channels	Customer Demand Profile	Target Sector
	Value Proposition for Foreign Partner	Marketing and Communication Channels	Demand Profile of Foreign Partner	
Investment				Revenue Streams

Figure 1: International Business Model Canvas for VET providers.

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Social Representations of Non-Academic Work in Mexico from the Perspective of Entrepreneurs and Young People

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1. Introduction

Vocational education and training is seen as a means to overcome social and economic challenges, in particular for young people and entry into the labour market. Several studies have mentioned that in different countries the models of addressing these educational challenges vary significantly (Pilz & Li, 2020). In Mexico, a particular form of vocational education and training has been adopted based on the German dual model and institutionalised as a Mexican Dual Training Model (MMFD) (Wiemann, 2020).

However, Mexico has not managed to increase student enrolment, as 62.6% are matriculated in general education and only 36.2% are enrolled in technical vocational programmes (SEP, 2020). On the one hand, these types of programmes exist in different modalities and school subsystems (Wiemann, 2020). On the other hand, training in so called *oficios* and *occupations* depends on socio-cultural factors in the labor market. From this point of view there is a cultural prejudice towards training and work as two opposing worlds. Vocational training is seen as a last option for those who do not have access to higher education (Clement, 2014). Therefore, it is important to understand the socio-cultural interconnections and influences in relation to vocational training.

In order to advance research on the relationship between education and work, the project KuPraMex (Cultural Practice of Non-Academic Work in Mexico) funded

by the German Ministry of Education and Research (BMBF, funding code 01BF18004A9) has the objective of understanding the social and cultural structures of non-academic work in Mexico. We analyse how this type of work is perceived and represented by visual and non-visual cultural artefacts. The question that guides the research of this short paper is expressed as follows: What are the social representations or perceptions of non-academic work from the point of view of employers and young people? The aim is to understand the meanings that are symbolically expressed about nonacademic work and to analyse cultural values and practices.

In the following section, the concepts of social representation in its cultural dimension are briefly introduced. This is followed by a description of the methodology used concerning the research design, data collection and analysis, before some key findings are presented. The article concludes with a discussion of the findings in relation to the state of the art and pointing out its contribution to the state of the art.

2. Social representations

When looking at social representations, it is possible to identify the meanings of non-academic work, which are reconstructed on the basis of the concepts of Moscovici (1988) and Abric (1993). Paraphrasing Moscovici (1988), social representations are the way in which social subjects learn from their knowledge and perceptions of daily life, being constituted from experiences, information and thought models. These representations are received and transmitted through tradition, education, and social communication. In this way, knowledge is socially and culturally elaborated and transmitted.

According to Abric (1993) a representation is constituted by a double system: by the central core¹ which is related to historical conditions associated with culturally anchored values and norms, and by the peripheral system which allows for a deeper understanding of everyday experiences, and which generates individualised social representations. This gives the possibility to contrast the representations of the central core from a cultural understanding and to interpret the interactions and the particular social conditions of individuals.

¹ Assman's (1988) concept of collective memory consists of communicative and cultural memory. The collective memory approach could be linked to the central core of social representations, but will not be discussed further in the context of this article.

The model of social representations in the context of the present project involves understanding and reflecting on the socio-cultural aspects of vocational training of non-academic work in the Mexican context.

3. Methodology

In a first approach to social representations in the Mexican cultural context, cultural artefacts were analysed, such as narratives seen in murals, films, memes, novels, etc. These artefacts are considered part of tangible culture and allowed us to visualise the meaning of non-academic work² (Clement et al.,2021). On the one hand, the German concept of *Beruf* was taken up as a contrast foil towards non-academic work (Clement, 1999; Kutscha, 2008; Matthes & Vicari, 2018). On the other hand, in the Mexican context, the “social institution” (Pries, 2019) of *Beruf* does not exist, so non-academic work is mostly associated to so called *oficios*, which are linked to the craft sector, learned due to family tradition by training on the job. Another type of non-academic work in Mexico is the so called *formación técnica*, which is institutionalized and allocated in the Mexican TVET system. The analysis regarding non-academic work was carried out considering several categories, such as work tasks, working conditions and promotion at work (Clement, 1999; Kutscha, 2008). These concepts have an impact on the meaning of non-academic work, which is determined by social and cultural variables.

Next to the artefact analysis, a qualitative analysis of interview data was carried out. We conducted interviews with eight entrepreneurs between 35 and 50 years of age and twelve young people between 18 and 22 years of age of both sexes in the gastronomy and metal-mechanics sectors in the state of Hidalgo. As a first step in the analysis process, interviews and coding using the MAXQDA program. In the review of the interviews, the concepts mentioned previously and used in the analysis of the artefacts were taken up and an approximation to the data was generated by constructing abstract codes (Strauss & Corbin, 1990). The classification of the codes made it possible to identify the similarities and differences of the established categories between employers and young people. In a second step, further emerging topics were searched for, and additional codes and categories were established, which provided the basis for a deeper understanding of the social representations.

² See for further information the article published by Clement et al. in IJR/VET in 2021.

4. Findings

In reference to the concept *oficio*, the entrepreneurs perceive a negative connotation, related to a certain decrease of social valuation. The worker's bond with his occupation is weakening, so that workers are less likely to form an occupational identity. In addition, it is noticeable that the pride related to the pursuit of craft occupations decreases. As the quote of one of the entrepreneurs illustrates: “[...] Here in Mexico the occupations are not seen so well, that is to say, the occupation is seen with people with a very low economic level, like: Ahhh.... well, it's the "carpenter", it's the

"bricklayer"... and almost always we see it with a negative socio-cultural aspect”³ (EG1 Pos.20; translation by the authors).

Young people's feelings towards *oficios* also express a loss of social esteem. They also see *oficios* as a "refuge" for workers who cannot find employment in more formal jobs. Overall, the young people consider the barriers to entering this form of non-academic work to be low. An example of this is the following statement: “[...] What happens is that they are no more valued because there are already too many people who can do it, so it's just that”⁴ (M4, Pos. 201; translation by the authors).

Minimal contrasts were also found between employers and young people in relation to the category of work tasks. Both sides describe non-academic work as routinized, simple, and cognitively undemanding. Accordingly, one young person working in a café by the time of the interview describes his work as follows: “[...] really something very relaxing [...]”⁵ (G1 Pos. 106; translation by the authors). At the same time, it emerges from the interviews that this type of work, especially the *oficios*, is perceived as physically demanding such as the following statement of an entrepreneur from the gastronomy sector points out: “[...] working many hours to be able to have a more or less decent salary and it is a physically demanding job [...]”⁶ (G1, Pos. 2; translation by the authors).

³ “[...] Aquí en México los oficios no se ven tan bien , o sea el oficio ve con la gente con un nivel económico muy bajo así como: Ahhh.... pues es que es el “carpintero”, es que es el “albañil”... y casi siempre lo vemos con un aspecto socio cultural negativo” (EG1 Pos.20).

⁴ “[...] Lo que pasa, que ya no son tan valorados porque ya hay demasiada gente que lo puede hacer, entonces es simplemente eso.”(M4, Pos. 201).

⁵ “[...] realmente algo muy relax[...].” (G1Pos. 106).

⁶ “[...] trabajar muchas horas para poder tener un sueldo más o menos decente y es un trabajo muy pesado físicamente” (EG1, Pos. 2).

There were also similarities between the entrepreneurs and the young people in the category of working conditions. For example, workers in the non-academic field often find themselves in informal employment, as expressed by one entrepreneur: "[...] There are several, we have several contracts; they are internal contracts that are not valid for me, nor for them, it is of trust, it is only as a backup, how much I am going to pay you and how much you are going to receive in salary, so we make several contracts"⁷ (EG2M, Pos. 61; translation by the authors). Internal contracts in this context refer to spoken agreements based on reciprocal trust. Furthermore, informal working conditions imply, for example, the absence of social security, special benefits, etc. This lack of security is also addressed by the young people, as the following quote illustrates: "[...] here we are clandestinely secured [...]"⁸ (G1, Pos. 203; translation by the authors). This means that the employer partly bears any costs incurred in the event of illness on a voluntary basis. Accordingly, this form of protection depends on the goodwill of the employer and cannot be demanded.

Finally, in the category of promotion, maximum contrasts were found between the two positions. The majority of employers are aware of a certain glass ceiling and verbalise that it is difficult to move up in the company hierarchy without an academic title. According to one entrepreneur, some employees recognise this fact, which is why academic educational titles are aspired: "[...] there are people who want to continue studying for a bachelor's degree"⁹ (EG2M, Pos. 33; translation by the authors.). While young people take the position that there are opportunities for promotion in companies even without academic educational titles. However, these depend on the personal relationship and sympathy between employer and employee. Another aspect mentioned is indicated in the following: "[...] once you have been here for a certain amount of time, they start to promote you and then you get to the point where they give you the opportunity"¹⁰ (G1, Pos. 46; translation by the authors). According to this, promotion opportunities result from the duration in the company.

⁷ “[...] Hay varios, tenemos varios contratos; son contratos internos no tienen validez alguna ni para mí, ni para ellos, es de confianza, solo es como respaldo, cuánto te voy a pagar y cuánto tú vas a recibir de sueldo, entonces hacemos varios contratos” (EG2M, Pos. 61).

⁸ “[...] aquí estamos asegurados clandestinamente [...]" (G1, Pos. 203).

⁹ “[...] hay gente que quiere seguir estudiando una licenciatura [...]" (EG2M, Pos. 33).

¹⁰ “[...] ya cuando cumples cierto tiempo aquí ya empiezan a promoverte y pues ya llega el punto en donde te dan la oportunidad” (G1, Pos. 46).

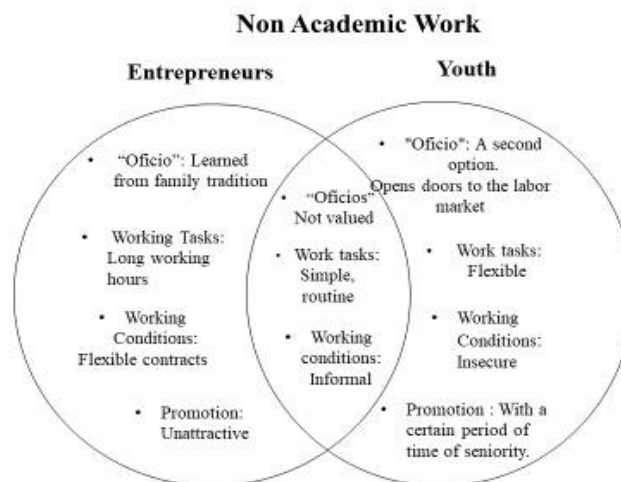


Figure 1: Comparative perspectives of entrepreneurs and youth (own elaboration).

5. Conclusions and Discussion

From the analysis of the material, it can be deduced that the social representations of non-academic work that prevail in Mexico tend to have negative connotations. Thus, forms of non-academic work, especially *oficios*, seem to receive little social recognition. Accordingly, it is hardly surprising that the workers' bond and identification with the *oficios* they carry out is not very pronounced. Another aspect that possibly leads to a loss of image is the social perception regarding the structure of the work tasks. In the field of non-academic work, these are perceived as simple, cognitively undemanding, etc., quasi as everyman's work. Given that in the cultural context of Mexico *oficios* are not subject to any state regulation and also do not experience any institutional protection, there is in fact a lack of social closure, which could further reinforce the perception of everyman's work. Moreover, non-academic work is often located in informality, which is why workers do not receive written employment contracts, social security, etc. and find themselves in an unprotected space. In view of this, the social representations suggest that within Mexican society, academic educational degrees are especially aspired because they promise "good" work and hold a prestigious status.

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Förderschwerpunkt C

Entwicklung von gemeinsamen Pilotmaßnahmen zum Aufbau von Kapazitäten zur Berufsbildungsforschung in den BMBF-Partnerländern

Vocational Teacher Education and Vocational Education Research in Costa Rica - Status Quo and Perspectives

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1. Status quo of TVET Teacher Qualification and TVET Research in Costa Rica

TVET research is characterized by a great thematic and methodological diversity and is as strongly differentiated as the individual national TVET systems (Rauner, 2005). Therefore, it is important that independent national TVET research is oriented towards the respective national circumstances, research fields and research questions (cf. Lauterbach, 2008).

It can be observed that in Costa Rica, despite the growing attention from the political and economic side, a development of theoretical and methodological approaches on TVET and its scientific knowledge does not take place. Although TVET is considered as an important and valuable alternative for the insertion of the young population in the labor market with a growing importance for the society, the relevance of TVET research is not yet that present so that research efforts have remained in the background (Alvarado Calderón & Mora Hernández, 2020). Nevertheless, some institutions like the International Labor Organization or the Organization for Economic Cooperation and Development are concerned with specific TVET related research in the area of financial, institutional and legal aspects. However, the interest in research on TVET has increased in recent years, but no specific scientific discipline has yet been established either at universities or at the institutions that deal with TVET questions.

At the same time the professionalization of TVET teachers, who are essential actors contributing to the development of workforce skills and thus to the economic progress of the country (Grollmann, 2009), becomes crucial for the quality of TVET.

