

## **Research Design and Preliminary Results of an Exploratory Study on Technical and Vocational Education and Training in Poland**

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### **Abstract**

TVET in Poland has a long tradition and distinctive features set in Polish geographic, economic and social context. Even though there is no unique and specific TVET law in Poland like for example the Vocational Training Act in Germany, numerous educational reforms conducted in Poland have been instrumental to shaping the contemporary form of this type of education. The last educational reform from 2017 introduced changes that profoundly influenced the structure of TVET in Poland.

Amidst these momentous changes the research team from TU Dortmund and the education provider VESBE e.V. started an “Explanatory Study on the TVET in Poland” as a research project with a multi-method-approach. Embedded in the context of international Technical Vocational Education and Research, the main objective is to have a closer look at both TVET Systems in Poland and Germany. In more detail, and by using a comparative approach, the project aims to identify central elements of dual learning approaches with regard to transfer options on different levels of the TVET Systems (focusing on companies located in Poland as well as in Germany).

This article presents the theoretical frame, the applied methodology, preliminary findings as well as crucial challenges of the project. It is a contribution to the academic discussion on Polish TVET at the secondary level that not rarely has been overshadowed in the Polish scholarly tradition by voices focused primarily on technical education at the university level.

**Keywords:** *International TVET Research, Transfer of Dual System-Elements, Cooperation of Learning Environments, Poland*

### **1 Introduction**

Technical and Vocational Education and Training (TVET) in Poland has its own long history, distinct structures and vivid dynamics, which has been reflected on numerous occasions in subsequent educational reforms that took place in Poland after 1989. It has been reshaped over the course of history, depending on the sociopolitical, demographic and technological grounds. The most recent educational reform from 2017 introduced, to some extent, new frames of the Polish TVET and provided the research ground for the study described in this article.

The undoubtedly challenging, yet promising aim of this study is to explore the Polish TVET system from a possibly wide perspective. On the other hand, the objective of the authors of this paper is to present its results in a detailed way, so that it is feasible to articulate definite and case-bound suggestions for Polish TVET system that may have a positive and long-lasting influence on its development.

The study has been based on the research tools described in Chapter 3, which consist of structured interviews, as well as surveys designed for teachers and students. Moreover, in some cases additional interviews have been carried out with business and state administration representatives. Since the aim of this study is to obtain a broad picture of the Polish TVET landscape, a wide spectrum of stakeholders has been invited to share their opinions, approaches, represent their achievements, as well as ideas for the further development of Polish TVET.

The aim of this article is to present the preliminary results of the Explanatory Study on the TVET in Poland. While this introduction outlines the main information regarding this research project, Chapter 2 includes project description and its main goals, as well as it describes the selected industries and the main stakeholders who participated in the project. Chapter 3 presents the research design and the research methodology in detail, while Chapter 4 is focused on a particular test sample of the described research. The preliminary findings of the research have been highlighted in Chapter 5, while significant challenges and experiences have been mentioned in Chapter 6.

TVET in Poland has been the subject of numerous academic publications since several decades. Nevertheless, the vast majority of scientific literature is primarily devoted to the technical education at the university level, with dominant part of it being published in journals of various Polish technical universities (Pol. *Politechnika*). Nevertheless, some early publications related to TVET can be traced back to the first half of the 20<sup>th</sup> century, such as *Informacje o Rocznych Ślusarsko-Monterskich kursach mechaników lotniczych Towarzystwa Wojskowo-Technicznego* by Towarzystwo Wojskowo-Techniczne from 1939 devoted to 1 year long courses for welders and fitters. Nevertheless, the main development of academic publications focused on TVET at the secondary level of education took place at the turn of the 20<sup>th</sup> and 21<sup>st</sup> centuries. Right after the collapse of the communist system in Poland the place of TVET for secondary level students in the educational system was discussed in the publication *Edukacja zawodowa młodzieży szkół średnich w systemie stacjonarnego kształcenia wyższego* by R. Parzęcki in 1991. The conundrum of technical education, which is the relation between TVET and job market, has been the subject of the book *Edukacja zawodowa a rynek pracy* edited by S. Borkowska in 1999. Social and economic changes in relation to TVET constitute the main topic of the publication *Edukacja zawodowa w aspekcie przemian społeczno-gospodarczych: wyzwania, szanse, zagrożenia* from 2007, edited by R. Gerlach, while a valuable contribution to the discussion on TVET in Poland is a publication devoted to the participation of persons with disabilities in this sector of education *Edukacja i aktywizacja zawodowa osób z niepełnosprawnościami* from 2011, edited by M. Franczak. A contemporary context of TVET education is offered in the work *Edukacja zawodowa -*

