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Input From the Grassroots Level — Reflecting Challenges and Problems for VET Professionals in Germany

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Abstract

Context: Often, vocational education and training (VET) professionals are not systematically prepared for their demanding, mostly diverse and complex tasks. Professional development can be understood as an enlargement of competencies that arise as opportunities in daily work. This study, embedded in a funded research project, focuses on VET professionals and their professional development. The research question is as follows: What challenges and problems regarding their professional development, as well as possible solutions, are described by training professionals in VET in Germany?

Approach: The goal of this study is to discover what challenges VET professionals face and how they cope with them. Accordingly, this research was formalised with the following components: (A) An explorative study with group discussions ($N = 53$ participants in six groups) and (B) result validation with German VET experts ($N = 10$). The data were recorded, transcribed and analysed using qualitative content analysis.

Results: Using a theory-based category system, the group discussion results were summarised in 12 systematic, organisational- and individual-level statements. The statements indicated that despite the necessity of formal professional development in the area of further training, most VET professionals must still be able to profit from offers at or below the German Qualification Framework (DQR) level 5. Many VET professionals ultimately sought

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visible recognition of their activities or personal commitment with regard to pedagogical and company-economic functions. The 10 VET experts also evaluated the 12 statements as important.

Conclusion: The results of this study show that there is a huge need for qualification and learning opportunities for VET professionals. The demand is mostly for modern, tried-and-tested concepts and central themes, such as action and competency orientation, practice and transfer orientation, individual and structural reflection, media competency and learning support in all formats and at all levels.

Keywords: Continuing Vocational Education and Training, VET, Critical Analysis, Education and Training Opportunity, Qualitative Research, Relevance of Education and Training

1 Introduction

Recent research approaches consider the importance of teaching and educational professionals as key figures in successful learning (e.g., DiBenedetto, 2019; Fernández, 2013; Hattie & Yates, 2013; Winch, 2020). This also applies to vocational education and training (VET): In-company and external personnel for continuing education and training are central to successful formal learning, education and training processes, and thus, they are a decisive factor in the success of the German VET system. VET trainers, coaches and teachers also shape the VET framework conditions and dual courses of study, and as innovators in learning venues, contribute to preparing (future) employees for changes in the working world, such as digitalisation (Barabasch & Keller, 2021) or internationalisation (Li & Pilz, 2021). In addition, they actively participate in shaping personnel and organisational development processes in companies. In times of skilled worker shortages and changes in young people's educational choices, they can make important contributions to the quality development of a VET system.

It is known that the VET system in Germany is different from VET systems in other European countries (e.g., Renold et al., 2017). These differences can be found, for example, in the dual system and separation of training and practical school phases, VET professionals' qualifications and the responsibility of enterprises to organise training phases (Sloane et al., 2018). The presented study is embedded in a funded project aiming to discover new ways to foster and establish professionalism in the German VET system. This study focuses specifically on VET professionals, such as trainers, coaches and teachers. In the past, VET professionals in Germany were not systematically prepared for their demanding, mostly diverse and complex tasks (e.g., training dropout, heterogeneity, inclusion, new methods of training and employment and use of digital media for education and training; Clarke et al., 2021; Deißinger, 2019; Gázquez et al., 2021). There is no uniform education or standardized training for them to achieve a specific qualification level. What is necessary and not offered by others until now

is a qualitative approach to identifying the needs, challenges and potential of the VET sector, starting with the people involved in the daily process. According to Harm (2021) there is a wide range of tasks to be fulfilled by VET trainers, coaches and teachers. Depending on the deployment and on the level of hierarchy this could be on the level of training (Bahl, 2018; Brünner, 2014; Clark et al., 2021; Harm & Neumann, 2020; Klein et al., 2020):

- Creating and further developing of training concepts, methods and documents.
- Conducting regular seminars, courses or trainings.
- Supporting trainees in preparing for final examinations.
- Developing and maintaining of the training equipment (platforms, documents, etc.).
- Evaluating and assessing training activities that have taken place or are planned.
- Ensuring and further developing the internal knowledge level in close cooperation with product managers, marketing and sales.

Depending on the deployment and on the level of hierarchy this could be on the organizational level (Brünner, 2014; Clark et al., 2021; Di Maio, 2021; Elbers et al., 2021; Rintala & Nokelainen, 2020):

- Strategic further development of structures and processes in the area of vocational training.
- Central contact for all those responsible for training in the departments and ensuring high-quality support for trainees and interns.
- Maintaining contacts with business partners, cooperation partners from other enterprises and the vocational schools.
- Ensuring that all relevant core and specialist skills are taught in accordance with training regulations.
- Concepting and implementing of qualification offers for trainees and training managers as well as ensuring individual support for trainees.
- Implementing of the recruiting process and joint management of an attractive trainee marketing program.
- Planning, organizing and supporting training projects.

Apart from regional or political characteristics these tasks are universal applicable throughout countries and companies.

The goal of this study is thus to discover what challenges VET professionals face and how they cope with them. Consequently, the research question is as follows: What challenges and problems regarding their professional development, as well as possible solutions, do German VET professionals describe?

This study's aim is to enable activity-based educational and occupational biographical professionalisation for in-company vocational training personnel. It incorporates the perspectives of relevant players and institutions from VET research, practice and policy.

2 The German VET System

In this section a short overview about the German VET system is given. This will briefly cover the system in general and the training for VET professionals.

2.1 Brief Overview of the German VET System

The German 'dual' training system enjoys an excellent international reputation (Clarke et al., 2021; Oeben & Klumpp, 2021). According to many experts, German skilled workers form the basis for technically sophisticated, high-quality production and Germany's success in exporting correspondingly high-priced goods (Pilz & Wiemann, 2021). One characteristic of the dual training system is its two places of learning—the vocational school and the company. This ensures that theoretical learning is combined with practical learning and work experience. Most training takes place at the company, occurring three to four days per week. The training starts with a training contract between the trainee and the company. During the training period, which usually lasts three years, vocational schooling is compulsory (Hippach-Schneider et al., 2007). Trainees also receive a salary that increases as their vocational training progresses.

Solga et al. (2014) as well as Hippach-Schneider et al. (2007) draw attention to another special feature of dual vocational training is its 'corporatist' control—that is, the equal participation of the state and industry: The state defines the framework conditions and standards for training via the Vocational Training Act (BBiG) and the Crafts Code (HwO; rights and obligations of trainees, remuneration, suitability of training facilities and training staff, regulations on the final examination, etc.) (Solga et al., 2014). On its side, industry influences vocational training in that the social partners—the employers' associations and the trade unions—determine learning content and conditions for individual training occupations, which are then laid down in corresponding training regulations (Brockmann et al., 2008). The Federal Institute for Vocational Education and Training (BIBB) prepares training

regulations and takes the lead in drawing up the drafts of the training regulations with experts from vocational practice; in the process, attention is also paid to coordination with the framework curricula for vocational schools, which are drafted by experts from the federal states (Bahl, 2018; BIBB, 2021).

The involvement of the business community ensures that training imparts the knowledge and skills that are truly needed in working life (Clarke et al., 2021). Referring to BIBB (2021) the involvement of the state via the BBiG, the HwO and training regulations in turn guarantees that companies in Germany must adhere to clear rules when providing training. This standardization of training across all companies creates a unique feature among the international training systems. In Germany, quality standards are maintained and skills are trained that are relevant to the economy as a whole and not just to a specific company. Thus, people with dual training qualifications can also use their acquired knowledge in different companies and move more easily from one to another (BIBB, 2021; Federal Ministry of Education and Research [BMBF], 2021).

