Leonid M. Popov, Doctor of Sciences (Psychology), Professor
(Kazan Federal University, Kazan, Russia).
John Raven, PhD in Psychology, Professor Emeritus
(Scottish Council for Research in Education, Edinburgh, Scotland, Great Britain).
Antonina V. Rogova, Doctor of Sciences (Education), Professor
(Saint Petersburg Union of Scientists, St. Petersburg, Russia).
Mihaela-Viorica Rusitoru, PhD in Lifelong Learning Policies, Professor
(IUTAM – University Institute of Third Age Montréal, Montréal, Canada).
Balabek K. Saktaganov, PhD, Doctor of Sciences (Philosophy)
(National Academy of Education named after Y. Altynsarin, Astana, Kazakhstan).
Valeriy V. Sobolnikov, Doctor of Sciences (Psychology), Professor (Russia).
Irina A. Tagunova, Doctor of Sciences (Education), Associate Professor
(Institute for Strategy of Education Development of the Russian Academy of Education, Moscow, Russia).
Tatyana M. Tregubova, Doctor of Sciences (Education), Professor
(Volga Region State University of Physical Culture, Sport and Tourism, Kazan, Russia).
Charste Coetzee Wolhuter, Doctorate in Comparative and International Education, Comparative and International Education Professor
(North-West University, Potchefstroom, South Africa).
Yu Haiying, Doctor of Sciences (Education), Professor
(Mudanjiang Normal University, Mudanjiang, China).

CONTENT

СОДЕРЖАНИЕ

Подготовка кадров для некоммерческих организаций в контексте реализации подхода «Обучение служением» в высших учебных заведениях: актуализация проблемы

Training of personnel for non-profit organizations in the context of the implementation of the Service Learning approach in higher education institutions: problem updating

Liliya V. Goryunova*[1], Doctor of Sciences (Pedagogy), Professor,
Head of Chair of Inclusive Education and Social-Pedagogical Rehabilitation
Yulia N. Plakhotnyuk[2], lecturer of Chair of Social Technologies
Vladimir I. Mareev, Doctor of Sciences (Pedagogy), Professor,
professor of Chair of Technology and Professional Teacher Education

Southern Federal University, Rostov-on-Don (Russia)

*E-mail: lvgoryunova@sfedu.ru

[1]ORCID: https://orcid.org/0000-0002-1685-5404
[2]ORCID: https://orcid.org/0009-0000-8297-2943

Abstract: The growing importance of non-profit organizations (NPOs) for the development of a people support system and civic engagement has determined the need to train personnel capable of participating professionally in solving socially significant problems. The work covers updating the professional training of personnel for NPOs in general and socially oriented NPOs in particular in the higher education system based on the Service Learning approach. The introduction of the Service Learning approach into the process of professional training of personnel for NPOs allows integrating training formats, which ensures the development of social responsibility, project thinking and motivation for participation in NPOs in students. The empirical part of the study was carried out during the implementation of the "Service Learning" federal program at the Southern Federal University. Students who were involved in solving social problems from NPOs during the 2024/25 academic year participated in the study. The obtained data allowed confirming (students' interest in the professionalization of social activities, a steadily formed request for competencies that ensure effective professional activities in NPOs, predominant forms of students' active participation and involvement in the work of NPOs through practice-oriented training built on the basis of the Service Learning approach) the presence of students' interest in this sector of the economy and the possibility of building their professional career in NPOs. Based on the identified interest of students in social activities and the request for competencies relevant to the activities of NPOs, the analysis of the obtained results allowed updating the need to implement professional training of personnel for NPOs in the higher education system on the basis of the Service Learning approach.

Keywords: professional training; personnel for non-profit organizations; Service Learning approach; higher education.

For citation: Goryunova L.V., Plakhotnyuk Yu.N., Mareev V.I. Training of personnel for non-profit organizations in the context of the implementation of the Service Learning approach in higher education institutions: problem updating. *Evidence-based education studies*, 2025, no. 2, pp. 9–15. DOI: 10.18323/3034-2996-2025-2-61-1.

INTRODUCTION

In the context of increasing attention of the state to the development of civil society institutions, there is a significant increase in the importance of the non-profit sector as a sphere of social responsibility, innovation and partnership practices. According to sociological research, in the last ten years there has been a noticeable increase in civic participation: the level of involvement of Russians in volunteer activities has grown from 3 to 28 % and participation in projects of non-profit organizations (NPOs) – by 9 %[1]. These indicators reflect a stable trend towards increasing public involvement and indicate a redistribution of social functions between the state, society and the third sector. As noted by the Chairman of the Committee on Youth Policy of the State Duma of the Federal Assembly of the Russian Federation A.P. Metelev in an interview opening a series of analytical publications by the Social Information Agency in partnership with the Dobro.rf (Добро.рф) platform, such changes are caused both by the expansion of the infrastructure for supporting NPOs and by an increase in the civic maturity of the population, its desire

---

[1]*Volunteers of Russia: monitoring. Analytical review. VTsIOM novosti. URL: https://wciom.ru/analytical-reviews/analiticheskii-obzor/volontery-rossii-monitoring.*

for personal responsibility for what is happening in society[2]. The growth of civic activity is caused both by macrosocial changes, including the evolution of political culture and the consolidation of support for public initiatives at the constitutional level, and by the extraordinary events of recent years. In the context of the crisis, new forms of solidarity, mutual assistance and responsibility are being formed, initiated both from below and with the support of government institutions and business. In these conditions, NPOs act both as an instrument of social support and as a space for the formation of civic maturity, the unification of efforts and the implementation of specific changes in the quality of people's lives.

Such dynamic development of the non-profit sector requires systematic training of personnel who have not only knowledge of the functioning of NPOs, but also experience in social design, the ability to identify and solve specific social problems in partnership with various actors. This is confirmed by the measures taken at the state level in the context of targeted work to institutionalize the training of specialists for the non-profit sector. Thus, on the instructions of D.N. Chernyshenko, the Ministry of Education and Science and the Ministry of Labor together with the Dobro.rf Association are developing professional standards and new educational areas of training in universities, in particular in the specialty "Specialist in the management of socially oriented projects". In parallel, a system of internships and employment of students in NPOs at the stage of their studies at the university is being developed, as well as the concept of the social mission of universities, which implies the transformation of their role towards active participation in the development of territories and civic education of youth.

It can be said that the modern system of higher education is faced with the need to adapt the programs for training specialists to the current demands of society and changes in the social structure. Moreover, not all areas of training include components related to the formation of competencies for work in the non-profit sector in their educational trajectory. At the same time, it is the higher school that has significant potential for the formation of students' experience of civic responsibility, social project planning skills and readiness to carry out professional activities in the field of NPOs.

One of the promising areas that can ensure such integration is the Service Learning approach, which includes the study of academic disciplines with the formation of skills for socially useful work. In the international scientific tradition, this approach is substantiated through the concepts of civic education [1], participation and inclusion [2], and social capital [3]. A number of studies emphasize the role of an approach aimed at forming the civic identity and professional self-determination of students [4–6]. According to this approach, the key element of the educational process is reflection, which provides students with an understanding of their socially significant experience as an element of formation and development [7].

In the Russian system of higher education, the process of professional training is actively implemented built on the basis of the Service Learning approach, where the name of the approach is an adapted translation of the concept of "service learning" [8]. The issues of using this approach in the process of comprehensive development of the student's personality have been noted by a number of Russian scientists [9]. V.V. Nikolsky, having reconstructed the subject field of research covering the implementation of the Service Learning approach in higher education, notes that this pedagogical approach is actively used in Russian universities, but scientific research into the effectiveness of its implementation is still at an early stage [10]. Exploring the potential of Service Learning as an effective pedagogical means of forming a civic-patriotic culture of students in the university environment, scientists highlight its special role in the development of student youth through active involvement in socially significant activities at the local and regional levels [11]. Considering Service Learning as an effective tool for forming the professional identity of future teachers, the authors believe that special attention should be paid to its role in developing a reflexive attitude to the social mission of the profession and strengthening the value orientations of students [12; 13]. Involvement of student youth in projects valuable to society contributes to the development of a sense of responsibility, an active life position, and a willingness to participate in socially significant changes. Consequently, through participation in socially oriented project-based learning, students develop a civic position [14]. Based on the results of the analysis of foreign experience in integrating the "service learning" model into the educational systems of various countries, promising areas for the introduction of Service Learning into the educational practice of higher education as a pedagogical approach to the professional training of personnel of the 21st century for the domestic economy have been identified: organizing students' project activities in partnership with NPOs, conducting educational visits, working together to solve socially significant problems, involving students in activities on campus, and other forms of cooperation aimed at developing students' civic responsibility[3].

According to the interpretation presented by scientists from the Southern Federal University, the "service" component of the pedagogical approach under consideration is treated as an activity aimed at helping another person and performing socially useful tasks, while "learning" is implemented through the inclusion of students in real social projects based on partnership with representatives of non-profit organizations. The success of the implementation of

---

[2] *Artyom Metelev: "It is not enough to simply involve 20 million young people in social activities – it is important to retain them". Odobreno. URL: https://artem-metelev.ru/tpost/tps1znd1a1-artem-metelev-malo-prosto-vovlech-v-obsc.*

[3] *Zemtsov D.I., Metelev A.P., Yashina A.V., Kirienko L.S., Gruzdev I.A., Dmitrieva A.S., Startsev S.V. Obuchenie sluzheniem: klyuchevye rezultaty issledovaniya zarubezhnogo opyta: doklady k XXIV Yasinskoy (Aprelskoy) mezhdunarodnoy nauchnoy konferentsii po problemam razvitiya ekonomiki i obshchestva, Moskva, 2023 g. [Service Learning: Key Results of the Study of Foreign Experience. Report for Yasin (April) International Academic Conference on Economic and Social Development] Moscow, Vysshaya shkola ekonomiki Publ., 2023. 24 p. EDN: QIPQVB.*

the Service Learning approach largely depends on sustainable intersectoral connections, the project infrastructure of the university and the level of students' readiness to solve socially significant problems in conditions of uncertainty and teamwork [15]. Service Learning in domestic educational practice can become a methodological basis for modern professional education, which will both allow for the formation of students' social and project competence in real conditions and contribute to an increase in personal motivation, awareness of the social significance of their professional activities, and the search for ways of successful professional self-realization. The effective implementation of the Service Learning approach in the process of personnel training is possible within the framework of specialized educational programs in both the social and humanitarian profile and technical, economic and other areas, where "service" becomes a resource for the formation of professional competencies, civic responsibility and skills for implementing interdisciplinary interaction [16; 17].

Analysis of research in the field of implementing the Service Learning approach in the system of vocational education in Russia and abroad allows saying that with all the variety of works covering the study of this approach, the issues of studying its capabilities in the context of training specialists for non-profit organizations remain poorly studied, which necessitated the study of its capabilities for training personnel for NPOs in the educational practice of universities.

The purpose of this study is to actualize the need of training specialists in universities for the non-profit sector system, in particular for socially oriented non-profit organizations, by means of the Service Learning approach.

METHODS

The study was conducted as part of the implementation of the "Service Learning" federal program (hereinafter referred to as the Program) at the Southern Federal University. The empirical study was conducted in the 2024/25 academic year. The participants of the Program were 111 students of different fields and levels of training. Among the respondents, students aged 18–20 prevailed – 58.6 %; the group over 24 years old made up 32.4 %; students aged 21–23 made up 7.2 %, and the proportion of persons under 18 years old was 1.8 %. The sample was dominated by women (81.1 %) with a minority of men (18.9 %). The distribution of participants by year was as follows: 1st year – 43.2 %, 2nd year – 15.3 %, 3rd year – 9 %, 4th year – 4.5 %, 1st year master's degree – 15.3 %, 2nd year master's degree – 12.6 %. Thus, students of all levels of higher education, including bachelor's and master's degrees, without restrictions on the areas of training, participated in the study.

The data collection method was a questionnaire aimed at studying the level of students' awareness of the activities of NPOs, motivation to participate in socially oriented projects. The questionnaire consisted of closed and open-ended questions that allowed obtaining both quantitative and qualitative data. The structure of the questionnaire was built on the block principle and included five main sections:

1) socio-demographic block – questions aimed at collecting a general social portrait of the participants: gender, age, field and level of training, year, availability of volunteer or other social experience;

2) awareness of the activities of non-profit organizations – questions aimed at identifying the level of students' awareness of the mission, functions and specifics of the work of organizations in the non-profit sector of the economy, as well as knowledge of sources of information about them;

3) assessment of participation in the Program – subjective assessments of the benefits and significance of participation in the Program, its impact on personal and professional development;

4) professional interests and intentions – this block recorded professional preferences, readiness for further participation in socially oriented projects, motivation for inclusion in professional activities in the non-profit sector;

5) motivational and demotivational factors – the section covers the analysis of internal and external incentives for students to participate in social project activities, as well as barriers limiting their involvement in such work formats.

The questionnaire was posted online on the Yandex.Forms platform. The processing of the received data was carried out through the percentage presentation of the results. For each answer option, the percentage ratio was calculated using the formula: (number of answers / total number of respondents) × 100 %. The percentage distribution of answers allowed conducting a quantitative analysis of the data, clearly presenting the results of the study, identifying problems, and determining the main trends.

RESULTS

The results of the conducted study allowed compiling a generalized socio-demographic portrait of students, research participants implementing social project activities within the framework of the Program, and identifying key areas of their interests, motivational attitudes and educational needs related to participation in NPO projects.

An analysis of the experience of solving social problems within the framework of the Program showed a wide variability of forms of participation in socially significant activities. The most common tasks were organizing cultural and educational events – 27.1 %; helping disabled people – 22.4 %; supporting older people – 10 %; participating in environmental initiatives – 8.8 %; working on organizing public spaces – 7.1 %; developing IT solutions and legal assistance – 4.7 % each. At the same time, 70.3 % of students noted that the task they were solving was formulated directly by the NPO, and 29.7 % worked on initiatives coming from other sources (including educational structures).

It should be noted that the understanding and perception of social issues by students changed under the influence of practice-oriented participation in solving social problems. 48.6 % of students reported that the activity on solving social problems in the logics of project implementation helped them to better understand the existing social problems; 35.2 % noted the expansion of their general horizons; 7.2 % did not record changes in perception; 9 % found it difficult to answer. At the same time, interest in the activities of non-

profit organizations was distributed among a number of priority areas. The most attractive were: cultural and educational projects – 26.4 %; support for socially vulnerable groups – 18.3 %; development of communities and territories – 15.9 %; charity and fundraising – 14.2 %; environmental initiatives – 12.6 %; human rights activities – 10.6 %. It is significant that only 2 % of respondents found it difficult to choose, which indicates a formed focus on social issues. As for the preferred forms of interaction with NPOs, respondents identified the following acceptable formats of participation: volunteer activities – 23.1 %; internships and practice – 22.6 %; participation in campaigns and events – 19.6 %; partnership and project co-authorship – 16.2 %; official employment – 15.5 %. Only 3 % of students exclude the possibility of further participation in the activities of NPOs.

During the study, the authors also analyzed the influence of participation in solving social problems from NPOs on the development of competencies. 46.8 % of respondents believe that participation contributed to their development to a significant extent; 45.1 % – to some extent; 6.3 % are not sure about the effect; 1.8 % did not note a positive impact. As for the need for knowledge and skills, the following turned out to be the most significant for students: communication skills – 20.9 %; project management skills – 17.4 %; legal literacy – 11.3 %; PR and promotion of social initiatives – 10.6 %; social impact assessment – 10.6 %; volunteer management and work with grants – 10.3 % each. The least in demand were fundraising (6.1 %) and other forms (2.5 % found it difficult to answer).

When studying the motivational attitudes and prospects for student participation in NPO activities, it can be noted that when asked about their readiness to continue cooperation with NPOs, 62.2 % answered yes if there was an interesting project; 27.9 % were definitely ready; 9 % were undecided; 0.9 % were not interested. Among the factors that influence the decision to get involved in NPO projects with the possibility of further employment, the following were highlighted: the opportunity to apply knowledge in practice – 24.1 %; career prospects – 21 %; a clear understanding of the public benefit – 16.6 %; flexible work schedule – 16.2 %; financial reward – 11.4 %; support – 9.3 %.

DISCUSSION

The analysis of the data obtained during the study allowed identifying a number of empirically confirmed reasons indicating the need and demand for training specialists for socially oriented NPOs in modern domestic universities using the potential and resources of the Service Learning approach. These reasons, firstly, include the fact that students from different areas of training are interested in the professionalization of social activities. This is related to the fact that most students consider their participation in the process of implementing NPO projects not as a single episode, but as a potential professional trajectory (62.2 % are ready to continue cooperation with NPOs if there is a meaningful project, 27.9 % stated their desire to work in the non-profit sphere). Secondly, the study revealed a consistently formed demand among students for competencies relevant to the profile of activities of non-profit organizations (high motivation to de-

velop professional communication and teamwork skills – 20.9 %, social project management – 17.4 %, legal literacy and knowledge of the basics of NPO functioning – 11.3 %, SMM and PR, social impact assessment, volunteer management – 10–10.6 % each). Thirdly, the predominant forms of active participation and involvement in the work of NPOs among students (forms of student participation: volunteer activities – 23 %, internships and practical training – 22.6 %, participation in projects as partners – 16.2 %, official employment – 15.5 %) and motivating factors (the opportunity to apply professional knowledge – 24.1 %, career growth prospects – 21 %, a clear understanding of the social impact of the project – 16.6 %, flexible schedule and support from curators – a total of 25.5 %) were identified.

The problem of forming the staffing of NPOs lies in the absence of a mechanism for attracting "specialists of any level to work in NPOs" [18, p. 52]. According to research by scientists, the main segment of NPO employees can be students and young specialists. The results of our study confirmed as well this conclusion, since about 90 % of the surveyed students are ready to continue their interaction with NPOs, up to the formalization of labor relations. This category of students can really become the resource that will allow the non-profit sector to develop intensively, since in organizations of this type one can clearly see the opportunities for gaining social and professional experience in solving real problems, demonstrate social activity and bring real benefits in the field of their profession. Until recently, the main forms of attracting personnel for NPOs were work experience internship of students, temporary employment during vacation time, involvement in the organization of mass events, and conducting scientific research. These channels allow students to get involved in the activities of NPOs, but this inclusion is fragmentary and, for example, at the end of the internship, the student leaves the organization, sometimes without waiting for the end of the project. According to our study, this is caused by the fact that the student's entry into the NPO activity space during the organization of the internship is carried out at various points of its functioning, and inclusion as a volunteer is carried out mainly through word of mouth (30 % of employees) [18, p. 53]. Our study confirmed that the Service Learning approach allows students to become effectively involved in the NPO activities due to mass involvement in continuous project activities in the university – NPO interaction space and the implementation of a full cycle of solving a social problem, which makes it a permanent channel of entry into the non-profit sector with subsequent employment (70 % of students are ready to become involved in the work of NPOs).

The readiness of NPO employees to solve the assigned tasks is of great importance for long-term success. According to the Center for Effective Philanthropy (CEP), almost 50 % of NPO leaders point to personnel issues (from recruitment to retention) as the main challenge facing their organizations[4]. At the same time, according to the Independent Sector

---

[4] *Buchanan P., Broder L., Christina I. State of Nonprofits 2023. What Funders Need to Know? Cambridge: The Center for Effective Philanthropy, 2023. 24 p. URL: https://cep.org/wp-content/uploads/2023/06/NVP_State-of-Nonprofits_2023.pdf.*

report, 48.5 % of NPOs have increased the workload of their employees to meet the growing demand for their services [5]. It should be noted that in Russia, in recent years, the non-profit sector has also demonstrated growth and development: according to a study by the ZIRCON group [6], as of November 2024, 220,000 NPOs were registered (140,000 of them are socially oriented), in which the need to increase the number of full-time employees is increasing.

As the need for qualified personnel arises and grows, it is important for NPOs to equip their teams with relevant competencies, tools, and resources necessary to optimize their functionality and avoid burnout. Currently, the most popular way to achieve this is in-house training of personnel. This training requires certain resources and time, which an organization cannot always afford while simultaneously implementing certain projects. Since NPO employees perform different functions depending on the projects being implemented, they may need to undergo training. However, even at the stage of getting professional education at the university, student youth can acquire the necessary competencies to carry out activities in an NPO, and already when implementing projects, undergo specific in-house training within the framework of a specific project.

The lack of key competencies of NPO employees can become a limiting factor for them. Due to partnerships with leading universities in the country, non-profit organizations can either hire qualified specialists or provide their employees with the necessary skills and knowledge through training in university programs. This will allow organizations to optimize their activities, improve the quality of results and attract talented young specialists. Highly professional personnel working in organizations of the third sector of the economy, especially in socially oriented NPOs, have the potential to strengthen the influence of this sector on solving social problems and the quality of life of people in Russia.