*wybrane problemy i konteksty* edited by K. Sadowska and T. Sadowski = from 2014. The newest publications focused on TVET in Poland have been highlighted in Chapter 2: Project description and its main goals.

The analysis of these first findings allows the identification of the following challenges. First of all, the dual TVET system in Poland is not understood in the same way as it is commonly interpreted in Germany. The terminology related to this sector of education also differs from the terminology applied in the German model, which requires an extra sensitivity on the part of the research team from TU Dortmund. Secondly, the exploratory study started amidst an educational reform. On the one hand, these circumstances offer a unique chance to see how the system is being reshaped and what the reaction of main stakeholders is towards these changes. On the other hand, it might also mean for the final results of this exploratory study that in a long run perspective, some aspects of the Polish TVET system might change meanwhile and adjust to the changes implemented in the 2017 reform. Thirdly, the multilingualism of the project has its disadvantages and its blessings. The stakeholders and respondents shared their views in their native, i.e. Polish language, which ensured the highest degree of clarity and understandability. On the other hand, the results of interviews had to be interpreted into German and then transcribed from audio recordings into paper. English is taught as a compulsory foreign language in the Polish education system and many of the stakeholders speak it on various levels of proficiency, yet it was not spoken by all interview partners and therefore, in order to ensure the highest quality of the study results, it was used only in few cases as a leading language of the interview.

## **2 Project Description and its Main Goals**

The main goal of this study is to formulate suggestions for the further development and quality improvement of the TVET system within the general educational strategy in Poland. Secondly, the expected result is to identify and match the needs of the Polish and German companies operating in Poland with the current shape of the Polish TVET system. Moreover, this study aims at analyzing needs-oriented qualifications solutions within the TVET system in Poland based on the work-related dimension.

In order to grasp the features of the Polish TVET system and identify the perspectives for the implementation of development perspectives, the Explanatory Study on the TVET in Poland (“Sondierungsstudie zur Beruflichen Bildung in Polen”, SBBP) started in September 2018 and will be completed in February 2020. This project has been jointly designed and implemented by the team of researchers from the Institute of General Educational Sciences and Vocational Pedagogy TU Dortmund and Association for European Social Work, Education and Training (VESBE e.V.).

The academic team from the TU Dortmund is responsible for carrying out the explanatory study, evaluation and report creation based on the collected data, as well as publication of the

research results. The TU Dortmund academic team will strive for achieving the following goals:

1. Analyze the needs of TVET in Poland (vocational training, as well further education in Poland and Germany)
2. Formulate the suggestions for introducing selected elements of dual training for vocational schools and companies
3. Develop suggestions on how to implement changes in the future on the policy-level (cooperation on the ministerial level), while taking into consideration additional projects.

The project coordination belongs to the scope of responsibilities of the Association for European Social Work, Education and Training (VESBE e.V.). The role of VESBE in the project encompasses: project coordination, administration and general leadership. After the research data will be fully collected, evaluated and published by the academic team from the TU Dortmund, VESBE e.V. will prepare the scenarios for the transfer of data results for their potential future implementation, as well as organize and carry out workshops and events related to the project.

Furthermore, for the success of the explanatory study have been carrying also the local service providers. An essential part has been played by the Polish-German Chamber of Commerce and Industry that has made it possible for the project partners to access a wide range of TVET stakeholders in Poland, meet them in person, travel to various parts of Poland and see the multi-faceted landscape of Polish TVET.