2.2 VET Trainer Professionalisation in Germany

A key role in the training system involves the VET professionals. The German Ordinance on Trainer Aptitude (AEVO) is the minimum standard for all VET trainers, coaches and teachers in the field of vocational education. By attending and passing the AEVO, VET professionals should gain a set of clearly structured competences that are meant to be important for their role as in-company educators and are embedded in the daily working routines. These competences are settled among four areas of vocational training—namely, planning, preparing, assessing and implementing. The overall goal is to foster competences that are essential for becoming a competent VET trainers, coaches and teachers. Despite all regulations, the curriculum of the AEVO is broadly formulated rather than based on fixed standards. It becomes increasingly evident that the AEVO functions more as a training authorisation and less as a minimum qualification (Elbers et al., 2021). In addition, it cannot ensure the didactic-pedagogic preparation of skilled workers undergoing training as VET trainers, coaches and teachers (see Bahl & Brünner, 2013; Gössling, 2016; Solga et al., 2014).

To meet the high demands placed on in-company training personnel in continuing VET and to facilitate their strengthening and professionalisation, the reinstatement of the AEVO has already enacted two uniform, nationwide continuing training regulations for *Certified Continuing Education and Training Pedagogues* (German Qualification Framework [DQR], DQR-6) and *Certified Vocational Pedagogues* (DQR-7). However, expectations of a boost to professionalisation linked to these regulations have not been fulfilled. Since their nationwide regulation in 2009, these qualifications have not been able to establish themselves in VET. They hardly register any graduates, are largely unknown on the market and are often not

accepted by employers, as a recent evaluation study on the DQR-7 continuing training qualification has shown (Schley et al., 2020). This means that an analysis of the initial situation already provides indications for the further development of the vocational training's qualification system.

Overall, there is a lack of systematic and open qualification options for VET professionals. As a result, there is an insufficient basis for professionalisation processes, especially in the sense of developing vocational identity or forming a self-image of an occupational group, and classification in collective agreements (Di Maio, 2021; Gössling, 2016). The German Qualifications Framework (DQR) basically refers to the European Qualifications Framework (EQF). Below level 6, there is currently no vocational pedagogic AEVO qualification that provides vocational pedagogues with a continuous development path across all sectors and towards the integration of their existing competencies. In addition, there is currently no integration at the upper end of the DQR, such as in vocational school employment fields.

3 Theoretical Framework

This section points out the relevant theoretical framework. Covering aspects of continuous professional development and the concept of 21st century skills.

3.1 Continuous Professional Development

Continuous professional development (CPD) is one key figure for life-long learning and for maintaining and acquiring job related skills and knowledge (Sandal, 2021). Although widely used it is rarely fully recognized nor defined (Collin et al., 2012). "CPD could be defined as learning which takes place in workplaces and organizations [...]" (Collin et al., 2012, p. 161). It includes formal trainings, work related learning opportunities forms of coaching and mentoring, as well as informal learning process'.

Kennedy (2005) reveals the wide spectrum of models in continuous professional development (CPD). Using five key question to categorize adequate, such as types of knowledge acquisition or the focus within CPD as individual or collective.

CPD is regarded as essential to help individuals, organizations and industries as a whole to keep their skills and knowledge up to date. CPD-related training courses, workshops and events allow professionals to maximize the benefits of participation by using the time to meet their individual requirements (Sandal, 2021). By investing in continuing education, knowledge and skills will not become obsolete. This contributes to become more effective in the workplace and contribute meaningfully within teams and tasks. Finally, this is a major opportunity for career advancement. Taking this into account Lambert et al. (2012) combined the various approaches and models of CPD and set them in relation to the degree of freedom from a learner perspective.

The result is a category for nine basic types of CPD increasing in its capacity for professional autonomy. Table 1 presents the nine models assigned to three broad categories, transmission, transitional and transformative.

Table 1: Spectrum of CPD Models (Lambert et al., 2012)

Model of CPD	Purpose of Model
The training model	Transmission
The award-bearing model	
The deficit model	
The cascade model	
The standards-based model	Transitional
The coaching/mentoring model	
The community of practice model	
The action research model	Transformative
The transformative model	

In addition, Lambert et al. (2012) regard professional development as a multidimensional process, especially in vocational training policies. Therefore, they enhance the concept within CPD to foster the capability for work, learning and training, work–life balance and additionally for voice and participation within the companies.

Increasing the work-related capabilities to achieve and maintain professional expertise on systematic, organizational and individual level is consequently one benefit of CPD (Billett et al., 2008; Collin et al., 2012; Sandal, 2021).

Based on these concepts of CPD (Collin et al., 2012; Sandal, 2021), daily work situations offer opportunities for professional development based on the demands of the workplace, setting and structural or political dimensions (Merriam, 2018). Professional development can be understood as a process through which trainers or teachers enlarge their competencies and qualifications (Fernández, 2013). To sum up, CPD can on three levels individual, organizational and systematic or political level (Billett et al. 2008; Collin et al. 2012; Tynjälä, 2008).

3.2 21st Century Skills

While CPD addresses a rather general perspective and the frame where learning arrangements could take place, the construct of 21st century skills offer a particular perspective about necessary skills for professional development (Hamby 1992; Mutohhari, et al. 2021). DiBenedetto (2019) states that 21st century skills are likely to be obtained via a mix of formal qualification, informal learning activities and a learning culture characterised by the presiding

company or domain. Since VET professionals' professional development and CPD are often only informal and based on their experience, it is necessary to keep a close eye on the real-world challenges and problems they face in their daily work routines (Dymock & Tyler, 2018; Urbani, 2020). Referring to Janssens et al. (2017), learning from and at the workplace is a crucial point for maintaining competitiveness and performing in the most suitable way. This can affect daily routines, continuous challenges and future work tasks.

Against the background outlined above, the demand for the further professionalisation of VET personnel is not new (see e.g., Brünner, 2014; Diettrich, 2017), nor does it come as a surprise in view of recent research on the situation of in-company training staff (see e.g., Bahl, 2018; Di Maio, 2021; Forster-Heinzer, 2013; Klein et al., 2020; Solga et al., 2014). However, given the challenges described above and the importance of training pedagogical personnel, professional development and its curriculum are becoming increasingly relevant as a VET success factor in the digital working world (Billett, 2020). Within this concept, developing a set of professional competencies based on knowledge and experience from domain-specific demands appears to be crucial for daily work performance and professional development (Andersson & Köpsén, 2019; Baumert & Kunter, 2013; DiBenedetto, 2019). Accordingly, the European Commission identified the three following levels of competence as crucial for VET trainers, coaches and teachers:

- Vocational competencies
- Pedagogical and social competencies
- Management competencies

According to Martin (2018) the 21st century skills have a direct influence on the development of innovations and are therefore also referred to as innovation competencies. Models approaching these concepts like Trilling and Faden (2009) or Di Benedetto (2019). These include inter alia:

- The competent use of media, technologies, information and data.
- The Virtual and face-to-face communication and collaboration against a background of diversity (e.g., interdisciplinarity, interculturality, age).
- The creative problem solving, ability to innovate, think analytically and critically.
- The flexibility, tolerance for ambiguity, self-motivation, ability to work independently.

This outlines that 21st century "[...]skills are a vital ingredient for economic success and individual and social well-being, now more than ever before as the Fourth Industrial Revolution gets into its stride and ageing populations and workforces become the new norm." (Martin, 2018, p.30).

In line, DiBenedetto (2019) sets up a set of 21st century skills contributing to these levels. This includes e.g. applying appropriate academic and technical skills; modelling integrity, ethical leadership, and effective management; planning education and a career path aligned to personal goals; or using technology to enhance productivity. These concepts are used for the construction of the category system within the methodical approach in this study.

Vocational competencies are considered a prerequisite for becoming a VET trainers, coaches and teachers. However, most of them lack pedagogical, social and management competencies; therefore, such competencies have become a priority for continuing education actions (Fernández, 2013; Sloane et al., 2018).