CONCLUSIONS

Being the basis for training future specialists in the context of higher educational institutions in Russia, the Service Learning approach allows both conducting practice-oriented training of personnel for non-profit organizations and motivating them to choose third sector organizations as their place of employment.

---

[5] *Health of the U.S. Nonprofit Sector. Annual review. Washington, Independent Sector Publ., 2023. 21 p. URL: https://independentsector.org/wp-content/ uploads/2023/11/2023-Health-of-the-U.S.-Nonprofit-Sector-Annual-Review.pdf.*

[6] *Vliyanie i vklad NKO v reshenie sotsialnykh problem i povyshenie kachestva zhizni v Rossii: analiticheskiy doklad na osnove issledovaniya [The influence and contribution of NPO to solving social problems and improving the quality of life in Russia: an analytical report based on research]. Moscow, TsIRKON Publ., 2024. 74 p. URL: https://asi.org.ru/wp-content/uploads/2024/10/analiticheskij_doklad_ asi_czirkon_vliyanie_i_vklad_nko.pdf.*

REFERENCES

1. Astin A.W., Sax L.J. How Undergraduates Are Affected by Service Participation. *Journal of College Student Development*, 1998, vol. 39, no. 3, pp. 251–263.

2. Eyler J., Giles D.E.Jr. *Where's the Learning in Service-Learning?* San Francisco, Jossey-Bass Publ., 1999. 320 p.

3. Putnam R.D. *Bowling Alone: The Collapse and Revival of American Community*. New York, Simon & Schuster Publ., 2000. 541 p. DOI: 10.1145/358916.361990.

4. Bringle R.G., Hatcher J.A. Implementing Service Learning in Higher Education. *The Journal of Higher Education*, 1996, vol. 67, no. 2, pp. 221–239. DOI: 10.1080/00221546.1996.11780257.

5. Jacoby B. *Service-Learning Essentials: Questions, Answers, and Lessons Learned*. San Francisco, Jossey-Bass Publ., 2015. 336 p.

6. Butin D.W. *Service-Learning in Theory and Practice: The Future of Community Engagement in Higher Education*. New York, Palgrave Macmillan Publ., 2010. 188 p. DOI: 10.1057/9780230106154.

7. Ash S.L., Clayton P.H. The Articulated Learning: An Approach to Guided Reflection and Assessment. *Innovative Higher Education*, 2004, vol. 29, no. 2, pp. 137–154. DOI: 10.1023/B:IHIE.0000048795.84634.4a.

8. Nikolskiy V.S., Zlenko A.N. Learning or serving in Russian higher education: features of a new approach's initial stage implemention. *Integration of Education*, 2024, vol. 28, no. 3, pp. 421–435. DOI: 10.15507/1991-9468.116.028.202403.421-435.

9. Sharkunova E.V., Nevolina V.V. Ministry training as an effective educational method for the comprehensive development of a student's personality. *Voprosy zhurnalistiki, pedagogiki, yazykoznaniya*, 2024, vol. 43, no. 4, pp. 476–485. DOI: 10.52575/2712-7451-2024-43-4-476-485.

10. Nikolskiy V.S. Service learning in Russia: scoping review. *Higher Education in Russia*, 2023, vol. 32, no. 12, pp. 9–28. DOI: 10.31992/0869-3617-2023-32-12-9-28.

11. Pankratova L.E., Zaglodina T.A. Ecosystem approach in the education of future teachers: implementation of the "service-learning" module. *Innovatsionnaya nauchnaya sovremennaya akademicheskaya issledovatelskaya traektoriya (INSAYT)*, 2024, no. 3, pp. 41–54. EDN: WXAEEW.

12. Shmidt S.V., Fominykh A.V. Formation of a civic and patriotic culture through ministry training at the university. *Vestnik Khakasskogo gosudarstvennogo universiteta im. N.F. Katanova*, 2024, no. 4, pp. 154–156. EDN: BTPBBU.

13. Rudneva I.A., Kozyreva O.A. Forming the professional identity of future teachers through service-learning. *Higher Education in Russia*, 2025, vol. 34, no. 1, pp. 63–81. DOI: 10.31992/0869-3617-2025-34-1-63-81.

14. Pevnaya M.V., Boronina L.N., Pochatkova E.I. Students' civic consciousness in the framework of socially oriented project-based learning. *Higher Education in Russia*, 2024, vol. 33, no. 8-9, pp. 21–41. DOI: 10.31992/0869-3617-2024-33-8-9-27-41.

15. Aslanov Ya.A., Detochenko L.S., Lepin A.P., Martynova E.V. Determinants of success and risks of implementing the "service learning" approach in a project-oriented learning environment. *Higher Education in Russia*, 2024, vol. 33, no. 8-9, pp. 63–83. DOI: 10.31992/0869-3617-2024-33-8-9-63-83.

16. Knyazeva O.N., Galka N.A. "Service learning" as an effective approach for developing the individual potential of the student in the educational environment of the university. *Izvestiya Voronezhskogo gosudarstvennogo pedagogicheskogo universiteta*, 2024, no. 4, pp. 88–92. EDN: GSREPN.

17. Lepin A.P., Martynova E.V., Plakhotnyuk Yu.N. The pedagogical approach of "service learning": the case of the Southern Federal University. *Vestnik Yuzhno-Rossiyskogo gosudarstvennogo tekhnicheskogo universiteta (NPI). Seriya: Sotsialno-ekonomicheskie nauki*, 2025, vol. 18, no. 2, pp. 269–283. EDN: CQBRDD.

18. Zakharova T.I., Sadykova K.V., Styurina D.E. Problems of staffing of non-commercial organizations. *Vestnik Yuzhno-Uralskogo gosudarstvennogo universiteta. Seriya: Ekonomika i menedzhment*, 2023, vol. 17, no. 1, pp. 49–55. DOI: 10.14529/em230104.

СПИСОК ЛИТЕРАТУРЫ

1. Astin A.W., Sax L.J. How Undergraduates Are Affected by Service Participation // Journal of College Student Development. 1998. Vol. 39. № 3. P. 251–263.

2. Eyler J., Giles D.E.Jr. Where's the Learning in Service-Learning? San Francisco: Jossey-Bass, 1999. 320 p.

3. Putnam R.D. Bowling Alone: The Collapse and Revival of American Community. New York: Simon & Schuster, 2000. 541 p. DOI: 10.1145/358916.361990.

4. Bringle R.G., Hatcher J.A. Implementing Service Learning in Higher Education // The Journal of Higher Education. 1996. Vol. 67. № 2. P. 221–239. DOI: 10.1080/00221546.1996.11780257.

5. Jacoby B. Service-Learning Essentials: Questions, Answers, and Lessons Learned. San Francisco: Jossey-Bass, 2015. 336 p.

6. Butin D.W. Service-Learning in Theory and Practice: The Future of Community Engagement in Higher Education. New York: Palgrave Macmillan, 2010. 188 p. DOI: 10.1057/9780230106154.

7. Ash S.L., Clayton P.H. The Articulated Learning: An Approach to Guided Reflection and Assessment // Innovative Higher Education. 2004. Vol. 29. № 2. P. 137–154. DOI: 10.1023/B:IHIE.0000048795.84634.4a.

8. Никольский В.С., Зленко А.Н. Обучение или служение в российском высшем образовании: особенности начального этапа реализации нового подхода // Интеграция образования. 2024. Т. 28. № 3. С. 421–435. DOI: 10.15507/1991-9468.116.028.202403.421-435.

9. Шаркунова Е.В., Неволина В.В. Обучение служением как эффективная образовательная методика для комплексного развития личности студента // Вопросы журналистики, педагогики, языкознания. 2024. Т. 43. № 4. С. 476–485. DOI: 10.52575/2712-7451-2024-43-4-476-485.

10. Никольский В.С. Обучение служением в России: становление предметного поля // Высшее образование в России. 2023. Т. 32. № 12. С. 9–28. DOI: 10.31992/0869-3617-2023-32-12-9-28.

11. Панкратова Л.Э., Заглодина Т.А. Экосистемный подход в образовании будущих педагогов: реализация модуля «обучение служением» // Инновационная научная современная академическая исследовательская траектория (ИНСАЙТ). 2024. № 3. С. 41–54. EDN: WXAEEW.

12. Шмидт С.В., Фоминых А.В. Формирование гражданско-патриотической культуры через обучение служением в университете // Вестник Хакасского государственного университета им. Н.Ф. Катанова. 2024. № 4. С. 154–156. EDN: BTPBBU.

13. Руднева И.А., Козырева О.А. Формирование профессиональной идентичности будущих педагогов средствами обучения служением // Высшее образование в России. 2025. Т. 34. № 1. С. 63–81. DOI: 10.31992/0869-3617-2025-34-1-63-81.

14. Певная М.В., Боронина Л.Н., Початкова Е.И. Гражданственность студенчества в рамках социально-ориентированного проектного обучения // Высшее образование в России. 2024. Т. 33. № 8-9. С. 21–41. DOI: 10.31992/0869-3617-2024-33-8-9-27-41.

15. Асланов Я.А., Деточенко Л.С., Лепин А.П., Мартынова Е.В. Детерминанты успешности и риски реализации подхода «Обучение служением» в условиях проектно-ориентированного обучения // Высшее образование в России. 2024. Т. 33. № 8-9. С. 63–83. DOI: 10.31992/0869-3617-2024-33-8-9-63-83.

16. Князева О.Н., Галка Н.А. «Обучение служением» как эффективный подход для развития индивидуального потенциала обучающегося в образовательной среде университета // Известия Воронежского государственного педагогического университета. 2024. № 4. С. 88–92. EDN: GSREPN.

17. Лепин А.П., Мартынова Е.В., Плахотнюк Ю.Н. Педагогический подход «Обучение служением»: кейс Южного федерального университета // Вестник Южно-Российского государственного технического университета (НПИ). Серия: Социально-экономические науки. 2025. Т. 18. № 2. С. 269–283. EDN: CQBRDD.

18. Захарова Т.И., Садыкова К.В., Стюрина Д.Е. Проблемы кадровой обеспеченности НКО // Вестник Южно-Уральского государственного университета. Серия: Экономика и менеджмент. 2023. Т. 17. № 1. С. 49–55. DOI: 10.14529/em230104.

Подготовка кадров для некоммерческих организаций в контексте реализации подхода «Обучение служением» в высших учебных заведениях: актуализация проблемы

Горюнова Лилия Васильевна*[1], доктор педагогических наук, профессор,
заведующий кафедрой инклюзивного образования и социально-педагогической реабилитации
Плахотнюк Юлия Николаевна[2], преподаватель кафедры социальных технологий
Мареев Владимир Иванович, доктор педагогических наук, профессор,
профессор кафедры технологии и профессионально-педагогического образования
Южный федеральный университет, Ростов-на-Дону (Россия)

*****E-mail:** lvgoryunova@sfedu.ru

[1]ORCID: https://orcid.org/0000-0002-1685-5404
[2]ORCID: https://orcid.org/0009-0000-8297-2943

Аннотация: Рост значимости деятельности некоммерческих организаций (НКО) для развития системы поддержки людей и проявления гражданской активности определил потребность в подготовке кадров, способных осуществлять профессиональное участие в решении общественно значимых задач. Работа посвящена актуализации профессиональной подготовки кадров для НКО вообще и социально ориентированных НКО в частности в системе высшего образования на основе подхода «Обучение служением». Внедрение подхода «Обучение служением» в процесс профессиональной подготовки кадров для НКО позволяет интегрировать форматы обучения, что обеспечивает развитие у студентов социальной ответственности, проектного мышления и мотивации к участию в деятельности НКО. Эмпирическая часть исследования проходила при реализации федеральной программы «Обучение служением» на базе Южного федерального университета. В исследовании приняли участие студенты, которые в течение 2024/25 учебного года были включены в решение социальных задач от НКО. Полученные данные позволили подтвердить (обнаружена заинтересованность студентов в профессионализации социальной деятельности, устойчиво сформированный запрос на компетенции, обеспечивающие эффективную профессиональную деятельность в НКО, преобладающие у студентов формы активного участия и включенности в работу НКО через практико-ориентированную подготовку, выстроенную с опорой на подход «Обучение служением») наличие интереса студентов к данному сектору экономики и возможности выстраивать свою профессиональную карьеру в НКО. Анализ полученных результатов позволил на основании выявленного интереса студентов к социальной деятельности и запроса на компетенции, релевантные деятельности НКО, актуализировать необходимость осуществления в системе высшего образования профессиональной подготовки кадров для НКО на основе подхода «Обучение служением».

Ключевые слова: профессиональная подготовка; кадры для некоммерческих организаций; подход «Обучение служением»; высшее образование.

Для цитирования: Горюнова Л.В., Плахотнюк Ю.Н., Мареев В.И. Подготовка кадров для некоммерческих организаций в контексте реализации подхода «Обучение служением» в высших учебных заведениях: актуализация проблемы // Доказательная педагогика, психология. 2025. № 2. С. 9–15. DOI: 10.18323/3034-2996-2025-2-61-1.
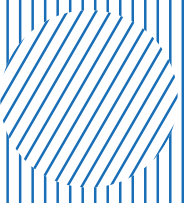
Togliatti State University is a participant in the Priority-2030 program of strategic academic leadership, a flagship university in the Samara region, a center for innovative and technological development of the region.

Togliatti State University was created in 2001 by merging Togliatti Polytechnic Institute (founded in 1951 as a branch of Kuibyshev Industrial Institute) and Togliatti branch of Samara State Pedagogical University (founded in 1987).

Togliatti State University today

– More than 22,000 students of all modes of study.

– Ten institutes implementing more than 170 higher education programs for 25 integrated groups of training areas, advanced technologies research institute, Zhiguli Valley Institute of Additional Education, military training center.

– 38 resource centers with up-to-date facilities and equipment created since 2011.

– Accreditation in eight systems for standard testing, research, and engineering.

– Main areas: advanced digital, intelligent manufacturing technologies, robotic systems, advanced materials and design methods, environmentally friendly and resource-saving energy engineering, personalized medicine, countering industrial threats.

University main achievements

– Ongoing project and professional practical activity was introduced for 100 % of full-time undergraduate/specialist students.

– Four mega-grants were implemented according to the Resolutions of the Government of the Russian Federation dated April 9, 2010 No. 219 and No. 220 – three laboratories in the field of physical materials science and nanotechnology (with the invitation of leading scientists), as well as an innovation technology center were created. The latter was transformed into a university innovation technopark.

– A member of the extraterritorial scientific and educational center "Engineering of the Future".

– An initiator of the formation of eight consortiums, which brought together 69 organizations, including 36 universities, six scientific partners, among which there are three organizations of the Russian Academy of Sciences.

– A twice winner of the RF Government award in the field of quality (2009, 2019).

– An Online Higher Education System promoted under the Rosdistant brand was created. The project is the winner of the Project Olympus competition of the Analytical Center under the Government of the Russian Federation in the Project Management in the System of Higher Education and Science nomination (2019).

Formation of communicative competence of future sound engineers

Yury A. Kachalov, senior lecturer
of Chair "Sound Engineering and Digital Technologies"
Samara State Institute of Culture, Samara (Russia)

E-mail: kachalovyuriy@yandex.ru

ORCID: https://orcid.org/0000-0001-5192-0286

Abstract: Sound engineering as a special type of professional activity includes high requirements to the skills of a specialist: technical, physical, aesthetic, and creative. To solve many professional tasks facing a sound engineer, communicative skills are also necessary. There is a need to expand the programs for the formation of communicative competence, which is not sufficiently developed during training. The developed model for the formation of communicative competence of sound engineers takes into account the communicative situations that a sound engineer encounters in professional activity. To form the communicative competence of sound engineers, the author proposed to use personality-centered teaching methods (lecture-dialogue, discussion, case method, modeling of situations, analytical seminar, training), which make up the author's program for the formation of communicative competence of sound engineers. The peculiarity of the proposed personality-oriented methods lies in the priority of dialogue over monologue, subject-to-subject interaction of a teacher and a student, the use of personal and professional experience of both to achieve the learning goals. The proposed set of diagnostic techniques allows assessing the formedness of the components of communicative competence of sound engineers. The results obtained demonstrated the effectiveness of the proposed model: an increase in indicators for all five components of communicative competence of future sound engineers was revealed. After completing the program, students developed the skills of goal-setting, empathy, reflexivity, analysis of communication subjects, application of communication techniques, co-creation, forecasting, increased knowledge of professional terminology, etc. Analysis of cases with professional communication situations increased the ability of students to solve typical communicative tasks of a sound engineer. Consequently, the personality-centered approach is effective when forming the communicative competence of sound engineers. The experience of research on the formation of communicative competence of students can be extended to related specialties of creative universities.

Keywords: sound engineering; communicative competence model; professional communication of sound engineers; personality-centered education; subject-based approach; case method; case study.

For citation: Kachalov Yu.A. Formation of communicative competence of future sound engineers. *Evidence-based education studies*, 2025, no. 2, pp. 17–25. DOI: 10.18323/3034-2996-2025-2-61-2.

INTRODUCTION

During the training of sound engineering students, the focus is on the technical and creative training of specialists; however, the aspects of professional interaction are covered to a lesser extent. This means that future sound engineers do not have full practice of various communication situations when a sound engineer needs specific skills. For example, when interacting with a performer, a sound engineer is obliged to provide him with a comfortable environment for creativity, to have knowledge of how a sound engineer should act in various situations of professional communication. Joint creativity of a sound engineer and a director is characterized as well by specific conditions of interaction, in which the sound engineer occupies a subordinate position, but at the same time has his/her own view of the work of art. Beginning specialists are often unprepared for such communication tasks. A personality-centered approach is optimal for achieving a high level of communicative competence, since it is aimed at developing a personality as a whole, which leads to an expansion of the range of behavioral patterns, reactions and interactions.

Communicative competence is the key to successful professional activity in areas related to communication [1–4]. Professional communications form the basis of interaction between a sound engineer and other participants in the creative process and act as a regulator of both professional and creative relationships [5; 6]. At the same time, a prerequisite for the effectiveness of professional relationships is a high level of communicative competence of their subjects [7; 8].

Communicative competence is a personality trait; therefore, to achieve the set goal, it is optimal to use the capabilities of a personality-centered approach [9–11]. A personality-centered approach as a humanistic education affects and develops individual qualities of a person at a deeper level than traditional education focused on acquiring knowledge, skills and abilities [12–14]. The introduction of innovative technologies into a personality-centered methodology leads to the development of productive thinking

and a creative approach to cognition, creativity and other types of activity [15; 16]. However, existing developments do not take into account the professional characteristics of various areas of activity. At the same time, sound engineering, which is at the intersection of creative and technical activities, requires preparation for solving specialized communicative tasks that determine both the form and content of the educational process.

With relation to methodology, it is necessary to analyze the structure and functions of communicative competence for the effective construction of a model of its formation. Elements of communicative competence models in the works [9; 17; 18] have similar parameters, although their layout and logical connections are built differently, but they do not always consider the specifics of a particular profession. It is important to remember that in teaching narrow specialties, one should rely on the unique experience of professional activity, which includes different levels of communication, interaction situations, and tasks. According to our theoretical study, the communicative competence of sound engineers includes the following components: motivational and axiological (goals and motives of professional communication), content-related (professional knowledge of the sound engineer), operational (professional vocabulary, communication channels and techniques, rhetorical techniques), environmental (definition of circumstances and conditions of communication, empathy), experiential-reflexive (analysis and reflection of communicative experience) [19]. The developed components suggest the creation of a narrowly focused training model that takes into account the professional characteristics of the sound engineer as a participant in communicative interaction.

The purpose of this study is to test experimentally the model for the formation of communicative competence of sound engineering students within the framework of a personality-centered approach.

METHODS

Sample and methods

The model for developing the communicative competence of future sound engineers was tested through a pedagogical experiment at the Samara State Institute of Culture from 2019 to 2022. The experimental work involved 160 students aged 18 to 35 studying in the specialty 51.05.01 "Sound Engineering of Cultural and Mass Performances and Concert Programs" (specialist program). Students of 3rd to 5th years of study were selected to participate in the experiment, since they already have basic knowledge of the profession and accumulated experience in practical professional activities in two areas: concert sound engineering and studio sound recording (both during educational activities at the university and part-time jobs). It is worth noting that among the students of this field, there are those who are receiving a second higher education or entered the university for the first time not after graduating from school or secondary vocational education, but much later. Therefore, the age limits of the sample are wider than in a standard

study of student groups. Due to the rather small study groups (up to 20 people) in the program cohort, data collection was carried out over several years to achieve an optimal sample size and obtain objective and reliable results.

