

ANNOTATION

dissertation work of Akhmetzhanova Guldaray Adilkhanovna
"Pedagogical conditions for the formation of information and
methodological competence of students of vocational education"
submitted for the degree of Doctor of Philosophy
(PhD) in specialty 6D012000-Vocational education"

Relevance of the study. In his address to the people of Kazakhstan, President Kassym-Jomart Tokayev identified digitalization as a key tool for enhancing the economy's competitiveness, improving public administration, and improving citizens' quality of life. This document outlines the key areas of digitalization, including artificial intelligence.

However, one of the pressing challenges in digitalization is the lack of electronic textbooks, teaching aids, and software. To develop individual creativity, it is necessary to effectively utilize these resources, improve the quality of education, and create favorable conditions for students' independent learning.

We associate the solution to this problem with the creation of a database of digital educational resources in the process of education future specialists, the effective management of digital flows, and the development of professional knowledge, skills, and abilities through the use of information and communication technologies.

Within the framework of the research topic, it was established that the specifics of developing digital, methodological, scientific, and research competencies in the education of future teachers have been the subject of scientific research by foreign scientists: *Mehmet Aydin & et.al., Nur Dania Mohd Rosli & et.al., Zhaoxia Wang, Huying Zhu, Cesar Augusto Hernández Suárez & et al., Mirza Shahzan Asagar.*

Theoretical and practical aspects of the formation of competencies in domestic pedagogical science are considered by the following authors: *Kenzhebekov B.T., Buzaubakova K.D., Mikhailova T.V., Zhaksybaeva N.N., Kobenkulova Zh.T., Omarbekova, Sh.O., Tursynova Zh.Zh., Nabidollina Sh.S., Elubay E.*

The researchers who studied the theoretical and practical foundations of vocational education as part of our research: *Abdykarimov B., Egorov V.V., Momynbaev B.K., Shkutina L.A., Shraymanova G.S., Otebaev I.S., Kazimova D.A., Abilkasymova G., Gotting V.V.*

Analyzing the works of foreign and domestic scientists, it was concluded that today there is still a significant lack of research into the pedagogical conditions for the formation of information and methodological competence of students in vocational education.

This, in turn, determines the relevance of developing the information and methodological competence of students in vocational education in the context of the digitalization of modern education and the use of artificial intelligence as a teaching tool:

- the state demand for education specialists in the context of digitalization of education and the use of artificial intelligence as a teaching tool, as well as the insufficient scientific and methodological substantiation of the problem of developing the information and methodological competence of students in vocational education in higher education institutions;

- allowed us to identify the existence of contradictions between the need to develop the information and methodological competence of students in vocational education and the insufficient certainty of the pedagogical conditions for its practical implementation.

The search for ways to resolve these contradictions determined the choice of the research topic “Pedagogical conditions for the formation of information and methodological competence of students in vocational education.”

The aim of the study: to theoretically substantiate and methodologically provide pedagogical conditions for the formation of information and methodological competence of students in vocational education, as well as to prove their effectiveness through practical and experimental work.

Object of the study: the educational process in the higher education system.

Subject of research: the process of preparing students for vocational education.

Scientific hypothesis of the study: if a structural and functional model for the formation of methodological competence of students is developed theoretically and methodologically and implemented in the educational process of the university, and a set of pedagogical conditions aimed at its implementation is provided, then students will be able to significantly improve level informational methodological competence.

Research objectives:

- to methodologically substantiate the competence-based approach in the field of vocational education and to reveal the essence of the formation of information and methodological competence of students (the author’s definition of “information and methodological competence of students in vocational education”);

- to develop a model for the formation of information and methodological competence of students in vocational education;

- to develop the content for the formation of information and methodological competence of students in vocational education and to provide a set of pedagogical conditions aimed at its implementation;

- to experimentally prove the effectiveness of the formation of information and methodological competence of students in vocational education.

Research methods: *theoretical* (analysis of philosophical, psychological, pedagogical and scientific-methodological works, analysis of educational documents, state standards of compulsory education, standard programs, curricula and programs, modeling, use of electronic services), *empirical* (monitoring the educational process, conducting surveys, conducting practical and experimental work), *statistical* (processing the results of experimental studies and assessing their

reliability, using IBM SPSS Statistics, the Mann-Whitney test, the Wilcoxon test in calculations).