4 Methodical Approach

This study followed a research design with two main steps, which are as follows: (A) Group discussions conducted with VET professionals ($N = 53$ participants in six group discussions) and (B) questionnaires for evaluations of the group discussion results in the form of statements by VET experts from Germany ($N = 10$) regarding their importance and authenticity. The methodical approach drew on results from a further training 'vocational pedagogue' acceptance study (Schley et al., 2020) and selected results from another study on the responsibilities and implementation structures used by in-company training personnel (Brünner, 2014). The method also stemmed from the evaluation of these results' pedagogical relevance of these results for in-company training action (Bahl & Brünner, 2013). With a research approach in the form of workshop concepts (i.e. group discussions) for systematic implementation (Krause et al., 2019), the tasks and existing framework conditions of VET personnel, qualification practice and calls for action were set down in four model sectors based on the geographical location (from Northern, Southern, Eastern and Western parts of Germany).

4.1 Research Design

The implemented research design satisfies the six quality criteria postulated by Mayring (2014), which are as follows: Procedural documentation, argumentative interpretation validation, rule guidedness, object proximity, communicative validation and triangulation. Existing knowledge was used for discursive processing and for developing solution approaches. Based on the different workshop formats (Figure 1), plenty of results emerged. On the one hand, in the research design, the results were concrete framework specifications, conditional

factors and players that must be considered to develop appropriate, high-quality qualification modules and their embedding in a career model. Furthermore, alternative solution approaches arose that were evaluated in a further iterative process. In the conceptual phase, four different workshop formats were implemented (Figure 1).

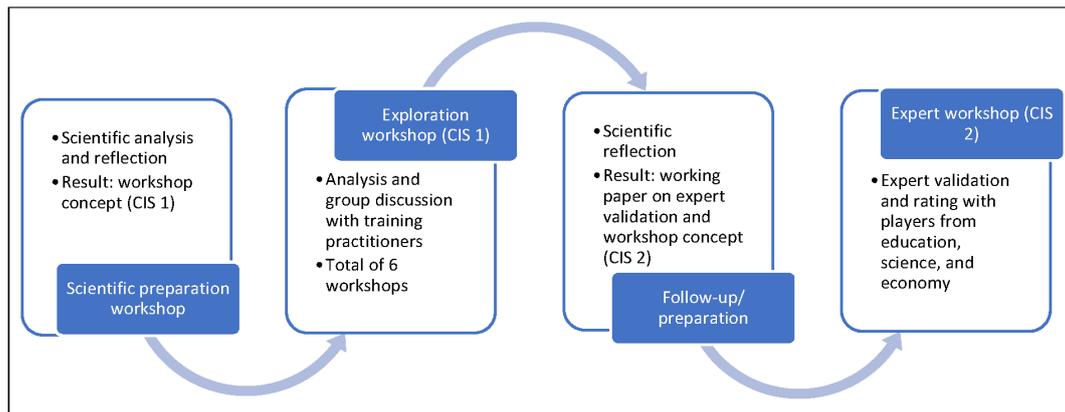


Figure 1: Methodical Approach Within the Workshop Format Framework

The first step involved analysis and reflection on existing research findings. During the opening workshop, the three participating universities and two participating institutes developed a concept for exploration workshops. The workshops were designed as agile workshops in the form of concept innovation sprints (CISs). Based on this, six exploration workshops were conducted throughout Germany with 53 mixed participants (training and further educational personnel; participants and graduates of further training; experts and further stakeholders, e.g. managerial personnel from companies and service providers; [vocational] school principals; social partners; chamber representatives, etc.). During these workshops, the status quo and challenges and problems with the professionalisation of VET personnel were investigated and discussed per a homogeneous methodical design, and initial solution approaches were developed. The workshops were recorded, transcribed in their entirety and evaluated. The other parts were documented by means of photographs and transcripts and then put together in a protocol describing the entire course of the workshop.

The key results from the exploration workshops were then analysed and interpreted by the project team in line with the project context. The results from the second scientifically oriented evaluation loop were laid down in a working paper on the expert validation workshop. This paper was sent for expert validation prior to the CIS-2 workshop. This was subsequently discussed and evaluated in the CIS-2 workshop with select experts.

The concept and homogeneous execution of the exploration workshops, the professional coordination of those leading the workshops and the subsequent evaluation and analysis steps guaranteed quality-assured results. The workshop leaders were members of the project team and had all attended similar trainings and instructions regarding the procedure of the workshop, as well as the theoretical foundation and procedures for the qualitative content analysis. Each workshop was led by at least two project members. The data were analysed by the workshop leaders in mixed peer groups. One further factor for quality assurance was an external result validation by critical friends—that is, cooperating partners tending to positively perceive the project goal yet able to give critical comments—in CIS 1, as well as additional external experts in CIS 2.

The selection of the participating players for the exploration workshops was carried out based on theoretical sampling and sampling according to specifications (Mayring, 2014). By means of theoretical sampling, attention was given to a balance of gender, in addition to the groups' functional suitability and representation. It was likewise possible to achieve an appropriate variety of VET-related professionals with concurrent consistency across all six workshops. Participant recruitment also took place by means of personal contacts and networks to garner particularly committed players who could comment and enhance the workshops through their convictions, positions and experiences. The selected persons represented such types as chamber representatives and training managers who were active at an operative level of training and further education in their respective occupations. In this way, the structuredness of the phenomenon and the range of its manifestations could be recorded. This procedure also made it easier to obtain comprehensive insights, contradictory positions and possible common perspectives, and it had the goal of recording high-quality results as largely typical and representative of the vocational training personnel and their framework conditions. Thus, the groups to be investigated were put together according to basic relevant criteria and invited to the workshops.

(A) Group Discussions

Six group discussions were conducted with 53 German VET professionals. The number of participants in the group discussions ranged from 8 to 10. The participants were training and further educational personnel, managerial personnel from companies and service providers, vocational school principals, social partners and chamber representatives. In terms of participant heterogeneity, qualification levels and institutions, this composition gave an almost ideal portrayal of the organisations and players involved in Germany's real vocational training process.

Based on theoretical CPD models (Collin et al., 2012) and DiBenedetto's (2019) model of 21st-century skills, a semi-structured interview guideline was developed. Furthermore, a framework in which interview statements could be included on strategic (e.g. finance),

organisational (e.g., organisational goals) and individual (e.g., support by supervisors) levels was arranged. In each group discussion, the participants were first asked to introduce themselves; they were then given information about data protection and informed about the procedure. They signed an informed consent form to have their opinions published, and they were told how their personal information would be protected throughout the project. In the second part, they were asked to explain their challenges and problems in VET. The participants were also asked to explain concrete situations, analyse them step by step and discuss their experiences with them. The participants discussed whether they have experienced similar situations or different ones that can be added. In the third and final part of the group discussion, the participants were asked about their potential solutions to the described problems and challenges. A whiteboard and memo technique were used to visualise the described framework and interview statements from the participants in keywords. The whole group discussion was recorded and transcribed, as well as being visually documented in photographs.

(B) Expert Ratings

A questionnaire with statements including the key results of the group discussion was developed. Ten experts on German VET (e.g. policymakers, general human resources [HR] managers, Chamber of Commerce and Industry [IHK] representatives and BIBB personnel) were asked to rate the statements on a dichotomous scale (yes or no) according to their importance and authenticity. In addition, these participants' expertise was used to identify further challenges and possible solutions within the CIS-2 workshop.

To obtain targeted insight into current challenges in the education and further training of VET personnel, two work phases were established in the workshop concept. In this exploration, the participants came together in small groups and intensively discussed the following: (1) *Challenges and problems* and (2) *ideas, experiences and solution indications*. Here, the following questions were presented that were to be managed from systematic, organisational and individual perspectives:

1. Challenges and problems: What are the most urgent challenges and problems in your region? What opportunities arise from a solution? What will happen if no action is taken?
2. Ideas, experiences and solution indications: What does a concrete solution to the problems mentioned look like? What value will training measures have here? What does this mean for training approaches?

The results were subsequently presented and examined in the workshop plenum, per their relevance.