In the experimental group (EG=83 people) and the control group (CG=77 people), an input control was carried out using diagnostic techniques to determine the level of development of individual components of communicative competence (Table 1, Table 2). The control and experimental groups were checked for homogeneity of samples for each component using the χ^2 Pearson criterion in the SPSS statistical package; the equality of the group indicators was confirmed.

After the formative experiment, the control using the same methods (Table 1, Table 2) was repeated.

Model for the formation of communicative competence

We have previously developed a model for the formation of communicative competence of sound engineers [21]. The model consists of four blocks (target, methodology, content, and evaluation-result), sequentially linked to each other. The target block contains the goal of the model: the formation of communicative competence of future sound engineers using a personality-centered approach. The methodology block sets out the approaches (competence-based and personality-centered) and the principles for implementing the model (subjectivity, dialogueness, interactivity, reflexivity, and practice-orientation). The content block (forms, methods, and teaching aids) is based on the author's program for the development of communicative competence of sound engineers. The methods of development are selected in accordance with the components of communicative competence (Table 3).

The peculiarity of the proposed personality-centered methods is the priority of a dialogue over a monologue, subject-to-subject interaction of the teacher and the student, the use of personal and professional experience of both to achieve the learning goals. The evaluation and result block of the model includes criteria for assessing the development of communicative competence components based on diagnostic methods (Table 3).

Program for the formation of communicative competence of future sound engineers

At the formative stage of the experiment, a program for the formation of communicative competence of future sound engineers (hereinafter referred to as the Program) was implemented. The Program is aimed at forming knowledge of the principles and grounds of professional interaction, the ability to analyze social situations of interpersonal/intergroup communication, navigate the system of rhetorical means, select and apply appropriate speech models in professional communication (Table 4). Each topic uses personality-centered methods aimed at acquiring communication skills: goal setting, analysis of communication subjects, application of communication techniques, co-creation, forecasting, etc. At the same time, obtaining subjective communication experience, empathy and reflection skills both increases communication competence and has

Table 1. Methods for assessing the development of components of communicative competence of sound engineers
Таблица 1. Методы оценки сформированности компонентов коммуникативной компетентности звукорежиссеров

Communicative competence component	Diagnostic technique
Motivational and axiological	Diagnostics of motivational orientations in interpersonal communications by I.D. Ladanov, V.A. Urazaeva [22]
Content-related	The author's test aimed at knowledge of professional terminology; it consists of 30 questions with three answer options, one of which is correct (Table 2)
Operational	L. Mikhelson's Test of Communication Skills [22]
Environmental	Emotional Response Scale technique by A. Mehrabyan, modified by N. Epshtein [22]
Experiential-reflexive	Methodology for diagnosing the level of development of reflexivity, questionnaire by A.V. Karpov [22]

Table 2. Author's test of knowledge of professional terminology of a sound engineer
Таблица 2. Авторский тест на знание профессиональной терминологии звукорежиссера

Test questions	
1. Define sound equalization.	16. Specify a type of microphone that is most often used to record string instruments.
2. Define sound compression.	17. Define the dynamic range of a sound recording.
3. Determine which of the presented components an example of sound vibration is.	18. Define the process of adding sound effects to an audio track.
4. Define reverberation in sound engineering.	19. Define a condenser microphone.
5. Specify the type of microphone that is most often used in studio voice recording.	20. Define the process of sound recording on several different audio tracks.
6. Define jingle in sound engineering.	21. Define a limiter in sound engineering.
7. What term refers to the procedure of cleaning an audio recording from extraneous noise and interference?	22. Which process is included in sound mastering?
8. Specify the name of the process when several audio tracks are converted into a balanced overall track.	23. Define a console in sound engineering.
9. Define monitoring in sound engineering.	24. What is not included in a technical rider?
10. Which type of microphone is ***not*** used for recording percussion instruments?	25. Define a stage plan.
11. Indicate an instrument, which ***cannot*** be used to control the volume of an audio signal.	26. Sound below 16 Hz is called…
12. Define mixing in sound engineering.	27. What overtones will predominate in the sound spectrum when the *A* note of the one-line octave (440 Hz) is played on a piano?
13. Specify the name of the process of applying effects to a sound recording.	28. What term denotes the unique resonant frequencies characteristic of a particular voice or musical instrument?
14. Specify the name of the process of creating a single musical composition from separate tracks.	29. Define the process of mixing and interacting two sound waves.
15. Define a diffuser in sound engineering.	30. Define the process of a wave transition from one propagation medium to another, which is accompanied by changes in the wave

a positive impact on the development of the individual as a whole. The program for the formation of communication competence is flexible, adapts to the different communication experience of students, and includes the professional experience of the teacher through using the case method (training situations).

RESULTS

After completing the developed program for the formation of communicative competence of sound engineers in the experimental group, the indicator values increased for all the studied components. In the control group, no statistically significant changes in the components were found.

Table 3. Personality-centered methods of formation of communicative competence components
Таблица 3. Личностно ориентированные методы формирования
компонентов коммуникативной компетентности

Communicative competence component	Component content	Methods of formation of components
Motivational and axiological	Setting and defining the goal and motives of communication	Lecture-dialogue
Content-related	Understanding and forming the essence and meaning of a speech message	Discussion
Operational	Speech norms, knowledge and mastery of communication techniques, professional vocabulary	Case method
Environmental	Defining the circumstances and conditions of communication, empathy	Modeling of situations
Experiential-reflexive	Analysis and reflection of communicative experience, forecasting a communicative act	Analytical seminar, training

Table 4. Program for the formation of communicative competence of future sound engineers
Таблица 4. Программа формирования коммуникативной компетентности будущих звукорежиссеров

Topic	Methods	Method description
1. General characteristics of communication: concept, structure, functions, types, stages, channels, means	Lecture-dialogue "General characteristics of communication: concept, structure, functions, types, stages"	Introductory lecture using dialogic interaction techniques
2. Verbal, non-verbal, paraverbal communication. Perceptual, communicative and interactive aspects of communication	Lecture-dialogue " Verbal, non-verbal, paraverbal communication ", "Perceptual, communicative and interactive aspects of communication"	Expanding ideas about the methods, channels and techniques of communication based on subjective experience
3. Setting and achieving communication tasks	Lecture-dialogue "Coal setting and motivation"	Work on understanding the motives and goals of the communicative act. Formation of the communication goal
4. Professional terminology and slang of sound engineers	Discussion "Work in a creative team"	Group discussion of the rules of communication using professional slang with examples of joint creativity
5. Communication techniques	Cases "Sound check", "Agreement of the rider", "Recording of the performer", "Concert of the star"	Working out communication techniques based on the specified conditions of professional interaction
6. Analysis of personal and situational features of communication	"A sound engineer and …" situation modeling	A role-playing game with the analysis of a meta-state, circumstances and empathy development
7. Analysis and reflection of communicative behavior	Analytical seminar "Self-analysis of communication experience", training "Planning negotiations"	Reflection of the acquired communication experience, analysis of cases, development of business negotiation skills

The study of the motivational and axiological component of communicative competence demonstrated the following results. Comparison of the indicators of the experimental and control groups after the experiment showed the value of χ^2=16.08 at p<0.05. Consequently, there was a statistically significant increase in the level of development of the motivational and axiological component of communicative competence in the EG compared to the CG (Table 5). The EG students significantly improved their skills in understanding and applying professional terminology (content-related component). The analysis revealed statistically significant differences between the EG and the CG (χ^2=8.43 at p<0.05). The analysis of changes in the indicators for the operational component showed that in

Level	Control group		Experimental group	
	Before experiment	**After experiment**	**Before experiment**	**After experiment**
Motivation-value-based component				
High	9.1	10.4	8.4	37.4
Medium	75.3	77.9	74.7	56.6
Low	15.6	11.7	16.9	6.0
Content-related component				
High	15.6	23.4	18.2	43.4
Medium	64.9	62.3	67.5	50.6
Low	19.5	14.3	14.3	6.0
Operational component				
High	10.4	10.4	12.0	43.4
Medium	62.3	63.6	63.9	49.4
Low	27.3	26.0	24.1	7.2
Environmental component				
High	14.3	16.9	10.8	32.5
Medium	67.5	68.8	68.7	55.4
Low	18.2	14.3	20.5	12.1
Empirical-reflective component				
High	23.4	26.0	19.3	38.6
Medium	59.7	57.1	66.3	55.4
Low	16.9	16.9	14.4	6.0

the CG the indicators remained the same, while in the EG the completion of the Program significantly influenced the students' proficiency in communication techniques (χ^2=25.87 at p<0.05). The level of development of the environmental component in the EG also increased significantly during the experiment (Table 5). In the CG, there were statistically insignificant changes, while in the EG, there was a positive shift in all levels of component development (χ^2=5.22 at p<0.05). The study of the experiential-reflexive component showed that the training had a positive effect on the students' ability to reflect (Table 5). Statistical measurements of unpaired samples also showed significant differences in the groups in terms of reflexivity indicators (χ^2=6.15 at p<0.05).

The obtained data show progress in the communicative abilities of future sound engineers after applying the model of developing the communicative competence of future sound engineers based on a personality-centered approach.

DISCUSSION

For sound engineers, within the framework of the professional program, it is important to master both specialized competencies and updated skills of negotiating in a professional environment, creative solutions to communication problems. It is optimally to form communicative competence of sound engineers on the basis of a model aimed at a comprehensive systemic development of theoretical and practical communicative competencies. The implementation of the model is ensured by subject-subject interaction between the teacher and students during training and

the use of dialogic, interactive, project, problem-based and situational teaching methods in the context of a personality-centered approach.

The application of these principles revealed the unpreparedness of students for active participation in a dialogue with the teacher during classes. Some students with the developed communication skills easily perceived the proposed format of work and maintained a conversation, proposed solutions to communication problems, shared their experience of professional communication. Most future sound engineers found it difficult to engage in communication, and were reluctant to participate in discussions, even if they had experience in professional communications. Therefore, at the initial stage of the experiment, the teacher had to persistently address the students, provoking their reactions and responses. Subsequently, the students mastered this method of work and began to participate more actively in discussions. It turned out that many students had extensive professional experience, including communication situations in the process of joint work.

A large number of communication situations were worked out, which future sound engineers encountered in joint work with a director, producer, artists and musicians, a representative of a rental organization, a group manager, an art director of the site, a technical director, a technician, etc. Among them, there were both typical situations proposed by the teacher and those communication tasks that students encountered in real work practice. The flexibility of the Program allowed including the subjective experience of students' professional communications in the lesson and considering possible strategies of communicative behavior to achieve a successful result.

A wide range of various interactions at different levels (with a manager, subordinate, colleague, etc.) was considered. Since the boundaries of subordination are not always clearly defined in a creative environment, it was important to teach students how to navigate professional contacts. Thus, during one of the classes, a student suggested analyzing the following case: he works as a sound engineer at a small concert venue with a visiting group (from another city). During sound checking, it turns out that the drum kit is too loud and needs to be muted, and the drummer refuses to follow the sound engineer's instructions. Through discussions, the following solution to the problem was proposed: it is necessary to identify the group leader, to find out whose opinion the other musicians listen to when controversial situations arise. Therefore, if it is not possible to establish contact with the musician, the situation should be explained to the leader of the group (this could be, for example, the vocalist). The student addressed him with the following wording: "Considering the small size of the venue, we critically need to muffle the hardware, soften the sound. This interferes with the vocals; they become unintelligible when the drums are playing at full volume. If we don't do this, the listener will be dissatisfied, as the voice will not be heard. And we can't add vocals, because this will cause acoustic feedback. Either we compromise and partially muffle the sound of the drums, or there will be noise and interference." Since the band leader is

interested in the overall impression of the concert, and also knows the band members well, he takes on the function of a mediator and will resolve the situation.

The students showed great interest in the cases offered by the teacher. Future sound engineers both improved the wordings and worked through objections, managed conflicts, and moderated the discussion. All these skills are necessary for solving everyday communication problems in the profession of a sound engineer, who often acts as a link between a musical group and an event organizer. Here is a student's comment on the development of conflict management skills after completing the Program: "I always avoided conflict before, tried to step aside so as not to escalate it, not to intensify it. But now I understand that at work I cannot just step aside. I must defend my professional opinion, I can argue my position without fear of disapproval, if, of course, I am one hundred percent sure of it: if I need this particular microphone, I will use it, because I am confident in it."

The greatest difficulty after overcoming the first communication barriers was the skills of reflection and negotiation planning. Despite the communication experience accumulated during the classes, students encountered a lack of understanding of how to conduct self-analysis of communication experience. To resolve this situation, an analysis of simpler, everyday communication situations was conducted. These examples were used to practice the skills of identifying errors, which were then applied in professional situations. In general, students noted the great influence of the knowledge and skills acquired during the Program both on professional communications and on interpersonal relationships, as they began to better understand the motives for communication, competently apply various communication techniques, and gain experience from negotiations: "Now it's no longer scary to go out on stage with experienced artists, to talk to them. They are the same people, you just need to treat them humanely and maintain a positive attitude. Do not argue, just calmly explain. And now I also understand well the difference between communicating with a director, who is the author of the idea and the leader, and a group manager, for example, who should listen to me as a specialist, and not manage all the sound on the stage."

Consequently, personality-centered methods do influence both the professional skills of future sound engineers and the personality as a whole, which corresponds to the theoretical developments of the conducted study. The experience gained shows how important it is to use both the universal models [17; 18] in teaching communicative competence and the highly specialized skills in specific situations of professional communication.

CONCLUSIONS

The effectiveness of the author's model for the formation of communicative competence of future sound engineers within the personality-centered approach has been confirmed. The model can be modified for related specialties and adapted for other areas of study, taking into account professional characteristics.

REFERENCES

1. Bukovtsova T.N. Communicative competence of employees of internal affairs bodies: characteristics and ways to improve. *Missiya konfessiy*, 2023, vol. 12, no. 72, pp. 79–85. EDN: DLALXS.

2. Petrova S.I., Borisova U.S. Analysis of the communicative competence of modern students. *Gumanitarnye, sotsialno-ekonomicheskie i obshchestvennye nauki*, 2022, no. 12, pp. 71–75. EDN: HWFQJX.

3. Sterlyagova S.S. The process of formation of communicative competence as a condition for the professional training of students of IT specialties. *Sovremennoe pedagogicheskoe obrazovanie*, 2024, no. 1, pp. 247–251. EDN: DXGSXY.

4. Iksan Z.H., Zakaria E., Meerah T.S.M., Osman K., Lian D.K.Ch., Mahmud S.N.D., Krish P. Communication Skills among University Students. *Procedia – Social and Behavioral Sciences*, 2012, vol. 59, pp. 71–76. DOI: 10.1016/j.sbspro.2012.09.247.

5. Ezhov K.A. Aesthetic component of professional preparedness of specialists in musical sound engineering. *Vestnik Nizhegorodskogo universiteta im. N.I. Lobachevskogo*, 2008, no. 5, pp. 315–318. EDN: IXRLOW.

6. Yussa E.B. Sound engineer in the music art communication. *Mezhdunarodnyy nauchno-issledovatelskiy zhurnal*, 2016, no. 7-2, pp. 155–157. DOI: 10.18454/IRJ.2016.49.120.

7. Tkhorik N.S., Dzhiga N.D. Communicative competence of students of helping professions in the context of volunteer activity. *Nauchno-analiticheskiy zhurnal "Vestnik Sankt-Peterburgskogo universiteta gosudarstvennoy protivopozharnoy sluzhby MChS Rossii"*, 2022, no. 4, pp. 121–127. EDN: OQWBXW.

8. Kolmogorova N.S. Correlation research of personality orientation and communicative competence of students in view of the formation of professional culture of prospective specialist. *Vestnik Barnaulskogo gosudarstvennogo pedagogicheskogo universiteta*, 2004, no. 4-1, pp. 54–61. EDN: PYJVEV.

9. Zimnyaya I.A. Key competencies as a result-target basis of the competence-based approach in education. *Vysshee obrazovanie segodnya*, 2003, no. 5, pp. 34–42. EDN: SMMBFV.

10. Katkova I.A., Shokhova O.V. Communicative competence in the context of socio-psychological and pedagogical support in the educational vertical. *Gumanitarnye nauki (g. Yalta)*, 2022, no. 1, pp. 101–107. EDN: MZNIAI.

11. Podnebesnaya E.I. Theory and practice of development of students' communicative competence in educational organizations. *Uchenye zapiski universiteta imeni P.F. Lesgafta*, 2022, no. 10, pp. 331–333. EDN: ZGWZDB.

12. Asadullin R.M., Frolov O.V. Personality-oriented technology of training a future teacher in the university educational process. *Vysshee obrazovanie v Rossii*, 2024, vol. 33, no. 6, pp. 92–103. DOI: 10.31992/0869-3617-2024-33-6-92-103.

13. Gromova T.V. A personality-oriented approach in inclusive education. *Sovremennoe pedagogicheskoe obrazovanie*, 2023, no. 5, pp. 173–178. DOI: 10.24412/2587-8328-2023-5-173-178.

14. Tsepkova A.N. The principles of a personality-oriented educational process organization at a university. *Samarskiy nauchnyy vestnik*, 2022, vol. 11, no. 3, pp. 339–344. DOI: 10.55355/snv2022113320.

15. Bogoyavlenskaya D.B. Giftedness and creativity. *Odarennyy rebenok*, 2016, no. 5, pp. 6–16. EDN: WXTTYR.

16. Belyaev D.A., Kireeva E.A. Innovative educational technologues in student-centered learning. *Sovremennye issledovaniya sotsialnykh problem (elektronnyy nauchnyy zhurnal)*, 2017, vol. 8, no. 4-2, pp. 37–41. EDN: YMFYHR.

17. Antropova L.V. Student's communicative competence as an object of formation in the process of professional training in a higher school. *Vestnik Cherepovetskogo gosudarstvennogo universiteta*, 2010, no. 1, pp. 15–20. EDN: MUZDVD.

18. Nikolashkina V.E., Sherayzina R.M., Donina I.A. Professionally-communicative competence of the future lawyers as the subject of interdisciplinary research. *Sovremennye problemy nauki i obrazovaniya*, 2016, no. 6, pp. 489–497. EDN: XIBMBJ.

19. Kachalov Yu.A. Functional components of communicative competence of sound engineers. *Vestnik Vladimirskogo gosudarstvennogo universiteta im. Aleksandra Grigorevicha i Nikolaya Stoletovykh. Seriya: Pedagogicheskie i psikhologicheskie nauki*, 2024, no. 4, pp. 63–72. EDN: HGNCJN.

20. Puzankova E.N., Bayramov E.V. Model of formation of communication competence with the use of information technologies in teaching bachelors of pedagogical education. *Uchenye zapiski Orlovskogo gosudarstvennogo universiteta*, 2019, no. 3, pp. 307–312. EDN: HIZWPD.

21. Kachalov Yu.A. Formation model of sound engineers' communicative competence. *Vestnik Samarskogo gosudarstvennogo tekhnicheskogo universiteta. Seriya: Psikhologo-pedagogicheskie nauki*, 2024, vol. 21, no. 3, pp. 39–52. DOI: 10.17673/vsgtu-pps.2024.3.3.

22. Danilov S.V., Shustova L.P., Kuznetsova N.I., eds. *Diagnostika osobennostey adaptatsii, deyatelnosti i professionalno-lichnostnykh zatrudneniy molodogo pedagoga: sbornik diagnosticheskikh metodik* [Diagnostics of the features of adaptation, activity and professional and personal difficulties of a young teacher: Collection of diagnostic methods]. Ulyanovsk, UlGPU im. I.N. Ulyanov Publ., 2018. 98 p. EDN: MHMYYP.

СПИСОК ЛИТЕРАТУРЫ

1. Буковцова Т.Н. Коммуникативная компетентность сотрудников органов внутренних дел: характеристика и пути повышения // Миссия конфессий. 2023. Т. 12. № 72. С. 79–85. EDN: DLALXS.

2. Петрова С.И., Борисова У.С. Анализ коммуникативной компетентности современных студентов // Гуманитарные, социально-экономические и общественные науки. 2022. № 12. С. 71–75. EDN: HWFQJX.

3. Стерлягова С.С. Процесс формирования коммуникативной компетентности как условие профессиональной подготовки студентов IT-специальностей //

Современное педагогическое образование. 2024. № 1. С. 247–251. EDN: DXGSXY.

4. Iksan Z.H., Zakaria E., Meerah T.S.M., Osman K., Lian D.K.Ch., Mahmud S.N.D., Krish P. Communication Skills among University Students // Procedia – Social and Behavioral Sciences. 2012. Vol. 59. P. 71–76. DOI: 10.1016/j.sbspro.2012.09.247.

5. Ежов К.А. Эстетические основы профессиональной готовности специалиста по музыкальной звукорежиссуре // Вестник Нижегородского университета им. Н.И. Лобачевского. 2008. № 5. С. 315–318. EDN: IXRLOW.