In Costa Rica, a sufficient supply and appropriate qualifications of TVET represents one of the major challenges for the system and therefore for the supply of technical skills (Álvarez-Galván, 2015). Furthermore, not all TVET teachers have sufficient technical and professional pedagogical competencies (ibid.). Therefore, improving professional development of the TVET teachers is recognized as important action area for strengthening national TVET (ibid.). The only currently existing program preparing teachers for VET sector on academic level is implemented by the UTN since 2015. Investigation conducted shortly after the program's launch by UTN identified diverse challenges and shortcomings of the program, including deficiencies in vocational didactics and content overlap in the curriculum (Castro et al., 2016). The extent to which these shortcomings have been addressed in subsequent years remains unclear. At the same time the current problems of TVET teacher education make it clear, that institutionalized academic TVET research is of crucial importance in this field.

2. Methodology and first Results

2.1 Methodological Approach

With reference to the previous statements, the investigation conducted in the context of the project CoRiVET addresses the question: What are the current state, challenges and demands concerning the professionalization of TVET teachers in and for Costa Rica on the academic level? To ensure a demand-oriented revision of the study program structures and contents, the regulatory specifications of CONARE¹, educational model of UTN, guidelines of study program revisions, module regulations, etc. and the current curriculum of the study program were analyzed. In addition, qualitative surveys were conducted using semi-standardized expert interviews. The sampling for the interviews consisted of stakeholders directly and indirectly involved in TVET teacher education as well as developers of the study program, lecturers and teachers, decision-makers in the field of higher education and TVET (MEP², INA³ and

¹ CONARE can be translated as the National Council of Rectors. CONARE is responsible for public higher education and the modification, actualization and implementation of its study programs in Costa Rica.

² MEP is the Ministry of Education and offers various programs in the formal system of vocational education and training.

³ INA is the National Institute of Vocational Education and responsible for vocational programs in the non-formal sector.

CONARE). The aim was to obtain a holistic picture of the current status of the study program (content, pedagogical-didactic focus and needs, etc.) and the intended aims to be achieved through the study program, so that the planned modification can meet the needs of the TVET system as well as the current qualification requirements in (vocational) teacher education at university level.

Specific indicators on the macro, meso and micro levels were defined as a framework for the survey, which accompanied the survey process, the evaluation of the interviews and the content-analytical evaluation of the documents. Among others, the indicators referred to structure and goals of the study program, profile of graduates and lectures, modular characteristics and specifications, applied pedagogical and didactic teaching-learning concepts, competencies to be achieved during teaching-learning process and the teaching-learning process itself. The evaluation of the interviews was carried out along the Sociological Hermeneutics of Knowledge with the three-step process of deduction, induction and abduction to derive specific recommendations for action based on the results for the modification of the study program and the related concept of continuing education of the teaching staff. The results provide an important basis for the revision of the existing curriculum of the program and for further education of TVET teachers. However, it should be pointed out that in the qualitative methodology the samples are not statistically significant, but representative for the object of study.

3. Preliminary Results and Discussion

An important result is related to the structural and content integration of the TVET subject in the curriculum. In the analyzed curriculum the student body becomes an active participant and builder of their own learning, and the teacher assumes the role of facilitator, varying the way they interact with their students, the way they plan and design the learning environment (CONARE, 2016). At the same time, the curriculum points out the main goal, that the design of teaching and learning processes should be oriented to the professional field of TVET, so that people graduating from the study program can be more easily inserted into the world of work. Specifically, it shows that the program at the UTN specializes in pedagogical preparation for TVET schools (ibid.).

However, the analysis showed, that no module addresses structural, content related or other issues of Costa Rican TVET. Therefore, no module of the program is

designed for the introduction and discussion of the future field of work of the graduates. More specifically, the questions of which characteristics and prerequisites of the Costa Rican TVET are necessary to know, to design teaching-learning processes in schools accordingly is missing. The reference to the TVET system in the study program, happens to be informal through the integration of the experiences of the lecturers who work, for example, in TVET schools of MEP. A formalized integration of this topic is not included in the curriculum. Furthermore, they do not address and extend the orientations and understanding of the system to other TVET educational institutions, such as the INA or other institutes of TVET, which as well represent potential future fields of work for graduates (Rommel & Vargas Méndez, 2022).

Another important result refers to the pedagogical and didactical preparation of the students. The UTN and the study program promotes a comprehensive education that should combine technical knowledge with pedagogical skills. This shall be done by emphasizing pedagogical practice, which should combine the knowledge acquired in the technical field with the pedagogy taught in the courses of study (CONARE, 2016).

Overall, this is illustrated by a wide variety of modules that relate to pedagogical and didactic principles and theories. However, the majority of these pedagogical theories and concepts are general education oriented. The evaluation of the interviews showed, that some actors believe that the “specific didactics” course is aimed at TEVT, but when comparing and expanding the statements about didactics and pedagogy, it becomes clear that many interviewees criticize this. So, the majority say that although there is a course with the title of specific didactics, the content and methods are very general. In this sense, no teaching of TVET specific didactics or pedagogy is part of the course.

It can be summarized from the discussion of the individual sequences that a national and institutional discourse on concepts, models of pedagogy and didactics of TVET is missing (Rommel & Vargas Méndez, 2022). Therefore, CoRiVET faces the challenge of generating a specific pedagogical and didactic training adapted to the TVET system and to ensuring an adequate offer for vocational teacher education. This is getting more important, because there is currently only a small offer of suitable courses for teacher education for the TVET system in Costa Rica (Rommel & Vargas Méndez 2022). At the same time, it seems necessary to strengthen the discourse of TVET research on human and institutional academic level. It can be seen that although

the relevance of research in TVET is recognized, human and financial resources make its implementation difficult. Moreover, at UTN, for example, there is no expertise at the institutional or personal level to deal with research issues on TVET at an academic level. Strengthening resources for TVET research is thus an essential challenge and a significant goal in CoRiVET.

4. Summary and Outlook

The results of the presented study provide a foundation for a future work in the project CoRiVET. Thus, the curriculum of the UTN study program preparing teachers for teaching in the field of TVET should be adapted, focusing in particular on the need for a stronger link between the study contents and the national TVET system. For this purpose, the relevant modules of the program have been selected and developed in collaboration between the project team, curriculum department of the UTN, the teachers involved in the implementation of the program and other relevant actors. From one side, a further development of the curriculum modules focusing on vocational pedagogy and didactics represents a challenge in the view of an underdeveloped discourse on this topic in the Costa Rican context. From another side, however, a close cooperation between German and Costa Rican actors allows initiation of the fruitful discourse which allows bringing together a deep understanding of the local context and needs and well international and German experience in the field. Along with these efforts, the strengthening of the institutionalized TVET research in Costa Rica remains crucial in order to ensure sustainable evidence-based development not only of vocational teacher development but of the TVET system in general and the development of a vocational pedagogy.

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Gestaltungsorientierte Handlungsforschung in der Berufsbildungskoooperation: Das Projekt „Weiterentwicklung arbeitsbezogener Lernformen in der beruflichen Bildung in Thailand“ (Progressing Work-based Learning of TVET Systems in Thailand)

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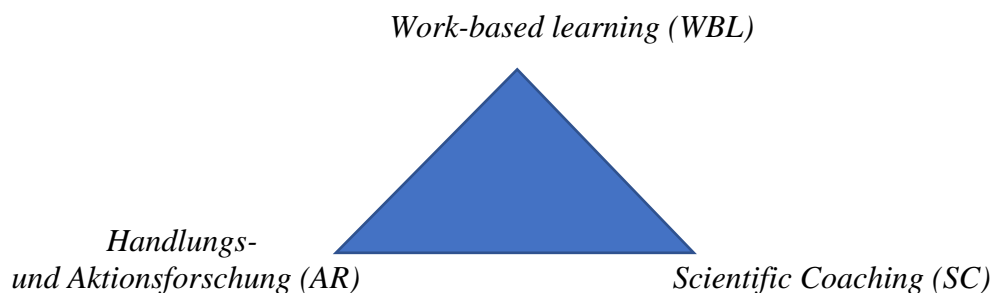
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1. Forschungskonzept

Das ProWoThai-Projekt untersucht in einem an Praxisinnovation und Theorielaboration orientierten Handlungsforschungsprozess mit flankierendem *Scientific Coaching* Formen des Work-based Learning (dieser Begriff steht hier *pars pro toto*; für notwendige Differenzierungen vgl. unten) und entwickelt diese bedarfsgerecht weiter.

Forschungsstrategisch und -pragmatisch kann dieser Prozess als systemisch strukturiertes und relationales **Work-based-Learning-Development Triangle** dargestellt werden, dessen Eckpunkte bzw. Gestaltungselemente in den folgenden Kapiteln erläutert werden.



Exkurs: Epistemologisch verdanken sich die drei Felder des *Work-based-Learning-Development Triangle* (WBL, AR, SC) gemeinsamen Traditionen. Das ist vor allem eine emanzipativ-partizipativ orientierte Epistemologie, die „Erkennen“ als aktiv-interaktive Sinnkonstruktion im Sinne des erkenntnistheoretischen Konstruktivismus (u.a. Kersten Reich) begreift und die John Deweys Pragmatismus ebenso kennzeichnete wie den heutigen lerntheoretischen Konstruktivismus. Im WBL kommt dieses Moment als ein selbst gesteuertes und verantwortetes Erfahrungslernen zum Ausdruck, im *Scientific Coaching* als interaktiv-kommunikative Problemlösung in der CoP.

2. Partizipative Handlungs- und Aktionsforschung: Prinzipien und Potenziale

Die in der Tradition von Kurt Lewin stehende Handlungs- und Aktionsforschung (engl. Action Research) ist ein emanzipativ ausgerichtetes Forschungsparadigma, das wissenschaftstheoretisch am Pragmatismus John Deweys und seiner funktionalen Psychologie (School of Chicago) orientiert ist und strategisch auf Forschung *und* Entwicklung setzt. Partizipativ bedeutet, dass sich die Akteure aus Wissenschaft und Praxis auf Augenhöhe begegnen, sich wechselseitig als kompetente Mitspieler in allen Phasen des Forschungs- und Entwicklungsprozesses anerkennen und im Wissens- und Erfahrungsaustausch voneinander lernen (Schröder 2017; Susman & Evered, 1978).

Anders als die traditionelle, kritisch-rationalistische empirische Forschung, in der es um eine möglichst „wertfreie und objektive“ Erhebung von „Beobachtungsdaten“ durch distanzierte und neutrale Forscher*innen geht, um Kenntnisse über bestimmte Aspekte der „Wirklichkeit“ zu gewinnen, versteht sich das am berufspädagogischen Lehrstuhl der TU Dortmund (zugleich: UNESCO-Lehrstuhl für berufliche Bildung, Kompetenzentwicklung und Zukunft der Arbeit) vertretene Forschungsparadigma einer gestaltungsorientierten Handlungsforschung als partizipativ, dialogisch und reflexiv. Ziel und Qualitätsmaßstab ist eine intervenierende Forschung *in der und für die* Praxis, Praxisinnovation und zugleich Theorieentwicklung. Im ProWoThai-Projekt hieß das, am Wissen und den Erfahrungen der Praxisakteure anzusetzen und deren Interessen und Ziele partizipativ, über Dialog und Reflexion, in die Forschungs- und Gestaltungsprozesse einzubeziehen. Dabei war an den konkreten Gestaltungsbedarfen und -potenzialen anzusetzen, unter Berücksichtigung der strukturellen, institutionellen und kulturellen Gegebenheiten des Landes. Ausgangspunkt der konkreten

Interventionen und Gestaltungsmaßnahmen waren bereits vorhandene Strukturen dualer Ausbildung und Praxen des Work-based Learning, die in der Sondierungsstudie identifiziert wurden (s. weiter unten).

Kriterium für das Gelingen und die Güte eines solchen Handlungsforschungsprojekts ist damit nicht primär die Validität und Reliabilität der Ergebnisse, sondern vielmehr die Viabilität (engl. viability), d.h. die Brauchbarkeit der Erkenntnisse, Ergebnisse und Maßnahmen für die nachhaltige Weiterentwicklung und Implementierung des WBL. Auf dem Prüfstand stehen praktische Lösungen, die nicht „die Wissenschaft“, „die Politik“ oder „die Ökonomie“ vorgeben, sondern die im Prozess des Forschens *mit* den Praxisakteuren gefunden, reflektiert und erprobt werden. Dass ein solches heterogenes Akteurs- und Forschungsfeld durch unterschiedliche, teilweise konfligierende Interessen, differente praktische Rationalitäten und unterschiedliche Ziele (Polytelie) gekennzeichnet ist, fordert das Projektmanagement in besonderer Weise heraus. Verlangt ist ein kommunikatives Austarieren, eine adaptive (situativ reagierende) Forschungsmethodik, praktische Reagibilität und die konstante Bereitschaft zur Kommunikation und Reflexion bei allen Beteiligten.³

3. (Neue) Kompetenzen erwerben: Work-based– und Work-related Learning

Work-based Learning (WBL) und Work-related Learning (WRL) - zwei Begriffe, die in der nationalen und internationalen Diskussion teils synonym, teils unterschiedlich konnotiert werden - , sind Medien der Qualitätssteigerung beruflicher Ausbildung sowie der Verbesserung des beruflichen Kompetenzerwerbs bei Lernenden. Das Unterscheidungskriterium ist die Nähe bzw. die Entfernung zum realen Arbeitsplatz und Arbeitsprozess, die durch die Lernorte Betrieb/Unternehmen, berufsbildende Schulen und Universitäten bestimmt ist. Work-based Learning wird zumeist mit dem Lernen am Lernort assoziiert, das Work-related Learning mit dem arbeitsbezogenen Lernen in formalen Bildungsstätten wie berufsbildenden Schulen, Weiterbildungseinrichtungen, überbetrieblichen Bildungsstätten und Universitäten, an denen nur ein auf die betriebliche Arbeit bezogenes (related) bzw. daran orientiertes (oriented) Lernen statt haben kann.

