

The Methods for Improving Vocational Education and Training in Modern Conditions

Elviza Abiltarova
National Academy of Pedagogical Sciences of Ukraine

Hanna Poberezhets
Mykolayiv National Agricultural University

Iryna Androshchuk
Khmelnyskyi National University

Valentina Burak
Kherson State University

Rapid technological development and globalization in all areas of society today create new challenges to the quality of specialists' work, which, in turn, toughens the requirements for the professional education of workers in all economic sectors. In the context of strengthening integration processes, the issue of theoretical and methodological justification of the development directions of the specialists' professional training process acquires high priority. This article aims to analyze the scientists' opinion concerning the status and existing tendencies in vocational training, as well as to reveal the main development factors, problems, and priority directions of vocational training development methodology optimization in modern conditions. According to the research results, we outlined the normative base regulating the sphere of vocational education; highlighted the importance of the theoretical and methodological basis of personnel training within the context of professional training. Furthermore, as the result of the online questionnaire survey, we determined the opinion of teachers of vocational education institutions concerning the most critical factors, problems, and perspective directions.

Keywords: vocational education, vocational education institution, skilled workforce, vocational training, vocational education development methodology, modernization of vocational education

INTRODUCTION

Globalization and integration processes are taking place worldwide, increasing the urgency of the problem of competitive workers' professional training, whose qualifications would meet the market needs.

The actual need to pay more attention to the professional training problems arises due to the rapid dynamics of information society development, changes in the labor market requirements for specialists'

competence, the need for their rapid professional adaptation, and, accordingly, the need for continuous training and professional development.

With the dynamic changes in the labor market and the development of socio-economic and information technology, vocational education and training functions are significantly expanded. These functions are achieved according to the global trends in professional development through lifelong learning. The development prospects of this sector determine the priority areas of socio-economic progress, the formation of national education systems as a significant factor in society's economic and spiritual development, and the need to adapt to the democratic and market changes.

The theoretical section of this study provides scientists' opinions on the regulatory framework, priorities, and successful professional education factors.

The practical section of the study contains data on the essential prerequisites for vocational education, factors determining the development of vocational education, the main problems of vocational education development, and priority directions of its modernization.

According to the study results, the factors influencing the development of the vocational training system have been established, and the most promising directions of work for the optimal development of the vocational education sphere have been formed.

LITERATURE REVIEW

At the end of the XX century and the beginning of the XXI century, international organizations adopted several important documents regulating the educational sphere, human resources development, and defining the process of professional training worldwide. In addition, the results of many studies of international organizations are constantly published, confirming the new conceptual approaches to planning the development of this fundamental socio-economic sphere.

The documents methodologically crucial for solving the problems of vocational education related to accelerated economic, social, and technological development include:

- 1) Report of the International Commission on Education for the XXI century, presented by UNESCO in 1996, the philosophical title is "Education: an unknown treasure";
- 2) Recommendations of the Second UNESCO International Congress on Technical and Vocational Education "Vocational Education and Training: A Vision for the XXI century";
- 3) Conclusions on the Development and Training of Human Resources, adopted by the General Conference of the International Labor Organization at its 88th session in 2000.

For many years the subject of vocational education has been the focus of international organizations whose activities aim to promote educational and economic development. UNESCO, OECD (Organization for Economic Cooperation and Development), and the Rome Club have played an essential role. The documents and recommendations of these and other structures point out the need to expand international cooperation to combine the efforts of different states in developing vocational education in the context of constant economic, social, and technological changes (Kremen, Luhovyi & Topuzov 2021).

According to L. Freund and M. Gessler, the need to justify new approaches to the quality training of professional personnel arises from the need for stable development of individual industries in the global and national context. Therefore, the above predetermines the relevance of improving vocational education and training effectiveness based on its forward-looking development (Freund & Gessler, 2017).