4.2 Analysis

(A) Group Discussion

A qualitative content analysis (Mayring, 2014) was used to assess the data. The system included the two following main data categories: (1) Challenges and problems and (2) solutions. Within the categories, further subcategories (e.g. training and further education, mandatory rules and clear consequences for pedagogic qualifications) were introduced. Further, the framework categories (structural, organisational and individual) were used to classify the results. Based on these analyses, 12 statements that included the key results were developed. Table 2 gives a short insight on the category system and the coding.

Table 2: Exemplary Extract From the Developed Category System

Category	Sub-category	Coding	Theoretical Base	Description	Exemplary Quotes
challenges and problems		Ch_P	DiBene-detto, 2019 Lambert et al., 2012 Sloane et al., 2018	The participant mentioned challenges	
	Organisational level	Ch_P_O	Bahl (2018), Brünner (2014), Dietrich (2017) Ulmer (2019)	The participant mentioned challenges and problems that can be categorized to an organizational level within the company. Like hierarchy issues, access and recognition further trainings, or salary.	Yes, I wish there was uniform recognition of the additional pedagogical qualifications in supporting learning processes, training and further education pedagogues in companies, in public tenders, in the actual qualifications that people achieve and that are experienced in companies. (Female participant (39), chamber representative) I would like [...] better recognition of vocational pedagogues in comparison to university courses'. (Male participant (55), leading position at a chamber of commerce)

(B) Expert Ratings

The experts rated the 12 interview statements as important and authentic or unrealistic and inauthentic. Statements rated as unrealistic and inauthentic by more than five experts were excluded from the study.

Subsequently, a questionnaire with statements was developed that contained the most important results of the group discussion. Ten experts in German VET (e.g. politicians, HR managers, IHK representatives, BIBB employees) were asked to rate the statements on a dichotomous scale (yes or no) according to their significance and authenticity. In addition, the expertise of these participants was used to identify further challenges and possible solutions in the CIS-2 workshop.

To gain a targeted insight into current challenges in the training and further education of vocational training personnel, two work phases were defined in the CIS-2 workshop concept. In this exploration, the participants came together in small groups and discussed the following points intensively:

1. Challenges and problems and
2. ideas, experiences and approaches to solutions.

Key issues were presented that needed to be addressed from a systematic, organisational and individual perspective.

The results achieved in each step were documented photographically. A protocol for the entire workshop also consolidated the results. All results of the expert workshop were interpreted and weighted by the project team in line with the project concept.

5 Results

The results of the group discussion (A) were summarised in 12 statements. These statements showed problems and solutions on the systematic, organisational and individual levels. The importance of the statements was then rated by German VET experts (B). The results were in line with previous studies on this topic (e.g., Bahl, 2018; Ulmer, 2019) and demonstrated a huge need for qualification and learning opportunities for VET professionals.

5.1 Results From the Six Regional Exploration Workshops

The country-wide coverage, with 53 participants in six exploration workshops, made it possible to balance gender, the groups' functional suitability and representation as well as taking regional peculiarities into account. The organisations and the participants' activity profiles are listed in table 3.

Table 3: Organisations and Participant Activity Profiles

Participating Organisation Forms	Participant Activity Profiles
Educational companies (gGmbH ¹ & e.V. ²)	(Vice) managing directors
Vocational training centres	Area managers
Businesses (AG ³ , KdöR ⁴ , GmbH ⁵ , & e.V.)	Executives
Vocational schools	Training managers
General education schools	VET trainers, coaches and teachers
Special interest groups	Personnel developers
Chamber representatives	Project managers
Freelance work in the educational sector	Project management supervisors
Federal Institute for Vocational Training	School principals
State university	Freelance workers
Private university	Research associates
	Social workers
	Advisers

Legend of organisational forms:

gGmbH¹ gemeinnützige Gesellschaft mit beschränkter Haftung = non-profit limited liability company

e.V.² eingetragener Verein = registered association

AG³ Aktien Gesellschaft = joint-stock company

KdöR⁴ Körperschaft des öffentlichen Recht = corporation under public law

GmbH⁵ Gesellschaft mit beschränkter Haftung = limited liability company

Table 3 gives an overview about the heterogeneity in the group of VET trainers, coaches and teachers and the huge variety of places of work and their level of qualification and hierarchy.

With regard to heterogeneity, qualification level and institutions, this allocation of organisations and participants activity profiles gave an almost ideal portrayal of the organisations and players involved in the real German vocational training process. The distribution of the organisational forms, the persons working in those forms and their fields of activity were relatively consistent across the regional workshops.

To obtain an overview of the workshop participants' pedagogical qualifications and examination activities, a classification schedule according to Martin et al. (2016) was created. Then, a systematic analysis of the persons involved in VET education and further training was carried out. The qualifications of the workshop participants are summed up in Table 4.

Table 4: Workshop Participants' Qualifications Based on Martin et al. (2016)

Qualification	Entries (n) (More than one entry possible)
Trainer training according to AEVO	31
IHK training and further education pedagogue	5
IHK vocational pedagogue	7
Ongoing studies with a major in human sciences related to pedagogy (educational science, psychology)	6
University degree (B.A. / M.A.) in studies related to pedagogy (e.g. educational science, psychology)	26
University degree (B.A., B.Sc., B.Eng. / M.A., M.Sc.) in non-related studies to pedagogy (e.g. accounting, mechanical engineering)	15
Train the trainer training (IHK)	11
Additional rehabilitation pedagogic qualification (ReZA)	4
Other pedagogic qualification (e.g. media education)	14
Examiner in initial vocational training	14
Examiner in further vocational training	18
No such qualifications	3

Table 4 outlines the great variety in approaches for continuous professional development. Heterogenous attempts can be approaches of the vocational biography and to maintain a high performance level. In addition, it underlines that there is no regulation by law for basic qualification apart from the before mentioned AEVO. This overview showed a majority of participants with a VET trainers, coaches and teachers-suitable qualifications in pedagogical training vocations. This distribution generally portrayed the heterogeneous image of the players' qualifications in initial and further training and education. Furthermore, the role plurality in which the training personnel worked became clear, as for example, trainers and further educators concurrently carried out voluntary examiner activities.

The personal details on the qualification level reflected the participants' conclusion that despite the necessity of formal professionalisation in this field, the majority of VET professionals must still be able to profit from offers below official levels (e.g., AEVO). Several professionals pointed out that their tasks require suitable learning offers that are not available simply by chance or unsystematically, but that also lead to competency proof and certificates. Many VET professionals ultimately sought visible recognition of their activities or personal commitment to pedagogical and company-economic functions. A qualification combining work domain-specific content with vocational pedagogical content was also frequently demanded. This could be a didactic professional skills method for training in a particular field of work. In addition, it became clear that many individual interests and concrete challenges and problems trigger individual qualification needs; however, the increasingly multi-faceted network structures in which VET professionals work also call for further qualifications, such as

learning location cooperation, cooperation with IT service providers and cooperation with social pedagogues and special needs teachers. The next sections consider the results from the exploration workshops in more detail from the viewpoints of *challenges and problems* and *ideas, experiences and solution indications*.

Challenges and Problems

In an overlapping evaluation of all six regional workshops, table 5 shows the following points from the players' viewpoints that emerged as relevant framework conditions.

Table 5: Level-Specific Challenges and Problems per the Workshop Participants

Systematic Level	Organisational Level	Individual Level
No description of the necessary competencies of skilled training personnel (6/6)	Lack of acceptance by management personnel (4/6)	Generational differences (old-young, young-old, young-young) (3/6)
No AEVO refreshment (4/6)	No interchange of ideas between training personnel (5/6)	Separation: Support and assessment (4/6)
Skilled worker career vs. management career (5/6)	Training is tied to the 'job' (master's/ business certificate) (4/6)	Learning/support from trainers (5/6)
Convincing skilled workers and management (5/6)	No interchange of ideas with other training locations (6/6)	Consider/observe trainee learning progress (5/6)
Formal recognition of training personnel (6/6)	Limited time resources in the human resource development sector (HRD) sector (5/6)	No self- or role conception of the training (6/6)
No certificate for training personnel = no requirements profile (4/6)	Financial resources (6/6)	Digitalisation (6/6)
Digitalisation (6/6)	Digitalisation (6/6)	Self-competency and personal competency not defined (5/6)
Recognition of the qualification (6/6)	Job profiles/descriptions (4/6)	Training personnel's action-oriented qualifications (6/6)
	Role explanation (5/6)	Socio-pedagogical training contents (4/6)
		Conflicts of interest (human, employee, educator, trainer) (6/6)

The numbers after the bullet points refers to the frequency the point has been mentioned throughout the workshops. For example, "No AEVO refreshment (4/6)" would mean that this phrase has been mentioned in four out of the six workshops.