³ Aufgrund ihres interaktiven Charakters hat die partizipative Handlungsforschung eine Nähe zur qualitativen Forschungsmethodik, ihre Prinzipien korrespondieren mit dialogisch-interaktiven Austausch-Formaten.

Die historische Urform des Work-based Learning ist das Lernen *in* der Arbeit bzw. im betrieblichen Arbeitsprozess, das in der US amerikanischen Literatur auch als Work-integrated Learning bezeichnet wird (Bahl & Dietzen, 2019).⁴

Im Rahmen einer dualen Berufsausbildung besteht die Herausforderung des WBL/WRL/WIL in einer gelingenden Lernortkooperation der Lernorte Betrieb, berufsbildende Schule und/oder Universität. Ziel der Lernortkooperation ist es, die Potenziale der dualen Ausbildung zu nutzen und Synergien zwischen der Ausbildung an den unterschiedlichen Lernorten zu schaffen. Damit kann der Dualismus von schulischer und (über)-betrieblicher Ausbildung i.S. eines separaten Nebeneinanders überwunden und in eine Dualität überführt werden, die durch wechselseitige Bezugnahme und Abstimmung der Lerninhalte und Lernmethoden gekennzeichnet ist.

Die Implementierung des WBL/WRL/WIL hat eine Reihe praktischer (Unterstützung der Partnerbetriebe) und berufspädagogischer (u.a. Modell der vollständigen Handlung, Entwicklung von arbeitsbezogenen Lernformen wie Lern- und Arbeitsaufgaben oder Lerninseln) Voraussetzungen. Dazu kommt die erforderliche Qualifizierung des Berufsbildungspersonals, der berufsbildenden Lehrkräfte und der betrieblichen Ausbilder*innen) verbunden mit einem Rollenwechsel vom traditionellen „Instruktor“ zum Coach. Aufgrund kulturell bedingter, immer noch „instruktionistisch“ geprägter Lehr-Lernsettings in Thailand (Grosch, 2017), entspricht dieser Rollenwechsel einem Paradigmenwechsel im Verständnis von Lehren und Lernen, wie er sich in Deutschland seit den 1990er Jahren vollzieht.

Als ein erfahrungs- und handlungsorientiertes Lernen im Arbeitsprozess gilt das WBL/WIL/WRL international als eine berufspädagogische Methodik, die Lernenden in besonderem Maße zu befähigen, relevante (berufliche) Handlungskompetenzen zu erwerben. Dies vor allem auf Grund der Nähe zu den tatsächlichen Erfordernissen in den Betrieben bzw. der realen Arbeitswelt. Ein damit verbundener weiterer Vorteil ist, dass die Berufsausbildung schneller auf veränderte Anforderungen der Arbeitswelt reagieren kann.

Arbeitsbasiertes Lernen hat in der traditionellen Lehre eine lange Tradition, wissenschaftlich abgesichert ist es in einer *konstruktivistischen, emanzipatorisch orientierten Lerntheorie*. Diese versteht „Lernen“ (Erwerb von Wissen und Können bzw. Entwicklung von Kompetenzen) – als eine Form der realweltlichen, aktiven, meist mit

⁴Eine vertiefte Reflexion der unterschiedlichen Begriffe/Bezeichnungen würde hier den Rahmen sprengen.

Kommunikation und Interaktion gekoppelten Konstruktion von Sinn mit dem Ziel praktischer Problemlösung. Über die diversen Spielarten hinweg wird vertreten, dass „Lernprozesse in das Lösen bedeutungshaltiger, authentischer Probleme eingebettet werden müssen, damit Wissen von Anfang an unter Anwendungsgesichtspunkten erworben wird (Reinmann & Mandl, 1999, S. 17). Damit hängt der Erfolg des Lernens zum einen an der „Gestaltung situierter Lernumgebungen“ (vgl. auch das Konzept des situierten Lernens von Lave (1991)), zum anderen an der Ausrichtung an der jeweiligen Fachgemeinschaft (Community of Practice).

Im Unterschied zur fehlenden Trennschärfe der international verwendeten Termini WBL, WIL, WRL⁵ offeriert Dehnbostel (2020) eine ebenfalls am Kriterium der Nähe zum Arbeitsprozess/Arbeitsplatz orientierte, alternative und vor allem konsistente Typologie des WBL. Diese schliesst an eine, bereits in den 1990er-Jahren vom BIBB erstellte, Differenzierung des arbeitsbezogenen Lernens in: „arbeitsgebundenes“ (work integrated) „arbeitsverbundenes“ (work connected) und „arbeitsorientiertes“ (work oriented) Lernen an. (Schröder & Dehnbostel, 2021).

Beim *arbeitsgebundenen* Lernen sind Lernort und Arbeitsort identisch, das Lernen findet am Arbeitsplatz oder im Arbeitsprozess statt (Online-Communities, traditionelle Beistelllehre, Anpassungsqualifizierung in der betrieblichen Weiterbildung). Beim *arbeitsverbundenen* Lernen sind Lernort und realer Arbeitsplatz getrennt, gleichwohl besteht zwischen ihnen eine direkte räumliche und arbeitsorganisatorische Verbindung (z. B. in den neuen digitalen Lernfabriken). Das *arbeitsorientierte* Lernen findet an institutionalisierten Lernorten wie berufsbildenden Schulen, Berufsbildungseinrichtungen und Hochschulen statt (fachlich orientierte Curricula, Simulations- und andere arbeitsbezogene Aufgaben; Übungsfirmen, Lernbüros, Produktionsschulen). Eine daran orientierte (englische) Begrifflichkeit findet sich bei Dehnbostel & Schröder (2017): Hier ist das Work-related Learning (WRL) der Oberbegriff für das Work-oriented (WOL), Work-based (WBL) und Work-integrated (WIL) Learning (jeweils bezogen auf den betrieblichen Arbeitsplatz als Ort erfahrungsbasierter Kompetenzentwicklung).

⁵ Vgl. Bahl & Dietzen (2019); vgl. auch „Work-based learning. A handbook for policy makers and social partners in ETF partner countries“. Prepared for the European Training Foundation by Richard Sweet, 2nd ed. 2018; ebenso die neue „UNESCO Strategy for TVET (2022-2029). Transforming TVET for successful and just transitions“. Paris: UNESCO 2021.

Das ProWoThai-Projekt setzt sich mit zwei Formen dualer Ausbildung in Thailand vertieft auseinander, die den unterschiedlichen Varianten von WBL/WIL/WRL zugeordnet werden können: Erstens, der *School-in-Factory (SIF)* (Phalasoorn 2017), eine Kooperationsstruktur von öffentlichem-, privatem- und Bildungssektor, deren bisheriges gutes Funktionieren auch der direkten Beteiligung öffentlicher Stellen zugeschrieben wird, die für gegenseitiges Vertrauen sorgen (Gennrich 2017). Zweitens, dem bereits 2012 begonnenen *Tripartite TVET System-Projekt* (Moonpa et al., 2021; Moonpa, 2019), das eine Reihe von Kooperationen der RMUTL mit der privatwirtschaftlichen Industrie umfasst. Im Kontext beider Strukturformen dualer Ausbildung werden gegenwärtig Handlungsforschungsprojekte zum WBL durchgeführt sowie Handreichungen/Arbeitshilfen und Leitfäden für den betrieblichen und schulischen Unterricht erstellt (s. Kap. 5).

4. Entwicklung von Forschungskompetenz: Scientific Coaching

Die internationale TVET-Forschung ist interdisziplinär ausgerichtet und widmet sich einem weiten Feld von Herausforderungen und Entwicklungsaufgaben. Eine davon ist die Situationsanalyse zu TVET in dem jeweiligen Partnerland; weiter geht es um die Vermittlung geeigneter methodisch-didaktischer Ansätze, um die Versorgung der zuständigen Stellen der Berufsbildung mit planungs- und gestaltungsrelevanten Forschungsergebnissen, schließlich um die Etablierung eigenständiger, regionaler Forschungskompetenzen – innerhalb und außerhalb der Universität. Die Etablierung eines TVET-Systems und dem darin eingeschlossenen WBL stellt sich vor diesem Hintergrund als Institutionalisierungsprozess dar, der maßgeblich unterstützt wird durch die interdisziplinäre Berufsbildungsforschung. Diese ist auf mehreren Ebenen aktiv: auf der *Makroebene* kümmert sie sich um die umfassende Gestaltung des Berufsbildungssystems, auf der *Mesoebene* um die Einrichtung von Berufsbildungsangeboten und –institutionen sowie den Aufbau von Forschungskapazitäten (Capacity building) und einer CoP, auf der Mikroebene um die Analyse und das Design von Bildungs- und Lernprozessen (Methodik und Didaktik).

Das Projekt ProWoThai, das den Fokus auf die Entwicklung berufspädagogischer Forschungskompetenz und mittelfristig auf Kapazitätsaufbau (Capacity building) richtet und diese mit der Methode des *Scientific Coaching* weiterentwickeln möchte, operiert durchweg mit dialogischen und interaktiven Forschungsformaten und Coaching-Instrumenten, analog zu den Prinzipien der Handlungsforschung. Dieses

Vorgehen entspricht dem Verständnis von *Scientific Coaching* als einem Prozess, in dem klassische Forschungsarbeit, prozessuale Beratung und Austausch in Workshops zusammenwirken.

Eine solche „gecoachte“ Forschung ist besonders bei der Entwicklung und Implementierung von WBL-Projekten (didaktische Settings, Ausarbeitung von Arbeits- und Lernaufgaben) in Ländern sinnvoll, die keine oder nur wenig Erfahrung mit diesem Ansatz haben. Im Projekt ProWoThai war das *Scientific Coaching* dezidiert als partizipative, an konkreten Problemen der Praxis ausgerichtete Handlungsforschung zu verstehen – epistemologisch rückgebunden an ein pragmatisch-konstruktivistisches Lernverständnis.

Nach Schröder (2015) lassen sich für ein *Scientific Coaching*, das zu einer nachhaltigen Kompetenzentwicklung der einbezogenen Forscher*innen führen soll, einige konzeptionelle Eckpunkte festhalten:⁶ Die Forschungsthemen sowie die Entwicklung des Forschungsdesigns basieren auf aktuellen praktischen Problemen der Kooperationspartner und die lokalen Forscher*innen bestimmen über Themen und Prozesse der Forschung mit. Der *Scientific Coach* agiert als Berater*in und empfiehlt forschungsbezogene Themen, die auf Wissenstransfer und Anwendung von internationalem *Know how*, *Kapazitäts- und Kompetenzaufbau* zielen und dabei lokales Erfahrungswissen berücksichtigen.

Dem gesamten Prozess unterliegt das, vor allem auf die Pädagogik des Pragmatismus und ihrem wichtigsten Vertreter John Dewey (1859-1952) zurückgehende, Konzept des erfahrungsbasierten Lernens. Bezogen auf das Projekt bedeutet das, sowohl im kontinuierlichen informellen Austausch, als auch im Rahmen von mehrtägigen (Online-) Konferenzen im Großgruppenformat, integrierten Workshops und informellen „Shop talks“, Wissen auszutauschen, Wissens- und Erfahrungsbestände abzugleichen und erfahrungsbasiert voneinander zu lernen. Zentrale Aufgaben des Coachs sind in diesem Prozess, Hinweise auf mögliche Qualitätsverbesserungen zu geben, den Wissenshorizont im Kontext einer auch internationalen Forschungsexpertise und – kompetenz auszuleuchten, Reflexionsprozesse durch verschiedene Formen des

⁶ Das *Scientific Coaching* wurde im Kontext des BMZ-Projektes „Regional Kooperation Platform for Vocational Teacher Education in Asia“ (RCP, 2011-14) entwickelt und eingesetzt. Im Kontext des Projektes wurden in Südostasien länderübergreifende Studien durchgeführt, die jeweils durch eine/n internationale/n Experten/Expertin unterstützt wurden.

Fragens und Nachfragens in Gang zu setzen und aufkommende Diskussionen zu moderieren. So kann der weitere Coaching-, Lern- und Forschungsbedarf prozessorientiert und emergent identifiziert und abgestimmt werden.