As stated by A. Mathur, M. Sharan, S. Chakraborty, and S. Mullick, it is vital to take into account the forecasts of economic development, labor market, its objective needs, renewal of educational systems, as well as the results of research, progressive ideas of world experience in vocational education and, in particular, adult education, in developing a methodical plan of vocational training development (Mathur, Sharan, Chakraborty & Mullick, 2022).

As M. Ramasamy notes, vocational education institutions can be specialized, multi-profile, multi-level, and multifunctional in a market economy, forming various educational and professional associations (Ramasamy, 2020).

Nowadays, the issue of high school students' profile education acquires particular importance. As stated in work by A. Seitamaa and E. Hakoköngäs, this type of education, in particular, can be carried out based on professional educational institutions and production (Seitamaa & Hakoköngäs, 2022).

Taking into account the results of pedagogical, psychological, economic, technical, and other studies (Pylavets, Protas, Martynets, Lyashkevich, Babysheva, Chumak & Lazorko, 2020), the issue of updating the content of vocational education and lifelong learning for different population groups deserves attention today. This type of education is regulated by the educational state standards of individual countries. It is formed taking into account industry and regional specifics at all levels of education, as well as continuity from general secondary and higher education, which provides variability and flexibility of educational and vocational programs per changes in the labor market and demand for modern professions.

According to M. Gessler, S. Bohlinger, and O. Zlatkin-Troitschanskaia, the role of social partnership in developing professional learning content will be strengthened in the coming years both at the level of particular states and in the global educational environment. This trend began to grow at the beginning of the XXI century and is now being developed (Gessler, Bohlinger & Zlatkin-Troitschanskaia, 2021).

Such a stance is supported by M. Pilz, who certifies that today, we need new approaches to managing vocational education and training at different levels: national, regional, sectoral, individual vocational education institutions, and the level of companies (Pilz, 2017).

Considering those mentioned above, the observations by S. Mcgrath, M. Mulder, J. Papier, and R. Suart argue that today more than ever the need to form a qualitatively new type of teacher in vocational education institutions, which should organically combine the functions of the teacher and master of vocational training. At the same time, the technical education teachers' training process is also improving. As a result, there is a growing demand for specialists who provide vocational training. In other words, those who offer vocational training in the workplace (Mcgrath, Mulder, Papier & Suart, 2018).

Consequently, academic, scientific, methodological, and informational support for professional training is necessary for implementing new development directions in all industries without exception.

AIMS

This study aims to analyze the opinions of vocational education specialists on the practical aspects of the development of this link in the educational system, clarify the most significant problems, and identify promising directions for vocational education and training development.

MATERIALS AND METHODS

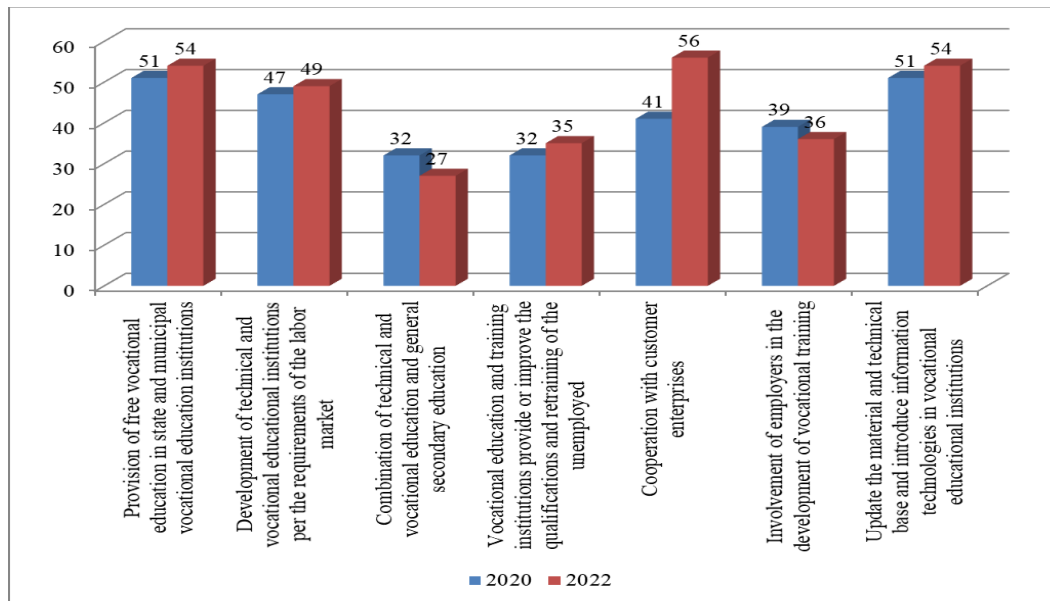
We surveyed 73 teachers of vocational education institutions in Kyiv, Chernihiv, Lviv, Ivano-Frankivsk, and Khmelnytskyi regions of Ukraine for a practical assessment of the methodological aspect of vocational education development in modern conditions. The survey was conducted in 2020 and 2022. It allowed us to trace the changes in dynamics of the specialists' opinions in the field of vocational education for 2 years. While processing the respondents' questionnaires, the average values of respondents' answer indicators per 1 person were calculated. We used the HOSTIQ service to conduct the survey.