The dynamic and comprehensive character of SBBP lies in the fact that the project team carried out research in different regions of Poland, recorded over 70 hours of interviews with the relevant stakeholders, collected over 300 questionnaires from the students and talked to around 50 interview partners over a relatively short period of time in December 2018, March 2019, April 2019 and Mai 2019. The next step in the project development was the organization of the validation workshop on the 17<sup>th</sup> and 18<sup>th</sup> of September, where the stakeholders have been invited to share their knowledge, experiences and the opinions on the current state and the future of the Polish TVET.

From the point of view of the authors of this article, the essential role of SBBP is that it might stir innovation among the stakeholders of the TVET system in Poland. In the 21<sup>st</sup> century there have not been many comprehensive studies published in Poland, which would be devoted to this topic. However, those most prominent include *Współpraca firm z sektorem edukacji. Raport z badania* by A. Emerling, A. Orlińska and S. Węsierska from 2010, *Edukacja w Polsce – konieczność reformy i nowe wyzwania* by M. Szyszka from 2010, *Badanie funkcjonowania systemu kształcenia zawodowego w Polsce. Raport końcowy* by the Polish Ministry of National Education from 2011, *System edukacji wobec wyzwań rynku pracy w Polsce* by J. Stasiak from 2011, as well as *Die Berufsbildung in Polen. In der*

*Perspektive des Wandels und der Anforderungen der Wirtschaft* by M. Mazik-Gorzelańczyk (Friedrich Ebert Foundation) from 2016.

The focal points of the SBBP are two industrial sectors: automotive industry and logistics. The choice of these sectors was based on the following reasons. First of all, there are many technical and vocational schools in Poland where students can obtain professional qualifications within these fields. Secondly, Poland enjoys a good reputation as a country in which such companies as Opel, MAN and Volkswagen decided to establish their branches and hire Polish employees. Thirdly, the location of Poland on the map of Europe makes it an important player in the field of logistics.

Apart from the choice of industries, the authors of this article decided to highlight the following aspects of TVET in Poland: digitalization and elements of dual training as well as gender balance and improving the image of TVET in Poland. Digitalization of production processes changes the learning and teaching processes at schools, which is why this topic has been given prominence in the study. Moreover, the notion of dual training, its terminology, organization and functionality have also been brought to discussion in order to compare the Polish TVET system with other TVET systems, as well as to promote some ideas related to the transfer of elements of dual training. Furthermore, there is an increasing number of women interested in the TVET in Poland and this trend is worth analyzing in this study, as well as enhancing in the future. Last but not least, the image of TVET in Poland certainly needs brushing up and the ideas of how to do that have also been collected, analyzed and formulated.

A platform for exchange the ideas of TVET stakeholders in Poland was prepared and implemented by the SBBP project team members during the validation workshops that took place on the 17<sup>th</sup> and 18<sup>th</sup> of September 2019 in Warsaw. During these meetings, employees of regionally active companies had the opportunity to discuss essential matters of TVET with vocational school teachers and other stakeholders in such a global work frame as a validation workshop. Even though it is not the designed goal of this project, it is apparently and already an important achievement of the described study that the TVET stakeholders in Poland might have realized the great interest in all groups of engaged Polish TVET partners to cooperate and enhance the quality and efficiency of this sector of education.

### **3 Research Design**

In the following chapter, the targeted products as well as the methodological approach of the research activities are described. In particular, the temporal dimension of the project and the development of the survey instruments, which were designed and applied in a multi-methodological approach, will be detailed.

### **3.1 Objectives and Products**

The project's main interest consists of the identification of implementing perspectives for central elements of dual vocational training in Poland. From the perspective of the project partners, the project can be regarded as successful if the research results serve to derive and formulate recommendations for action, which at the same time could be a starting point for following development and implementation projects at various levels, which are generally aimed at optimizing TVET in Poland and Germany. Furthermore, the results aim to serve the further development of the German vocational education and training system under consideration of Polish models and concepts of training.

The following research objectives are derived from the following assumption: (1) to analyze the development potential of TVET in Poland at the micro, meso and macro levels; (2) to identify those aspects of the dual system in Germany that are suitable for transfer activities to Polish TVET; (3) to survey the specific TVET needs of selected economic sectors in Poland.