6. Юсса Е.Б. Звукорежиссер в системе музыкальной художественной коммуникации // Международный научно-исследовательский журнал. 2016. № 7-2. С. 155–157. DOI: 10.18454/IRJ.2016.49.120.

7. Тхорик Н.С., Джига Н.Д. Коммуникативная компетентность студентов помогающих профессий в контексте к волонтерской деятельности // Научно-аналитический журнал «Вестник Санкт-Петербургского университета государственной противопожарной службы МЧС России». 2022. № 4. С. 121–127. EDN: OQWBXW.

8. Колмогорова Н.С. Изучение взаимосвязи направленности личности и коммуникативной компетентности студентов в контексте становления профессиональной культуры будущего специалиста // Вестник Барнаульского государственного педагогического университета. 2004. № 4-1. С. 54–61. EDN: PYJVEV.

9. Зимняя И.А. Ключевые компетенции – новая парадигма результата образования // Высшее образование сегодня. 2003. № 5. С. 34–42. EDN: SMMBFV.

10. Каткова И.А., Шохова О.В. Коммуникативная компетентность в условиях социально-психолого-педагогического сопровождения в образовательной вертикали // Гуманитарные науки (г. Ялта). 2022. № 1. С. 101–107. EDN: MZNIAI.

11. Поднебесная Э.И. Теория и практика развития коммуникативной компетентности студентов в образовательных организациях // Ученые записки университета имени П.Ф. Лесгафта. 2022. № 10. С. 331–333. EDN: ZGWZDB.

12. Асадуллин Р.М., Фролов О.В. Личностно-развивающий подход к профессиональной педагогической подготовке будущего учителя в вузовском образовательном процессе // Высшее образование в России. 2024. Т. 33. № 6. С. 92–103. DOI: 10.31992/0869-3617-2024-33-6-92-103.

13. Громова Т.В. Личностно ориентированный подход в инклюзивном образовании // Современное педагогическое образование. 2023. № 5. С. 173–178. DOI: 10.24412/2587-8328-2023-5-173-178.

14. Цепкова А.Н. О принципах организации личностно ориентированного образовательного процесса в вузе // Самарский научный вестник. 2022. Т. 11. № 3. С. 339–344. DOI: 10.55355/snv2022113320.

15. Богоявленская Д.Б. Одарённость и творчество // Одарённый ребёнок. 2016. № 5. С. 6–16. EDN: WXTTYR.

16. Беляев Д.А., Киреева Е.А. Инновационные образовательные технологии в личностно-ориентированном обучении // Современные исследования социальных проблем (электронный научный журнал). 2017. Т. 8. № 4-2. С. 37–41. EDN: YMFYHR.

17. Антропова Л.В. Коммуникативная компетентность студента как объект формирования в процессе профессиональной подготовки в вузе // Вестник Череповецкого государственного университета. 2010. № 1. С. 15–20. EDN: MUZDVD.

18. Николашкина В.Е., Шерайзина Р.М., Донина И.А. Профессионально-коммуникативная компетентность будущих юристов как предмет междисциплинарных исследований // Современные проблемы науки и образования. 2016. № 6. С. 489–497. EDN: XIBMBJ.

19. Качалов Ю.А. Функциональные компоненты коммуникативной компетентности звукорежиссера // Вестник Владимирского государственного университета им. Александра Григорьевича и Николая Столетовых. Серия: Педагогические и психологические науки. 2024. № 4. С. 63–72. EDN: HGNCJN.

20. Пузанкова Е.Н., Байрамов Э.В. Модель формирования коммуникативной компетентности с использованием информационных технологий при обучении бакалавров педагогического образования // Ученые записки Орловского государственного университета. 2019. № 3. С. 307–312. EDN: HIZWPD.

21. Качалов Ю.А. Модель формирования коммуникативной компетентности звукорежиссеров // Вестник Самарского государственного технического университета. Серия: Психолого-педагогические науки. 2024. Т. 21. № 3. С. 39–52. DOI: 10.17673/vsgtu-pps.2024.3.3.

22. Диагностика особенностей адаптации, деятельности и профессионально-личностных затруднений молодого педагога: сборник диагностических методик / сост. С.В. Данилов, Л.П. Шустова, Н.И. Кузнецова. Ульяновск: УлГПУ им. И.Н. Ульянова, 2018. 98 с. EDN: MHMYYP.

Формирование коммуникативной компетентности будущих звукорежиссеров

Качалов Юрий Алексеевич, старший преподаватель
кафедры «Звукорежиссура и цифровые технологии»
Самарский государственный институт культуры, Самара (Россия)

E-mail: kachalovyuriy@yandex.ru

ORCID: https://orcid.org/0000-0001-5192-0286

Аннотация: Звукорежиссура как особый вид профессиональной деятельности включает в себя высокие требования к навыкам специалиста: техническим, физическим, эстетическим, творческим. Для решения многих профессиональных задач, стоящих перед звукорежиссером, необходимы также коммуникативные навыки. Существует потребность в расширении программ формирования коммуникативной компетентности, которая не получает достаточного развития во время обучения. Разработанная модель формирования коммуникативной компетентности звукорежиссеров учитывает коммуникативные ситуации, с которыми сталкивается звукорежиссер в ходе профессиональной деятельности. Для формирования коммуникативной компетентности звукорежиссеров предлагается применять личностно ориентированные методы обучения (лекцию-диалог, дискуссию, метод кейсов, моделирование ситуаций, аналитический семинар, тренинг), которые составляют авторскую программу формирования коммуникативной компетентности звукорежиссеров. Особенность предложенных личностно ориентированных методов заключается в приоритете диалога над монологом, субъект-субъектном взаимодействии педагога и обучающегося, использовании личного и профессионального опыта обоих для достижения целей обучения. Предложенный набор диагностических методов позволяет оценить сформированность компонентов коммуникативной компетентности звукорежиссеров. Полученные результаты продемонстрировали эффективность предложенной модели: был выявлен рост показателей по всем пяти компонентам коммуникативной компетентности будущих звукорежиссеров. После прохождения программы студенты развили навыки целеполагания, эмпатии, рефлексии, анализа субъектов коммуникации, применения коммуникативных техник, сотворчества, прогнозирования, повысили знания профессиональной терминологии и др. Разбор кейсов с профессиональными ситуациями общения повысил способность студентов решать типовые коммуникативные задачи звукорежиссера. Следовательно, личностно ориентированный подход эффективен в формировании коммуникативной компетентности звукорежиссеров. Опыт исследования по формированию коммуникативной компетентности у студентов можно распространить и на смежные специальности творческих вузов.

Ключевые слова: звукорежиссура; модель коммуникативной компетентности; профессиональная коммуникация звукорежиссеров; личностно ориентированное обучение; субъектный подход; метод кейсов; case-study.

The Publishing Center (until November 1, 2011 – the Editorial and Publishing Center) is a structural subdivision of Togliatti State University, which takes an important place in providing the educational process with high-quality instructional, educational, methodological, and scientific literature.
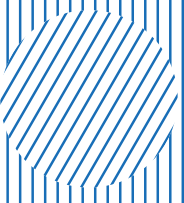
TSU Publishing Center today

– Publishing center includes an editorial office and a printing shop. In recent years, the base of computer equipment, printing and post-printing equipment has been almost completely updated.

– It publishes books and electronic textbooks for students, graduate students, lecturers, and specialists in almost all branches of modern scientific knowledge, as well as popular science and reference literature, fiction, books of reports (papers) of conferences. Published literature corresponds to all areas of the educational cycles of the university disciplines.

– A considerable volume of printing job is the prompt execution of promotional and information products.

– The publishing center team is a collaboration of highly skilled professionals with wide work experience and young motivated employees.

– Publishing center employees participate in practical seminars to become acquainted with new opportunities in the field of printing technologies and equipment, as well as with advanced materials for digital printing.

Main areas of activity

– Publication of paper-based educational and scientific literature, production of electronic educational and scientific aids.

– Implementation of editorial and publishing cycle stages: editing, production of original layouts, replication, pre-printing and post-printing treatment.

– Methodological and advisory work with the university departments on the issue of educational and scientific publications.

– Interaction with the Russian Book Chamber on the assignment of ISBNs to publications issued by Togliatti State University.

– Preparation of publications issued by Togliatti State University for state registration and sending of statutory copies.

– Markup of papers published in the TSU journals in the Articulus program to place on the eLibrary platform.

Main achievements

– The results of the work were awarded with diplomas of the winners of the annual interregional and all-Russian University Book competitions.

– Publishing center regularly participates in the academic book exhibition of publishing activities "University – Science – City".

The internal logic and practical path of digital technology resources empowering teaching practice of local university teachers

Li Chunjiang[1], PhD, Professor, President
Zhao Mengfei[2], graduate student
Yu Haiying*[3], Doctor of Education, Professor, Dean of the College of Educational Sciences
Mudanjiang Normal University, Mudanjiang (China)

*E-mail: 0701008@mdjnu.edu.cn

[1]ORCID: https://orcid.org/0009-0004-2589-4327
[2]ORCID: https://orcid.org/0009-0009-9564-862X
[3]ORCID: https://orcid.org/0000-0003-0157-4631

Abstract: Driven by artificial intelligence and the digital transformation of education, the path of digital technology resources empowering teachers' teaching practice in local universities has become a matter of concern. This research was based on the research of teachers in three local universities in Heilongjiang Province, China. The study found that digital technology resources, teachers' digital knowledge skills and professional development activities form a collaborative mechanism of empowering teaching practice, and all three have a significant synergistic role in promoting the teaching practice of teachers in local universities. The intelligent analysing tool is the core driving force of digital technology resources empowering teaching practice, and its data-driven learning diagnosis and teaching feedback functions become the key to teaching practice. Teachers' digital knowledge and skills and professional development activities have a significant intermediary effect, showing a hierarchical and progressive path of empowering teaching practice. Therefore, in order to promote the effectiveness of local universities' digital technology resources empowering teachers' teaching practice, we should build a support system of digital technology empowering teachers' teaching practice, implement the hierarchical guidance of teachers' digital knowledge and skills empowering teaching practice, and innovate the organization mode of teachers' professional development activities empowering teaching practice.

Keywords: local universities; digital technology resources; digital literacy skills; professional development activities; teaching practice.

INTRODUCTION

The reasons for this research

Driven by the artificial intelligence technology revolution and the digital transformation of education, China has successively issued the China Education Modernization 2035 and Outline of the Plan for Building China into a Strong Country in Education (2024–2035), clearly proposing a strategic path to lead educational development through educational digitalization. As the main force to serve the regional economic and social development, the high-quality development of local universities is not only related to educational equity and innovative talent cultivation, but also a key link in realizing the goal of a strong education nation. Teachers' digital literacy, as the core element of education digitalization strategy, not only determines the practical effectiveness of intelligent technology-enabled education and teaching, but also constitutes an important breakthrough in cracking the bottleneck of local universities' resources and enhancing the high-quality development of local universities.

This study is based on the deep integration of digital intelligence technology and education, focusing on how to analyse the path of digital technology resources empowering university teachers' teaching practice through quantitative modelling, and exploring the transmission relationship between digital technology resources, digital knowledge and skills, and professional development in the process of empowering the teaching practice; providing decision-making basis for the formulation of layered and classified local universities teacher development policies and optimizing the digital training of local universities, so as to promote local universities to better use digital intelligence technology for high-quality characteristic development.

Literature review and research hypotheses

Digital technology resources are adapted to teaching practice. The allocation efficiency of instructional technology equipment directly affects the effectiveness of teachers' digital practices. The accessibility and perceived usefulness of digital resources significantly influence teachers' technology adoption behaviour. The appropriate digital resources can provide more possibilities and opportunities for teachers' teaching practice [1]. However, if digital resources do not match teachers 'teaching practices, it will affect the cultivation of teachers' information-based teaching ability [2]. Especially in the process of applying digital resources to teaching practice, the quality and reliability of digital resources cannot be ignored, appropriate digital resources can promote the improvement of teachers' teaching practice efficiency [3]. In order to solve the problems of systematic insufficiency and lack of precision of digital resources in teachers' teaching practice and professional development [4], and improve the configuration efficiency of digital technology equipment, that is, enhance the adaptability of digital resources and teaching practice, has become a requirement for the high-quality development of contemporary education [5]. There is a lack of planning in the construction of digital teaching resources, and the supply of digital resources is insufficient to meet the real needs of teaching [6]. Insufficient investment in digital resources in schools limits teachers' behaviour of applying digital resources in the classroom [7], resulting in students not being able to fully develop learning skills that are compatible with the technological advances of the new era [8]. Digital technology resources are not the more the better, too much information resources will make students confused and weaken the effectiveness of classroom teaching practice [9]. The usefulness of resources depends on the instructional design rather than the technology itself. Teachers should choose and use digital resources that are appropriate for their work in digital teaching practice [10]. Teachers can turn abstract teaching content into audible, tangible, recordable, and speakable teaching practices through the use of digital resources to enhance students' interest [11], and the teaching practice of selecting and using digital resources that are more relevant to the implementation of classroom teaching [12].

Teachers' digital knowledge skills, professional development, and teaching practice effectiveness. The availability of digital technology resources significantly affects the path of teachers' acquisition of digital knowledge skills [13]. Teachers need to practice the interaction of technology tools, pedagogies, and subject matter content in order to realize effective technology integration [14]. Teacher professional development activities are a key bridge between digital technology resources and teaching practices [15]. Situational professional development activities can accelerate the improvement of teachers' digital technology application capabilities. The interaction between digital technology resources and professional development can produce pedagogical efficiency gains. The level of teachers' digital knowledge skills is directly related to the reality of the effect of digital-enabled education and teaching practices [16]. With the rapid development of digital technology, digital knowledge skills are gradually becoming an important indispensable quality for college teachers to carry out teaching practice activities [17]. The professional development of innovative activities based on digital knowledge skills can promote the improvement of interdisciplinary thinking and the optimization of teaching mode and process of college teachers [18]. All learning towards transfer must go through the process of practice, and digital applications emphasize the combination of digital knowledge skills and educational teaching practices in real situations [19]. Therefore, digital knowledge skills, professional development activities and teaching practice are closely integrated to test and improve teachers' digital literacy through practical applications [20].

The current process of acquiring teachers' digital knowledge skills pays less attention to how to integrate digital knowledge skills with subject teaching and the new teaching operation path in the context of digital intelligence [21]. The application of teachers' digital knowledge skills to teaching practice is a personalized and sustainable creative activity, in which teachers combine their own digital knowledge skills with the actual practice of teaching, adopt a teaching method that meets the field of teaching practice, and continue to evolve in their professional development activities and application of teaching practice [22]. Teachers can only ensure the effectiveness of teaching practice by truly mastering digital knowledge skills and continuously strengthening them in professional development activities [23]. Teachers' digital literacy skills and professional development activities are ultimately designed to achieve the goal of empowering students through digital teaching practices. Teachers' digital literacy skills are the cornerstone of their teaching practice, and professional development activities are the bridge for integrating digital literacy skills into teaching content [24].

Based on the above analysis, the following hypotheses are proposed:

1. Digital technology resources have a positive impact on teaching practice in universities, and there are differences in the influence of different digital technology resources variables.

2. Digital knowledge and skills, professional development activities play a positive intermediary effect in the process of digital technology resources affecting teaching practice, and there are differences in the influence of different digital knowledge and skills, professional development activities variables.

RESEARCH DESIGN

Data sources

In this study, teachers of three local universities in Heilongjiang Province were sampled as survey respondents. Teachers from local universities with different school-running conditions (good, relatively good, general) were

selected as subjects, and 140 questionnaires were distributed to each school, with a total of 420 teachers participating in the survey. 398 valid questionnaires were collected by using Questionnaire Star, and the validity rate was 94.76 %. Among them, males comprise 118 individuals (29.6 %), while females account for 280 (70.4 %). In terms of age distribution, 50 participants (12.6 %) are aged 20–30 years, 108 (27.1 %) are 31–40 years old, 183 (46 %) fall into the 41–50 age bracket, and 57 (14.3 %) are aged 51–60. Regarding professional titles, assistant professors number 62 (15.6 %), lecturers 157 (39.4 %), associate professors 131 (32.9 %), and full professors 48 (12.1 %). Educational backgrounds show that 40 individuals (10.1 %) hold bachelor's degrees, 281 (70.6 %) have master's degrees, and 77 (19.3 %) possess doctoral degrees. By academic discipline, humanities fields are represented by 259 participants (65.1 %), whereas science and technology account for 139 (34.9 %). In terms of marital status, the majority, 331 individuals (83.2 %) are married, with 67 (16.8 %) reporting as unmarried.

Questionnaire design and quality

The questionnaire was compiled with 35 items extracted from China's Teacher Digital Literacy[1] educational standards. The first part is the independent variable, with 6 items on the availability of digital technology resources. The second part is the mediating variable, including 4 items on teachers' digital knowledge and skills and 5 items on professional development activities. The third part is the dependent variable, teaching practice which consisted of 14 items, including teaching design, teaching implementation, academic evaluation, and collaborative education. Detailed descriptions of the variables are shown in Table 1, and the questionnaire adopts a 5-point Likert scale, with 1 indicating a high degree of conformity, 5 indicating the worst degree of conformity, and the degree of conformity decreasing with the increase of scores.

The quality of the questionnaire was tested using SPSS20.0, AMOS20.0. The results showed that the fit indices of the measurement model were CMIN/DF=3.869, NFI=0.911, RFI=0.900, IFI=0.932, TLI=0.924, CFI=0.932, RMSEA=0.085, and SRMR=0.0382. The fit indices of the structural model were CMIN/DF=3.869, NFI=0.911, RFI=0.900, IFI=0.932, TLI=0.924, CFI=0.932, RMSEA=0.085, and SRMR=0.0382. The model fit indices all reached the recommended values, which indicates that the quality of the questionnaire was good, with good reliability and validity.

Method

In order to analyse which variables are related to the teaching practice of teachers in local universities, this study used SPSS 20.0 to conduct correlation analysis. The correlation between teachers' teaching practices and

---

[1] *Notice of the Ministry of Education on the Issuance of Education Industry Standards for "Teacher Digital Literacy". Ministry of Education of the People's Republic of China. URL: http://www.moe.gov.cn/srcsite/A16/s3342/202302/t20230214_1044634.html.*

digital technology resources, digital literacy skills, and professional development activities in local universities was explored, and the degree of correlation between the variables was examined.

To explore the differences in the influence of digital technology resources, teachers' digital knowledge and skills, and teachers' professional development activities on teachers' teaching practices, digital technology resources, teachers' digital knowledge and skills, and teachers' professional development activities were taken as independent variables, and teaching practices as the dependent variable, and stepwise regression was used for significance testing.

In order to analyse whether digital knowledge skills and professional development activities play a mediating role in the process of digital technology resources affecting teaching practice, digital technology resources as the independent variable, teaching practice as the dependent variable, and digital knowledge skills and professional development activities as the mediating variables were tested for mediating effects by using SPSS 20.0 with regression analysis and Model 4 in Process to investigate their significance. The significance was investigated using SPSS20.0 with regression analysis and model 4 in Process.

RESULTS

Analysis of factors related to teachers' teaching practice

Table 2 shows the data analysed for the factors related to teaching practice. In terms of mean values, all variables are in the range of relatively good and general. In contrast, the level of professional development activities is higher and close to relatively good. Teaching practice of teachers in local colleges and universities is significantly and positively correlated with digital technology resources of schools, digital knowledge skills of teachers, and professional development activities of teachers, in which teaching practice is highly correlated with digital knowledge skills (r=0.887), and teaching practice is moderately correlated with digital technology resources and professional development activities (r=0.657, 0.761). Digital technology resources, teachers' digital knowledge skills, and teachers' professional development were correlated with each other, and all of them were significantly positively correlated. It can be hypothesized that it is necessary to pay attention to digital technology resources, teachers' digital knowledge skills, and teachers' professional development in order to improve the effectiveness of teachers' teaching practice.