RESULTS AND DISCUSSION

During the survey, respondents were asked about the most essential prerequisites, in their opinion, for ensuring equal access to quality vocational education and training for all. Among the aspects contributing to the development of vocational education and training opportunities, the respondents identified the following:

- 1) provision of free elementary and vocational education in public and communal vocational schools;

FIGURE 1
THE MOST IMPORTANT PREREQUISITES FOR QUALITY VOCATIONAL EDUCATION AND TRAINING FOR EVERYBODY WHO WANTS IT, %



Source: built by the authors.

- 2) development of cooperation with enterprises, institutions, organizations-customers of training;
- 3) updating the material and technical base and introducing information technologies (Figure 1).
- 4) development of various types of vocational educational institutions, professional orientation, and types of providers, taking into account demographic forecasts, regional characteristics, and labor market requirements;

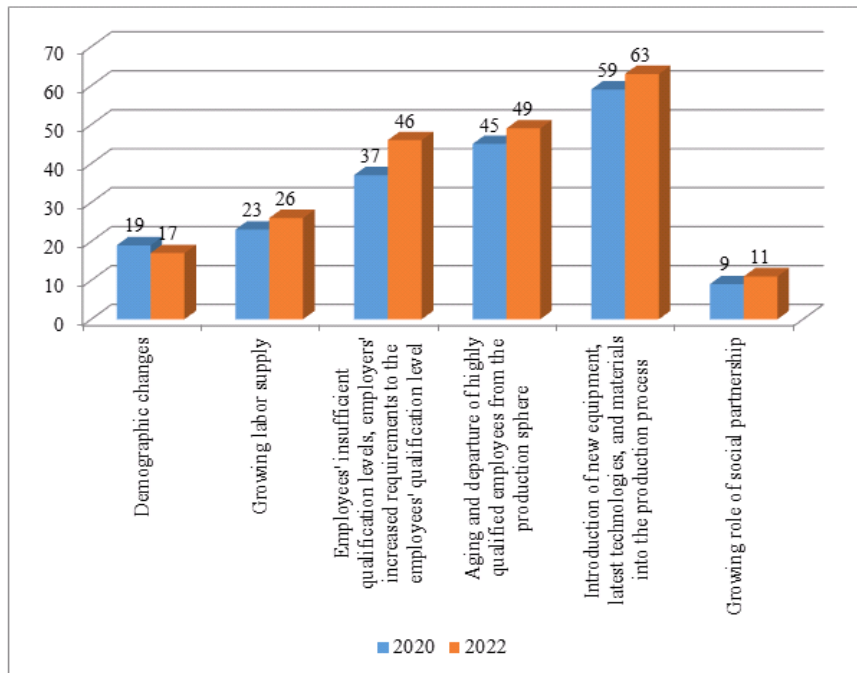
As we can see from Figure 1, the importance of these prerequisites was rated higher in 2022 than in 2020.