Research base: Kazakh Agrotechnical Research University named after S.Seifullin and Karaganda National Research University named after E.A. Buketov.

The main idea of the study: The development of information and methodological competence of students in vocational education is ensured by the targeted organization of pedagogical conditions oriented towards the professional development of the teacher.

Theoretical and methodological foundations of the research: include conceptual rules for the digitalization of the educational process; aspects of developing digital literacy in vocational education students; scientific and pedagogical principles of a competency-based approach in education.

The main stages of the research:

First stage (2018-2020). The theoretical foundations of the study were defined, scientific and methodological works on the problem under study were selected and systematized, analyzed from a theoretical point of view, and the scientific apparatus of the study was determined. Developed by model for the formation of information and methodological competence of students in vocational education.

Second stage (2020-2022). The following were analyzed: the State Standard of the Republic of Kazakhstan for vocational education, curricula, programs, pedagogical, teaching and methodological resources; didactic opportunities for the development of information and methodological competence of students in vocational education were identified; developed with content and stages of experimental work.

Third stage (2022-2025). The results of the experimental work have been summarized and systematized, the main conclusions and recommendations of the study have been formulated, and the dissertation work has been designed in accordance with the stated requirements.

Scientific novelty of the study:

- the competency-based approach in the field of vocational education is methodologically substantiated and the essence of the formation of information and methodological competence of students is revealed (the author's definition of "information and methodological competence of students in vocational education";
- a model for the formation of information and methodological competence of students in vocational education has been developed;
- pedagogical conditions for the formation of information and methodological competence of students in vocational education have been determined;
- The results of experimental work on the formation of information and methodological competence of students in vocational education are presented.

Theoretical significance of the study: This research paper explores the problem of developing information and methodological competence in vocational students through a combination of general philosophical, technological, and

methodological approaches. Furthermore, in accordance with the requirements of new-generation educational standards, the study identifies didactic conditions, psychological and pedagogical mechanisms, and methodological approaches to developing information and methodological competence during vocational education.

Practical significance of the study: The results and conclusions of the study will be reflected in future scientific research on this issue; the proposed methodological work can be used as a basis for the education system of higher and secondary pedagogical educational institutions, as well as for improving the qualifications of vocational education workers.

The developed scientific and methodological materials for the formation of information and methodological competence of students in vocational education were introduced into educational practice:

1. “Кәсіби педагогика” textbook (ISBN 978-6017934-76-7).
2. “Кәсіби педагогика” electronic teaching aid (copyright certificate No. 10748 11.06.2020).
3. Electronic workshops “Electrondyk oqytu-E-learning bilim alushylardyn oqytu adistemesinde koldanu sharttary” electronic textbook (author’s certificate No. 6056 10.25.2019).
4. "Information and methodological support for online platforms" elective discipline (implementation act of March 18, 2021, KarNIU E.A. Buketova).
5. “Online platforms akparattyk-adistemelik kamtamasyz etu» online course (www.tanym.com).
6. “Digital bilim take ortasyn damytu” video lecture (www.tanym.com).
7. “Global Education and Education” seminar (under the Bolashak “500-Scientists” program, UIUC, USA, 2024-2025, internship experience).

Provisions submitted for defense:

1. The competency-based approach in the field of vocational education is methodologically substantiated, the essence of the formation of information and methodological competence of students is revealed, and the author's definition of "information and methodological competence of students of vocational education" is presented: "Information and methodological competence of students of vocational education is an integrative new formation that arises as a result of the synergistic interaction of two competencies and represents the ability of a future professional teacher to effectively search for, analyze, synthesize, evaluate and apply information necessary for professional activity, as well as to purposefully plan the educational process, develop methodological materials, organize education through digital platforms and carry out its reflective analysis."

2. A model for developing information and methodological competence in vocational students. It is based on competency-based, system-activity-based, and axiological approaches and defines the directions for effectively organizing students' professional and pedagogical activities in a digital educational environment. The model's structural components include motivational, content-based, activity-based, and reflective blocks. This model allows for the gradual

development of students' skills in effectively using digital tools for pedagogical purposes.