Regression analysis of the influence of digital technology resources on teachers' teaching practice

Table 3 shows the regression analysis of the influence of digital technology resources and its elements on teachers' teaching practice. The influence of digital technology resources and each item of digital technology resources on teachers' teaching practice is analysed by taking digital technology resources and teaching practice as independent variables and teaching practice as dependent variable. The results of the statistical data (see Table 3) show that

Table 1. Descriptive analysis of variables
Таблица 1. Дескриптивный анализ переменных

Variables		Variable description	Maximum value	Minimum value	Mean value	Standard deviation
Availability and usage of digital technology resources		General educational software provided by schools for teachers	1	5	2.42	1.035
		Subject-specific software for education and teaching provided by schools for teachers	1	5	3.15	1.146
		Digital educational resources provided by schools for teachers	1	5	2.56	1.055
		Smart education platforms provided by schools for teachers	1	5	2.26	0.992
		Intelligent analysis and evaluation tools related to education and teaching provided by schools for teachers	1	5	2.79	1.165
		The number of smart classrooms in schools	1	5	2.47	1.040
Digital knowledge and skills	**Knowledge**	Understand the connotative characteristics of common digital technologies	1	5	2.33	0.933
		Be able to propose procedures and methods for problem-solving in the use of digital technologies	1	5	2.49	0.973
	Skills	Master the principles and methods of selecting digital devices, software, and platforms in education and teaching	1	5	2.50	0.941
		Proficiently operate digital devices, software, and platforms to solve common problems	1	5	2.50	0.883
Professional development	**Learning and professional development**	Be able to carry out learning by utilizing digital technology resources according to personal development needs	1	5	2.06	0.888
		Be able to analyze personal teaching practice by using digital technology resources to support teaching reflection and improvement	1	5	2.15	0.930
		Be able to participate in or preside over online professional development communities, learn together, share experiences, seek help, and solve problems	1	5	2.20	0.958
	Teaching research and innovation	Be able to use digital technology resources to support teaching research activities in response to digital teaching problems	1	5	2.19	0.920
		Be able to continuously innovate teaching models, improve teaching activities, and transform students' learning styles by using digital technology resources	1	5	2.18	0.931
Teaching practice	**Teaching design**	Be able to use digital evaluation tools to analyze students' learning situations	1	5	2.52	0.927
		Be able to collect from multiple channels, and select, manage, and create digital educational resources according to teaching needs	1	5	2.51	0.908
		Be able to design teaching activities that integrate digital technology resources according to teaching objectives	1	5	2.45	0.890

Continue of table 1

Variables		Variable description	Maximum value	Minimum value	Mean value	Standard deviation
Teaching practice	**Teaching design**	Be able to use digital technology resources to break through the limitations of time and space, and create a learning environment that integrates the online learning space and the physical learning space	1	5	2.52	0.943
	Teaching implemen-tation	Be able to use digital technology resources to organize teaching activities in an orderly manner, and enhance students' participation and initiative in communication	1	5	2.46	0.927
		Be able to use digital tools to collect students' feedback, improve teaching behaviors, optimize teaching links, and regulate the teaching process	1	5	2.45	0.932
		Be able to use digital technology resources to identify students' learning differences and provide targeted guidance	1	5	2.49	0.927
	Academic evaluation	Be able to reasonably select and use digital tools to collect multimodal academic evaluation data	1	5	2.59	0.961
		Be able to select and apply appropriate data analysis models to conduct academic data analysis	1	5	2.64	0.994
		Be able to visualize the results of academic data analysis with the help of digital tools and provide reasonable interpretations	1	5	2.57	0.998
	Collaborative education	Be able to guide students to appropriately select and use digital technology resources to support their learning, and pay attention to cultivating students' computational thinking and digital social responsibility	1	5	2.51	0.946
		Be able to use digital technology resources to broaden the channels of moral education and innovate the moral education model	1	5	2.48	0.941
		Be able to use digital technology resources to assist in carrying out various forms of mental health education activities	1	5	2.63	0.984
		Be able to use digital technology resources to achieve collaborative education between schools and families, actively strive for social resources, and broaden the channels of education	1	5	2.58	0.993

Table 2. *Analysis of factors related to teaching practice*
Таблица 2. *Анализ факторов, связанных с преподавательской практикой*

Variables	M	SD	1	2	3
1 Teaching practice	2.528	0.848	–		
2 Digital technology resources	2.609	0.895	0.657***	–	
3 Digital knowledge and skills	2.455	0.855	0.887***	0.626***	–
4 Professional development activities	2.155	0.864	0.761***	0.517***	0.683***

*Note. *** is p<0.001; M is the mean; SD is the standard deviation.*
*Примечание. *** p<0,001; M – среднее значение; SD – стандартное отклонение.*

Table 3. *Summary table of regression analysis on the influence of teaching technology resources*
and their various elements on teachers' teaching practice
Таблица 3. *Сводная таблица регрессионного анализа влияния ресурсов образовательных технологий*
и их отдельных компонентов на преподавательскую практику

Independent variable	R^2	F	β	t
Teaching technology resources	0.431	299.956***	0.657	17.319***
General educational software provided by the school for teachers in education and teaching	–		–	–
Subject-specific software used in education and teaching provided by the school for teachers	–		–	–
Digital educational resources provided by the school for teachers	–	102.673***	–	–
Smart education platforms provided by the school for teachers	0.068		0.269	4.887***
Intelligent analysis and evaluation tools related to education and teaching provided by the school for teachers	0.351		0.287	5.308***
The number of smart classrooms provided by the school for teachers	0.020		0.198	3.704***

Note. *** is p<0.001. Independent variables: Digital technology resources (General educational software provided by the school for teachers in education and teaching; Subject-specific software used in education and teaching provided by the school for teachers; Digital educational resources provided by the school for teachers; Smart education platforms provided by the school for teachers; Intelligent analysis and evaluation tools related to education and teaching provided by the school for teachers; The number of smart classrooms provided by the school for teachers). Dependent variable: Teaching practice.
R^2 is coefficient of determination; β is standardized regression coefficient.

Примечание. *** p<0,001. Независимые переменные: цифровые образовательные ресурсы, предоставляемые преподавателям учебным заведением (общее образовательное программное обеспечение для образования и преподавания; предметно-ориентированное программное обеспечение для образования и преподавания; цифровые образовательные ресурсы; «умная» образовательная платформа; инструменты интеллектуального анализа и оценки, связанные с обучением и преподаванием; количество «умных» аудиторий). Зависимая переменная: преподавательская практика.
R^2 – коэффициент детерминации; β – стандартизированный коэффициент регрессии.

the influence of digital technology resources on teachers' teaching practice is 43.1 %. Among the items of digital technology resources, "smart education platform provided by the school to teachers" (with an explanatory power of 6.8 %), "intelligent analysing and evaluating tools related to teaching and learning provided by the school to teachers" (with an explanatory power of 35.1 %), "the number of smart classrooms provided by the school to teachers" (explanatory power of 2 %) had a positive impact on teaching practice. The three variables of general software for education and teaching provided to teachers by the school, subject software used in education and teaching provided to teachers by the school, and digital educational resources provided to teachers by the school were excluded from the model due to their small influence. In the process of digital technology resources affecting teaching practice, the intelligent analysis and evaluation tools related to education and teaching played the most important role, with a 35.1 % contribution.

Analysis of the mediating effect of digital knowledge skills and professional development activities

Based on the previous literature review and theoretical analysis, we hypothesize that digital technology resources can influence teachers' digital knowledge skills and profes-

sional development activities, thus affecting teaching practices. In order to test this hypothesis, digital knowledge skills and professional development activities were taken as the mediating variables, digital technology resources as the independent variables, and teaching practice as the dependent variable, and the significance of the mediating effect was investigated. The results of the study showed that (see Table 4), the direct effect was significant, the mediating effect was significant, the total mediating effect was significant, and the total effect was significant. The total effect was 0.6223, and the influence of all variables on teaching practice was 62.23 %. The direct effect of digital technology resources was 0.1202, with an influence of 12.02% on teaching practice; the mediating effect of digital knowledge and skills (M1) was 0.3699, with an influence of 36.99 % on teaching practice; the mediating effect of professional development activities (M2) was 0.1322, with an influence of 13.22 % on teaching practice; the total mediating effect (M1+M2) was 0.521, and the influence on teaching practice was 52.1 %.

Among all the effects of digital technology resources on teaching practice, 19.32 % of the effect is played by digital technology resources; 80.68 % of the effect is played by digital knowledge and skills and professional development

Table 4. *Mediating effect analysis on digital knowledge skills and professional development activities*
Таблица 4. *Анализ опосредующего эффекта цифровых знаний, навыков и профессионального развития*

Name	Estimated value	Standard error (SE)	95 % Confidence interval	
			Lower limit	Upper limit
Total	0.6223	0.0359	0.5517	0.6930
c′	0.1202	0.0247	0.0717	0.1687
M1	0.3699	0.0369	0.2978	0.4435
M2	0.1322	0.0231	0.0908	0.1816
M1+M2	0.5021	0.0386	0.4253	0.5774

Note. Dependent variable: digital technology resources; independent variable: teaching practice; c' is direct effect; mediating variables: M1 is digital knowledge and skills; M2 is professional development activities.

Примечание. Зависимая переменная: ресурсы цифровых технологий; независимая переменная: преподавательская практика; c' – прямой эффект; опосредующие переменные: M1 – цифровая компетентность; M2 – профессиональное развитие.

activities, of which digital knowledge and skills play a role of 59.44 % and professional development activities play a role of 21.24 %. It can be inferred that digital technology resources have significantly enhanced the impact on teaching practice through the mediation of digital knowledge skills and professional development activities.

In order to further analyse which items of digital literacy skills and professional development activities had significant mediating effects, multiple mediation effect tests were conducted with each variable of the two dimensions as mediator variables in the equations. The statistical results show (see Table 5) that the mediating effects of the four variables in the dimension of digital knowledge and skills are all significant, that is, understanding the connotation and characteristics of common digital technologies (M1-1), being able to propose procedures and methods for solving problems in the use of digital technologies (M1-2), mastering the principles and methods of selecting digital equipment, software and platforms in education and teaching (M1-3), and being skilled in the operation and use of digital equipment, software and platforms in solving common problems (M1-4) played a positive mediating role. The influence of the four variables on teaching practice was 7.64 %, 7.39 %, 10.35 %, and 11.28 %, respectively. In contrast, the mediating effects of proficiency in using digital devices, software and platforms, solving common problems, and mastering the principles and methods of selecting digital devices, software and platforms in teaching and learning were larger.

In the dimension of professional development activities, only two variables have significant mediating effects, that is, being able to participate in or host a web-based training community to learn together, share experiences, seek help, and solve problems (M2-3); and being able to utilize digital technology resources to continuously innovate the teaching mode, improve the teaching activities, and change the students' learning styles (M2-5) both play a positive mediating effect, and the influences of these two variables on the teaching practice are 5.61 % and 7 % respectively. The mediating

effects of the variables of being able to use digital technology resources to carry out learning according to personal development needs (M2-1); being able to use digital technology resources to analyse personal teaching practices and support teaching reflection and improvement (M2-2); and being able to use digital technology resources to support teaching and learning research activities in response to the problems of digital teaching and learning (M2-4) were not significant.

DISCUSSION

Digital technology resources, digital literacy skills, and professional development activities can synergistically influence teachers' instructional practices

Digital technology resources serve as the material foundation for teaching practices. Teachers' digital knowledge and skills act as the intermediary for the transformation of teaching practices, and professional development provides the continuous driving force for teaching practices. This is similar to the research results of Li Ziyi, Qiao Shiwei and others [25; 26]. These three elements jointly empower teachers' teaching practices and enhance the quality of teaching. Statistical results show that teaching practice is highly correlated with digital technology resources, digital knowledge and skills, and professional development activities, and this strong correlation indicates that these three factors are directly related to teachers' teaching practice. In the process of empowering teaching practice, all three factors play a positive role, and the synergistic development of the three factors can more effectively empower teachers' teaching practice.

Digital technology resources are a core driving factor in empowering teaching and learning practices in higher education

Digital technology resources play a 43.1 % role in empowering teaching practice, this is the same as the existing research results [27], which reflects the value of digital

Table 5. Mediating effect analysis on various elements of digital knowledge skills
and professional development activities

Таблица 5. Анализ посреднического эффекта отдельных элементов цифровых компетенций
и профессионального развития

Effect and Mediating variables	Estimated value	SE	95 % confidence interval	
			Lower limit	Upper limit
Total	0.6223	0.0359	0.5517	0.6930
Direct effect (c′)	0.1292	0.0247	0.0806	0.1779
Understand the connotative characteristics of common digital technologies (M1-1)	0.0764	0.0313	0.0152	0.1359
Be able to propose procedures and methods for problem solving in the use of digital technologies (M1-2)	0.0739	0.0300	0.0155	0.1343
Master the principles and methods of selecting digital devices, software, and platforms in education and teaching (M1-3)	0.1035	0.0327	0.0398	0.1687
Proficiently operate digital devices, software, and platforms to solve common problems (M1-4)	0.1128	0.0317	0.0595	0.1832
Be able to carry out learning by utilizing digital technology resources according to personal development needs (M2-1)	−0.0330	0.0215	−0.0795	0.0071
Be able to analyze personal teaching practice by using digital technology resources to support teaching reflection and improvement (M2-2)	0.0129	0.0278	−0.0370	0.0736
Be able to participate in or preside over online professional development communities, learn together, share experiences, seek help, and solve problems (M2-3)	0.0561	0.0255	0.0025	0.1054
Be able to use digital technology resources to support teaching research activities in response to digital teaching problems (M2-4)	0.0206	0.0395	−0.0557	0.0953
Be able to continuously innovate teaching models, improve teaching activities, and transform students' learning styles by using digital technology resources (M2-5)	0.0700	0.0340	0.0098	0.1405

Note. Dependent variable: Teaching practice; independent variable: Digital technology resources; mediating variables: M1-1; M1-2; M1-3; M1-4; M2-1; M2-2; M2-3; M2-4; M2-5.

Примечание. Зависимая переменная: преподавательская практика; независимая переменная: цифровые технологические ресурсы; опосредующие переменные: M1-1; M1-2; M1-3; M1-4; M2-1; M2-2; M2-3; M2-4; M2-5.

technology resources in the teaching practice process of college teachers. The statistical results show that all variables of digital technology resources play a positive role in promoting the influence of teaching practice, but there are differences, which verifies the validity of hypothesis 1.

Intelligent analysis and evaluation tools can play a core driving role in empowering teaching practice, and the explanatory power of education and teaching-related intelligent analysis and evaluation tools on teaching practice is as high as 35.1 %, accounting for 81.4 % of the total influence of digital technology resources, which indicates that they are the core driving force to enhance teaching practice [28]. This is mainly due to the fact that intelligent analytical tools can provide diagnosis of learning conditions, analysis of classroom behaviour and feedback on teaching effects,

helping teachers to make accurate teaching decisions. Their high explanatory power reflects the practical logic of data-driven teaching improvement, indicating that teachers rely more on dynamic and actionable data to support teaching optimization rather than static resource provision.

Intelligent education platforms and smart classrooms have shown positive value in the process of empowerment. As the hub of teaching management, the smart education platform (explanatory power 6.8 %) supports practical innovation through the integration of curriculum resources and standardization of teaching processes; while the smart classroom (explanatory power 2 %) improves interactive experience through the intelligent environment, but its limited contribution reflects the problem of focusing on construction rather than application of existing hardware facilities.

It is also easy to see that there are effectiveness dilemmas in the areas of generalized software, subject resources and educational resources. The correlation between these variables and teaching practice is not statistically significant. This may be due to the mismatch between resources and needs, such as generalized functions of general-purpose software, which are difficult to match the teaching scenarios of subject-specific features; high threshold of use or complex operation of subject software, and the lack of supporting training and guidance, which leads to the low utilization of digital technology resources; and fragmentation and homogenization of digital technology resources, which are difficult to directly support the design and implementation of subject teaching.

The mediating effect of digital literacy skills and professional development activities to empower teaching practice is significant

Of the total effect of digital technology resources on teaching practice, 80.68 % was realized through two mediating variables (digital knowledge and skills 59.44 % + professional development activities 21.24 %), which indicates that digital technology resources can only be effectively transformed into teaching practice through teachers' digital competence enhancement and professional development activities, and verifies the validity of hypothesis 2. This result supports that the realization of the value of digital technology resources depends on the transformation of teachers' digital competence and continuous professional growth. The mediating effect of digital knowledge and skills is significant, and the effectiveness of digital technology resources can be realized and enhanced through teachers' digital literacy, similar results have been found in the research of Pan Lifang [29]. Teachers' ability to understand, integrate and innovate digital technology resources is the key pivot for the transformation of digital technology resources into teaching practice. There is a cascading effect in digital literacy skills empowering teaching practice. The intermediary effects of "skillful operation and use of digital equipment, software, and platforms, and solving common problems" (M1-4, 11.28 %) and "mastering the principles and methods of selecting digital equipment" (M1-3, 10.35 %) are the most significant, indicating that the practical transformation of digital technology resources is highly dependent on teachers' understanding of digital technology resources and their integration and innovation. This suggests that the practical transformation of digital resources is highly dependent on teachers' operational and strategic knowledge. This result emphasizes the need for teachers to possess both operational and instructional design skills for technology integration in order to better realize digital technology resources for empowering teaching practice. The mediating effects of "understanding the connotation of digital technology" (M1-1, 7.64 %) and "proposing technological solutions" (M1-2, 7.39 %), although smaller, but not negligible. Teachers' understanding of the nature of digital technology resources and mastery of problem-solving logic is the cognitive foundation of their empowering teaching practice, the lack of which can lead to a superficial professional utility of digital technology.

Professional development activities contributed 21.24 % of the mediation effect, reflecting that they help teachers transform technological knowledge into teaching strategies, this is consistent with previous studies [30; 31], and internalize digital technology through training, teaching and research activities; promote the exchange and enhancement of technological application experience through peer exchanges, promote reflection on practice and play a positive mediation role. The significant mediating effects of "participation in online learning community" (M2-3, 5.61 %) and "utilizing technology to innovate teaching models" (M2-5, 7 %) indicate that group wisdom sharing and innovation in teaching practice are the key mechanisms of technological empowerment. This emphasizes the need for teachers to internalize technology to empower teaching practices through effective collaboration and innovative social interactions [32]. Individual learning (M2-1), independent reflection (M2-2), and pedagogical research (M2-4) did not show significant mediating effects, which may be attributed to the fact that teachers are unable to break through the cognitive limitations due to the lack of external feedback on their individual learning; independent reflection, which lacks the support of effective analytical tools, stays in the description of experience; and pedagogical research, which does not integrate with real classroom problems, lacks precise application. Therefore, digital knowledge and skills to empower teaching practice should focus on cultivating teachers' operational ability, strategic ability and innovation ability, and organizing professional development activities focusing on external collaboration and internal innovation to build an effective empowerment path.

Policy recommendations

Building a support system for digital technology resources to empower teachers' teaching practices. First, set up special funds to optimize the construction of intelligent education platform, focusing on the procurement of teaching intelligent system with the function of learning diagnosis and classroom behaviour analysis, such as AI classroom analysis tools, supporting the construction of school-level teaching data centre.

Second, establish a demand-oriented digital technology resources development mechanism, set up a working group of university subject teachers, educational technology experts and enterprise engineers to develop intelligent teaching toolkits that fit the characteristics of the subject.

Third, implement a quality monitoring mechanism for the effectiveness of technology application, carry out annual evaluation of the effectiveness of the use of the completed smart classrooms and teaching platforms, and incorporate the utilization rate of the equipment and the output of teaching innovation cases into the assessment system of faculties and colleges.

Implementing tiered instruction for teachers' digital literacy skills empowering instructional practices. First of all, build teachers' digital knowledge and skills layered training system:

– the basic layer focuses on cultivating equipment operation ability, which can be assessed through the micro-certification system to assess the proficiency of equipment operation;

– the enhancement layer strengthens the technology integration ability, and carries out workshops based on the in-depth fusion of intelligent technology and subject teaching;

– the innovation layer fosters the ability of data-driven decision-making, and establishes a training program for the analysis of teaching and learning big data.

Secondly, we set up a dual-mentor guidance team for teaching practice, equip teachers' teams with digital technology mentors and subject teaching mentors by course teams, and collaborate in designing technology-integrated lesson plans.

Thirdly, we create a community of practice for teachers, build a digital teaching case base for subjects, and regularly organize cross-faculty exhibitions of the results of technological application.

Innovative organizational models for teacher professional development activities to empower teaching practice. Firstly, implement the teaching and research mode driven by the actual problems of education and teaching, focusing on the interpretation of classroom behaviour data, personalized teaching strategies and other real problems, and carry out online case studies and offline practical exercises combined with teaching and research.

Secondly, set up a special topic for research on the application of digital technological resources, which requires that the topic team must include digital technicians, subject teachers and tutors, and that the results of the research should be embedded in the actual teaching and learning process.

Thirdly, regular teaching practice exchange meetings are organized, and experts are sent to guide teachers to accurately interpret classroom intelligence analysis reports, establish a system of regular teaching reflection meetings based on data analysis, and incorporate reflections on the application of digital technology resources into teachers' development files.