Neben dem informellen und formellen Austausch und zusätzlichen monatlichen (Online-)Meetings der Forscher*innen-Teams konzentriert sich das *Scientific Coaching* im Projekt auf den Support in den WBL-Handlungsforschungsprojekten im Rahmen der *School in Factory* und des *Tripartite TVET-System*. Zusätzlich zur Unterstützung der Prozessmoderation wird vor allem inhaltlich-fachliche Unterstützung geleistet. Ein Kernthema sind inhaltliche Inputs und Diskussionsrunden zu den Themen „Forschungsmethoden“ und „Arbeitsprozessanalysen“. In der kürzlich durchgeführten zweitägigen (hybrid organisierten) Konferenz der Thai Society of Agricultural Engineering (TSAE) im August 2022 in Thailand, unter der Leitung der TU-Dortmund (Organisation, Moderation und Übersetzung: Siri Schlattmann) und dem Kooperationspartner RMUTL, Chiang Mai (Professor Moonpa), wurden von den Projektmitarbeiterinnen der TU im Rahmen des *Scientific Coaching* u.a. auch Preprints von Nachwuchswissenschaftler*innen der RMUTL reviewed und diskutiert.

In Workshops zum arbeitsbezogenen Lernen (WBL) wurden u.a. folgende Themen bearbeitet: Theoretischer Hintergrund des Konzepts WBL, Forschungsansätze zum WBL und der Aufbau einer Community of Practice. Beispiele zum Work-based Learning aus Malaysia („WBL in Polytechnic & Community Colleges“ und „WBL in Malaysia Technical University via 2U2I“), Thailand („School in Factory“, „Tripartite TVET System“) und Deutschland („Lerninsel“) wurden ebenfalls diskutiert. Dabei standen Dialog und Austausch statt bloßer „Vermittlung“ im Fokus. Ein Begleiteffekt des Wissens- und Erfahrungsaustausch (Onsite und Online) ist der Aufbau einer internationalen *Community of Practice* (Praxisgemeinschaft/Fachgemeinschaft) von Berufsbildungsforscher*innen, die auch Akteur*innen aus Wirtschaft, Politik und Praxisakteure (Unternehmer*innen, Lehrer*innen, politische Entscheidungsträger*innen) einbegreift.

5. Ergebnisse – Produkte – Nachhaltige Wirkungen

Berufspädagogische Handlungsforschungsprojekte finden charakteristischerweise „im Feld“ gemeinsam mit den Partnern statt. Sie intendieren, zu weiterführenden Einsichten und einem breiteren gegenseitigen Verständnis der jeweiligen kulturell präfigurierten Praxen beruflichen Lehrens und Lernens zu gelangen. Auf dieser Basis sind

sie auf praktische Innovationen und theoretisch weiterführende Erkenntnisse mit nachhaltigem Charakter gerichtet. Ergebnisse können Produkte wie Lern- und Schulungsmaterialien, Curricula, transferierbare Best-Practice Modelle des WBL sein, die dauerhafte Implementierung dualer Strukturen durch die systematische und rechtlich geregelte Einbeziehung von Betrieben als Arbeits- und Lernorte, die Institutionalisierung arbeitsorientierten Lernens in berufsbildenden Schulen und Universitäten, eine verbesserte Lernortkooperation und *last but not least* die Entwicklung einer (internationalen) *Community of Practice von Akteuren* im Handlungsfeld Berufsbildung.

Angesichts der über zwei Jahre andauernden Covid-19-Beschränkungen ist es bereits als beachtlicher Erfolg zu werten, wenn sich die beteiligten Forscher*innen und Praktiker*innen darin einig sind, dass das WBL in Thailand durch das Projekt deutlich an Bedeutung gewonnen hat. Auch wenn die Konzepte von Arbeit und Bildung, die in Thailand dem WBL unterliegen, noch weiter reflektiert und elaboriert werden müssen – denn daran hängt die Qualität von Arbeitsprozess- und Aufgabenanalysen sowie die daran orientierten Arbeits- und Lernaufgaben, – so sind doch in einem Zwischenresümee beachtliche Projektfortschritte und -ergebnisse festzuhalten. Diese können zu einer nachhaltigen Verbesserung und Institutionalisierung der Berufsbildungspraxis, sowie der Berufsbildung als wissenschaftliche Disziplin und Forschungsfeld beitragen:

- Zwischen Meso- und Makroebene liegt die Gründung eines *Research Center for TVET* an der *Rajamangala University of Technology Lanna* (RMUTL) in Chiang Mai, das einen Meilenstein der Institutionalisierung der thailändischen Berufsbildungsforschung darstellt und die Nachhaltigkeit des Projekts sichern kann. Begonnene Forschungs- und Entwicklungsaktivitäten im Bereich „Ausbau der dualen Ausbildung (WBL)“ können fortgesetzt werden. Ausserdem entstand auf der Basis der gemeinsamen Arbeit und im Rahmen einer Public Private Partnership (PPP) (öffentlicher-, Wirtschafts- und Bildungssektor) ein Koofinanzierungsprogramm aus Mitteln des thailändischen Ministeriums für Hochschulbildung, Wissenschaft, Forschung und Innovation sowie der beteiligten Unternehmen.
- Ebenfalls auf der Mesoebene wurden im Rahmen der Sondierungsstudie zwei innovative duale Strukturen identifiziert, an denen ProWoThai mit seinen Handlungsforschungsprojekten ansetzen konnte: Das „*Tripartite TVET System*“, ein dreigliedriges System der dualen Berufsausbildung aus Unternehmen, Universitäten und berufsbildenden Schulen sowie, die darin angesiedelte

„*School-in-Factory*“ (SiF), eine Art Best-Practice Modell mit den Kooperationspartnern (Lernorten) RMUTL und Michelin Siam Co., Ltd.⁷

- Auf der Mikroebene wurden im Rahmen des *Tripartite TVET Systems* und der *School in Factory* mit den thailändischen Partnern (Universitäten/Lecturer/Facilitators = MA Absolventen/Absolventinnen) drei *partizipative Handlungsforschungsprojekte* zur Einführung arbeitsprozessorientierter Curricula und Prüfungsformen vereinbart, die gerade erprobt und implementiert werden.
- a) Handlungsforschungsprojekte in der Lernstruktur „Tripartite TVET System an der RMUTL in Agriculture und Engineering“
 - Handlungsforschungsprojekt (1) TTST 1: Analyse der Arbeitsaufgaben und –prozesse
 - Handlungsforschungsprojekt (2) „Entwicklung eines lernortübergreifenden Curriculums und einer Lern- und Arbeitsaufgabe (und work-oriented Assessment)“
 - Handlungsforschungsprojekt (3) „Implementierung und Evaluation von Lern- und Arbeitsaufgaben“
- b) Handlungsforschungsprojekte in der Lernstruktur „School in Factory (SiF) in Chiang Mai at Michelin“
 - Handlungsforschungsprojekt (4) SiF 1: Analyse der Arbeitsaufgaben und –prozesse
 - Handlungsforschungsprojekt (5) „Learning-and-Work-Tasks for work-orientation in classroom setting“
 - Handlungsforschungsprojekt (6) „Strengthening of work-integrated learning at the in-company workplace through establishment of LEARNING BAY.“
- c) Produkte: Im Kontext der Handlungsforschungsprojekte und des Scientific Coaching entstanden bisher mehrere Handreichungen (Arbeitshilfen/Leitfäden) für berufsbildendes Personal in Betrieben, berufsbildenden Schulen und Universitäten in den Bereichen Industrial Techniques and Engineering und Agrarindustrie:
 - *Handreichung 1*: Identifikation von kompetenzförderlichen betrieblich-beruflichen Arbeitsaufgaben, Analyse der Teilaufgaben und Arbeitsprozesse,

⁷ In Kooperation mit der German-Thai Chamber of Commerce und dem Research Center for TVET an der RMUTL wurde eine onlinegestützte Unternehmensbefragung durchgeführt.

Analyse des vorauszusetzenden Wissens und der Fertigkeiten (Basis für HR 2 und 3);

- *Handreichung 2*: Entwicklung, Einsatz und Evaluation von Lern- und Arbeitsaufgaben zur Verbesserung eines arbeitsbezogenen (work-related, work-oriented) Lernens in formalen Bildungsstätten (Info: Lern- und Arbeitsaufgaben betreffen arbeitsbezogenes (work-oriented) Lernen in den berufsbildenden Schulen und Universitäten, Arbeits- und Lernaufgaben betreffen Lernen im Betrieb (work-based learning).

- *Handreichung 3*: Verbesserung des arbeitsintegrierten Lernens in der beruflichen Erstausbildung: Lerninseln, oder Arbeits- und Lernaufgaben.

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Professionalisierung der georgischen Berufsbildung - PhD Vocational Education –

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1. Motivation

In Zeiten von Globalisierung und rasanten wirtschaftlichen Veränderungen, steigt weltweit die Nachfrage nach qualifizierten Fachkräften stetig an. Bildung ist dabei der Motor des konjunkturellen Aufschwungs und des nachhaltigen Wirtschaftswachstums sowie der Schlüssel zu Wohlstand und gesellschaftlicher Teilhabe (Lauder et al., 2006). Dies stellt jedoch insbesondere Schwellenländer vor erhebliche wirtschafts- und bildungspolitische Herausforderungen, da die z.T. antiquierten (Berufs-)Bildungssysteme nicht in der Lage sind flexibel auf ökonomische, demographische und technologische Entwicklungen zu reagieren (Martsch & Neumann, 2020).

Das beschreibt auch die Bildungsrealität in Georgien. Das Land befindet sich im Umbruch und lenkt dabei verstärkt das Augenmerk auf die Modernisierung seiner Berufsbildungsstrukturen. Ein wesentlicher Baustein im Gefüge der Neugestaltung bildet die aktuelle Berufsbildungsreform *Vocational Education and Training Development Strategy for 2013-2020* (MoES, 2013). Das übergeordnete Ziel der Strategie manifestiert sich in der Erschließung respektive Aktivierung des nationalen und individuellen Humanpotenzials als Beitrag zur sozioökonomischen Entwicklung und Armutsbekämpfung in Georgien. Hochqualifizierte Fachkräfte bilden das Fundament, um die kurz-, mittel- und langfristigen Bedarfe der Wirtschaft zu decken. Zudem eröffnet der korrespondierende Aufbau professioneller (Aus-)Bildungsstrukturen Menschen aus verschiedenen Gesellschaftsschichten die Möglichkeit, ihre individuellen Talente im Rahmen der Wertschöpfung zu entfalten.

Der Abgleich von Reformzielen und (Bildungs-)Realität zeigt jedoch eine bedeutende Diskrepanz zwischen Vorstellung und Wirklichkeit. Reformbestrebungen ebbten ab oder sind nur bedingt nachhaltig, insbesondere Auszubildende und Unternehmen profitieren kaum von den Veränderungen auf politischer Ebene. Die Standardisierung des Berufsbildungssystems scheitert nicht zuletzt an der fehlenden akademischen Infrastruktur. Dementsprechend sind Kapazitäten für die georgische Hochschullehre aufzubauen, was die Förderung des wissenschaftlichen Nachwuchses im Feld der Berufsbildungsforschung und Kompetenzentwicklung ebenso einschließt wie die hochschulübergreifende und interdisziplinäre Vernetzung von Experten (Martsch & Neumann, 2020).

Als transnationale Pilotmaßnahme setzt VoCasian genau hier an und verfolgt als übergeordnetes Ziel die Entwicklung eines bedarfsgerechten Promotionsstudiengangs für den Schwerpunktbereich Berufliche Bildung.

2. Bildungsbedarfsanalysen

Eine erste Annäherung an die Studiengangkonzeption erfolgte über umfassende Literaturrecherchen zu den aktuellen internationalen Mega- und Entwicklungstrends sowie den daraus erwachsenden Qualifizierungsbedarfen (Schmid et al., 2016). Als Entwicklungstreiber fallen insbesondere die voranschreitende Digitalisierung sowie Nachhaltigkeit ins Auge, welche die (Berufs-)Bildungslandschaft langfristig prägen und verändern werden (Helmrich et al., 2020). Zudem wird das nationale (duale) Berufsausbildungssystem von den Begriffen der Handlungskompetenz als Leitziel der Berufsbildung (Bader, 2004) sowie dem korrespondierenden didaktischen Leitprinzip der Handlungsorientierung (KMK, 2007) geprägt.

Vor dem Hintergrund von Entwicklungstrends auf der einen und handlungsorientierten Konzepten und Methoden auf der anderen Seite wurde eine Literaturrecherche zum Status quo des georgischen Berufsbildungssystems angestrengt. In Ermangelung entsprechend aussagekräftiger Studien für die georgische Berufsbildungslandschaft erfolgte eine empirisch gestützte ex-ante Bedarfsanalyse, deren Konzeption dem Schlüsselgrößen-Modell nachhaltiger Berufsbildungszusammenarbeit sensu Stockmann (2019) folgte.