Ideas, Experiences and Solution Indications

In an overlapping evaluation of all regional workshops, the following points also emerged from the players' viewpoints as relevant framework conditions, illustrating as important key solutions to the challenges they face. In addition, we highlighted these solutions by adding exemplary quotes of the participants:

- Mandatory rules and clear consequences for pedagogic qualifications:

"For certificates, additional modules and modules at all, the qualification is important. Not every education and training educator, not every vocational educator needs the same!" (Male participant [41], Federal Institute for Vocational Training)

- Integration of those responsible for training:
"The AEVO is used in a completely inflationary way, it often takes place completely out of context, e.g. it is embedded in some courses of study, in which students acquire the Ada certificate without ever having entered a company or so far had no confrontation with real training and further education." (Male participant [62], chamber representative)
- Definition of vocational training personnel:
"Yes, I would like to see a unified recognition of the additional pedagogical qualifications of the learning process facilitator, the education and training pedagogue in companies, in public tenders, in the actual qualification as it is also acquired by people and experienced in companies. Activity transparency and further training possibilities." (Male participant [40], training manager)
- Creation of digital learning areas:
"Continuing education degrees and continuing education offerings must be further developed in coordination with the economic and social partners in such a way that they take into account additional competence requirements, e.g., in the course of digitalization. I would take a somewhat critical view of this, because in view of digital change and the speed at which it is taking place, I think the economic and social partners need to consider how they can find solutions more quickly and not just seek the lowest common denominator." (Female participant [48], area manager for an educational company)

The excerpted results of the six exploration workshops are clarified by 12 central statements of the participants. In them, the substantial aspects of the challenges and possibilities for solutions are condensed and can be recorded in generalised form. These statements serve as the basis for expert validation and systematic work on the findings presented in CIS 2.

5.2 Central Statements From the Exploration Workshops

The statements are supplemented by a scientific classification and location determination solidified in the project context. The following section summarises the 12 central points from these exploration workshops in basic statements. These results were analysed and validated in the CIS-1 and CIS-2 workshops.

Statement 1: *"I would like to see more recognition of training personnel, both within companies and in society in general, irrespective of whether they have academic or non-academic training."*
(Female participant [46], leading position in an educational company)

Appreciation and recognition are the key characteristics of educational and further training personnel. These individuals' positions—although often between the devil and the deep blue sea—are perceived as deficient and difficult to balance out. This applies both to appreciation of their work and career and remuneration.

Statement 2: *"Well, the training personnel's view of this person, this human being enriched with competencies and abilities that are simply there and just need to be unwrapped, [is] like a kind of candy. It's wrapped in beautiful foil that you unwrap and then get to the core [of]. None of us would put the candy in our mouth with foil on it. We unwrap it beforehand. To see what's in there."* (Male participant [51], VET teacher in a vocational school)

Educators and further training personnel may develop a strong personal bond with trainees, for example, and feel pleasure and pride when the training and educational tasks are successful (e.g. difficult youths become good skilled workers and colleagues). These successes create motivation and satisfaction, as well as compensating, in part, for a lack of recognition and appreciation.

Statement 3: *"In my opinion, there really is a lack of linkage between the training personnel or training in general and companies' business field development. That is, knowing where the company is headed, which products should come into the market [...] which competencies will be needed in the future."* (Male participant [36], chamber representative)

Training and further education should be connected more strongly with company business and innovation processes, for training and further education are increasingly taking over important strategic functions in companies: Notably, training personnel are responsible for dynamic competency development processes within the training and further education of highly qualified up-and-coming skilled workers. These skilled workers are decisive in the strategic positioning and even continued existence of the company, initiating operational innovations above and beyond training and further education. However, companies do not often discern this, and this is further complicated, for example, by the institutional separation of company training and personnel development.

Statement 4: *"Training is unfortunately still just a job on the side, particularly in commerce. Like they have also said with salesclerks: Here, you have a trainee. Get on with it!"* (Male participant [57], training manager in a joint-stock company)

Training personnel have great significance (both qualitatively and quantitatively) for successful vocational training. Even so, they are admittedly not often prepared or qualified for their training responsibilities—and sometimes, they are not even designated to do these tasks. Increasing social and special educational challenges, for example, that have altered young people's moral values, dynamic changes in work processes and modern work forms

all change training personnel's tasks and make these tasks more difficult, particularly as they typically receive little support from their company.

Statement 5: *"Well, I would find it better if there was regular further training for training personnel after the AEVO courses."* (Female participant [29], project manager in an educational company)

The AEVO is a basic qualification for taking on training responsibilities and is frequently perceived only as formal training authorisation. Regular, precise and suitable certifications are necessary in addition to this to constantly expand training personnel's competencies by means of suitable qualification forms and measures and to have them adapt to new requirements.

Statement 6: *"I would like digital competencies to be incorporated into the qualifications of vocational training personnel."* (Male participant [32], VET trainer in a vocational training centre)

Qualifications for educational and further training personnel are often viewed as deficient in content and very traditional with regard to the teaching and learning forms used. There is hardly any further development in these forms that takes a look at real action and task requirements, and the adaptation of professional pedagogical forms from schools and universities seldom functions as intended. In this way, company learning cannot keep pace with the partly important changes in the work world through, for instance, digital transformation, process organisation and internationalisation. Thus, training personnel need more digital competencies.

Statement 7: *"I would like [...] better recognition of vocational pedagogues in comparison to university courses."* (Male participant [55], leading position at a chamber of commerce)

The existing further training professions are little known or appreciated by employers or further training supporters; while the contents are assessed relatively positively, the concluding job titles are not. In general, the workshop participants confirmed the need for greater development in their evaluation of the further training profession vocational pedagogue (see Schley et al., 2020), as well as the unsecured permeability in the higher education sector.

Statement 8: *"I think that the educator is definitely only the supervisor in the training and that mistakes are not only tolerated but most certainly also desired. Because you can learn from mistakes as long as they can be repaired. But it also gives the trainee the opportunity of asking himself while he is still in training whether the path he has chosen for himself is the right one."* (Female participant [48], managing director in a vocational training centre)

The pedagogical role of training and further education personnel is changing in light of the current methods and concepts in vocational learning, such as action orientation, self-directed

learning and blended learning. Pedagogical, supportive and advisory responsibilities are gaining in significance, whereby educators are increasingly experiencing (or having to experience) vocational integration, socialisation, advisory and orientation functions.

Statement 9: *"We don't have time for that [e.g. new approaches in learning]. We need to see we get them through the examinations. But this interrelationship has something to do with the examination if you want to take competency orientation seriously in your vocational training—this mental step is very difficult to convey. Because, in my opinion, this competency orientation has not yet really arrived with the educators."* (Male participant [49], VET trainer in a limited liability company)

Modern vocational pedagogic concepts often do not reach training practice, which is sometimes described as following a traditional learning approach (the four-stage method). Competency and action orientation as didactic guidelines are often 'sacrificed' for short-term goals. Too little time for learning during the training and a strong orientation towards examinations can make it difficult to develop long-term competencies so that only the abilities, skills and knowledge relevant to the examinations are taught.