CONCLUSIONS

Digital technology resources, teachers' digital literacy skills and professional development activities into a synergistic enabling mechanism

Digital technology resources, teachers' digital knowledge and skills, and professional development activities have significant synergistic effects on the teaching practice of college teachers (high and medium positive correlation), with digital technology resources as the material foundation ($r=0.657$), teachers' knowledge and skills as the transformational intermediary ($r=0.887$), and professional development activities as the sustained motivational intermediary ($r=0.761$). The three elements need to be systematically linked, and any single input will reduce the effectiveness of teaching practice.

Intelligent analytics tools are the core drivers of digital technology resources that empower teaching and learning practices

Intelligent analysis and evaluation tools in digital technology resources have an explanatory power of 35.1 % (81.4 % of the total effectiveness of technology resources), and their data-driven learning diagnosis and teaching feedback functions have become the key to teaching practice. General software, subject software and digital educational resources do not have a significant impact, probably due to

the generalization of the functions of digital technology resources (such as, the lack of subject adaptability), the complexity of the operation and the fragmentation of the resources, and the imprecise matching between the supply of digital technology resources and the teaching demand in the teaching practice of local colleges and universities.

Teachers' digital literacy skills and professional development activities show a cascading progression of empowering instructional practice pathways

Among the mediating effects of digital knowledge and skills, the direct influence of technology operation ability is the most significant, and the direct influence of technology essence cognition and innovative solution ability form an implicit basis. The effectiveness of professional development activities relies on social collaboration mechanisms, such as web-based learning communities and innovation of technology-integrated teaching modes; while individual learning, independent reflection and pedagogical research are not effective due to the lack of the necessary support.

REFERENCES

1. Abramyan G.V. Special aspects of university students' perception of the phenomenon of digitalization based on two-dimensional analysis of predictors of education computerization and informatization: research methods. *Evidence-based education studies*, 2024, no. 2, pp. 7–18. DOI: 10.18323/3034-2996-2024-2-7-18.

2. Meng Caiyun. Research on the influencing mechanism and promotion strategies of information – based teaching ability of primary and secondary school teachers. *Central China Normal University*, 2020, article number 19. DOI: 10.27159/d.cnki.ghzsu.2020.001341.

3. Zhang K.L. Using information technology to improve the effectiveness of teaching morality and rule of law in primary schools. *Primary and Secondary School Educational Technology (Teaching)*, 2023, no. 7, pp. 70–72.

4. Liu Yangxi, Ren Yuxin. Digital empowerment for the construction of high-quality teaching staff: Possibilities and approaches. *Contemporary Education Forum*, 2023, no. 4, pp. 73–81. DOI: 10.13694/j.cnki.ddjylt.20230718.002.

5. Qi Y. Innovative development of integrated teaching materials and digital resources in vocational education: Taking the audio – visual – speaking course of Civil Aviation Service English as an example. *Teaching of the Forest Region*, 2025, no. 2, pp. 78–81.

6. Li Precious, Tian Shuo. Construction of Chinese workshops: Connotative meaning, practical challenges, and implementation paths. *Journal of Qinghai Nationalities University (Social Sciences Edition)*, 2024, vol. 50, no. 4, pp. 173–182. DOI: 10.3969/j.issn.1674-9227.2024.04.020.

7. Xu N. *Research on the strategies for improving the digital literacy of rural primary and secondary school teachers*. China, Kashi University Publ., 2023. 45 p. DOI: 10.27746/d.cnki.gkssf.2023.000020.

8. Liu T.J. *Action research on digital teaching in secondary vocational education based on the integration of industry and education*. Guiyang, Guizhou Normal University Publ., 2024. 42 p. DOI: 10.27048/d.cnki.ggzsu.2024.001033.

9. Zheng Jing. Practical exploration of the deep integration of information technology and high school biology teaching. *Middle School Curriculum Resources*, 2021, vol. 17, no. 4, pp. 45–46. DOI: 10.3969/j.issn.1673-2634.2021.04.021.

10. Li Chenyan, Feng Qiuju. Construction and application of a digital resource library for secondary vocational biochemistry inspection. *Health Vocational Education*, 2023, vol. 41, no. 22, pp. 44–47. DOI: 10.20037/j.issn.1671-1246.2023.22.14.

11. Yun E. Research on the Application of Digital Learning Resources in Junior High School Information Technology Teaching. *Science Fans (Education and Teaching)*, 2019, no. 5, pp. 79–80.

12. Du Fang, Zhang Xue. Analysis on the Cultivation of Normal Students' Educational and Teaching Abilities and the Management of Educational Practice Bases in the Digital Age – Based on the Investigation of Digital Education and Teaching in the Undergraduate Educational Practice of Central China Normal University in 2018. *Journal of Inner Mongolia Normal University (Educational Science Edition)*, 2019, vol. 32, no. 5, pp. 1–16.

13. Zhan Zehui, Lü Siyuan, Zhou Jiahui, Wu Fan. Research on the Model of Teachers' Interdisciplinary Teaching Literacy Based on the New Curriculum Standards. *Modern Distance Education*, 2024, no. 6, pp. 3–15. DOI: 10.13927/j.cnki.yuan.20241108.001.

14. Koehler M.J., Mishra P., Cain W. What Is Technological Pedagogical Content Knowledge (TPACK)? *Journal of Education*, 2013, vol. 193, no. 3, pp. 13–19.

15. Chen Yu. Research on the Constituent Elements and Promotion Paths of University Teachers' Digital Literacy. *Journal of Hubei Normal University (Philosophy and Social Sciences Edition)*, 2025, vol. 45, no. 2, pp. 118–123. DOI: 10.3969/j.issn.2096-3130.2025.02.016.

16. Zhao H. Realistic Dilemmas and Improvement Paths of Digital Empowerment for High-Quality Education Development. *Teaching and Administration*, 2025, no. 9, pp. 33–38.

17. Ji Yilong, Zhang Mingzhuo. The Prospect, Dilemmas, and Directions of the Digital Transformation of Liberal Arts Laboratories in Universities. *Research and Exploration in Laboratory*, 2025, vol. 44, no. 2, pp. 225–229+268. DOI: 10.19927/j.cnki.syyt.2025.02.042.

18. Cheng Wei. Research on the Promotion Mechanism and Path of Digital Literacy of New Medical Teachers under Artificial Intelligence Technology. *Journal of Huanggang Polytechnic*, 2025, vol. 27, no. 1, pp. 18–20. DOI: 10.3969/j.issn.1672-1047.2025.01.04.

19. Huang X., Sun M., Xu X.R. The Digital Literacy of Vocational College Teachers in the Context of Digital Technology: Relationship Revelation and Path Selection. *Vocational Education Forum*, 2025, vol. 40, no. 1, pp. 65–74.

20. Yan Hanbing. Improving Teachers' Digital Literacy: The Key Path to the Digital Transformation of Education. *Research in Educational Development*, 2025, vol. 45, no. 3, article number 3. DOI: 10.14121/j.cnki.1008-3855.2025.03.002.

21. Lin Shubing, Jiang Yuqing, Zhang Xuebo, Cui Yujing, Liu Huantong. Basic Situation, Influencing Factors and Promotion Strategies of Digital Literacy of Primary and Secondary School Teachers – Based on the Investigation and Analysis of the Pearl River Delta and Other Regions. *China Educational Technology*, 2025, no. 2, pp. 84–91.

22. Li Kongwen. Digital Literacy: Rewriting the Modernity of Teachers' Subject Literacy. *Distance Education in China*, 2024, vol. 44, no. 7, pp. 49–59. DOI: 10.13541/j.cnki.chinade.20240319.002.

23. Luo Jianghua, Li Xi, Ma Zhesheng. Research on the Influencing Factors of Collaborative Teaching between Urban and Rural Teachers in the Process of Educational Digital Transformation. *Journal of Sichuan Normal University (Natural Science Edition)*, 2025, vol. 48, no. 1, pp. 50–60. DOI: 10.3969/j.issn.1001-8395.2025.01.005.

24. Guo Chaoxia, Tang Ming. Research on the Construction of the Digital Competence Evaluation System for Vocational College Teachers. *Jiangsu Higher Vocational Education*, 2024, vol. 24, no. 6, pp. 67–76. DOI: 10.15903/j.cnki.jniit.2024.06.008.

25. Li Ziyi. *Research on the Investigation of the Current Situation and Promotion Strategies of Digital Literacy of Primary School Teachers*. China, Jiangxi Normal University Publ., 2024. 72 p. DOI: 10.27178/d.cnki.gjxsu.2024.001682.

26. Qiao Shiwei, Dong Yan, Zhao Leilei. Teachers' Digital Literacy in the Context of Digital Transformation: Current Situation, Influencing Factors and Promotion Strategies. *Educational Science Research*, 2025, no. 4, pp. 13–19.

27. Deng X.H., Yang B. Construction and Evaluation of the Digital Literacy Index System for Open University Teachers – From the Research Perspective of Structural Equation Modeling. *Journal of Hubei Open University*, 2024, vol. 44, no. 6, pp. 28–35.

28. Li Jianning. Construction of an Intelligent Analysis and Evaluation System for Teachers' Performance in Public Security Colleges under the Background of Digital Reform – Taking the "Teacher Performance Code" as an Example. *Journal of Public Security Science (Journal of Zhejiang Police College)*, 2021, no. 4, pp. 111–117. DOI: 10.3969/j.issn.1674-3040.2021.04.017.

29. Pan Lifang. Research on the Design of the Digital Literacy Framework for Teaching Researchers in the Digital Intelligence Era. *E – Education Research*, 2025, vol. 46, no. 3, pp. 108–113. DOI: 10.13811/j.cnki.eer.2025.03.015.

30. Yang Xiuxiu. *A Case Study on the Interaction between Teaching Researchers and Teachers [D]*. China, East China Normal University Publ., 2024. 22 p. DOI: 10.27149/d.cnki.ghdsu.2024.000208.

31. Meng Fanli, Ma Xiang, Wang Jianhu. Virtual Teaching and Research Offices from the Perspective of AIGC: Conceptual Characteristics, Operational Elements and Construction Approaches. *Modern Distance Education*, 2023, no. 4, pp. 14–21. DOI: 10.13927/j.cnki.yuan.20230908.002.

32. Zhang Xiaolei, Liu Weitong, Huang Zhenzhong. How to Understand the Completion Rate of MOOCs Learning – A Review of the Research on the Retention of MOOCs Learners. *E – Education Research*, 2019, vol. 40, no. 4, pp. 44–52+75. DOI: 10.13811/j.cnki.eer.2019.04.006.

СПИСОК ЛИТЕРАТУРЫ

1. Абрамян Г.В. Особенности восприятия студентами вузов феномена цифровизации на основе двумерного анализа предикторов компьютеризации и информатизации образования: методика исследования // Доказательная педагогика, психология. 2024. № 2. С. 7–18. DOI: 10.18323/3034-2996-2024-2-7-18.

2. Meng Caiyun. Research on the influencing mechanism and promotion strategies of information-based teaching ability of primary and secondary school teachers // Central China Normal University. 2020. Article number 19. DOI: 10.27159/d.cnki.ghzsu.2020.001341.

3. Zhang K.L. Using information technology to improve the effectiveness of teaching morality and rule of law in primary schools // Primary and Secondary School Educational Technology (Teaching). 2023. № 7. P. 70–72.

4. Liu Yangxi, Ren Yuxin. Digital empowerment for the construction of high-quality teaching staff: Possibilities and approaches // Contemporary Education Forum. 2023. № 4. P. 73–81. DOI: 10.13694/j.cnki.ddjylt.20230718.002.

5. Qi Y. Innovative development of integrated teaching materials and digital resources in vocational education: Taking the audio – visual – speaking course of Civil Aviation Service English as an example // Teaching of the Forest Region. 2025. № 2. P. 78–81.

6. Li Precious, Tian Shuo. Construction of Chinese workshops: Connotative meaning, practical challenges, and implementation paths // Journal of Qinghai Nationalities University (Social Sciences Edition). 2024. Vol. 50. № 4. P. 173–182. DOI: 10.3969/j.issn.1674-9227.2024.04.020.

7. Xu N. Research on the strategies for improving the digital literacy of rural primary and secondary school teachers. China: Kashi University, 2023. 45 p. DOI: 10.27746/d.cnki.gkssf.2023.000020.

8. Liu T.J. Action research on digital teaching in secondary vocational education based on the integration of industry and education Guiyang: Guizhou Normal University, 2024. 42 p. DOI: 10.27048/d.cnki.ggzsu.2024.001033.

9. Zheng Jing. Practical exploration of the deep integration of information technology and high school biology teaching // Middle School Curriculum Resources. 2021. Vol. 17. № 4. P. 45–46. DOI: 10.3969/j.issn.1673-2634.2021.04.021.

10. Li Chenyan, Feng Qiuju. Construction and application of a digital resource library for secondary vocational biochemistry inspection // Health Vocational Education. 2023. Vol. 41. № 22. P. 44–47. DOI: 10.20037/j.issn.1671-1246.2023.22.14.

11. Yun E. Research on the Application of Digital Learning Resources in Junior High School Information Technology Teaching // Science Fans (Education and Teaching). 2019. № 5. P. 79–80.

12. Du Fang, Zhang Xue. Analysis on the Cultivation of Normal Students' Educational and Teaching Abilities and the Management of Educational Practice Bases in the Digital Age – Based on the Investigation of Digital Education and Teaching in the Undergraduate Educational Practice of Central China Normal University in 2018 // Journal of Inner Mongolia Normal University (Educational Science Edition). 2019. Vol. 32. № 5. P. 1–16.

13. Zhan Zehui, Lü Siyuan, Zhou Jiahui, Wu Fan. Research on the Model of Teachers' Interdisciplinary Teaching Literacy Based on the New Curriculum Standards // Modern Distance Education. 2024. № 6. P. 3–15. DOI: 10.13927/j.cnki.yuan.20241108.001.

14. Koehler M.J., Mishra P., Cain W. What Is Technological Pedagogical Content Knowledge (TPACK)? // Journal of Education. 2013. Vol. 193. № 3. P. 13–19.

15. Chen Yu. Research on the Constituent Elements and Promotion Paths of University Teachers' Digital Literacy // Journal of Hubei Normal University (Philosophy and Social Sciences Edition). 2025. Vol. 45. № 2. P. 118–123. DOI: 10.3969/j.issn.2096-3130.2025.02.016.

16. Zhao H. Realistic Dilemmas and Improvement Paths of Digital Empowerment for High-Quality Education Development // Teaching and Administration. 2025. № 9. P. 33–38.

17. Ji Yilong, Zhang Mingzhuo. The Prospect, Dilemmas, and Directions of the Digital Transformation of Liberal Arts Laboratories in Universities // Research and Exploration in Laboratory. 2025. Vol. 44. № 2. P. 225–229+268. DOI: 10.19927/j.cnki.syyt.2025.02.042.

18. Cheng Wei. Research on the Promotion Mechanism and Path of Digital Literacy of New Medical Teachers under Artificial Intelligence Technology // Journal of Huanggang Polytechnic. 2025. Vol. 27. № 1. P. 18–20. DOI: 10.3969/j.issn.1672-1047.2025.01.04.

19. Huang X., Sun M., Xu X.R. The Digital Literacy of Vocational College Teachers in the Context of Digital Technology: Relationship Revelation and Path Selection // Vocational Education Forum. 2025. Vol. 40. № 1. P. 65–74.

20. Yan Hanbing. Improving Teachers' Digital Literacy: The Key Path to the Digital Transformation of Education // Research in Educational Development. 2025. Vol. 45. № 3. Article number 3. DOI: 10.14121/j.cnki.1008-3855.2025.03.002.

21. Lin Shubing, Jiang Yuqing, Zhang Xuebo, Cui Yujing, Liu Huantong. Basic Situation, Influencing Factors and Promotion Strategies of Digital Literacy of Primary and Secondary School Teachers – Based on the Investigation and Analysis of the Pearl River Delta and Other Regions // China Educational Technology. 2025. № 2. P. 84–91.

22. Li Kongwen. Digital Literacy: Rewriting the Modernity of Teachers' Subject Literacy // Distance Education in China. 2024. Vol. 44. № 7. P. 49–59. DOI: 10.13541/j.cnki.chinade.20240319.002.

23. Luo Jianghua, Li Xi, Ma Zhesheng. Research on the Influencing Factors of Collaborative Teaching between Urban and Rural Teachers in the Process of Educational Digital Transformation // Journal of Sichuan Normal University (Natural Science Edition). 2025. Vol. 48. № 1. P. 50–60. DOI: 10.3969/j.issn.1001-8395.2025.01.005.

24. Guo Chaoxia, Tang Ming. Research on the Construction of the Digital Competence Evaluation System for Vocational College Teachers // Jiangsu Higher Vocational Education. 2024. Vol. 24. № 6. P. 67–76. DOI: 10.15903/j.cnki.jniit.2024.06.008.

25. Li Ziyi. Research on the Investigation of the Current Situation and Promotion Strategies of Digital Literacy of Primary School Teachers. China: Jiangxi Normal University, 2024. 72 p. DOI: 10.27178/d.cnki.gjxsu.2024.001682.

26. Qiao Shiwei, Dong Yan, Zhao Leilei. Teachers' Digital Literacy in the Context of Digital Transformation: Current Situation, Influencing Factors and Promotion Strategies // Educational Science Research. 2025. № 4. P. 13–19.

27. Deng X.H., Yang B. Construction and Evaluation of the Digital Literacy Index System for Open University Teachers – From the Research Perspective of Structural Equation Modeling // Journal of Hubei Open University. 2024. Vol. 44. № 6. P. 28–35.

28. Li Jianning. Construction of an Intelligent Analysis and Evaluation System for Teachers' Performance in Public Security Colleges under the Background of Digital Reform – Taking the "Teacher Performance Code" as an Example // Journal of Public Security Science (Journal of Zhejiang Police College). 2021. № 4. P. 111–117. DOI: 10.3969/j.issn.1674-3040.2021.04.017.

29. Pan Lifang. Research on the Design of the Digital Literacy Framework for Teaching Researchers in the Digital Intelligence Era // E – Education Research. 2025. Vol. 46. № 3. P. 108–113. DOI: 10.13811/j.cnki.eer.2025.03.015.

30. Yang Xiuxiu. A Case Study on the Interaction between Teaching Researchers and Teachers [D]. China: East China Normal University, 2024. 22 p. DOI: 10.27149/d.cnki.ghdsu.2024.000208.

31. Meng Fanli, Ma Xiang, Wang Jianhu. Virtual Teaching and Research Offices from the Perspective of AIGC: Conceptual Characteristics, Operational Elements and Construction Approaches // Modern Distance Education. 2023. № 4. P. 14–21. DOI: 10.13927/j.cnki.yuan.20230908.002.

32. Zhang Xiaolei, Liu Weitong, Huang Zhenzhong. How to Understand the Completion Rate of MOOCs Learning – A Review of the Research on the Retention of MOOCs Learners // E – Education Research. 2019. Vol. 40. № 4. P. 44–52+75. DOI: 10.13811/j.cnki.eer.2019.04.006.

Развитие потенциала преподавателей региональных вузов с помощью цифровых ресурсов: логика и практические механизмы

Ли Чуньцзян[1], доктор философии, профессор, президент
Чжао Мэнфэй[2], аспирант
*Юй Хайин**[3], доктор педагогических наук, профессор, декан факультета педагогики
Муданьцзянский педагогический университет, Муданьцзян (Китай)

*E-mail:** 0701008@mdjnu.edu.cn

[1]ORCID: https://orcid.org/0009-0004-2589-4327
[2]ORCID: https://orcid.org/0009-0009-9564-862X
[3]ORCID: https://orcid.org/0000-0003-0157-4631

Аннотация: В условиях искусственного интеллекта и цифровой трансформации образования актуален вопрос о том, как цифровые технологические ресурсы расширяют возможности преподавательской деятельности в региональных университетах. Исследование опирается на данные, полученные в ходе изучения преподавательской деятельности в трех региональных вузах провинции Хэйлунцзян, Китай. Выявлено, что цифровые технологические ресурсы, цифровая компетентность преподавателей и мероприятия по повышению квалификации формируют механизм, способствующий укреплению преподавательской практики и ее продвижению в региональных университетах. Инструменты интеллектуального анализа являются ключевой движущей силой цифровых технологических ресурсов; их функции диагностики обучения на основе данных и обратной связи становятся центральными элементами образовательного процесса. Цифровая компетентность преподавателей и мероприятия по повышению их квалификации играют значимую опосредующую роль, демонстрируя поэтапный иерархический процесс расширения возможностей преподавательской практики. Для повышения эффективности использования цифровых технологических ресурсов в преподавательской практике региональных университетов необходимо сформировать систему поддержки цифрового сопровождения педагогической деятельности, реализовать иерархически выстроенное сопровождение процесса формирования цифровой компетентности преподавателей, а также внедрять инновационные модели мероприятий по повышению квалификации.