According to the respondents, the factors determining the development of vocational education and training are:

- 1) deepening contradictions between the growing demand for highly skilled workers in the labor market and the current level of their qualifications;
- 2) the decrease in the labor force quality due to the aging and departure of highly qualified workers from the production sphere;
- 3) introduction of new equipment, latest technologies, and materials into the production process.

The respondents believe that the increased employers' requirements to the level of employees' qualifications, the growing role of social partnership, demographic changes, and higher growth rates of labor supply compared to the growth rates of demand. However, these factors are necessary conditions influencing the quality of vocational education, but their importance is much less tangible.

FIGURE 2
FACTORS DETERMINING THE DEVELOPMENT OF VOCATIONAL EDUCATION, %



Source: built by the authors.

According to the survey participants, the main problems in the development of vocational education are (Figure 3):

- 1) methodological and theoretical issues of vocational education;
- 2) insufficient attention from state institutions and educational establishments to vocational training of the unemployed;
- 3) poor performance of educational institutions in shaping the personality of a competitive specialist;
- 4) imperfect methodology for modeling educational systems in vocational schools;
- 5) psychological regularities of training at different stages of personal and professional development.

Solution of the indicated problems requires revision of work priorities of vocational educational institutions.

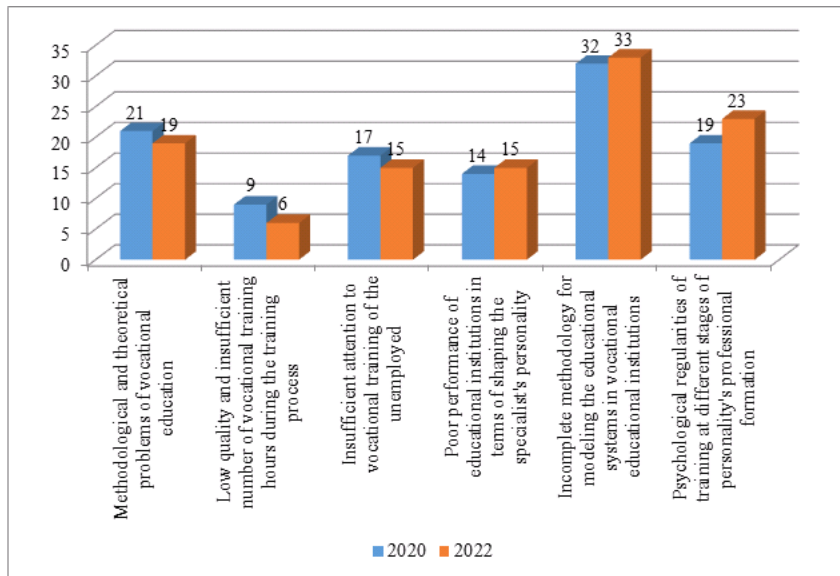
Educational institutions can eliminate these and other contradictions by modernizing the vocational education and training system.

Respondents believe that the first-priority aspects of modernization of this link in the educational system should be (Figure 4):

- 1) development and implementation of different educational directions, dissemination, and development of non-formal and informational education;
- 2) promotion of equal access of citizens to vocational training, the flexibility of their further development according to the individual educational system;
- 3) participation of employers in the creation of educational standards and enhancing the implementation of elements of the dual training system;
- 4) creation of multilevel and multidisciplinary vocational training institutions, retraining and professional development of workers and junior specialists;