Statement 10: *"Yes, I wish there was uniform recognition of the additional pedagogical qualifications in supporting learning processes, training and further education pedagogues in companies, in public tenders, in the actual qualifications that people achieve and that are experienced in companies."* (Female participant [39], chamber representative)

A comprehensive, sequentially developed and permeable qualification and qualification-level structure for training personnel is considered appropriate. This involves the possibility of tiered professionalisation and specialisation for educational and further training responsibilities with different recognition or crediting mechanisms, as well as the recognition of qualifications in the job market or individual companies.

Statement 11: *"The contents are more important than the career path—first and foremost: What they produce! The career ladder is only the second step. I think it only becomes interesting when people also see that the contents help them."* (Male participant [52], training manager)

A question arose in the workshop as to which contents should be integrated into training personnel's qualifications or vocational training and further education and how these change over time. The corresponding answer indicated that training personnel's qualifications, apart from pedagogical-didactic content, must also include and combine professional or didactic content for various professional domains. However, this has not been the case up to now in existing qualification concepts.

Statement 12: *"Training is a management task and demands high specialist and human competencies from the acting persons."* (Male participant [45], leading position in a vocational training centre)

The management task coexists alongside the training personnel's specialist, pedagogical and didactic competencies. All three responsibilities imply different roles that training personnel need to implement and master in their contradictoriness. Frequently, there are management tasks without disciplinary management functions, so a great deal of self-competency, self-reflection, empathy and ambiguity tolerance is required.

5.3 External Expert Validation of the Conception Phase Results

The conclusions from the six exploration workshops in the four model regions were condensed and prepared for expert validation. The goal of this final methodical step in the conception phase was to identify the necessary tiered and permeable qualification model for training personnel that should be developed in the project and to discuss it with experts from education and economics. This took place during a one-day workshop. The sample construction for the CIS 2 was also carried out in this step based on theoretical sampling and sampling according to specifications (Mayring, 2014). The people invited were of the same representative types as in the exploration workshops. Their respective work was different; however, the participants were now from the management level, the level of strategic planning and conceptualisation. They included, for example, division-level HR managers, representatives of education at the decision-making level and directors for a company's entire training field.

The results achieved in the respective steps were documented photographically. A protocol for the entire workshop consolidated the results as well. All results from the experts' workshops were interpreted and weighted by the project team along the lines of the project concept.

6 Discussion of the Findings

In this paper we took a close look on VET professionals and their professional development. Thereby we analysed the challenges and problems regarding the professional development, as well as possible solutions, that are described by training professionals in VET in Germany. The research design based on a nationwide explorative study with group discussions (N = 53 participants in six groups) and a validation of the results by VET experts (N = 10).

The results of this study show that there is a huge need for qualification and learning opportunities for VET professionals. The demand is mostly for modern, tried-and-tested

concepts and central themes, such as action and competency orientation, practice and transfer orientation, individual and structural reflection, media competency and learning support in all formats and at all levels.

6.1 Interpretation

The participants in the workshops emphatically pointed out that despite the necessity of formal professionalisation in further training, most VET trainers, coaches and teachers must still be able to profit from courses and trainings below the AEVO, at the AEVO level and beyond the AEVO. Several players also indicated that participants in future workshops require suitable course offers that are not available simply by chance, unsystematically or in crisis situations and that lead to competency proof and certification below AEVO. Many VET trainers, coaches and teachers ultimately seek visible recognition of their activities or personal commitment to pedagogical and company-economic functions. A qualification combining skilled work-specific content with vocational pedagogical content was also frequently demanded in the sense of 'professional skills didactics' components for training in a particular field. In addition, it became clear that many individual interests and concrete challenges and problems trigger individual qualification needs; however, the increasingly multi-faceted network structures in which training personnel work also call for further qualifications (learning location cooperation, cooperation with IT service providers, cooperation with social pedagogues and special needs teachers, etc.).

The following theories were deduced from the survey phase and flowed into the discussion as follows:

- VET trainers, coaches and teachers' professional biographies are either one-way streets or cul-de-sacs.
- New tasks, particularly within dual study courses, reinforce the change in roles. This results in further pedagogical professionalisation.
- It is essential to develop a tiered, permeable qualification system for vocational training and further education personnel. There is, in particular, a lack of qualification at the DQR-5 level.
- The interface to study courses should be expanded. However, permeability with teaching posts in vocational schools does not appear to be productive.

These themes should subsequently be further differentiated topically according to target groups to discuss the necessary qualification models for target groups along the DQR stages.

The surveys conducted and exploration in the conception phase validated previous analyses (Bahl, 2018; Brünner, 2014; Diettrich, 2017; Ulmer, 2019) through the participants in the exploration and expert workshops. In addition, the current developments, opportunities and challenges faced by educational personnel were identified and integrated systematically and scientifically into the project concept. Not only were the theories deduced from the exploration workshops largely confirmed by the experts, but their relevance for necessary educational action was also underlined once more.

6.2 Implications

There is a fundamental consensus that the development, testing and implementation of systematic internal and external VET and personnel professionalisation are important for improving the quality of training and further education. At the same time, they offer training personnel their desired qualification and professionalisation options—and in individual cases, even career options. Thus, a structural, innovative qualification system for training personnel will improve the quality of training and further education, enhance vocational training and contribute to excellence in vocational training. This also applies to the competition among increasingly significant private education institutions and universities, which for their part, are currently seriously investing in study quality (quality packets in teaching, development of university didactics; e.g., Schley et al., 2020). Contents and organisational concepts as well should be appropriate to the target group and be able to be completed 'pragmatically'. The courses should include new forms of teaching and learning (in further training and company application) while simultaneously being systematic and oriented.

Professionalisation in VET demands the systematic, cross-facility and cooperative further development of existing further training professions, modular complementing of the to-date largely missing DQR-5 stage, as well as the further development of interfaces in study courses with a high general recognition of professionally acquired skills. The goal is a career model that begins with a basic VET trainers, coaches and teachers qualification for skilled workers that can be continued both modularly and interchangeably in further certification. This includes branch and target group modular offers at the DQR-5 level. Cross-facility cooperation and additional learning offers at the DQR-6 level allow continued development of the existing further training profession (Certified Continuing Education and Training Pedagogue) per specific content focus (digital teaching and learning, special needs/educational assistance, learning support, internationalisation, etc.) right up to the DQR-7 qualification (Vocational Pedagogue). The offers should also be interdisciplinary (trainers and further educators, teaching personnel, training managers, personal trainers) and mutually interchangeable with university courses (e.g. integration of university modules).

6.3 Limitations

As mentioned previously we addressed professional development of VET trainers, coaches and teachers in Germany. Referring to challenges and possible solutions emerging from their workplaces. It should be noted that we focus on German VET professionals. We did not compose a study with an international focus. So, we concentrated our research on a nationwide survey. Nevertheless, apart from regional and political characteristics we could identify challenges and possible solutions, relevant for VET professionals in a broader perspective.

Regarding the limitation of the study, the small sample size could be mentioned. 53 participants in six nationwide workshops can only be a starting point for further research projects. On the other hand, the sample size in this study is common, based on the concepts of explorative studies (Mayring, 2014). The workshops were conducted until the saturation point has been reached and the carried-out content analysis indicated no sign of a lack of information or answers due to the sample size.

The nature of an explorative study itself can be a limitation. But given the fact that there are always upcoming new fields of research, an explorative study like this, can be a very first insight in unexplored concepts. With the goal, obtaining insights into professionalization of VET trainers the explorative findings point out new paths for upcoming research. In addition, we used the expertise of ten VET experts to the results.

6.4 Recommendation

On the other hand, it was urgently pointed out that, despite all the necessity of formal professionalization paths in the area of further training, the majority of VET trainers, coaches and teachers must be able to benefit from the offers below the AEVO, at AEVO level and in the area of AEVO plus. Many stakeholders have pointed out that the relevant group of people needs appropriate offerings that are not only available randomly, unsystematically and in crisis situations, but should also lead, for example, to proof of competence and certificates below the level of continuing education. Ultimately, the VET trainers are also interested in a visible appreciation of their activities and their personal commitment in terms of pedagogical and economic-operational functions. Frequently, a qualification was demanded that combines technical-domain-specific with vocational-pedagogical contents. In addition, it became clear that many individual interests and concrete challenges and problems trigger individual qualification needs, but in particular the increasingly diverse network structures in which the educational staff works, require further qualifications (learning location cooperation, cooperation with IT service providers, cooperation with social and special educators, etc.).