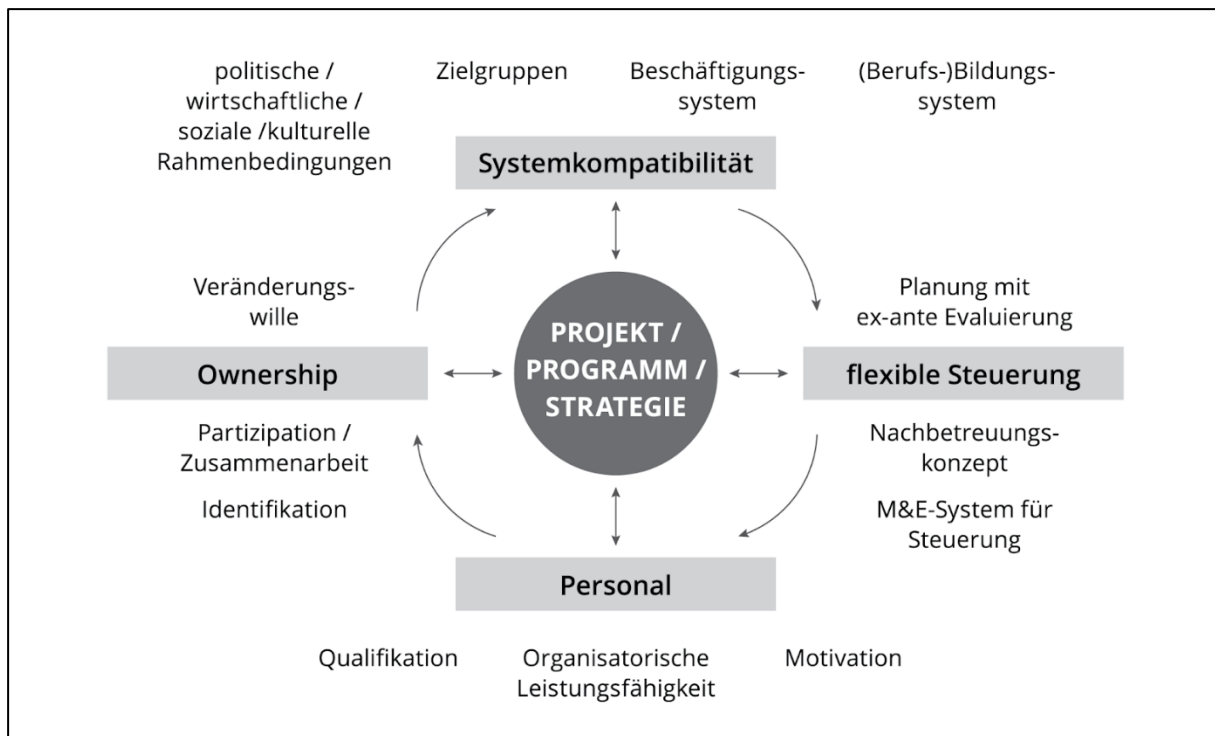


Abbildung 1. Modell der Schlüsselgrößen nachhaltiger Berufsbildungszusammenarbeit (in Anl. an Stockmann, 2019, S. 150).

Das Modell und dessen grundsätzliche Bedeutung für das Programmmanagement und die Transferstrategie von VoCasian wird an anderer Stelle ausführlich vorgestellt (vgl. Martsch et al., 2021), wonach sich die folgenden Darstellungen auf die Berücksichtigung der Faktoren im Zuge der Bedarfsanalyse konzentrieren.

Die ex-ante-Evaluierung (*flexible Steuerung*) erfolgte mittels Experteninterviews mit georgischen Share- und Stakeholdern, wobei mit Blick auf die *Systemkompatibilität* (vgl. Abb. 1) alle relevanten Zielgruppen (Lehrpersonal, Auszubildende, Unternehmen etc.) angesprochen wurden. Basierend auf den Vorarbeiten (Megatrends, Didaktik etc.) erfolgte eine transnationale Konzeption des Interviewleitfadens (*Ownership, Personal*). Die leitfadengestützten Interviews wurden online unter Teilnahme eines Übersetzers (georgisch-englisch) durchgeführt (N = 12).

Die Auswertung der Interviewdaten erfolgte mittels qualitativer Inhaltsanalyse (Strukturierung; Mayring, 2015). Die strukturierende Inhaltsanalyse folgt dem Ansatz der deduktiven Kategorienanwendung, wonach die Entwicklung des Kategoriensystems den weiteren Analyseschritten vorausgeht. Im Rahmen der Bedarfsanalyse wurden mit *VET System, Teaching Methods, Digitalisation, Sustainability, Impact of the Economy* und *Higher Education* sechs Hauptkategorien bestimmt. Diese wurden in weitere Subkategorien (z.B. *Governmental Strategy, Quality Assurance (VET System)*;

Student Skills Development, Incompany Training (Teaching Methods)) inklusive Definitionen, Ankerbeispielen und Kodierregeln ausdifferenziert.

Im nachfolgenden Gliederungspunkt werden zentrale Erkenntnisse aus den Experteninterviews anhand aussagekräftiger Ankerbeispiele knapp umrissen.

3. Ergebnisse

„We recruit young people [...] and they are they are aware of nothing in this field they are young [...] because everything is better not to know anything than know something but wrong information [...] so it's better to start from zero“ (Enterprise Expert 3, Z. 104-112).

Diese Fundstelle aus dem Interview eines Wirtschaftsakteurs und Unternehmensgründers mit jahrelanger Erfahrung beschreibt den maroden Zustand des georgischen Berufsbildungssystems. Obgleich sich die Regierung seit vielen Jahren bemüht, die Entwicklungen des Arbeitsmarktes nicht zuletzt im Rahmen der Bildungsreform zu berücksichtigen, finden Unternehmen kein oder kaum gut ausgebildetes Personal. Berufsbildungseinrichtungen sehen sich häufig mit dem Vorwurf konfrontiert, dass *“the skills of the students gained during this teaching process don't fully meet requirements of the labour market in the end finally when they leave institutions and go to labour market still there is some mismatch between the skills gained and the requirements that are covered“ (Vocational Teacher 1, Z. 60).* Die Unternehmen selbst werden infolgedessen erfinderisch, entwickeln eigene Ausbildungsmethoden (z.B. Mentorenprogramme) oder Weiterbildungssysteme, oder kaufen die dringend benötigte Expertise im Ausland ein.

Entgegen der ambitionierten Reformpläne wird die Zentralisierung der Beruflichen Bildung als wesentlicher Hemmfaktor eines zukunftsfähigen Berufsbildungssystems wahrgenommen. Berufsbildungspolitische Entscheidungen liegen ausschließlich in den Händen des Ministeriums, wodurch Wirtschaft und Bildungseinrichtungen wenig Einfluss auf die formale und inhaltliche Ausgestaltung der Ausbildungsgänge nehmen können. Theorie und Praxis, in diesem Fall Reform und Umsetzung, liegen weit auseinander und innovative, zukunftsorientierte Berufsbildungsangebote, welche den Veränderungen des Arbeitsmarktes Rechnung tragen, finden kaum Eingang in die Lehrpläne. Die eingangs erwähnten *“trends of the labour market should be tracked very very closely because the trends change[...] new professions become more demanded [...]“ (Vocational Teacher 1, Z. 60).*

Doch gerade diese neuen Ausbildungsberufe sind ein entscheidender Faktor auf dem Weg zur Etablierung der Beruflichen Bildung in der Mitte der georgischen Gesellschaft. Georgien hat, nach Ansicht mehrerer Experten, zu viele Akademiker und die Entscheidung für den berufsbildenden Weg ist fast ausschließlich von dem Wunsch nach Arbeitsplatzsicherheit getrieben. Viele Einrichtungen sind bemüht ihre Auszubildenden nicht nur mit theoretischem, sondern auch mit praktischem Wissen zu versorgen. Letzteres erfolgt dabei allerdings meist in Form von Laborunterricht, obwohl sich die befragten Auszubildenden *“more apprenticeship in the real work place and not only in the laboratory”* (Apprentice 3, Z. 14) sowie *“practical parts would be more and more”* (Apprentice 2, Z. 21) wünschen.

Die Unterrepräsentation praxisnaher Berufsbildungskonzepte gründet auf einem Mangel kooperativer Strukturen sowie einer ganzheitlichen Qualifikation der Lehrkräfte. Diese sind zwar fachlich kompetent, lassen aber pädagogische Kernkompetenzen vermissen, da methodisch-didaktische Fähigkeiten in der Lehrerbildung eine untergeordnete Rolle spielen. Es kommt erschwerend hinzu, dass kein einheitliches System für die Lehrerbildung existiert und das Ansehen von Berufsschullehrern gering ist. *“Also we have to consider that reimbursement for those teachers are not very high in vocational education sector in our system and teachers lack motivation to teach here”* (University Employee, Z. 24). Es bleibt eine gesamtgesellschaftliche Aufgabe das Prestige der Berufsbildung und die Reputation von Berufsschullehrern in Georgien zu verbessern.

“Sustainability I think is not part of our curricula it’s just idea written in government policy and government papers” (Vocational School Teacher, Z. 70). Mit Blick auf die Megatrends wird deutlich, dass – abgesehen von der strategischen Ebene – Nachhaltigkeit de facto kein Thema ist, denn kaum ein Experte kann einen vertiefenden Beitrag zu den zugrundeliegenden Fragen leisten. Nur die Wirtschaftsexperten erklären einstimmig, dass *“[...] sustainability is very crucial for our country and for our business industry [...] so it would be better be more sustainable in this directions so the business can develop and enhance properly”* (Enterprise Expert 3, Z. 317).

Digitalisierung wird ebenfalls als wichtiger Zukunftsfaktor eingestuft. Zugleich wird betont, dass die materielle sowie fachliche Ausstattung mit relevanter Technik und den implizierten Kompetenzen die größte Schwachstelle des (Berufs-)Bildungssystems darstellt. Viele Lehrkräfte können den Anforderungen moderner Technologien nicht gerecht werden, sodass *“a significant part of them [...]*

don't have relevant skills to use those technologies and this is a priot issue for us in planning a study process here” (University Employee, Z. 45). Zudem zeichnet sich ein großes regionales Gefälle in Georgien ab, wenn es um die elementarsten Voraussetzungen geht, etwa eine stabile Internetverbindung. In den ländlicheren Regionen zeigt sich die Infrastruktur wenig bereit für die Herausforderungen des technologischen Fortschritts.

4. Entwicklung des Studienganges

Auf den Erkenntnissen zu Megatrends sowie zur Methodik und Didaktik in der georgischen Berufsbildung fußend wurde ein bedarfsgerechtes PhD-Programm entwickelt, das die wirtschaftlichen, gesellschaftlichen sowie arbeitsmarktspezifischen Anforderungen des Ziellandes gleichermaßen berücksichtigt. Im Sinne des *Ownership* und *Personal* (Stockmann, 2019; vgl. auch Abb. 1) war die georgische Partneruniversität auch hier – ähnlich den Bedarfsanalysen – durchweg in die konzeptionellen Arbeiten involviert und beispielsweise für die Anschlussfähigkeit des Studiengangs an die gesetzlichen Grundlagen und Verordnungen sowie hochschuleigenen Richtlinien verantwortlich. Die Abbildung 2 zeigt das Ergebnis der Studiengangkonzeption zum *PhD Vocational Education* (35 ECTS; Regelstudienzeit: zwei Jahre).

	Mod. Nr.	Module title	ECTS
Obligatorii (25)	1	Vocational Education Scientific Genesis and Theories	5
	2	Vocational Education Research Methods	10
	3	Seminar	5
	4	Assistantship	5

Abbildung 2: Studiengangkonzept *PhD Vocational Education*.

Elective (10)	5	Human Resource Development and Personnel Development	5
	6	Vocational Education for Sustainable Development	5
	7	Teaching and Learning in Natural and Virtual Learning Environments	5
	8	Teaching and Learning Methods	5
		Research Project 1	
		Research Project 2	
	9	Thesis	

Fortsetzung Abbildung 2: Studiengangskonzept *PhD Vocational Education*.

Ebenfalls in enger Abstimmung mit der georgischen Partneruniversität sowie unter Mitwirkung deutscher Fachdozenten wurden Syllabi für die einzelnen Module entwickelt. Diese enthalten neben Teilnahmevoraussetzungen (*prerequisites*), Lernzielen, Lehr-Lernmethoden und *learning outcomes* auch Grundlagenliteratur, welche den georgischen Studierenden in Form von Readern zur Verfügung gestellt wird. Eine Besonderheit stellt die Entwicklung der Module *Assitanship* und *Seminar* dar, die jeweils obligatorischer Bestandteil eines georgischen PhD-Programms sind. *Assitanship* sichert die Lehrbereitschaft (Begleitung der professoralen Tätigkeit, Schulung an Lehrmaterialien sowie Vertiefung der Inhalte und des angewandten didaktischen Verständnisses). Demgegenüber ähnelt *Seminar* einem Doktorandenkolloquium innerhalb dessen die Promovierenden kollegial begleitet und beraten werden.

Im Sommersemester 2021 startete die Pilotierung des *PhD Vocational Education*, die sich bis in das Wintersemester 2022/23 zieht. Die angebotenen Lehrveranstaltungen werden formativ evaluiert. Die begleitende Evaluation erfolgt online-gestützt via Fragebögen (geschlossene und halboffene Fragen) und berücksichtigt sowohl die Sichtweise von Studierenden als auch von Dozenten sowie die Rahmenbedingungen der Hochschullehre (Rindermann, 1997).