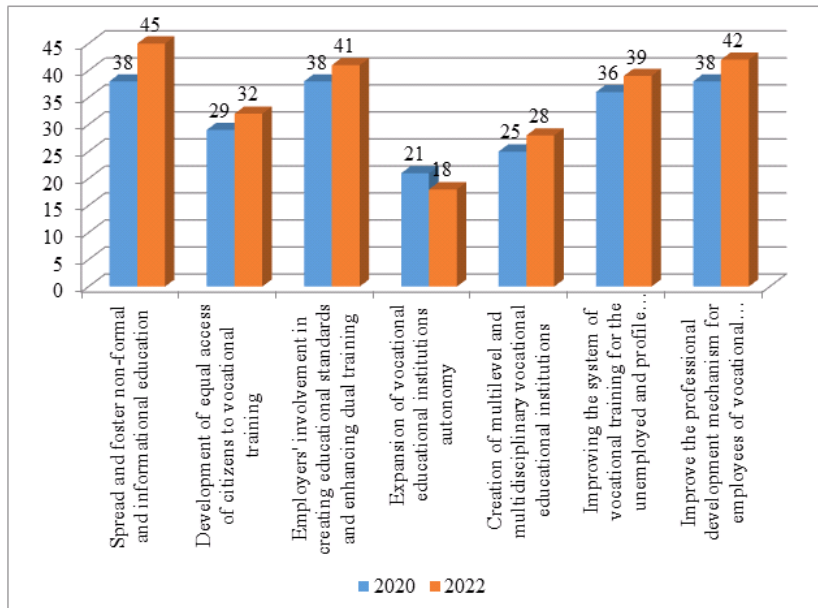
- 5) development and improvement of the system of vocational training for the unemployed, profile training for senior high school students (when they receive a complete general secondary education);
- 6) improving the professional development mechanism for employees of vocational education institutions.

FIGURE 3
THE MAIN CHALLENGES IN VOCATIONAL EDUCATION AND TRAINING, %



Source: built by the authors.

FIGURE 4
PRIORITY AREAS FOR VOCATIONAL EDUCATION AND TRAINING MODERNIZATION, %



Source: built by the authors.

Therefore, as shown by the academic research and the study results, the development of continuing professional education in the framework of its modernization today depends on the successful combination of socio-economic, psychological, educational, managerial, external, and internal factors in the development of vocational education.

A critical component and, at the same time, a prerequisite for the effectiveness of this process is the training of specialists, particularly teachers of vocational education institutions, including specialist teachers and production supervisors (Thianthai & Sutamchai, 2022).

According to M. Toepper, O. Zlatkin-Troitschanskaia, and C. Kühling-Thees, this issue requires ongoing attention and systemic solutions at the national, industry, and regional levels (Toepper, Zlatkin-Troitschanskaia & Kühling-Thees, 2021).

With the revival of industrial and agricultural production in many countries worldwide and the significant expansion of the service sector in the early XXI century, the need for a highly skilled and competitive workforce and skilled workers is significantly increasing. It is indisputable that in current conditions, these personnel must meet international requirements and new quality standards.

As our survey has shown, their employment in different sectors of the economy contributes to the balance of supply and demand for the workforce in the labor market, vocational training and retraining in production, as well as vocational training, retraining, and advanced training of different categories of unemployed. This issue requires further research in the theory and methodology of vocational training.

Due to the new requirements of the information society, significant changes have occurred and are occurring in the modern vocational education and training system. As a result, the functions of this system, content, and direction of its activities are significantly expanding and deepening.

According to A. Eteläpelto, global trends in vocational training require a holistic solution to the problems of human development, the search for new forms of training and retraining to provide a specialist with the appropriate knowledge, skills, and competencies to interact harmoniously with the rapidly developing technologies to meet the growing needs of society (Eteläpelto, 2017).

Meanwhile, J. Li and M. Pilz point out that the most effective laws, regulations, concepts, and provisions can quickly become irrelevant if every official, employer, vocational school leader, and teachers, masters, students, and trainees do not recognize the philosophy of success specifically in training highly skilled production workers. Failure to understand or ignore this seemingly simple truth can be a significant obstacle to economic growth at the state level (Li & Pilz, 2017).

An essential assertion on this point by V. Kremen, V. Luhovyi, and O. Topuzov, who emphasize that it is impossible to solve the issue of developing the level of vocational education without information and methodological support of a unified information educational space, including participants' free access to modern computer networks, databases, creating conditions for information exchange on vocational education with different countries (Kremen, Luhovyi & Topuzov 2021).