In the workshops and expert discussions, the need for systematic professionalization in the sense of a graduated, permeable qualification system for vocational education and training staff was called for in order to improve the quality of education and training and at the

same time create professional and career options. This would enhance the value of vocational training and also increase the desired appreciation for the training personnel who plan, implement and monitor training processes. In addition, this could be a decisive step, alongside BA Professionals and MA Professionals, towards the desired equivalence of vocational and academic education.

On the other hand, there is a need for systematic, cooperative further development of existing continuing education occupations across learning locations, a modular supplement to the DQR 5 level, which has been largely lacking in the broad spectrum to date, and the further development of interfaces to courses of study with high proportions of lump-sum recognition of vocationally acquired competencies. The goal is a qualification system that begins with a basic qualification for skilled workers in training and can be continued in a modular and permeable manner in the direction of instructor qualification. This is followed by sector- and target group-specific modular courses at DQR 5 level. Learning location cooperative, pedagogical differentiation offers on DQR 6 further develop the existing advanced training occupation ("Certified Education and Training Educator") with regard to specific content-related focal points (including digital teaching and learning, special/social pedagogical support, learning support, internationalization), up to the qualification "Certified Vocational Educator" (DQR 7). The courses should be designed to be cross-professional (trainers, teachers, education managers, personnel developers) and mutually permeable to higher education (e.g., integration of university modules).

In the intended modularized qualification system, the individual elements can be linked systematically, which can lead to individualized career paths for the vocational training and further education personnel and enables a permeable structure in terms of content and concept. Especially the last aspect is particularly innovative.

When constructing developmentally logical curricula, the following learning domains should be identified:

- Orientation and overview knowledge,
- Contextual knowledge,
- Detailed and functional knowledge and
- Subject-systematic in-depth knowledge.

Work and learning tasks should be formulated in such a way that they are significant for the respective learning area and have the potential to support the learner in achieving the next level of competence development (Rauner, 2021).

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References

- Andersson, P., & Köpsén, S. (2019). VET teachers between school and working life: Boundary processes enabling continuing professional development. *Journal of Education and Work*, 32(6–7), 537–551. <https://doi.org/10.1080/13639080.2019.1673888>
- Bahl, A. (2018). *Die professionelle Praxis der Ausbilder: Eine kulturanthropologische Analyse*. Campus Verlag.
- Bahl, A., & Brünner, K. (2013). 40 Jahre Ausbilder-Eignungsverordnung – Eine Bestandsaufnahme zu ihrer pädagogischen Relevanz für betriebliches Ausbilderhandeln. *Zeitschrift für Berufs- und Wirtschaftspädagogik*, 109(4), 513–537.
- Barabasch, A., & Keller, A. (2021). Individualizing workplace learning with digital technologies. New learning cultures in Swiss apprenticeship training. In D. Ifenthaler, S. Hofhues, M. Egloffstein & C. Helbig (Eds.), *Digital transformation of learning organizations* (pp. 115–130). Springer. https://doi.org/10.1007/978-3-030-55878-9_7
- Baumert, J., & Kunter, M. (2013). The COACTIV model of teachers' professional competence. In M. Kunter, J. Baumert, W. Blum, U. Klusmann, S. Krauss & M. Neubrand (Eds.), *Cognitive activation in the mathematics classroom and professional competence of teachers* (pp. 25–48). Springer. https://doi.org/10.1007/978-1-4614-5149-5_2
- Billett, S. (2020). Developing a skillful and adaptable workforce: Reappraising curriculum and pedagogies for vocational education. In E. Wuttke, J. Seifried & H. Niegemann (Eds.), *Vocational education and training in the age of digitization - Challenges and opportunities* (pp. 251–272). Verlag Barbara Budrich. <https://doi.org/10.3224/84742432>
- Billett, S., Harteis, C., & Eteläpelto, A. (Eds.). (2008). *Emerging perspectives of workplace learning*. Sense.
- Brockmann, M., Clarke, L., & Winch, C. (2008). Knowledge, skills, competence: European divergences in vocational education and training (VET) - The English, German and Dutch cases. *Oxford Review of Education*, 34(5), 547–567. <https://doi.org/10.1080/03054980701782098>
- Brünner, K. (2014). *Aufgabenspektrum und Handlungsstrukturen des betrieblichen Ausbildungspersonals. Selbstwahrnehmung und Fremdattribuierung im Kontext von Berufskonzept und Professionalisierung*. Eusl-Verlagsgesellschaft mbH.
- Bundesinstitut für Berufsbildung. (BIBB) (2021). *Datenreport zum Berufsbildungsbericht 2021. Informationen und Analysen zur Entwicklung der beruflichen Bildung*.
- Bundesministerium für Bildung und Forschung. (BMBF) (2021). *Berufsbildungsbericht 2021*. BMBF.
- Clarke, L., Westerhuis, A., & Winch, C. (2021). Comparative VET European research since the 1980s: Accommodating changes in VET systems and labour markets. *Journal of Vocational Education & Training*, 73(2), 295–315. <https://doi.org/10.1080/13636820.2020.1858938>
- Collin, K., Van der Heijden, B., & Lewis, P. (2012). Continuing professional development. *International Journal of Training and Development*, 16(3), 155–163. <https://doi.org/10.1111/j.1468-2419.2012.00410.x>

- Deißinger, T. (2019). Problems and challenges of full-time and school-based VET in Germany. In J. Gallacher & F. Reeve (Eds.), *New frontiers for college education. International perspectives* (pp. 148–164). Routledge.
- Di Maio, G. (2021). *Skill formation under pressure: How the collective governance of vocational training adapts to rising skill demands* (Dissertation No. 5039) [Doctoral dissertation, Universität St. Gallen]. Difo-Druck GmbH.
- DiBenedetto, C. A. (2019). Twenty-first century skills. In S. McGrath, M. Mulder, J. Papier & R. Suart (Eds.), *Handbook of vocational education and training* (pp. 1267–1282). Springer. https://doi.org/10.1007/978-3-319-94532-3_72
- Diettrich, A. (2017). Berufsbildungspersonal 2025 – Forschungs- und Entwicklungsperspektiven im Kontext gesellschaftlicher Megatrends. In M. French & A. Diettrich (Eds.), *Berufsbildungspersonal in Bildungsdienstleistern und Betrieben* (pp. 319–329). Klatschmohn Verlag.
- Dymock, D., & Tyler, M. (2018). Towards a more systematic approach to continuing professional development in vocational education and training. *Studies in Continuing Education*, 40(2), 198–211. <https://doi.org/10.1080/0158037X.2018.1449102>
- Elbers, B., Bol, T., & DiPrete, T. A. (2021). Training regimes and skill formation in France and Germany: An analysis of change between 1970 and 2010. *Social Forces*, 99(3), 1113–1145. <https://doi.org/10.1093/sf/soaa037>
- Fernández, J. T. (2013). Professionalisation of teaching in universities: Implications from a training perspective. *International Journal of Educational Technology in Higher Education*, 10(1), 345–358. <https://doi.org/10.7238/rusc.v10i1.1471>
- Forster-Heinzer, S. (2013). *Against all odds. An empirical study about the situative pedagogical ethos of vocational trainers*. Sense Publishers.
- Gázquez, J. L. R., Delgado, M. V. B., Gras, J. J. O., Lova, J. G., Gómez, M. V. G., & Zbiec, M. (2021). Lack of skills, knowledge and competences in higher education about industry 4.0 in the manufacturing sector. *Revista Iberoamericana de Educación a Distancia*, 24(1), 285–313. <https://doi.org/10.5944/ried.24.1.27548>
- Hamby, J. V. (1992). Vocational education for the 21st Century. National Dropout Prevention Center.
- Gössling, B. (2016). All new and all outcome-based? The German qualifications framework and the persistence of national governance approaches. *Journal of Education and Work*, 29(5), 540–561. <https://doi.org/10.1080/13639080.2014.998181>
- Harm, S. (2021). Professionalisierungsverständnisse und -bedarfe des Berufsbildungspersonals bei Bildungsdienstleistern im Kontext der einwirkenden Arbeitsbedingungen und der wahrgenommenen Aufgabenfelder. M. Kohl, A. Diettrich & U. Faßhauer (Eds.), *"Neue Normalität" betrieblichen Lernens gestalten. Konsequenzen von Digitalisierung und neuen Arbeitsformen für das Bildungspersonal* (pp. 53–68). AG BFN-Band.
- Harm, S., & Neumann, K. (2020). Der Berufsalltag des beruflichen Weiterbildungspersonals – Analyse der wahrgenommenen Aufgabenfelder und der bedingungsgebenden Arbeitskontexte. *berufsbildung – Zeitschrift für Theorie und Praxisdialog*, 185, 8–10.
- Hattie, J., & Yates, G. C. (2013). *Visible learning and the science of how we learn*. Routledge.
- Hippach-Schneider, U., Krause, M., & Woll, C. (2007). *Vocational education and training in Germany*. Short description. CEDEFOP.