The work phases of the project realization are designed accordingly to the research objectives. The organizational preparation of the study is followed by an analysis with three focal points. Firstly, the analysis focuses on the framework, objectives and the current situation of the labor market, the economy and the education sector with special consideration of dual approaches for vocational training in Poland. Here, current development trends are tapped and strengths and weaknesses of vocational training in Poland are examined. Secondly, the analysis of the qualification needs of companies in Poland for selected vocational fields, including those with high growth potential (cf. European Centre for the Development of Vocational Training 2015) with the resulting demand for skilled workers in the corresponding companies. Thirdly, the analysis of the objectives and attitudes of the social partners in Poland, based on the identified priority sectors.

The analysis is followed by triangulation and validation of the results in order to gain insights into the requirements and developmental potential of the Polish vocational training system with a view to strengthening dual vocational training. At the same time, it will be discussed which elements and principles of the Polish system could form the basis for bilateral cooperation and transfer studies in vocational education and training.

### **3.2 Methodological Approach and Data collection**

The intended findings are to be obtained through an empirical approach. According to the principle of a multi-method approach (cf. Creswell, J. W. & Plano Clark, V. L. 2011), qualitative and quantitative methods are combined and their separate results triangulated in order to gain as broad an insight as possible into the object of investigation. Open explorative interviews and guideline-based interviews are used as qualitative instruments. Questionnaires with predominantly closed item formats are used as quantitative instruments. The results are presented as theses and validated by experts and study participants in a workshop format.



The qualitative surveys are carried out as part of several study trips to Warsaw and Poznan, as well as Silesian, Podlaskie, Podkarpackie and Świętokrzyskie Voivodeships. The guided interviews have been conducted by two research assistants and the representative of VESBE e.V., accompanied by an interpreter. The interview partners usually have been visited and interviewed at their places of work or learning. The guidelines themselves are understood as flexible instruments and, depending on the knowledge gained, supplemented by questions that appear supportive to collect more details.

As a quantitative instrument, questionnaires are submitted to trainees. The questionnaires to trainees are sent in paper form by Polish contractors to the institutions ready to participate in the survey. The processing by the addressed pupils and trainees, mostly in class, is the responsibility of these institutions.

The validation workshops served to discuss preliminary results and follow on from the survey phase. They represent the final methodological step to ensure the quality of the study results before the findings and recommendations will be derived and published.

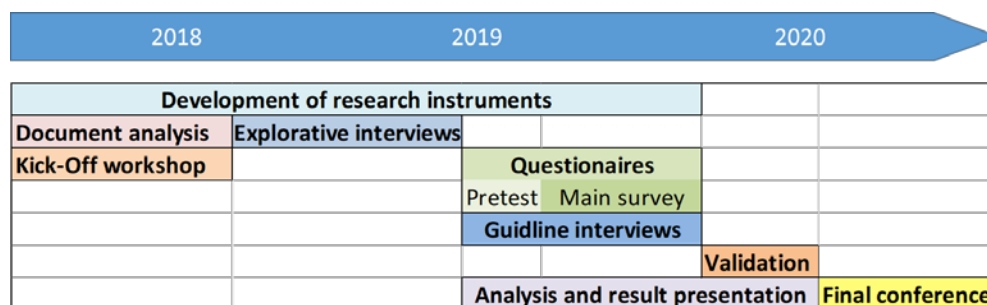


Figure 1: Timeline and activities of the research process

### 3.3 Design and Evaluation Methodology of the survey instruments

In the research process, various quantitative and qualitative instruments and methods are used in the different phases, which seemed appropriate to the above-mentioned objectives of the phases.

The qualitative document analysis (Doering & Bortz 2016, 540; Mayring 2010) begins with the collection and evaluation of current publications, studies and other documents in order to gain an overview of the design and characteristics of the Polish TVET system and in particular of its design premises and the actors and conditions that define them. On the one hand, research questions are to be concretized from this, which serves to derive guiding questions for the construction of the interview guideline. On the other hand, possible interview partners are to be identified. Current and intended developments are to be compiled in particular from education policy strategy and position papers.