3. Pedagogical conditions for the formation of information and methodological competence of students in vocational education:

- organizational conditions provide a regulatory and resource base and promote the development of competence;
- substantive conditions scientifically substantiate the processes of searching, analyzing information and applying teaching methods through educational programs;
- methodological conditions transform knowledge into action through active learning and reflective assessment;
- psychological and social conditions create psychological readiness for the development of competence through the formation of the student's internal motivation, self-regulation and a safe educational environment;
- material and technical conditions ensure the practical implementation of competence through a modern technical base and the availability of digital resources.

As a result, it was proven that the relationship between the content and pedagogical conditions for the formation of information and methodological competence serves as an innovative mechanism for improving the quality of education.

4. Results of experimental work on the formation of information and methodological competence of students of vocational education. The results demonstrate that the application of the proposed model and pedagogical conditions confirms their effectiveness across all components of information and methodological competence at a statistically significant ($p < 0.01$) and practically significant ($r > 0.30$) level. A particularly pronounced effect for the activity-based component ($r = 0.42$) attests to the high practical effectiveness of information and methodological competence. The study also revealed that the level of effective use of digital tools in the educational process, the ability to make methodological decisions, and readiness for professional and pedagogical activity among vocational students increased statistically significantly ($p < 0.01$) according to the Mann–Whitney U-test.

Methodological and theoretical validity of the study: The framework is based on a system of fundamental principles that define the conceptual direction of scientific research. The study utilized scientific findings and methodological guidelines to identify the essence and content of developing information and methodological competence in vocational education students.

Validity and reliability of research results: The conclusions and results obtained in the dissertation are ensured by the accuracy of the objectives and methods of the research, the step-by-step implementation of a practical experiment and the specific application of the procedure for statistical processing of empirical data.

Discussion and implementation of research results: 15 scientific articles have been published based on the main provisions of the study:

In publications recommended by the Control and Control of Sound Quality of the Ministry of Defense of the Republic of Kazakhstan - 4:

Bulletin of KarGU - series "Pedagogy" - 2018. No. 4 (92)

ZKSU Bulletin - series "Pedagogy" - 2019. No. 4 (76)

ZKSU Bulletin - series "Pedagogy" - 2020. No. 4 (80)

Bulletin of KarGU - series "Pedagogy" - 2023. No. 1 (109)

In international journals included in the Scopus database - 3:

Opcion, Año 35, Regular No. 24, 2019

Education Research International (Hindawi), Volume 2022

International Journal of Information and Education Technology, No. 9, 2025

In publications indexed in the RINTS-1 database:

News of Universities of Kyrgyzstan, No. 5, 2023

Proceedings of international scientific and practical conferences - 4

Certificates of state registration of rights to objects protected by copyright (computer) - 3

Structure and content of the dissertation: The dissertation consists of normative references and abbreviations, definitions, an introduction, three sections, a conclusion, a list of references and an appendix.

The introduction substantiates the choice of the research topic and explains its relevance, formulating the purpose and objectives of the study. Furthermore, the object and subject of the study are clarified, and the scientific novelty, theoretical, and practical significance of the work are defined. The main points to be defended are systematized, and the research methods and stages of its implementation are described.

The first section, "Theoretical and Methodological Foundations for Developing the Information and Methodological Competence of Vocational Students," examines the theoretical and methodological foundations for developing a competency-based approach (competency foundation) in vocational education within the context of the research topic, the specifics of developing the information and methodological competence of vocational students in the context of new generation standards, and the development of "information and methodological competence" in vocational students. A model for the formation of information and methodological competence of students in vocational education has been developed and presented.

The second section, "Description of the Pedagogical Conditions for Developing Information and Methodological Competence in Vocational Students," describes the classification of pedagogical conditions for developing information and methodological competence through professionally oriented teaching methods and technologies, as well as the organization of independent and reflective learning activities for students.

Section Three: "Content and Results of Experimental Work on Developing the Information and Methodological Competence of Vocational Students." An analysis of the experimental results was conducted to determine the effectiveness of pedagogical conditions in developing the information and methodological competence of vocational students.

In conclusion Conclusions based on the research results and scientifically based recommendations are presented.

In the appendix The results of the study on the formation of information and methodological competence of students in vocational education are reflected.