- Janssens, L., Smet, K., Onghena, P., & Kyndt, E. (2017). The relationship between learning conditions in the workplace and informal learning outcomes: A study among police inspectors. *International Journal of Training and Development*, 21(2), 92–112. <https://doi.org/10.1111/ijtd.12095>
- Kennedy, A. (2005). Models of continuing professional development: A framework for analysis. *Journal of In-service Education*, 31(2), 235–250. <https://doi.org/10.1080/13674580500200277>
- Klein, I., Saniter, A., Busch, J. A., Tütlys, V., Genuté, G., Rutkienė, A., Perini, A., Tacconi, G., Sartori R., & Ceschi, A. (2020). Profiles and competences of VET teachers and trainers - Comparative report on the development of teaching competences of VET teachers and trainers in Germany, Lithuania and Italy. *ITB Research Reports*, 69. <https://doi.org/10.26092/elib/195>
- Krause, S., Kremsner, G., Proyer, M., & Zahnd, R. (2019). Doing participatory stories research – Detoxing narratives. In M. H. Hoveid, L. Ciolan, A. Paseka & S. M. da Silva (Eds.), *Doing educational research: Overcoming challenges in practice* (pp. 114–131). SAGE Publications.
- Lambert, M., Vero, J., & Zimmermann, B. (2012). Vocational training and professional development: A capability perspective. *International Journal of Training and Development*, 16(3), 164–182. <https://doi.org/10.1111/j.1468-2419.2012.00402.x>
- Li, J., & Pilz, M. (2021). International transfer of vocational education and training: A literature review. *Journal of Vocational Education & Training*. <https://doi.org/10.1080/13636820.2020.1847566>
- Martin, A., Lencer, S., Schrader, J., Koscheck, S., Ohly, H., Dobischat, R., Koscheck, S., & Rosendahl, A. (2016). *Das Personal in der Weiterbildung. Arbeit- und Beschäftigungsbedingungen, Qualifikationen, Einstellungen zu Arbeit und Beruf*. Bertelsmann. <https://doi.org/10.3278/85/0015w>
- Martin, J. (2018). Skills for the 21st century: Findings and policy lessons from the OECD survey of adult skills. *OECD Education Working Papers*, No. 166, OECD Publishing. <https://doi.org/10.1787/96e69229-en>
- Mayring, P. (2014). *Qualitative content analysis: Theoretical foundation, basic procedures and software solution*. NBN Resolving. <https://nbn-resolving.org/urn:nbn:de:0168-ss0ar-395173>
- Merriam, S. B. (2018). Adult learning theory: Evolution and future directions. In K. Illeris (Ed.), *Contemporary theories of learning* (2nd ed., pp. 83–96). Routledge. <https://doi.org/10.4324/9781315147277>
- Mutohhari, F., Sutiman, S., Nurtanto, M., Kholifah, N., & Samsudin, A. (2021). Difficulties in implementing 21st century skills competence in vocational education learning. *International Journal of Evaluation and Research in Education (IJERE)*, 10(4), 1229–1236. <http://doi.org/10.11591/ijere.v10i4.22028>
- Oeben, M., & Klumpp, M. (2021). Transfer of the German vocational education and training system—Success factors and hindrances with the example of Tunisia. *Education Sciences*, 11(5), 1–25. <https://doi.org/10.3390/educsci11050247>
- Pilz, M., & Wiemann, K. (2021). Does dual training make the world go round? Training models in German companies in China, India and Mexico. *Vocations and Learning*, 14(1), 95–114. <https://doi.org/10.1007/s12186-020-09255-z>
- Rauner, F. (2021). *Measuring and developing professional competences in COMET*. Springer.
- Renold, U., Bolli, T., Caves, K., Bürgi, J., Egg, M. E., Kemper, J., & Rageth, L. (2017). Comparing international vocational education and training programs: The KOF Education-Employment Linkage Index. *KOF Studien*, No. 98. <https://doi.org/10.3929/ethz-b-000184565>
- Rintala, H., & Nokelainen, P. (2020). Vocational education and learners' experienced workplace curriculum. *Vocations and Learning*, 13(1), 113–130. <https://doi.org/10.1007/s12186-019-09229-w>

- Sandal, A. K. (2021). Vocational teachers' professional development in assessment for learning. *Journal of Vocational Education & Training*. <https://doi.org/10.1080/13636820.2021.1934721>
- Schley, T., Kohl, M., Diettrich, A., & Hauenstein, T. (2020). *Die Akzeptanz des Fortbildungsabschlusses "Geprüfte Berufspädagogin/Geprüfter Berufspädagoge". Studie im Rahmen der Berufsbildungsforschungsinitiative des BMBF*. NBN Resolving. <http://nbn-resolving.org/urn:nbn:de:0111-pe-docs-212703>
- Sloane, P. F. E., Emmler, T., Gössling, B., Hagemeyer, D., Hegemann, A., & Janssen, E. A. (2018). *Berufsbildung 4.0 – Qualifizierung des pädagogischen Personals als Erfolgsfaktor beruflicher Bildung in der digitalen Arbeitswelt*. Eusl-Verlagsgesellschaft mbH.
- Solga, H., Protsch, P., Ebner, C., & Brzinsky-Fay, C. (2014). *The German vocational education and training system: Its institutional configuration, strengths, and challenges* (WZB Discussion Paper No. SP I 2014-502). <https://bibliothek.wzb.eu/pdf/2014/i14-502.pdf>
- Trilling, B., & Faden, C. (2009). *21st Century Skills. Learning for Life in our Times*. Wiley.
- Tynjälä, P. (2008). Perspective into learning in the workplace. *Educational Research Review*, 3(2), 130–154. <https://doi.org/10.1016/j.edurev.2007.12.001>
- Ulmer, P. (2019). *Die Novellierung der AEVO von 2009. Ein Paradigma für die Qualitätsentwicklung in der beruflichen Bildung? BiBB Berichte zur Berufsbildung*. Verlag Barbara Budrich.
- Urbani, C. (2020). Teacher continuing professional development and team-working competences: A case study from Italy. *International Journal for Research in Vocational Education and Training*, 7(2), 237–255. <https://doi.org/10.13152/IJRVED.7.2.6>
- Winch, C. (2020). The learning outcome approach to European VET policy tools: Where are the arguments and the evidence? In M. Pilz & J. Li (Eds.), *Comparative vocational education research. Internationale Berufsbildungsforschung* (pp. 81–95). Springer. https://doi.org/10.1007/978-3-658-29924-8_5

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