The market economy conditions objectively require fundamentally different approaches to determining the economic basis for the training of professional production personnel for various industries. Based on the survey of teachers at vocational education institutions, such practices should include: forecasting the demand for the workforce by volume and structure of qualifications at the state, regional and sectoral levels; improving the mechanism of forming state orders for training workers under labor market requirements and demands for training workers at the expense of budget funds of different levels and funding sources; introducing multi-channel financing of vocational training, targeted qualification programs for skilled workers using state and municipal budgets, sectors of the economy and employers (Scheuch, Gessler, Bohlinger, Kühling-Thees, 2021), (Rageth & Renold, 2019), (Valiente, López-Fogués, Fuentes & Rosado, 2020).

According to M. Gessler and C. Siemer, an essential driver for the vocational education development could be the elaboration and introduction of a grants and soft loans mechanism for the vocational educational institutions functioning, as well as the introduction of preferential taxation for enterprises of different ownership forms, which conduct workers' training (Gessler & Siemer, 2020).

With the increasing practical role of vocational education, the theoretical and methodological justification of vocational training has become a priority.

As T. Schröder notes, it is crucial to focus such research on the substantiation of vocational pedagogy as a science of general and specific regularities, connections, principles, features, and conditions of vocational education and training (Schröder, 2019).

Hence, K. Caves, S. Baumann, and U. Renold point out the importance of the methodological development of professional education optimization to focus on the correlation of professional training with the formation of the future professional's personality (Caves, Baumann & Renold, 2019).

The statement of H. Rintala and P. Nokelainen is also noteworthy. They note that the reform of industrial production in the world economy towards the active implementation of scientific and information technologies and the further formation of the information society are the main priorities of economic and social development, which objectively defines science as a sector that produces new knowledge, and education, connecting this knowledge with other spheres of social being (Rintala & Nokelainen, 2020).

CONCLUSIONS

The scientific literature review and numerous pedagogical, psychological, economic, technical, sociological, and other studies allow us to conclude that globalization and integration processes, information-technological development of society, and changes in dynamics in the labor market today are essential factors influencing the development of professional education.

Today's conditions activate the necessity of research into perspective directions of vocational education institutions' activity optimization, development of cooperation between enterprises and educational institutions for future specialists' qualification improvement, planning of joint scientific research, holding interdepartmental scientific-methodical conferences, seminars on the subject to combine efforts for implementation of scientific research results into the educational process.

REFERENCES

- Caves, K., Baumann, S., & Renold, U. (2019). Getting there from here: A literature review on vocational education and training reform implementation. *Journal of Vocational Education & Training*, 73(1). <https://doi.org/10.1080/13636820.2019.1698643>
- Eteläpelto, A. (2017). Emerging conceptualizations on professional agency and learning. In M. Goller, & S. Paloniemi, *Agency at Work: An Agentic Perspective on Professional Learning and Development* (pp. 183–201). doi: 10.1007/978-3-319-60943-0_10
- Freund, L., & Gessler, M. (2017). Book Review: Vocational Education and Training in Times of Economic Crisis. *International Journal for Research in Vocational Education and Training*, 4(4), 382–386. <https://doi.org/10.13152/IJRVET.4.4.5>
- Gessler, M., & Siemer, C. (2020). Umbrella review: Methodological review of reviews published in peer-reviewed journals with a substantial focus on vocational education and training research. *International Journal for Research in Vocational Education and Training*, 7(1), 91–125. <https://doi.org/10.13152/IJRVET.7.1.5>
- Gessler, M., Bohlinger, S., & Zlatkin-Troitschanskaia, O. (2021). International Vocational Education and Training Research: An Introduction to the Special Issue. *International Journal for Research in Vocational Education and Training*, 8(4), 1–15. <https://doi.org/10.13152/IJRVET.8.4.1>
- Kremen, V., Luhovyi, V., & Topuzov, O. (2021). *Natsionalna dopovid pro stan i perspektyvy rozvytku osvity v Ukraini: Monohrafiia- National report on the state and prospects of education in Ukraine: A monograph*. <https://doi.org/10.37472/NAES-2021-ua>
- Li, J., & Pilz, M. (2017). Modularization in the German VET System: A Study of Policy Implementation. *Journal of Education and Work*, 30(5), 471–485. doi: 10.1080/13639080.2016.1243233
- Mathur, A., Sharan, M., Chakraborty, S., & Mullick, S. (2022). Technical and Vocational Education and Training: Examining Changing Conditions in India. *Environmental Sciences Proceedings*, 15, 31. <https://doi.org/10.3390/envirosciproc2022015031>