Ключевые слова: региональные университеты; цифровые технологические ресурсы; цифровая грамотность; профессиональное развитие; преподавательская практика.

Благодарности: Исследование выполнено в рамках реализации проекта по исследованию реформ преподавания в высшем образовании провинции Хэйлунцзян в 2024 г. «Исследование инноваций и практики виртуального методического кабинета по подготовке педагогов в рамках китайско-российского сотрудничества» (грант № SJGDB2024008).

Для цитирования: Ли Чуньцзян, Чжао Мэнфэй, Юй Хайин. Развитие потенциала преподавателей региональных вузов с помощью цифровых ресурсов: логика и практические механизмы // Доказательная педагогика, психология. 2025. № 2. С. 27–39. DOI: 10.18323/3034-2996-2025-2-61-3.

The journal publishes two versions of papers: in Russian and in English. The data of manuscript has to be original and never submitted or published before in other journals. All submitted papers are checked in the Anti-Plagiarism system ("Antiplagiat" system).

For publication, authors need to submit an application to the editorial office by sending the materials to the e-mail of the journal vektornaukitgu@yandex.ru or by uploading them to their personal account on the website.

Required structural elements of the manuscript

– *UDC identifier*;
– *the title* of the scientific manuscript;
– *copyright sign and year*;
– *information about the authors*: surname and initials of the author, academic degree, academic status, occupation; company, city, country; ORCID. The author corresponding to the editorial staff should provide his/her E-mail;
– *abstract* (200–250 words) should contain a brief summary of the paper's concept in order to interest a potential reader;
– *keywords* (the main criterion of choosing keywords is their potential value to summarize the content of the document or to help the readers to find the document);
– *acknowledgements* to individuals, granting organizations;
– *the text of the manuscript* structured in accordance with the rules;
– *references* (at least 20 sources).

Article structure

The structure of the article should conform to the IMRAD (Introduction, Methods, Results, and Discussion) standard, applied by Science World Community:

– INTRODUCTION
– METHODS
– RESULTS
– DISCUSSION
– CONCLUSIONS

Tables and figures formatting
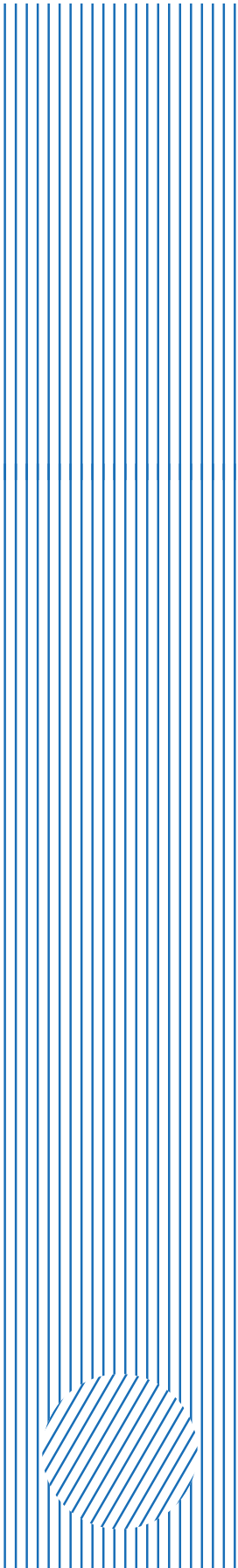
Tables and figures should not fall outside the page layout. The use of landscape pages is not allowed. The titles of the tables and figures captures are required. If the text contains figures, diagrams, and tables from other literary sources, it is necessary to indicate where they were taken from..

Formulas typing

Formulas are edited in Microsoft Equation 3 formula editor. Formulas should not be longer than 80 mm. The size of the formula is 100 %. Converting formulas to figures is not allowed.

References and citations formatting

References are listed in the order of citation in the article. Reference list should not include the sources not cited in the article. In the journal it is not common to cite textbooks and study guides, except the flagship in their respective field, thesis papers and synopsis of a thesis. Not less than a quarter of the sources listed in the reference list should be published in the last 3–5 years. References to print publications only are acceptable (excluding e-journals). References to internet sites are not accepted. Not more than 20 % of the sources can be references on the own author's publications. If a cited source has a DOI, the DOI should be indicated at the end of bibliographic description of this source. All DOIs should be valid links

Using repertory grids when preparing adolescents for research activities

Denis V. Sushkov, postgraduate student
of Chair of Methodology of Education, Pedagogical Institute
Saratov Chernyshevsky State University, Saratov (Russia)

E-mail: denissushkov64@gmail.com ORCID: https://orcid.org/0009-0005-0826-8583

Abstract: The author raises the problem of conscious choice of research topics by the students. Despite the importance of educational research in the educational process, its organization in practice is often formal and superficial; therefore, its influence on the development of personal meanings of students is not great. One of the possible solutions to this problem is using the repertory grid technique when choosing a research topic. The aim of the work is to adapt the repertory grid technique of G. Kelly to help students choose a research topic, as well as develop self-knowledge and self-reflection skills. The methodological basis of the study was the works of the American psychologist G. Kelly on the theory of personal constructs, and the Role Construct Repertory Test, or Test of Personal Constructs developed on their basis. The paper describes an adapted algorithm of the repertory grid technique, including a preparatory stage, a stage of construct generation, a stage of grid construction, analysis and recommendations, and an example of a fragment of a possible grid. The analysis of the obtained data is carried out in three directions: quantitative (assessment of the complexity of the personality semantic organization and the structure of preferences), qualitative (identification of dominant meanings, contradictions and hierarchy of constructs), and thematic analysis (grouping of topics according to similar criteria). The author has analyzed separately strategies for work with difficulties arising during testing, including the polysemy of interpretation of many constructs, resistance to reflection, superficiality of answers and taboo nature of some research topics. The practical significance of the work lies in the fact that the proposed adaptation of the test of personal constructs can be used to organize academic and research activities of schoolchildren when choosing a research topic, as well as a tool for self-reflection of adolescents.

Keywords: development of personal meanings of students; development of personal meanings during research activities; repertory grid technique; personal meanings; research activities of adolescents; educational research.

For citation: Sushkov D.V. Using repertory grids when preparing adolescents for research activities. *Evidence-based education studies*, 2025, no. 2, pp. 41–48. DOI: 10.18323/3034-2996-2025-2-61-4.

INTRODUCTION

Organization of research activities of students is an integral part of the modern educational process. In the modern world, the ability to analyze, systematize information and the development of critical thinking are becoming increasingly relevant, and educational research can be considered as an effective tool for the formation of these skills. Note that the importance of using research methods in education is reflected in the requirements of the federal educational standard. At the same time, federal standards contain requirements for the development of personal learning outcomes of students, such as readiness for self-development, independence and personal self-determination. The technology of research activity has all the necessary resources for the formation of these skills. In this regard, each teacher, when designing and organizing educational research, must consider their educational potential for the development of personal meanings of students.

This paper substantiates the potential of the repertory grid technique as a tool for personality development, contributing to an increase in the meaningfulness of research activities carried out by adolescents. The author proposes the adaptation of the personal construct test for use when organizing the academic and research activities of schoolchildren, including stages of analysis of test results, recommendations for teachers and students, difficulties of the procedure and ways to overcome them.

Attention to the semantic sphere of personality is reflected in the works of many Russian [1; 2] and foreign psychologists [3; 4]. Their works contain general fundamental provisions on the desire and search for meaning, as well as the dynamic nature of the semantic system of personality. The methodological basis of the study was the works of the American psychologist G. Kelly on the theory of personal constructs and the Role Construct Repertory Test (repertory grid technique), or Test of Personal Constructs [5] developed on their basis.

According to G. Kelly's theory, each personal construct is a pair of contradictions (for example, "interesting – boring"). They are limited in the scope of their application and are an individual generalization of previous experience, forming a human personality understood as a system of personal constructs. The test of personal constructs allows identifying the specified system, since

it provides a person with the opportunity to express and describe his inner world in his "own language", using "individual terminology".

Note that the application of G. Kelly's technique is described in many papers by Russian researchers. Most authors reveal its diagnostic potential and use it to study the self-image of adolescents [6], cognitive differentiation in the sphere of communication [7], or as a method of theoretical reflection [8]. It is worth highlighting separately the work [9] covering the features of the application of repertory grids for the formation of individual learning paths. The method of repertory grids in [9] is considered as a tool within the framework of the process of education individualization analyzed and studied in detail in many works of the author [10; 11]. In the latest scientific publications, G. Kelly's method is considered primarily as a tool for diagnosing moral self-assessment [12] or age-related features of using computer vocabulary [13]. In [14], this method is used to study the features of professional improvisation of a preschool teacher. From the presented review, it is clear that in all the cited sources, with the exception of [9], the repertory grid technique is considered exclusively as a tool for diagnosing certain aspects of the system of personal meanings and in none of them as a tool for their development. Thus, it should be concluded that the issue of using the test of personal constructs within the process of education individualization or the organization of educational research activities remains unexplored.

The problem of organizing research activities is also considered in the works of many Russian authors. In [15], a model for organizing students' research activities is proposed. For our study, an element of this model is important related to the author's position of the student in the study, suggesting that the student acts "in accordance with his interests and preferences, takes a creative, author's position when performing the study" [15]. At the same time, we note that a consistent system of means and methods for developing such a position is not proposed. In the work [16], various reasons for studying and developing research activities are analyzed. Despite the importance of studying and diagnostics within the framework of educational research, the author [16] states, "intelligence tests do not contribute to or even suppress the manifestations of independent research behavior." Here, as well, no holistic solution to the indicated contradiction is proposed, in which the testing technique would act not as a form of suppression, but as a tool for personal development. In the work [17], the first stage of educational research – the choice of a research topic that requires interest and relevance is highlighted, however, a consistent system of steps for achieving the specified conditions is not proposed.

Various aspects of the personality-oriented paradigm dominating in modern pedagogy are analyzed in the works of many authors. Thus, the features of the formation of individual learning paths and self-reflection are considered in detail in [18]. It is worth highlighting such aspects of the formation of axiological grounds for adolescents' activities as the search for values and mean-

ing, as well as reflection. Tendencies towards individualization and support of personal development are especially evident in the organization of educational research. A.V. Khutorskoy suggests considering research competence as a 'component of personal self-improvement' [19], therefore, its formation within the educational process seems especially important.

Directly for project and research activities, a model for constructing individual learning paths, which involves their construction through solving complex problems, was proposed in [20]. The authors conclude that today, there is no holistic system for constructing individual paths, which can lead to insufficiently substantiated professional self-determination in the future. Similarly, aspects of tutor support of an individual learning path are considered in [21]. This paper presents five modules of tutor support; we highlight the diagnostic-orientational, design and reflective-correctional modules, the elements of which are contained in the algorithm we propose.

Among foreign authors, special interest in project and research activities emerged during the 2020 pandemic. In [22], project and research activities are considered as a means of developing critical thinking, problem solving, teamwork and communication, which is especially effective in the context of online education. However, the authors do not focus on the development of a system of personal meanings and self-reflection skills, despite the significant opportunities offered by the technology of research activities in this direction.

Despite the importance of using the technology of research activities in the educational process, due to both the requirements of state standards and the recommendations of teachers and psychologists, its practical implementation is often formal and superficial. There is a lack of meaningfulness and understanding of the importance of educational and research activities on the part of both students and teachers [23]. Due to this circumstance, it is necessary to develop new approaches to organizing research activities at school, one of which is proposed in our paper.

The aim of this work is to adapt the repertory grid technique of G. Kelly to help students in choosing the topic of research activities, as well as in developing the self-knowledge and self-reflection skills.

METHODS

When developing the adaptation of the repertory grid technique, the principle of the axiological orientation of educational activity was chosen as the central one. Its implementation assumes that within the educational process, students form and develop a system of personal meanings. This principle is closely linked with the principle of subjectivity, which assumes a view of a child as a full-fledged subject of his own development, capable of independent goal-setting, free creativity and reflection of the semantic bases of his own activity.

To implement the adaptation of G. Kelly's technique, educational research activity was chosen, implemented within the educational organization both during the les-

son and outside of class time. The choice is caused by the fact that the technology of educational research has significant educational potential, which can be used to develop the personal sphere of students and promote their creative self-expression.

The technique involves helping students in choosing a research topic and developing a system of personal meanings by stimulating them to self-reflect on the axiological foundations of their own activities. The algorithm includes a preparatory stage, when primary motivation is carried out and a brainstorming session is held, during which lines of research are proposed; a stage of generating individual constructs and building a grid by students; a stage of analysis and recommendations for formulating a research topic.

Throughout the entire period of implementing the technique, the teacher performs a guiding supportive function. He or she organizes the process at the stage of preparation and brainstorming, provides personal assistance in the event of difficulties in generating constructs and building a repertory grid, and, together with students, analyzes the results obtained and helps with the formulation of the research topic.

The analysis of the obtained data is carried out in three directions: quantitative (assessment of the complexity of the personality semantic organization and the structure of preferences), qualitative (identification of dominant meanings, contradictions and hierarchy of constructs), and thematic analysis (grouping of topics according to similar criteria).

RESULTS

1. Scope of application of the technique

The previously noted lack of meaningfulness and understanding of the significance of educational research activities is observed already at the preparatory stage of choosing a research topic, which is sometimes carried out not based on the internal needs of the developing personality, but based on "simplicity" – from a ready-made list of topics. As a result, the developmental potential of research project is reduced significantly: from a development tool, it becomes a tool for obtaining an assessment.

One of the possible ways to overcome the difficulty described above will be the inclusion of reflexive practices in the process of educational research. In our opinion, the repertory grid technique has both high diagnostic capabilities and significant potential as a tool for personality development. The test of personal constructs can be adapted for use when organizing academic research activity of schoolchildren and become one of its elements.

The goals of using the repertory grid technique within educational research vary and contain several directions. The first such direction implies the traditional application of this technique aimed at diagnosing the personal sphere of students, including identifying individual constructs, analyzing these constructs and formulating individual recommendations on their basis. Another group of goals is associated with the process of individualization in education, since the proposed algorithm is

designed to help in choosing a research topic that meets the needs, interests and capabilities of a developing personality. The third goal aimed at increasing the motivation of students naturally follows from providing assistance in individualization; it is achieved by choosing a research topic based on personal interests, as well as identifying and taking into account unreflected motives. All the above-described directions are designed to achieve the last and main goal – the goal of development. It implies the expansion of the system of personal constructs, the generation of new constructs, as well as the acquisition of self-reflection experience by students.

2. Technique description

2.1. Research topic selection

The use of repertory grids when choosing a topic for a research project involves the sequential application of several steps. The first stage is group. Using the brainstorming method in the group, the initial lines of research are formulated. Then individual work begins. Each student independently and randomly selects three topics. Control questions for the student: "How are the two topics alike?", "How does the third topic differ from the others?", "How would you call this feature?"

The answers (obtained constructs) are recorded in the format of opposite scales. This process is repeated for another trio of topics. The task is to identify as many individual constructs as possible. For example, for the "Poetry", "Robotics", and "Fashion" trio of areas, the "creative process – technical skill" construct can be identified in the course of the study. If students have difficulties in formulating constructs, the teacher helps them with guiding questions. Table 1 presents the complete template of the algorithm for applying the specified technique. The presented template is an approximate description; its individual elements can be adjusted depending on specific conditions. Table 2 shows an example of applying the repertory grid technique at the stage of choosing a research topic.

It is worth speaking separately about the stage of analysis and formulation of recommendations based on the results of applying the technique. The analysis of the obtained repertory grids can be carried out in three directions presented in Table 3.

2.2. Quantitative analysis

The first direction of analysis is quantitative analysis. The number of constructs generated during testing allows judging the flexibility of thinking and the complexity of the semantic organization of the person. When conducting this type of analysis, one should take into account the age of the person being tested, because the older the teenager, the greater the number of constructs he or she is able to formulate. If too few constructs are formulated (eight or less), this may indicate superficiality of thinking, while a large number of them (more than twenty), on the contrary, indicates high flexibility of thinking and his/her ability to solve complex problems.

Within the quantitative analysis, one should consider the distribution of assessments. Thus, the research areas that

Table 1. Algorithm for the application of repertory grids within educational research
Таблица 1. Алгоритм применения репертуарных решеток в учебном исследовании

Stage	Goal/Content	Description
Preparatory	Group work, expanding the scope of research topics	Preparing the class, explaining the essence of the technique. Using the brainstorming method, students suggest 20–30 possible topics / research areas
Generating constructs	Identifying personal constructs, developing reflection	Each student selects three topics from the topics received and indicates how two topics differ from the third. To avoid bias, it is better to select topics in a random order
Building a repertory grid	Visualization of constructs, identifying contradictions	Based on the resulting polar constructs and the selected topics, students build an individual table
Analysis of results	Making recommendations	Joint analysis of the resulting table according to the criteria of the number of constructs, the distribution of "positive" assessments for each topic, the identification of clusters, dominant constructs and contradictions
Recommendations	Correction of the topic considering the results of the analysis	Personalization of training, identification of priority topics, elaboration of topics that cause difficulty or concern, planning group work

Table 2. An example of a fragment of a possible repertory grid of a researcher
Таблица 2. Пример фрагмента возможной репертуарной решетки исследователя

Constructs	Topics / research areas					
	Local ecology	**Game development**	**Artificial intelligence**	**Modern literature**	**Fashion**	**Youth movement**
Difficult (d) / **Easy (e)**	d	e	d	d	e	e
Relevant (r) / **Obsolete (o)**	r	o	r	o	o	r
Creative (cr) / **Technical (tech)**	tech	tech	tech	cr	cr	cr
Global (g) / **Local (l)**	l	g	g	g	l	g
Theoretical (t) / **Practical (p)**	p	p	t	t	t	t

received the largest number of positive assessments (for example, "important", "interesting", "advanced") should be considered preferable. Areas that received contradictory assessments require separate discussion and elaboration.

2.3. Qualitative analysis

The second direction of analysis of the results obtained during testing is qualitative analysis focusing on the content of constructs. The teacher can determine which groups of criteria the student uses to evaluate research topics and identify the dominant ones. The resulting individual profile may be dominated by constructs with a pronounced emotional component (e.g., "inspiring – oppressive", "fascinating – boring"), a practical component ("useful – harmful", "promising – unpromising"), etc. Such dominants allow better determining which personality traits should be primarily relied upon when choosing a topic and signaling problems. For example,

Analysis type	Goal	Criteria
Quantitative	Assess the complexity of the semantic organization of personality and the structure of preferences	Number of constructs
		Distribution of assessments
Qualitative	Identify dominant meanings, contradictions and hierarchy of constructs	Dominant constructs
		Contradictions
		Hierarchy of constructs
Thematic (cluster)	Grouping of topics by similar criteria	Similar assessments

if constructs such as "easy – difficult" prevail, this may be a marker of fear of failure or self-doubt.

Qualitative analysis also allows identifying the hierarchy of the test subject's constructs. In G. Kelly's theory, superordinate (high-level) and subordinate (secondary) constructs are distinguished. Basic constructs are usually associated with the most important personal values; they are mentioned among the first and more often than others are.

In the context of qualitative analysis, it is possible as well to identify contradictions and internal conflicts that influence the choice of topic. Thus, the same topic can be assigned both the construct "promising" and the construct "difficult", which can signal interest in the topic, but also the presence of fear associated with difficulties or possible failure, which can block the choice of topic. The research topic can be characterized as "important", but at the same time "boring", which indicates awareness of the significance of the topic, but the absence of personal interest or emotional connection with it. Contradictions identified through such analysis require individual pedagogical development.

2.4. Thematic (cluster) analysis

The third type of analysis of the obtained repertory grids involves identifying semantic connections between the formulated topics or constructs and combining them into separate groups (clusters). This type of analysis makes it easier to choose a research topic by identifying the main areas of interest of an adolescent. Except for determining the priorities, it is convenient during cluster analysis to construct interdisciplinary studies, collecting various studies on the subject received the greatest number of positive assessments (for example, "Artificial Intelligence + Ecology") in one project. To broaden horizons and form new meanings, it is possible to add elements from a "foreign" cluster to the priority areas, for example, to give guidance to students with a pronounced technical and weakly manifested creative profile towards the "Digital Art" area.

3. Example of the technique implementation

Let us give simple examples of the described technique application to identify the individual research profile of a student and formulate recommendations based on it. For

example, only five constructs were formulated during testing, with most topics being rated as "interesting" (games, sports) or "boring" (science, art). In this case, the "Find Five Differences" game should be offered for non-obvious trios: compare "Football", "Physics", and "Music". This will allow identifying new constructs (for example, "creative – standard"). As a result, the research topic can be formulated at the intersection of "interesting" and "boring": "Physics of a soccer ball: what influences the trajectory".