5. Ausblick

Die ersten Evaluationsergebnisse aus den Pilotkursen liegen vor. Sie zeigen eine große Zufriedenheit auf Seiten der Studierenden. Ferner fällt das Feedback zum Aufbau und der inhaltlichen Modulausgestaltung positiv aus, was sich zugleich in den

guten Lernergebnissen der Teilnehmenden widerspiegelt. Anfängliche Vorbehalte hinsichtlich der Kurssprache Englisch, welche für die internationale Wettbewerbsfähigkeit des Promotionsstudienganges zwingend erforderlich ist, konnten ausgeräumt werden. Auf der anderen Seite unterstreicht die Rückmeldung der Dozenten nicht nur den wahrgenommenen Nutzen der Pilotmaßnahme für die akademische Entwicklung der Promotionsstudierenden, sondern auch jene wahrgenommene Notwendigkeit die akademische Bildungslandschaft in Georgien für Themen und Inhalte der Berufsbildung im regionalen, nationalen und internationalen Kontext zu sensibilisieren und zu motivieren. Die größten Herausforderungen dekuvirieren die Dozenten bislang im Bereich der Passfähigkeit von Vorwissen (*prerequisites*) der Studierenden und Anforderungsniveau der Lehrveranstaltungen.

Ungeachtet dessen mündet der sichtbare Erfolg der Pilotierungsphase in einem wachsenden Interesse des georgischen Bildungsministeriums an der Akkreditierung des Promotionsstudienganges und einer damit verbundenen nationalen Zugänglichkeit, wofür den georgisch-deutschen Projektpartnern die volle politische Unterstützung zugesagt wurde. Gleiches gilt für die weiteren am Akkreditierungsprozess beteiligten Institutionen (georgische Behörde für Qualitätssicherung im Bildungswesen, nationales Kompetenzzentrum für Berufliche Bildung).

Gegenwärtig konzentriert sich die georgisch-deutsche Zusammenarbeit auf die Ausarbeitung der Akkreditierungsunterlagen, was regelmäßige Onlinemeetings mit der georgischen Akkreditierungskommission einschließt. Das *enrolment* (Einschreibephase für den *akkreditierten Phd Vocational Education*) ist für das Sommersemester 2023 vorgesehen.

Darüber hinaus strebt die georgische Partneruniversität – im Rahmen eines zukunftsfähigen, nachhaltigen Konzepts für die Qualifizierung des akademischen Lehrpersonals – den Aufbau einer Graduate School an. Neben dem *PhD Vocational Education* sollen hier weitere bedarfsorientierte Promotions- respektive Zertifikatsstudiengänge angegliedert werden. Die Satzung der Graduate School wurde bereits transnational erarbeitet. Gegenwärtig wird an der Partneruniversität die organisatorische und personelle Infrastruktur aufgebaut. Die Eröffnung der Graduate School soll im Anschluss an die Akkreditierung des *PhD Vocational Education* erfolgen.

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Metamaßnahme

Metaprojekt zur Forschung zur Internationalisierung der Berufsbildung

Networks in International Vocational Education and Training

Research: A Contribution to Best Practices

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1. Introduction

Among other goals, the Meta-Project on Research for the Internationalization of Vocational Education and Training (MP-INVET) aims to develop and implement an overarching concept for use in establishing a new (research) community for the sustainable and structural stabilization of the development of cooperation and research in vocational education and training (VET). In parallel, the cultivation of networking and networks in research on VET, or “VET research” is one of several long-term endeavors geared toward internationalizing such research.

In our project’s context, we understand networks as a specific form of social constructs that involve the interaction and cooperation of individual and collective actors at various levels (e.g., regional, national, and supranational). According to our project’s goals, such a network should:

- Be international, interdisciplinary, and transdisciplinary;
- Be designed in a relevant way for and in the field of (international) VET research and the development of cooperation in VET;
- Focus on research;

- Be initiated and run by (independent) researchers; and
- Serve the purpose of generating scientific findings and ideas.

Thus, a starting point for the development of such research networks lies in identifying and analyzing relevant examples of best practices. Against that background, in this contribution we present the results of a study on examples of best practices in (research) networks for the development of cooperation in international VET and especially international VET research.

In our study, we identified 68 networks and clustered them according to different formal criteria (e.g., aims, purpose, content orientation, types of membership, regional embeddedness, and activities). Although none of the identified networks covers all aspects and is thus incongruent with all existing networks, numerous networks have a similar orientation. Moreover, seven of the 68 networks meet most of our core criteria. This paper summarizes the key findings of our study and, from them, derives recommendations for the development of the examined network.

2. Identification of existing networks

The initial step of our study was an internet search conducted to gain an overview of existing (research) networks linked to international VET research, to which end we used several search engines and keywords, as shown in Table 1.

Table 1: Search engines and search terms

Search engines	<ul style="list-style-type: none"> - DuckDuckGo - Google - Google Scholar - Qwant - Yandex
Search terms (i.e., with the added terms “association,” “society,” and “netzwerk” or “network”)	<ul style="list-style-type: none"> - Adult education - Berufsbildung (‘vocational education and training’) - Berufliche Bildung (‘vocational education and training’) - Berufsbildungsforschung (‘VET research’) - Bildungsforschung (‘research on education’) - Internationale Berufsbildung (‘international VET research’) - Lifelong learning and working - Skills and training - Labor market training - Technical and further education (‘TAFE’) - Technical vocational education and training (‘TVET’) - Vocational education and training research

Additional search criteria	<p>- Work-based learning</p> <p>Additional keywords: interdiziplinär ('interdisciplinary'), transdiziplinär ('transdisciplinary'), international, vergleichend ('comparative')</p> <p>Snowball search via members of international networks (e.g., the European Educational Research Association)</p>
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After several cycles of searches conducted during February and April 2020, we identified 68 (research) networks and allocated them to several categories, as detailed in the following sections. The following sections also thoroughly account for eight relevant networks that were crucial to our study, while all other networks have been detailed in our extensive report (Bohlinger et al., 2020).

In general, network analyses examines the relations within relationships between comprehensible entities that can be differentiated in terms of space—in German, *Relationen von Beziehungen zwischen prinzipiell fassbaren und voneinander räumlich unterscheidbaren Entitäten*. Independently of the content orientation and the (academic) discipline, the structural characteristics of networks are of special interest in order to recognize structures within networks (Rürup et al., 2015).

Although this contribution is not a network analysis in a narrow sense—for one, we did not analyze the relations and interactions of network members—the identification of the structure of the networks according to overarching aspects is relevant to identifying best practices. Here, best *practices* refer to common methods that have proven to be relevant across many networks.

To identify such network structures, we collected the following data for each network as long as such information was available on the network's website:

- Name of the network
- Self-conception of the network
- Aims and purpose of the network
- Members of the network
- Regional embeddedness
- Publications and events
- Access and membership preconditions, as well as membership fees if applicable
- Scope
- Structure and organizational form of the network

- Website (i.e., structure, content, and topicality)

3. Types of networks

From the beginning of the study, it was obvious that the orientation of the networks would neither be clear nor distinct in all cases. Moreover, it was evident that the aims of creating such networks would be similar across networks but be independent of their emphasis—that is, that more or less all of the networks would cover aspects such as cooperation, the mutual exchange of information, development, coordination, and transfer (e.g., policy–practice dialogue or theory–practice dialogue). At the forefront were networks that at least partly serve the interests of research, although many networks have additional purposes as well.

We differentiated six types of network categories based on existing networks and our preliminary conditions:

- Relevant research networks ($n = 8$)
- Additional research networks ($n = 27$)
- Policy networks ($n = 5$)
- Practice networks ($n = 19$)
- Strategic networks ($n = 6$)
- Other networks ($n = 4$)

Although the network categories overlap and not all networks can be allocated exclusively to one category, the foregoing distinction is useful in identifying the core orientation of networks, as demonstrated in our study.

We labeled all networks that focus on research and have a detailed linkage with VET as relevant *research* networks. All were initiated by (independent) researchers or research institutions and serve the interests of the mutual disciplinary and inter- and transdisciplinary exchange of research findings and ideas. To be allocated to that category, a network needed an international and interdisciplinary scope, had to (regularly) hold events and congresses, and had to foster publication. We identified eight networks that met those criteria (see Table 2).¹

We identified five other network categories as well. First, the category *additional research networks* includes research networks and research societies that have either no or no exclusive linkage with VET research (e.g., the German Educational

¹ All other networks are detailed in Bohlinger et al. (2020).

Research Association, DGfE) and/or lack an interdisciplinary orientation (e.g., the division ‘Vocational Education’ of the DGfE) and/or are mostly nationally oriented (e.g., the Luxembourg Educational Research Association).

All relevant research networks and additional research networks are funded by membership fees, either individual or institutional ones. That type of funding appears to be independent of the network’s content orientation.

Second, by contrast, *policy networks*, all initiated by political actors, are financed neither by individual membership fees nor by publicly funded projects but by cost splitting, or else they are financed as part of an institutional budget (e.g., Skilled Crafts from Germany International VET). The aim of policy networks is to link (political) actors, to foster and/or implement political strategies at the regional, national, supranational, or international level (e.g., European Quality Assurance in Vocational Education and Training).

Third, *practice networks* target the exchange of knowledge and experience between agents in VET (practice). They also address the improvement of VET practice, for instance, by fostering enterprise cooperation or professional associations. Thus, similar to policy networks, practice networks are not involved with research.

Fourth, *strategic networks* are involved with the development of political and/or practice-relevant strategies in education but are neither initiated nor funded by political actors. An example is the European Forum of Technical and Vocational Education and Training, founded as a European organization of and for VET providers (e.g., public and private providers, national associations, and higher education and school consortia) to disseminate innovative measures and to act as intermediary for cooperative projects with educational organizations within and beyond Europe. Thus, the aim of strategic networks is to establish strategical partnerships able to foster education, including VET. They consider themselves strategical networks without explicitly pointing at subcategories of their involvement (e.g., research, politics, and coordination).

Fifth and finally, the category of *other networks* contains four exemplary networks, each of which fulfills only one of the key criteria. Examples include national professional organizations and/or networks for research and promotion of occupational safety and health. Given their limited reference to VET and VET research, they were excluded from our subsequent comparison.

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Table 2. Relevant research networks in international vocational and educational training (VET) research.

Category	Acronym	Full name	Year established	Website
RN	AGBFN	Arbeitsgemeinschaft Berufsbildungsforschungsnetz	1991	https://www.agbfn.de/de/
RN	CIES	Comparative and International Education Society	1956	https://www.cies.us
RN	EARLI	European Association for Research on Learning and Instruction	1985	https://www.earli.org/
RN	IRNVET	Internationalization of Research in Vocational Education and Training (i.e., subnetwork of the World Education Research Association, WERA)	2016 (IRNVET) 2009 (WERA)	https://www.weraonline.org/page/VOCATIONALE-DUCATION https://www.weraonline.org/
RN	IVETA	International Vocational Education and Training Association	1984	http://www.iveta.org/about
IRN	ReferNet	Reference Network on National Vocational Education and Training Systems	2002	https://www.cedefop.europa.eu/en/events-and-projects/networks/refernet
RN	UNEVOC	International Centre for Technical and Vocational Education Training	1992	https://unevoc.unesco.org/home/
RN	VETNET	European Research Network on Vocational Education and Training	1996	https://vetnetsite.org/

Note. RN = research network or research society; IRN = information and research network.

Professional Development of Doctoral Researchers in Vocational Education and Training: A Cross-National Study in Times of Uncertainty

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1. Problem-Statement

Due to the COVID-19 pandemic, unpredictable changes in private and professional life have occurred worldwide. Facility closures as well as contact and travel restrictions make it difficult for all scientists to conduct their research. Social distancing measures reduce face-to-face meetings and networking interactions. Consequently, collaboration and exchange of ideas through informal conversations are limited (Termini & Traver, 2020). The shift of face-to-face events, such as conferences, to digital spaces leads to until now unknown consequences for informal exchange and networking (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs, 2021). Under these circumstances, and within the framework of the MP-INVET network YoriVET (Young researchers for internationalization of vocational education and training), a research project was developed at the Institute Technology and Education (ITB, University of Bremen), which focuses on the professional development and career aspirations¹ of doctoral researchers² in vocational education and training (VET).

2. Theoretical Framework and Research Questions

Apart from their first research experiences made during their bachelor and master studies, doctoral researchers are newcomers in academia. It is therefore of research interest how they – under pandemic circumstances – immerse themselves in the new world, and acquire the skills and competences needed for the doctorate. In the work

¹ See Greppmair (2022) for results related to the career development of doctoral researchers in VET.

² In this study, the terms "first stage researcher" (European Commission, 2011), "PhD student", "doctoral student" and "doctoral researcher" are used synonymously.

context, adults learn through professional relationships with colleagues or peers. Having the opportunity to ask spontaneous questions and to receive supportive answers or valuable feedback lead to immediate problem solving and improve the individual's performance (Eraut, 2011; Gielen et al., 2010). Referring to the social theory of learning, Lave and Wenger (1991) introduced Communities of Practice (CoP). A CoP is characterized by mutual engagement, joint enterprise, and shared repertoire (Wenger, 1998), as well as by three structural dimensions, on which the effectiveness of the community as a social learning system depends (Snyder & Wenger, 2010; Wenger, 1998): domain, community, and practice. The learning of the CoPs members is driven by challenges and is only relevant when it causes changes in practice. Knowledge is not transferred or shared from one person to another in a CoP, it is rather generated by community members, tried and reflected in practice. The key learning resource is telling each other how things worked out, which creates continuous learning loops over time (Wenger-Trayner et al., 2022). According to Wenger (2000), the participation in CoPs is key to social learning systems. In organizational settings, these actually serve professional development (Wenger-Trayner et al., 2022).