The explorative interviews took place as open conversations, which are not oriented towards guiding questions, but either serve an explorative, general documentation of knowledge or are oriented towards special topics which a corresponding interlocutor prefers in reference to his

function or expertise. Discussions are being held along the entire spectrum of central actors from business, politics, education and the social sector. Similar to the objective of document analysis, the aim was to gain insights into the design of the interview guidelines and other relevant actors.

The guideline interviews (Döring & Bortz 2016; Gläser & Laudel 2004) serve qualitative-empirical data acquisition as a basis for in-depth analysis of the research questions and hypotheses raised after document analysis and explorative interviews. The guiding questions were constructed along the objectives formulated in the project outline and, if necessary, after the explorative interviews or in the course of the survey with the guideline interviews, updated and supplemented. The guiding questions were also categorized in order to support a discussion that equally addressed all research questions. The categories are:

1. *Development and quality improvement of Polish TVET at system level*, where questions on education policy, education system and education infrastructure were located, but also questions on the social conditions in TVET are embedded.
2. *Analysis of the qualification needs from the point of view of the employer/employer-or employee representatives/politics*; in this case the question was asked which content of the vocational training offer has to be changed in order to be better adapted to the requirements of the labor market.
3. *Transfer recommendations*; questions were placed here with the aim of identifying possibilities for implementing the findings in interventions in the Polish or German TVET systems.
4. *Cross-section*; this category covers questions concerning the social conditions in and around the Polish TVET system as well as questions concerning the general assessment of the state of vocational education and training by the interview partners.

The final version of the interview guide comprises 25 questions, with category (1) being assigned seven questions, category (2) four questions, category (3) two questions and category (4) ten questions. Two further questions were assigned to both categories (1) and (2).

In order to quantitatively confirm the hypotheses and in order to deepen the knowledge gained from the qualitative research elements, a questionnaire was designed for vocational school students. The design was based on nominal multiple-choice, open-response and a combination of both formats as well as ordinal liker scales. With a total of 134 items (5 open responses, 7 multiple-choice, 4 combinations and 118 liker scales), the questionnaire addressed the areas of sociodemographic context, infrastructural learning and training conditions, methodological and didactic training design, school learning climate, in-company learning climate and educational affirmation. The collected data will be analyzed due to a frequency analysis and, where possible, a reliability analysis and a confirmatory factor analysis focused on the areas of investigation described above.



In the final step of the research process, the findings gained by evaluating the survey results have been the subject of a validation workshop. In terms of the fundamental quality criteria of empirical social research, this served to verify the validity of the findings derived from the survey data. The preliminary findings were presented to a panel of experts in the form of statements and the answers and group discussions were summarized to determine whether a specific finding can be assumed to be valid or not. The validation workshop was open-ended, i.e. whether the evaluation of the validity of individual or all findings is positive or negative is irrelevant for the evaluation of the achievement of its objectives. Such findings found to be invalid by the panel of experts are either to be corrected where reasonably possible, discarded or made controversial in the report.

#### **4 Sample**

In the course of the qualitative survey, 10 explorative interviews, corresponding to 618 minutes, and 40 guideline interviews, corresponding to 1539 minutes, were recorded. Out of these, 8 explorative interviews, corresponding to 545 minutes, and 28 guideline interviews, corresponding to 1202 minutes, were transcribed. The assignment of the recorded interviews to the functional systems results in 38 interviews for the field of education, corresponding to 1445 minutes, 10 for the field of economics, corresponding to 649 minutes, and 1 each for the field of politics, corresponding to 61 minutes, and social affairs, corresponding to 56 minutes. In the field of education, mainly teachers, school principals and company trainers were interviewed, in the field of economics, for example, representatives of the common group of interests of the automotive industry as well as managing directors and personnel managers, in the field of politics, a conversation was held with the representatives of the Education Department of the City of Warsaw, and in the field of social affairs, a member of the Polish teachers' trade union with the largest number of members (Polish Teachers' Union) was interviewed.

However, the significance of these recording frequencies and lengths is limited for two reasons. Firstly, not all explorative interviews were recorded; for example, discussions with the representatives of Polish ministries were not recorded early in the survey phase, but the supportive comments were noted. Secondly, the number of participants in individual interviews varies greatly. As a rule, guideline interviews with teachers were usually conducted with only one interviewee, whereas conversations with representatives of employers' associations, for example, took place with up to eight interviewees at the same time.