- Mcgrath, S., Mulder, M., Papier, J., & Suart, R. (2018). *Handbook of Vocational Education and Training: Developments in the Changing World of Work*. DOI: 10.1007/978-3-319-49789-1
- Pilz, M. (2017). *Vocational Education and Training in Times of Economic Crisis: Lessons from Around the World*. DOI: 10.1007/978-3-319-47856-2
- Pylavets, M., Protas, O., Martynets, L., Lyashkevich, A., Babysheva, M., Chumak, J., & Lazorko, O. (2020). A Comparative Analysis of Peculiarities of Vocational Education in Ukraine and Germany. *Revista Romaneasca Pentru Educatie Multidimensionala*, 12(3), 200–212. <https://doi.org/10.18662/rrem/12.3/317>
- Rageth, L., & Renold, U. (2019). The Linkage between the Education and Employment Systems: Ideal Types of Vocational education and Training Programs. *Journal of Education Policy*, 1–26, 503–528. doi: 10.1080/02680939.2019.1605541
- Ramasamy, M. (2020). Competency-based curriculum development in vocational education and training: An example of knowledge transfer from the Western world to India. *Comparative Vocational Education Research*, pp. 181–198. https://doi.org/10.1007/978-3-658-29924-8_11
- Rintala, H., & Nokelainen, P. (2020). Vocational Education and Learners' Experienced Workplace Curriculum. *Vocations and Learning*, 13(2). DOI: 10.1007/s12186-019-09229-w
- Scheuch, I., Gessler, M., Bohlinger, S., & Kühling-Thees, C. (2021). Research for the Internationalization of Vocational Education and Training: Current State and Future Perspectives, 262. *VETNET ECER PROCEEDINGS 2021*. DOI: 10.5281/zenodo.5474156
- Schröder, T. (2019). Regional Association for Vocational and Technical Education in Asia (RAVTE): Eine regionale Struktur zur Verbreitung von Berufsbildungsansätzen und Berufsbildungsforschung als Entwicklungsbeitrag in der ASEAN-Region. In *Konzepte und Wirkungen des Transfers Dualer Berufsausbildung* (pp. 437–461). Springer VS. https://doi.org/10.1007/978-3-658-23185-9_12
- Seitamaa, A., & Hakoköngäs, E. (2022). Finnish vocational education and training experts' reflections on multiculturalism in the aftermath of a major reform. May 2022. *Journal of Vocational Education and Training*. DOI: 10.1080/13636820.2022.2066559
- Thianthai, C., & Sutamchai, K. (2022). Skills That Matter: Qualitative Study Focusing on the Transfer of Training Through the Experience of Thai Vocational Students. *Frontiers in Education*, 5. <https://doi.org/10.3389/educ.2022.897808>
- Toepper, M., Zlatkin-Troitschanskaia, O., & Kühling-Thees, C. (2021). Research in international transfer of vocational education and training – a systematic literature review. *International Journal for Research in Vocational Education and Training*, 4, 138–169. DOI: 10.25656/01:23866
- Valiente, O., López-Fogués, A., Fuentes, H., & Rosado, R. (2020). Evaluating dual apprenticeship effects on youth employment: A focus on the mechanisms. *Comparative Vocational Education Research*, pp. 163–180. Springer VS. https://doi.org/10.1007/978-3-658-29924-8_10