In the context of doctoral education, former studies investigated the positive effect of (established) CoPs on the doctoral experience and studies (Boud & Lee, 2005; Lahenius, 2012, Sacham & Od-Cohen, 2009). Whether this is also the case in the field of VET and under pandemic circumstances will be answered with the help of the following research questions:

RQ 1: How do the pandemic-related circumstances affect the professional development of doctoral researchers in VET?

RQ 2: How do doctoral researchers learn in times of uncertainty?

3. Methodology

Six doctoral researchers from three different European countries (England, Germany, Sweden) were interviewed in semi-structured interviews. The countries were chosen because of their different VET systems according to Greinert (2004): market orientation (UK), science orientation (Sweden), vocational orientation (Germany). In addition, the interview partners conduct their doctorate under different organizational conditions: individual doctoral education vs. structured PhD programmes (see table 1). Per country, two doctoral researchers from different cities were interviewed who are currently in the data collection/analysis or "all-but-dissertation" stage.

The interviews were conducted online via Zoom in spring 2022, recorded with OBS Studio, transcribed and coded with MAXQDA, and analysed using the method of focused analysis of qualitative interviews according to Kuckartz and Rädiker (2020).

Table 3: Information on the Interviewees.

Acronym	Gender	Country	Type of doctoral education	Status
GER1	Female	Germany	individual	Full-time Employee & PhD Student
GER2	Male	Germany	individual	Full-time Employee & PhD Student
SWE1	Female	Sweden	structured PhD programme	Full-time Employee & PhD Student
SWE2	Male	Sweden	structured PhD programme	Full-time Employee & PhD Student
UK1	Female	England	individual	PhD Student (scholarship for study fees only)
UK2	Female	England	structured PhD programme	Part-time teacher & part-time PhD student (studentship covers a stipend and study fees)

4. Findings

The presentation of the results is structured based on the two research questions.

RQ 1: How do the pandemic-related circumstances affect the professional development of doctoral researchers in VET?

The COVID-19 pandemic has caused many challenges for doctoral researchers. Due to contact restrictions and the loss of travel opportunities, it became more difficult for them to build networks and acquire interview partners. Fewer people are on campus than pre-pandemic, and planned face-to-face events (such as courses and conference participation) were cancelled or held online, which resulted in a loss of socialising and networking opportunities. Also, longer stays abroad could not be carried out as planned (SWE1, SWE2). In the case of online conference participation, the focus was mainly on the exchange in the respective sessions. Further exchange, e.g. on designated platforms, was logistically difficult and switched-off cameras slowed down the exchange. From the point of view of the interviewees, “*a conversation in the fresh air*” (GER2, translated by the authors) and the new input that comes with it cannot be replaced through online media. Nevertheless, online conference participation enabled the establishment of a few new contacts that are maintained beyond the conference (GER1, SWE2).

Due to the pandemic situation, five of six doctoral researchers had to adapt their research plan, and in one case, the entire project plan was thrown overboard. In some cases, it was impossible to acquire new contacts (GER1) and to learn on site (GER1, GER2, SWE1, SWE2). It was also more difficult to maintain existing contacts (people were suddenly no longer available, priorities had changed, the contact person changed jobs and this resulted in losing contact with the institution/company), so that, for example, follow-up interviews could not be carried out in many cases. Consequently, there were high dropouts or low response rates (GER1, SWE2). In addition, the doctoral project of one interviewee could not be officially registered because the university was closed (GER1), and with video interviews, it happened that the interview partner did not appear, the internet connection broke down or the quality was poor (GER1). While the virtual appointments were initially perceived as exciting, the increasing number of online-meetings led to stress. One interviewee (UK1) stated to be "*getting fatigued*" of Zoom calls and mentioned a "*cut off PhD life*". Interviewees stated that they were restricted in their work due to back pain (SWE1) and emotional stress, e.g. through being a "*social-being person*" (SWE2), living and working in the same room (SWE1), and that they could sometimes only manage 50% of their normal workload (SWE2). Among other things, these aspects and the loss of personal contact led to individual problems that hindered progressing with the PhD: mental reasons (UK1), psyche/depression (GER2, SWE1, SWE2, UK1), lack of motivation/work ethic (SWE2), and the feeling of isolation in the home office/lack of human interaction (GER2, SWE1, SWE2, UK1, UK2). For three of the six doctoral researchers, these stated pandemic-related circumstances led to a delay in their doctoral project. Moreover, the geopolitical situation in Eastern Europe was mentioned (GER1, UK1), and the uncertainty as to what impact this could have on their career opportunities.

With regard to participation in university courses or training measures, no significant restrictions could be identified for the doctoral researchers due to the global pandemic situation, only the fact that

All our trainings are online actually. And that, again, has impacted the social aspect of studying. (UK2)

On the other hand, new competences were acquired in the field of digitisation. In particular, the use of video conferencing systems for professional meetings (e.g. meetings with supervisors or colleagues), online-interviews, conference participation, (international) networking activities, accessibility of people in other countries, and

also the design of teaching or getting to know new teaching methods was mentioned (SWE1). Holding meetings and conferences online saves time, as walking or travelling times are no longer necessary. In this context, the potential of hybrid forms of working and learning was highlighted (SWE2). Moreover, the potential of collaborative online-tools, e.g. Miro, was stated (GER2).

RQ 2: How do doctoral researchers learn in times of uncertainty?

From the interview data collected, it can be derived that informal learning has a significant importance for progressing with the doctorate:

The formal learning is brought base, like the formal part of the PhD is supposed to make you be able to work within the university, and I think it is a good structure for that, but the informal parts is spicing up everything.
(SWE2)

According to the interviewees, social get-togethers, personal contact and unplanned encounters in the corridor of the institute or at the coffee machine (SWE1) are essential for clarifying spontaneous questions, getting “*new food for thought*” (UK1), giving advice and support for solving problems, and spontaneously exchanging ideas on various topics that would tend to be “forgotten” in planned online-meetings or one would not even speak to the person when working remote. Therefore, the doctoral researchers preferred to return to the office as soon as the corona-related restrictions were reduced and working at the university was possible again.

The interviewees reported that they personally benefit from the following informal exchanges:

- personal get-togethers with peers or experienced colleagues,
- mailing lists (SWE2),
- mentoring: individually (GER2) and also in groups (SWE2).

Moreover, the doctoral researchers mentioned that they benefit from institutionalised writing groups (SWE1, UK1, UK2) and PhD colloquia/meetings (GER2, SWE1, SWE2). In addition, self-organised writing groups and private groups of doctoral researchers from other universities were highlighted:

... sometimes by Zoom, sometimes by phone, sometimes by e-mail, WhatsApp. We exchange information about the diss and how things are going and how we could do something. Then we send each other texts and stuff. Sometimes we also talk privately. (GER1, translated by the authors)

The importance of networks, which could not be established to the extent hoped for due to the pandemic, was mentioned across all interviews. Also, previously established networking or support opportunities such as informal "shut up & write" sessions were cancelled (UK1) or working in physical study rooms for up to eight people was accepted by fewer doctoral researchers than before the pandemic (UK1, UK2). As many informal learning opportunities "*suddenly disappeared*" (UK1) due to the pandemic, informal learning partly shifted from social contacts to the study of books (GER2). And with participation in online conferences, even if rooms have been created for exchange, people have their cameras off, which feels like "*sitting alone in front of the computer*" (GER2, translated by the authors). To sum up, the importance of informal learning has been highlighted by all interviewees.

5. Discussion

Due to the COVID-19 pandemic the framework conditions of the doctorate have changed as many challenges have arisen for doctoral researchers: reduced face-to-face meetings, network interactions, and conference participation, limited or uncertain field access, adaptation of the research design (methods and research questions), decline in personal feedback and exchange with peers and supervisors, as well as delaying the completion of the dissertation (see also Konsortium Bundesbericht Wissenschaftlicher Nachwuchs, 2021; Termini & Traver, 2020). Moreover, courses and trainings are predominantly conducted online (Autor:innengruppe Bildungsberichtserstattung, 2022). In analogy to other educational settings, the following positive aspects were reported by the interviewees: improvement of digital competencies, increased virtual collaboration (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs, 2021; Termini & Traver, 2020; Wößmann et al., 2021) as well as time savings as one can jump from one online-meeting to another without changing the location.

The pandemic-related restrictions and working conditions have hardly any significant influence on formalised areas of doctoral researchers' professional development, as courses switched from face-to-face to online. The loss of personal encounters (by chance), on the other hand - as well as networking and exchange at events in presence, for example - do, however, bring massive limitations and take away valuable opportunities for informal learning as it happens incidentally when individuals ask each other questions, consult each other for advice or feedback, or simply observe their peers (Eraut, 2011; Noe et al., 2013; Tannenbaum et al., 2010). Such informal learning,

which according to Eraut (2011) accounts for about 70-90% of the learning, has partly not taken place at all during the pandemic, and still takes place less than pre-pandemic.

Figure 1 provides an overview of the formal and informal sources of learning in the context of doctoral studies gained from the interviews. Even though (online) conferences and networks³/the scientific community could not contribute to the professional development as pre-pandemic, personal encounters as well as CoPs remain the most valuable sources of learning for doctoral researchers, despite the pandemic-related limitations.

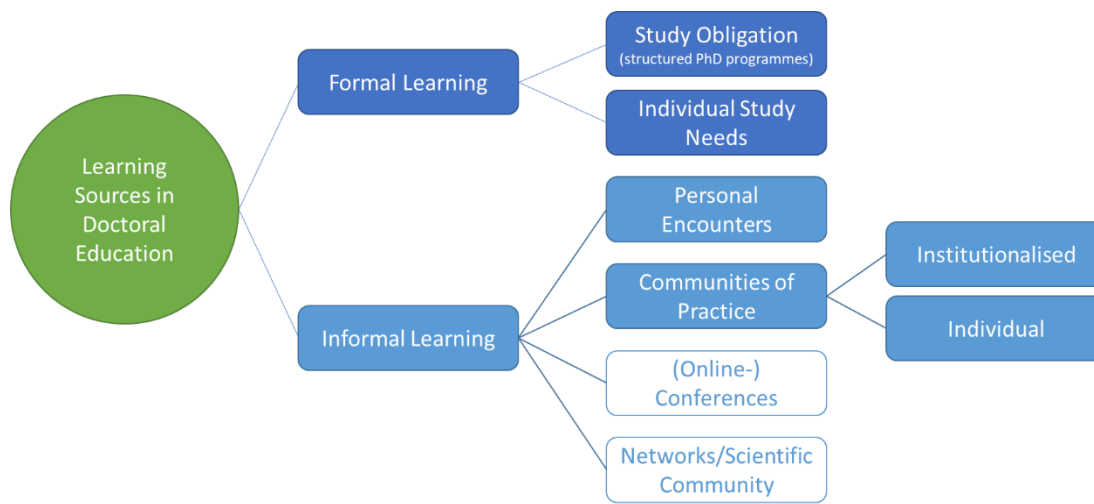


Figure 1: Learning sources in doctoral education under pandemic circumstances.

Participation in diverse CoPs - whether offered by the institute or sought and organised out of self-interest - is an enormously important resource for the professional development of doctoral researchers. An overview of the basic elements of CoPs in the field of doctoral education in VET are illustrated in figure 2:

³ Network activities are, e.g., study visits abroad (intended, but not possible due to pandemic), connecting with guest researchers and further research networks, mailing lists, ...



Figure 2: Basic elements of communities of practice in doctoral education in VET.

Being characterized through joint enterprise, mutual engagement, and shared repertoire (Wenger, 1998), the CoPs in doctoral education in VET mentioned in this study are summarized as follows (see fig. 3):

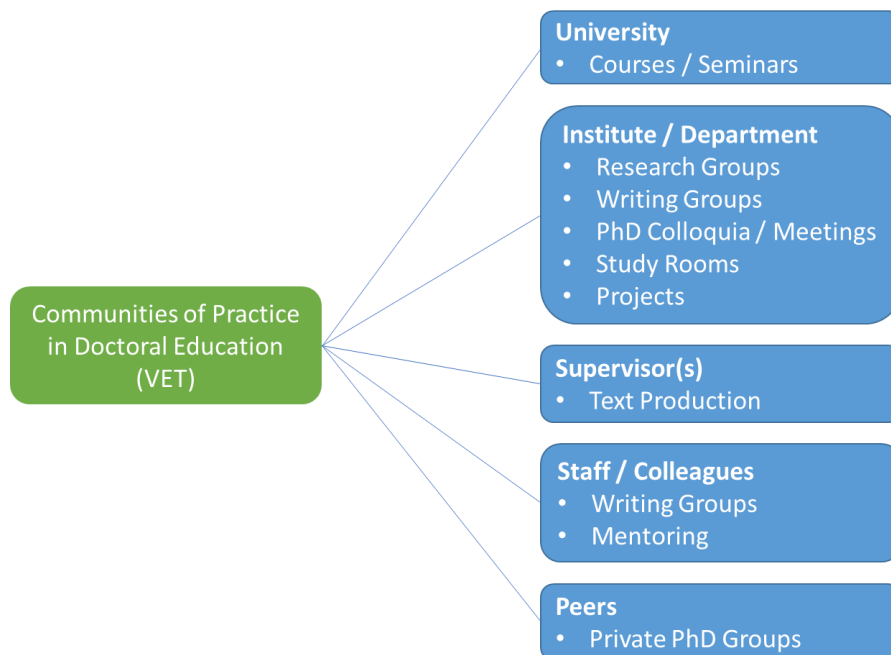


Figure 3: The landscape of practices in doctoral education in VET.