In order to illustrate the quantitative aspect of the research project, the questionnaires that have been described above were sent to schools and training centres, who then handed them over to the addressees. Altogether 206 questionnaires were used for the analysis.

## 5 First findings

An evaluation of the interviewers' notes prior to the detailed analysis of the transcripts indicates various central results.

The reform of the Polish education system initiated in 2017, which is currently in its finalization phase, is perceived differently by various surveyed actors and stakeholders. The majority of those questioned stated more or less clearly their concern about central aspects of the current situation. Despite the purpose of the latest reform, it seems to have nearly no significant effect so far. At the same time, positive developments, such as an increasing implementation of internships, have been mentioned.

Polish and Polish-based companies are increasingly willing to participate in vocational training. This is done on the one hand through participation in training, e.g. by creating internships or sponsoring patronage classes. On the other hand, business interest groups are trying to become more involved in the organization and design of training, for example by initiating new job profiles or curricula. This involvement tends to be limited to large and financially strong companies; small and medium-sized enterprises are currently deterred from participating in training by three factors: firstly, the unclear legal situation under which such participation takes place; secondly, time and effort consuming character of such participation; and thirdly, the concern that the fully trained junior staff might choose another employer after the training.

While summarizing the interview results, both the profession of being a (vocational) school teacher and vocational training in general do not seem to enjoy the same standing in comparison to e.g. engineers, skilled workers or academic occupations. For teachers, this is reflected above all in the employment situation in contrast to German teachers and employees in the private sector, both in terms of remuneration and job security. Vocational education and training, on the other hand, tends to be regarded as less attractive than comprehensive secondary education and as an intermediate step towards a subsequent course of study, to which trainees are often strongly encouraged by their parents.

With regard to the material and personnel resources of the public vocational training institutions, there are strong discrepancies between urban regions, above all Warsaw, and more rural regions, especially in eastern Poland. This is expressed essentially in the fact that in urban areas vocational schools with higher-quality training courses can respond to the needs of the regional labor market than is possible for poorly financed schools in rural areas, which often have insufficient resources to offer only those training courses for which teachers are available, without being able to take the requirements of the labor market into account.

The equipment situation needs to be improved and it is combined with a lack of institutionalized communication and coordination between schools, authorities and enterprises in economically weaker regions. These factors result in an insufficient strategic orientation of vocational schools at the regional level, the offers of which are perceived as unattractive for both pupils and companies.

## 6 Challenges and lessons learned

The surveys carried out in Poland within the framework of the study led not only to findings directly related to the objectives of the study and the research questions, but also to the insights that can be understood as generally valid empirical values on the one hand and country-specific challenges on the other hand.

In general, it has proved useful to conduct the interviews consistently in the native language of the interviewees, using an interpreter. Knowledge of English and German is widespread and it has been shown that both languages could often have been used by Polish native speakers. However, the use of foreign languages was avoided in order to allow a fluent flow of speech and to prevent the loss or misleading articulation of the interviewees' thoughts.

The interpretation of the collected data poses a challenging task, since it is carried out during an advanced and not yet completed reform of the Polish education system. Two assumptions can be pointed out: on the one hand, interesting insights can be gained into this reform process, which in particular can be inferred from dynamics of all kinds in the Polish vocational training system and environment. On the other hand, there is a risk that the results of the study will only provide a selective glimpse into the education system which might change further after the end of the study and for which the consequences of precisely this change are far from foreseeable. Under this second assumption, the representativeness of at least some of the central results of the study could only be assumed to be particularly limited.

In order to understand the object of the study between the German-influenced research group and the Polish actors, the terms used in the interviews had to be taken into account. The same cannot be assumed on the Polish side for such terms which are clearly connoted in German technical usage. While, for example, the term "dual vocational training" is academically and legally unambiguous in the German education system, a broader and sometimes very different interpretation of it was found in Poland, which in particular results from the little regulated role of the companies in vocational training in Poland.

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