In the second case, the following basic constructs were identified during testing: "interesting – boring", "difficult – easy", "promising – useless". By qualitative analysis, it was found that topics related to information technology were marked as "interesting + difficult", and topics on humanities were marked as "easy + boring". When choosing, preference was given to the group of "easy" topics, which may indicate a fear of failure influencing the choice. A solution option in this case may be to choose a topic from the "Information Technology" cluster, but with a low entry threshold for a specific student. Such a choice will allow a student to begin developing in the direction of interest to him, despite the existing uncertainty. In another test, a contradiction may be revealed between personal interests and hobbies – "creative + unpromising" and importance for a future career – "standard + useful". An interdisciplinary project may serve as an option for resolving the contradiction in this case.

4. Recommendations for teachers

It should be noted that the main advantage of G. Kelly's technique is based on the possibility of expressing the subjective experience of a person in his "individual language" using his own "terminology". This advantage also conceals its main disadvantage, which is that a person is not always able to describe adequately his personal experience and select precise characteristics for it. When working with adolescents, this disadvantage often manifests itself especially clearly. For example, such a construct as "useful", as applied to areas of research, can be interpreted in different ways: "useful for me personally", "useful for a career", "useful for my city", "useful for society", "useful for the country" and many others. At the same time, even close interpretations, such as "useful for me personally"

and "useful for my career", still imply different shades of meaning. Therefore, individual study of selected constructs with students (for example, "What does the word 'useful' mean to you?") is important and mandatory.

When organizing testing, the teacher may encounter the problem of reluctance and resistance on the part of students. One of the reasons is that the work involves a certain amount of time and can be quite monotonous in some parts (filling in the repertory grid). A possible solution to the problem in this case would be to include game elements. This could be an interest map with colored labels and stickers (especially for younger teenagers) or a competition (for example, "Who will find more unexpected similarities between different topics").

It should also be taken into account that a number of students may painfully perceive some research topics for various reasons, since these topics are associated with their own negative experience or are taboo in the family. The teacher should closely monitor this and replace potentially problematic topics with more neutrally colored analogues.

DISCUSSION

The author's algorithm for adapting the G. Kelly's repertory grid technique is proposed. It is intended to help students make a conscious choice of a research topic that takes into account their interests and preferences. However, the algorithm described in the paper should not be considered only as an assistant in choosing a topic – its pedagogical potential is much higher.

Analysis of scientific literature shows that in most works, G. Kelly's technique is used exclusively as a means of diagnosing various aspects of the semantic sphere of test takers [8; 12; 13]. The adaptation we have developed allows increasing significantly the pedagogical potential of the technique, turning it from a tool for diagnosing personal meanings into a tool for their development. Among the features of the technique, the following should be highlighted:

– retention of the diagnostic function of the method, which allows discovering the personal constructs of adolescents and describing their worldview in their "own language";

– focus on individualization of learning and building an individual research path, taking into account the personal characteristics of students, aimed at increasing their motivation and personal interest in research activities;

– focus on developing students' reflective skills and understanding the axiological foundations of their own activities.

The scientific novelty of the work lies in the description and disclosure of the potential of the G. Kelly's Test of Personal Constructs technique as a tool for students' conscious choice of a research topic and for the development of self-knowledge and self-reflection skills. Its practical significance is manifested in the development of an adaptation of the Test of Personal Constructs for use in organizing students' educational and research activities.

The use of the described technique will allow adolescents to acquire valuable experience in self-reflection and awareness, which must be preserved and expanded at each new stage of educational research. Only in this case, re-

search activity will turn from a dry formality into an effective tool for the child's intellectual and personal development, and the choice of a research topic into a process of conscious self-determination, when the student both finds a direction for work and learns to understand his or her strengths and limitations.

CONCLUSIONS

The algorithm we propose is one of the ways to individualize research activity. Its use in school will allow transforming the formal choice of topic into a conscious process of self-determination, acquiring skills of reflection and critical thinking, creating a basis for a long-term research trajectory of an adolescent. Thus, the use of this technique contributes to the development of the semantic sphere of the students' personalities.

REFERENCES

1. Vygotskiy L.S. *Myshlenie i rech* [Thinking and speech]. Moscow, Eksmo Publ., 2024. 416 p.
2. Leontev A.N. *Deyatelnost. Soznanie. Lichnost* [Activity. Consciousness. Personality]. Moscow, Politizdat Publ., 1977. 304 p.
3. Frankl V. *Chelovek v poiskakh smysla* [Man's Search for Meaning]. Moscow, Progress Publ., 1990. 368 p.
4. Lengle A. Existential analysis – to find consent with life. *Moskovskiy psikhoterapevticheskiy zhurnal*, 2001, no. 1, pp. 5–23.
5. Kelly G.A. *Teoriya lichnosti. Psikhologiya lichnostnykh konstruktov* [A theory of personality. The psychology of personal constructs]. Saint-Petersburg, Rech Publ., 2000. 249 p.
6. Kalinkina E.M., Sokolovskaya O.K., Tsaturyan M.O. Possible applications of G. Kelly's repertory grid technique in the diagnosis of the teenager's self-image. *Vestnik Kostromskogo gosudarstvennogo universiteta. Seriya: Pedagogika. Psikhologiya. Sotsiokinetika*, 2016, no. 2, pp. 118–121. EDN: WKOXSR.
7. Siroshtanenko T.G. The repertory grids method in the investigation of cognitive differentiation in the sphere of communication. *Vestnik universiteta*, 2019, no. 3, pp. 189–192. DOI: 10.26425/1816-4277-2019-3-189-192.
8. Efremova O.I. The technique of repertoire grids as a method of deepening theoretical reflection in psychological and pedagogical research. *Vestnik Taganrogskogo instituta imeni A.P. Chekhova*, 2019, no. 1, pp. 49–54. EDN: EROXNW.
9. Markov V.V., Pugolovkina O.V. Application of repertory grid for individual learning trajectories generation. *Izvestiya YuFU. Tekhnicheskie nauki*, 2011, no. 7, pp. 250–255. EDN: NXKMUB.
10. Aleksandrova E.A. The child's path to himself: individual educational path. *Sotsialnaya pedagogika*, 2015, no. 3, pp. 32–39. EDN: TZJGFZ.
11. Aleksandrova E.A. Formats of pedagogical support of teachers in the digital educational environment. *Sibirskiy pedagogicheskiy zhurnal*, 2022, no. 2, pp. 30–43. DOI: 10.15293/1813-4718.2202.03.

12. Nastina E.A., Devyatko I.F. Moral self-evaluation: developing and validating methodology for Russian-speaking populations. *Monitoring*, 2021, no. 2, pp. 4–27. DOI: 10.14515/monitoring.2021.2.1720.

13. Dmitrieva E.V. Age conditionality of computer terminology in individual lexicon (experimental research). *Gumanitarno-pedagogicheskie issledovaniya*, 2021, vol. 5, no. 4, pp. 16–21. DOI: 10.18503/2658-3186-2021-5-4-16-21.

14. Surkova N.A. The content, structure and typology of supplementary education teacher's professional improvisation. *Nauchnoe obespechenie sistemy povysheniya kvalifikatsii kadrov*, 2021, no. 3, pp. 95–107. EDN: UHVTHQ.

15. Leontovich A.B. Conceptual Foundations for Modeling Students' Research Activities. *Shkolnye tekhnologii*, 2006, no. 5, pp. 63–71. EDN: HYNOHT.

16. Poddyakov A.N. Methodological foundations of the study and development of research activities. *Shkolnye tekhnologii*, 2006, no. 3, pp. 85–90. EDN: HVNCKB.

17. Novikova A.K. Stages of training and educational research. *Mezhdunarodnyy nauchno-issledovatelskiy zhurnal*, 2016, no. 11-3, pp. 66–67. DOI: 10.18454/IRJ.2016.53.089.

18. Aleksandrova E.A., Krivosheina E.S. Structure formation picture of the world of teenagers. *Sibirskiy pedagogicheskiy zhurnal*, 2015, no. 6, pp. 15–19. EDN: VDWKKN.

19. Khutorskoy A.V. Key competencies as a component of a personality-oriented education paradigm. *Narodnoe obrazovanie*, 2003, no. 2, pp. 58–64. EDN: SGUKTL.

20. Echmaeva G.A., Malysheva E.N. A model for constructing individual educational trajectories of schoolchildren within the framework of project and research activities. *Sovremennoe pedagogicheskoe obrazovanie*, 2023, no. 8, pp. 62–68. EDN: CSQKRY.

21. Fomicheva N.V. Content and organisational aspects of tutor support for the individual educational trajectory of a student at a specialised school. *Pedagogika. Voprosy teorii i praktiki*, 2023, no. 5, pp. 477–482. DOI: 10.30853/ped20230081.

22. Zahroh U., Darmayanti R., Choirudin C, Soebagyo R.I. Project-Based Learning Training and Assistance for Prospective High School Teacher. *Jurnal Inovasi Dan Pengembangan Hasil Pengabdian Masyarakat*, 2023, vol. 1, no. 2, pp. 115–121. DOI: 10.61650/jip-dimas.v1i2.237.

23. Napolskikh N.B. Humanitarian approach to organization and implementation of educational and research activities of schoolchildren. *Nauchno-metodicheskiy elektronnyy zhurnal "Kontsept"*, 2022, no. 7, pp. 30–41. DOI: 10.24412/2304-120X-2022-11052.

СПИСОК ЛИТЕРАТУРЫ

1. Выготский Л.С. Мышление и речь. М.: Эксмо, 2024. 416 с.

2. Леонтьев А.Н. Деятельность. Сознание. Личность. М.: Политиздат, 1977. 304 с.

3. Франкл В. Человек в поисках смысла. М.: Прогресс, 1990. 368 с.

4. Лэнгле А. Экзистенциальный анализ – найти согласие с жизнью // Московский психотерапевтический журнал. 2001. № 1. С. 5–23.

5. Келли Дж.А. Теория личности. Психология личностных конструктов. СПб.: Речь, 2000. 249 с.

6. Калинкина Е.М., Соколовская О.К., Цатурян М.О. Возможности применения техники репертуарных решеток Дж. Келли в диагностике Образа-Я подростков // Вестник Костромского государственного университета. Серия: Педагогика. Психология. Социокинетика. 2016. № 2. С. 118–121. EDN: WKOXSR.

7. Сироштаненко Т.Г. Метод репертуарных решеток в исследовании когнитивной дифференцированности в сфере общения // Вестник университета. 2019. № 3. С. 189–192. DOI: 10.26425/1816-4277-2019-3-189-192.

8. Ефремова О.И. Техника репертуарных решеток как метод углубления теоретической рефлексии в психолого-педагогическом исследовании // Вестник Таганрогского института имени А.П. Чехова. 2019. № 1. С. 49–54. EDN: EROXNW.

9. Марков В.В., Пуголовкина О.В. Применение репертуарных решеток для формирования индивидуальных траекторий обучения // Известия ЮФУ. Технические науки. 2011. № 7. С. 250–255. EDN: NXKMUB.

10. Александрова Е.А. Путь ребёнка к самому себе: индивидуальная траектория // Социальная педагогика. 2015. № 3. С. 32–39. EDN: TZJGFZ.

11. Александрова Е.А. Форматы педагогического сопровождения в цифровой образовательной среде // Сибирский педагогический журнал. 2022. № 2. С. 30–43. DOI: 10.15293/1813-4718.2202.03.

12. Настина Е.А., Девятко И.Ф. Моральная оценка себя: разработка и апробация русскоязычного инструментария // Мониторинг. 2021. № 2. С. 4–27. DOI: 10.14515/monitoring.2021.2.1720.

13. Дмитриева Е.В. Возрастная обусловленность компьютерной терминологии в индивидуальном лексиконе (экспериментальное исследование) // Гуманитарно-педагогические исследования. 2021. Т. 5. № 4. С. 16–21. DOI: 10.18503/2658-3186-2021-5-4-16-21.

14. Суркова Н.А. Сущность, структура и типология профессиональной импровизации педагога дополнительного образования // Научное обеспечение системы повышения квалификации кадров. 2021. № 3. С. 95–107. EDN: UHVTHQ.

15. Леонтович А.В. Концептуальные основания моделирования исследовательской деятельности учащихся // Школьные технологии. 2006. № 5. С. 63–71. EDN: HYNOHT.

16. Поддьяков А.Н. Методологические основы изучения и развития исследовательской деятельности // Школьные технологии. 2006. № 3. С. 85–90. EDN: HVNCKB.

17. Новикова А.К. Этапы подготовки и проведения учебного исследования // Международный научно-исследовательский журнал. 2016. № 11-3. С. 66–67. DOI: 10.18454/IRJ.2016.53.089.

18. Александрова Е.А., Кривошеина Е.С. Структура формирования картины мира подростков // Сибир-

ский педагогический журнал. 2015. № 6. С. 15–19. EDN: VDWKKN.

19. Хуторской А.В. Ключевые компетенции как компонент личностно-ориентированной парадигмы образования // Народное образование. 2003. № 2. С. 58–64. EDN: SGUKTL.

20. Ечмаева Г.А., Малышева Е.Н. Модель построения индивидуальных образовательных траекторий школьников в рамках реализации проектной и исследовательской деятельности // Современное педагогическое образование. 2023. № 8. С. 62–68. EDN: CSQKRY.

21. Фомичева Н.В. Содержательно-организационные аспекты тьюторского сопровождения индивидуальной образовательной траектории учащегося профильной школы // Педагогика. Вопросы теории и практики. 2023. № 5. С. 477–482. DOI: 10.30853/ped20230081.

22. Zahroh U., Darmayanti R., Choirudin C, Soebagyo R.I. Project-Based Learning Training and Assistance for Prospective High School Teacher // Jurnal Inovasi Dan Pengembangan Hasil Pengabdian Masyarakat. 2023. Vol. 1. № 2. P. 115–121. DOI: 10.61650/jip-dimas.v1i2.237.

23. Напольских Н.Б. Гуманитарный подход к организации и осуществлению учебно-исследовательской деятельности школьников // Научно-методический электронный журнал «Концепт». 2022. № 7. С. 30–41. DOI: 10.24412/2304-120X-2022-11052.

Использование репертуарных решеток при подготовке исследовательской деятельности подростков

Сушков Денис Владимирович, аспирант
кафедры методологии образования Педагогического института
Саратовский национальный исследовательский государственный университет имени Н.Г. Чернышевского, Саратов (Россия)

E-mail: denissushkov64@gmail.com

ORCID: https://orcid.org/0009-0005-0826-8583

Аннотация: Поднимается проблема осознанного выбора учащимися тем исследовательских работ. Несмотря на важность учебных исследований в образовательном процессе, их организация на практике зачастую носит формальный поверхностный характер, в результате чего их влияние на развитие личностных смыслов учащихся невелико. Одним из возможных вариантов решения указанной проблемы является использование при выборе темы исследования методики репертуарных решеток. Цель работы – адаптация методики репертуарных решеток Дж. Келли для помощи учащимся в выборе темы исследовательской деятельности, а также в развитии навыков самопознания и саморефлексии. Методологической основой исследования стали работы американского психолога Дж. Келли, посвященные теории личностных конструктов, и разработанный на их основе «Репертуарный тест ролевых конструктов», или «Тест личных конструктов». В статье описан адаптированный алгоритм методики репертуарных решеток, включающий подготовительный этап, этап генерации конструктов, этап построения решетки, анализ и рекомендации, а также пример фрагмента возможной решетки. Анализ полученных данных осуществляется по трем направлениям: количественный (оценка сложности смысловой организации личности и структуры предпочтений), качественный (выявление доминирующих смыслов, противоречий и иерархии конструктов) и тематический анализ (группировка тем по близким критериям). Отдельно разобраны и проанализированы стратегии работы с затруднениями, возникающими при тестировании, включающие многозначность интерпретации множества конструктов, сопротивление рефлексии, поверхностность ответов и табуированность некоторых тем исследований. Практическая значимость работы заключается в том, что предложенная адаптация теста личностных конструктов может быть использована для организации учебно-исследовательской деятельности школьников при выборе темы исследования, а также как инструмент саморефлексии подростков.

Ключевые слова: развитие личностных смыслов учащихся; развитие личностных смыслов в исследовательской деятельности; методика репертуарных решеток; личностные смыслы; исследовательская деятельность подростков; учебное исследование.

Для цитирования: Сушков Д.В. Использование репертуарных решеток при подготовке исследовательской деятельности подростков // Доказательная педагогика, психология. 2025. № 2. С. 41–48. DOI: 10.18323/3034-2996-2025-2-61-4.

OUR AUTHORS

Goryunova Lilya Vasilyevna, Doctor of Sciences (Pedagogy), Professor,
Head of Chair of Inclusive Education and Social-Pedagogical Rehabilitation.
Address: Southern Federal University,
344006, Russia, Rostov-on-Don, Bolshaya Sadovaya Street, 105/42.
E-mail: lvgoryunova@sfedu.ru

Kachalov Yury Alekseevich, senior lecturer
of Chair "Sound Engineering and Digital Technologies".
Address: Samara State Institute of Culture,
443010, Russia, Samara, Frunze Street, 167.
E-mail: kachalovyuriy@yandex.ru

Li Chunjiang, PhD, Professor, President.
Address: Mudanjiang Normal University,
157011, China, Mudanjiang, Wenhua Street, 19.
E-mail: LCJlcj1206@163.com

Mareev Vladimir Ivanovich, Doctor of Sciences (Pedagogy), Professor,
professor of Chair of Technology and Professional Teacher Education.
Address: Southern Federal University,
344006, Russia, Rostov-on-Don, Bolshaya Sadovaya Street, 105/42.
E-mail: mareev@sfedu.ru

Plakhotnyuk Yulia Nikolaevna, lecturer
of Chair of Social Technologies.
Address: Southern Federal University,
344006, Russia, Rostov-on-Don, Bolshaya Sadovaya Street, 105/42.
E-mail: pozdniakova@sfedu.ru

Sushkov Denis Vladimirovich, postgraduate student
of Chair of Methodology of Education, Pedagogical Institute.
Address: Saratov Chernyshevsky State University,
410012, Russia, Saratov, Astrakhanskaya Street, 83.
E-mail: denissushkov64@gmail.com

Yu Haiying, Doctor of Sciences (Education), Professor,
Dean of the School of Education Science.
Address: Mudanjiang Normal University,
157011, China, Mudanjiang, Wenhua Street, 19.
E-mail: 0701008@mdjnu.edu.cn

Zhao Mengfei, graduate student.
Address: Mudanjiang Normal University,
157011, China, Mudanjiang, Wenhua Street, 19.
E-mail: z703400394@163.com

НАШИ АВТОРЫ

Горюнова Лилия Васильевна, доктор педагогических наук, профессор,
заведующий кафедрой инклюзивного образования
и социально-педагогической реабилитации.
Адрес: Южный федеральный университет,
344006, Россия, г. Ростов-на-Дону, ул. Большая Садовая, 105/42.
E-mail: lvgoryunova@sfedu.ru

Качалов Юрий Алексеевич, старший преподаватель
кафедры «Звукорежиссура и цифровые технологии».
Адрес: Самарский государственный институт культуры,
443010, Россия, г. Самара, ул. Фрунзе, 167.
E-mail: kachalovyuriy@yandex.ru

Ли Чуньцзян, доктор философии, профессор, президент.
Адрес: Муданьцзянский педагогический университет,
157011, Китай, г. Муданьцзян, ул. Вэньхуа, 19.
E-mail: LCJlcj1206@163.com

Мареев Владимир Иванович, доктор педагогических наук, профессор,
профессор кафедры технологии и профессионально-педагогического образования.
Адрес: Южный федеральный университет,
344006, Россия, г. Ростов-на-Дону, ул. Большая Садовая, 105/42.
E-mail: mareev@sfedu.ru

Плахотнюк Юлия Николаевна, преподаватель
кафедры социальных технологий.
Адрес: Южный федеральный университет,
344006, Россия, г. Ростов-на-Дону, ул. Большая Садовая, 105/42.
E-mail: pozdniakova@sfedu.ru

Сушков Денис Владимирович, аспирант
кафедры методологии образования Педагогического института.
Адрес: Саратовский национальный исследовательский
государственный университет имени Н.Г. Чернышевского,
410012, Россия, г. Саратов, ул. Астраханская, 83.
E-mail: denissushkov64@gmail.com

Чжао Мэнфэй, аспирант.
Адрес: Муданьцзянский педагогический университет,
157011, Китай, г. Муданьцзян, ул. Вэньхуа, 19.
E-mail: z703400394@163.com

Юй Хайин, доктор педагогических наук, профессор,
декан факультета педагогики.
Адрес: Муданьцзянский педагогический университет,
157011, Китай, г. Муданьцзян, ул. Вэньхуа, 19.
E-mail: 0701008@mdjnu.edu.cn