The institutionalised and also the individual or self-organised PhD colloquia, writing groups and private exchange groups build an important resource for dealing with challenges in the context of the dissertation and for the individual professional development. But even these have suffered from the pandemic, and as in the case of the study rooms in England, which are supposed to bring doctoral researchers together for joint work and exchange, are no longer a CoP, because "if nobody shows up then it's not a community of practice, even if the space is open" (Wenger-Trayner & Wenger-

Trayner, 2016, p.13). Through the internet, it has become easier to bring people together from all over the world. Participation in diverse communities of practice is possible, and they are successful as long as they create value for the members. At the same time, technology also brings a danger, because participation becomes more non-committal (Wenger-Trayner & Wenger-Trayner. 2016), which is evident - as the interviewees pointed out - for example in the case of cameras that are switched off.

From these results, it can be concluded that both informal learning through personal interaction (by chance) and the engagement in communities of practice are enormously important resources for doctoral researchers in the context of their doctoral studies and professional growth. However, precisely these important learning opportunities were severely limited by the pandemic-related contact restrictions and the resulting work from home, which massively limited the individuals' progress – independent of the country of the doctoral studies. The pandemic situation led to less use or even elimination of previously successful informal learning sources. And even post-pandemic back in the office, there are fewer chance encounters or informal exchanges between doctoral researchers and peers or supervisors than before the pandemic.

The study is limited to the extent that it only involves doctoral researchers from vocational education and training. A follow-up study could include other disciplines as well as look more closely at the role of the supervisor in promoting social learning opportunities in hybrid or remote forms of working in order to foster the professional development of doctoral researchers.

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Research on the Internationalization of Vocational Education and Training - Cross-project Evaluation Results and their Implications

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1. Introduction and Research Focus

The achievement of society's objectives, such as equal opportunities, participation in education or sustainable development, requires data and evidence about the effect of key influencing factors in order to be able to steer political and practical actions and processes in a targeted direction. In contrast to fundamental research, evaluation research not only serves to gain scientific knowledge, but also to create a benefit for practice (Döring, 2014; Stockmann, 2004). In the past few years, the evaluation research approach with its various functions has taken on a significant role in the vocational education and training (VET) sector (Beutner, 2021; Stockmann & Meyer, 2017). Particularly in international VET, a fragmentation of the research landscape can be observed due to the different research strands and disciplines involved in this field (OECD, 2014; Toepper et al., 2021). Accordingly, evaluation research serves to identify conditions for success and inhibiting factors, from which concrete, actionable recommendations for sustainable international VET cooperation can be developed (Brosi, 2003; Stockmann, 2021). In this context, evaluation is understood as a central instrument with different functions so that it can enable a deeper interaction between research, politics, administration and the public. In addition, evaluation can strengthen the comparatively low level of financial support in the VET sector (compared to the school sector), also on an international level, since positive evaluation results e.g. in developing countries can lead to an increase in monetary support (Fretwell, 2003; Holmes & Mclean, 2009). Within the funding initiative "Research for the Internationalization of Vocational Education and Training (IBBF)" (2019-2024) funded by the

Federal Ministry of Education and Research (BMBF), evaluation research plays a significant role.

Strengthening and expanding institutionalized VET research as a core principle of international vocational education and training cooperation is a central goal of the IBBF program. The IBBF program includes eleven international research projects, which are particularly heterogeneous in terms of their objectives as well as their cooperation partners and target countries. Besides the eleven projects, the IBBF program has a scientific project, the so-called metaproject (MP-INVET). The metaproject is responsible for conducting a cross-project evaluation. Here, the results of the individual IBBF projects are bundled, systematically analyzed and synthesized (Gessler, Bohlinger, & Zlatkin-Troitschanskaia, 2021; Gessler et al., 2021; Kühling-Thees et al., 2020; Steinert, 2020). This paper presents the key findings of the cross-project formative evaluation of the IBBF-program, focusing on the following research question:

What is the scientific impact of the IBBF program on international VET taking a multi-perspective evaluation criterion into account?

2. Theoretical Background

Evaluations capture the value of an object; this can be products, processes, projects or programs (Stockmann, 2004). Especially when evaluating projects or programs, the achieved impact of the implemented measure is of great importance. In the research context, the implementation of an evaluation requires a systematic and transparent procedure from which the objectivity of the evaluation emerges. Through the use of empirical methods, information is obtained that is examined with the help of systematic procedures and criteria and subsequently evaluated (Stockmann, 2004). The scientific and professional demands in evaluation research are increasing due to the growing significance of evaluations (von Werthern, 2020). However, evaluation approaches are characterized by a high level of diversification (Miller, 2010), which is why the evaluation concept adapted for the IBBF program synthesizes and combines several theoretical approaches and concepts, which are presented below.

2.1 CEval Evaluation Approach according to Stockmann

The theoretical basis of the MP-INVET evaluation approach is the evaluation model according to Stockmann (2007), which can be assigned to an impact-oriented, theory-based evaluation, and combines several evaluation approaches and theoretical models (Stockmann, 2007). The model's understanding of evaluation is based on the

evaluation standards of DEGEval, which have been established for the evaluation of VET programs in German-speaking countries (Beywl & Speer, 2004). The standards of usefulness, feasibility, fairness and accuracy ensure a fair and high-quality evaluation (DeGEval, 2016). Building on these standards, according to Stockmann (2007), evaluations fulfill different purposes: Evaluations should provide information on the prerequisites for the implementation of a program, strengthen the acceptance of stakeholders, identify conflicts of interest, and support planning. Stockmann (2007) assigns various goals to these tasks, some of which are mutually dependent:

- 1) *Knowledge function*: Evaluation primarily pursues the goal of generating knowledge that is useful for the clients or the target group of the program.
- 2) *Control function*: Evaluation has a control function, since it reveals, for example, to what extent the participants fulfill their tasks and whether they have sufficient competencies.
- 3) *Learning function*: Evaluation also provides a basis for joint learning, as all stakeholders enter into an open dialogue with each other.
- 4) *Legitimacy function*: Finally, the results of evaluation can be used to legitimize one's own research.

With regard to the IBBF program, the focus is increasingly on gaining insights and achieving overarching outcomes for international VET research.

2.2 OECD-DAC Evaluation Criteria

To assess the evaluation object, criteria are used that assure a high-quality research approach. The evaluation of the IBBF program focuses on the evaluation criteria of the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD). The criteria used – *relevance, coherence, effectiveness, efficiency, and sustainability* (OECD, 2019a, b; Silvestrini & Stockmann, 2016) – are adapted to the research object of the eleven IBBF projects and applied in a target-oriented manner. Regarding the five OECD-DAC criteria, the following three research questions (RQ) are addressed in this paper:

- (1) *Which structural conditions in the IBBF projects can be identified to achieve the individual project goals?*
- (2) *Which methodological and data analysis are represented within the IBBF program to achieve the individual project objectives?*
- (3) *Which sustainable outcomes of the IBBF projects can be identified?*

3. Methodology

The underlying evaluation design uses data from standardized online-based questionnaires collected at two measurement points. The questionnaires consist of both open and closed questions. This favors a systematic evaluation of quantifiable data as well as a qualitative evaluation of open questions. The first survey was conducted between May and June 2021, with eleven IBBF projects responding to the questionnaire, whereby one project provided responses for two project sub-sites (n=12). In the second survey in July 2022, only ten of the eleven projects participated (n=10) due to different project durations within the IBBF program. The first survey focused in particular on network and project partners, sectors, transfer activities, project structure, sustainability and continuation, methodology, instruments used and the survey design. The central focus of the second survey, in addition to the aspects addressed surveyed in the first survey, was in particular the data analysis methods used as well as the potential for sustainability and the relevance of the findings to international VET research. Descriptive analyses were conducted to answer the underlying research questions (see Sec. 2.2).

4. Results

The results section essentially presents the findings of the second online survey. At crucial points, a reference is made to the first online survey to clarify the evaluation process.

RQ1: Which structural conditions in the IBBF projects can be identified to achieve the individual project goals?

In this specific evaluation context, the term "structural frame" refers to the personnel structures of the projects as well as national and international collaborations and research networks within the IBBF program. In Germany, a total of 69 project partners are working within the IBBF program and 15 research disciplines are represented. To achieve the respective project goals, the projects cooperate with 30 international partners and institutions in the target countries. The international orientation of the IBBF program is noticeable in the fact that there are significantly more international than national collaborations. Each of the eleven projects has a cooperation with universities in the target countries, almost 75% of the projects cooperate with companies and/or political actors and almost 55% of the projects are collaborating with

research networks. Compared to the first survey (t_1), the number of national collaborations has increased. A total of twelve national collaborations were indicated (t_1), including universities, partners and the MP-INVET metaproject. The projects rated the quality of the cooperation on a four-point scale. The collaboration with universities was rated highest¹, followed by the collaboration with the metaproject and subsequently the collaborations with institutions, which received the lowest rating. Otherwise, a reduction was found in international collaborations, with a total of 28 collaborations (t_1 : $n=30$). In the international context, there are collaborations with universities, government institutions and education providers. Cooperation with universities was rated highest. Both government institutions and education providers were rated less well in terms of collaboration. Collaborations with universities also received the best rating in the international context.

The survey also asked how many and which sectors the IBBF projects focus on in their research. Four projects stated that they focused on one sector, three projects on two sectors, one project on three and one project on four sectors. In total, the education sector was represented with 29%, followed by the industrial sector with 23%, the commercial sector with 18%, the energy sector and the tourism sector with 12% each, and the gastronomy sector with 6%. The studies of the respective projects had different scopes, ranging from institutional and local to regional and supra-regional to international. More than half of the projects indicated an international reach for the research.

RQ2: Which methodological and data analysis approaches are represented within the IBBF program to achieve the individual project objectives?

The IBBF projects collect mostly qualitative data in addition to a small amount of quantitative data. There have been 23 surveys conducted across all projects in the IBBF program. All studies were cross-sectional ($n=10$). Questionnaires, observations, interviews, and other survey methods such as document analysis were used by the projects. All projects ($n=10$) conducted interviews. Mainly semi-structured interviews were conducted ($n=7$). Field observations ($n=3$) and non-structured observations ($n=1$) were used. A total of 167 observations were conducted. Respondents were drawn from businesses, schools, universities, and government institutions. A total of 238 institutions were surveyed. At the individual level, a total of 452 subjects were interviewed.

¹ The better the cooperation was rated, the higher the value.

Surveys with questionnaires used both self-assessments and validated scales, and all were conducted online. Due to the international nature of the projects, data are collected in English, German, Spanish, Russian, Chinese, Georgian, Vietnamese, and Thai.

RQ3: Which sustainable outcomes of the IBBF projects can be identified?

Regarding sustainable outcomes, different evaluation facets can be used. One focus was on the publications. Six projects reported publishing in German, nine projects in English (50%), two projects in Spanish (11%) and one project in Thai (6%). In total, 59 publications from IBBF projects were published by August 2022. To perpetuate the project findings in the long term, the projects mentioned various facets. Publications, disseminations, implementation in the target country, transfer of project results to other countries and the creation or further maintenance of the project homepage were mentioned.

5. Discussion

In general, the eleven IBBF projects worldwide show a variety of approaches, objectives, networks and research designs. Their fundamental commonality lies in their affiliation with the IBBF program and thus their attachment to the overarching goal of strengthening institutionalized VET research as a core principle of international VET cooperation. The results highlight fundamental approaches to successful VET transfer by identifying success factors as well as best practice examples. Through the research results, possible ways were identified to establish sustainable VET cooperation from which international education cooperation can benefit in the long term.

The results presented here are self-reported by the IBBF projects, which can be seen as a limitation of this evaluation study. In addition, the results presented are current observations of the projects that should be supplemented and further developed as the research continues. Moreover, an inter- and transdisciplinary perspective and approach is necessary for research and collaboration in international VET (cooperation). The manifold topics and challenges in VET cannot be addressed by one scientific discipline alone.

The IBBF program with its broad range of research topics and the specific features of the research monitoring and evaluation of this program makes it possible to aggregate findings beyond individual projects and thus to carry out generalizable and relevant research. The evaluation of the IBBF program by the metaproject allows a

more detailed insight into the internationally operating research projects. With this evaluation approach, the results, the potentials and the research process support of an entire research program, which also includes international connectivity, can be made visible. The diversity of IBBF projects is a clear strength of the research program and can also provide helpful information for higher education (cooperation). For further research work, transnational cooperation is a central aspect that should be further developed for future research in the field of education.

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