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Implementing personality-developing technologies in teacher training for primary education

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ABSTRACT. Personality-developing learning technologies offer significant benefits for tailoring education to meet individual student needs in primary education. This study aimed to explore the preparedness of final-year teacher education students to utilize personality-developing educational technologies for teaching humanities in primary schools. Employing questionnaires, expert assessments, modelling, pedagogical experiments, and mathematical statistics, the study involved 107 participants (68 females and 39 males) from a teacher training institution. The research implemented a newly devised questionnaire containing 30 items to gauge the students' attitudes towards adopting personality-oriented technologies. The findings indicate that although the students possess adequate theoretical knowledge of personality-developing technologies, there is a consensus on the need for increased practical training. In response, a structured course comprising 10 theoretical lessons, 10 classes focusing on implementing personality-developing technologies, and 15 practical sessions under teacher supervision was developed. This course significantly enhanced students' confidence and positive attitudes towards using these technologies in educational settings. The results underscore the potential of using the developed questionnaire for evaluating teacher trainees' aptitude in applying personality-developing technologies, crucial for their effectiveness as future educators. Additionally, the study highlights the necessity of integrating extensive practical components within teacher training programs to better equip educators with the skills required to implement personality-oriented educational strategies effectively. This approach ensures that future teachers are well-prepared to adapt their teaching methods to the diverse needs of primary school students, enhancing educational outcomes.

Keywords: teacher competencies; academic strategies; educational content; technology-enhanced learning; teacher-student interaction; skills assessment.

Implementação de tecnologias de desenvolvimento da personalidade na formação de professores para o ensino fundamental

RESUMO. As tecnologias de aprendizado que desenvolvem a personalidade oferecem benefícios significativos para adaptar a educação de modo a atender às necessidades individuais dos alunos no ensino fundamental. Este estudo teve como objetivo explorar o preparo dos alunos do último ano de formação de professores para utilizar tecnologias educacionais de desenvolvimento da personalidade no ensino de ciências humanas em escolas primárias. Empregando questionários, avaliações de especialistas, modelagem, experimentos pedagógicos e estatísticas matemáticas, o estudo envolveu 107 participantes (68 mulheres e 39 homens) de uma instituição de treinamento de professores. A pesquisa implementou um questionário recém-elaborado com 30 itens para avaliar as atitudes dos alunos em relação à adoção de tecnologias voltadas para a personalidade. Os resultados indicam que, embora os alunos possuam conhecimento teórico adequado sobre tecnologias de desenvolvimento da personalidade, há um consenso sobre a necessidade de maior treinamento prático. Em resposta, foi desenvolvido um curso estruturado com 10 aulas teóricas, 10 aulas com foco na implementação de tecnologias de desenvolvimento da personalidade e 15 sessões práticas sob a supervisão de um professor. Esse curso aumentou significativamente a confiança e as atitudes positivas dos alunos em relação ao uso dessas tecnologias em ambientes educacionais. Os resultados ressaltam o potencial do uso do questionário desenvolvido para avaliar a aptidão dos professores em treinamento na aplicação de tecnologias de desenvolvimento da personalidade, o que é crucial para sua eficácia como futuros educadores. Além disso, o estudo destaca a necessidade de integrar componentes práticos abrangentes nos programas de treinamento de professores para equipar melhor os educadores com

as habilidades necessárias para implementar estratégias educacionais voltadas para a personalidade de forma eficaz. Essa abordagem garante que os futuros professores estejam bem preparados para adaptar seus métodos de ensino às diversas necessidades dos alunos do ensino fundamental, aprimorando os resultados educacionais.

Palavras chave: competências do professor; estratégias acadêmicas; conteúdo educacional; aprendizado aprimorado por tecnologia; interação professor-aluno; avaliação de habilidades.

Aplicación de las tecnologías de desarrollo de la personalidad en la formación de profesores de enseñanza primaria

RESUMEN. Las tecnologías de aprendizaje que desarrollan la personalidad ofrecen ventajas significativas para adaptar la educación a las necesidades individuales de los alumnos de educación primaria. El objetivo de este estudio era explorar la preparación de los estudiantes de último curso de magisterio para utilizar las tecnologías educativas de desarrollo de la personalidad en la enseñanza de humanidades en primaria. El estudio, en el que se emplearon cuestionarios, evaluaciones de expertos, modelos, experimentos pedagógicos y estadística matemática, contó con 107 participantes (68 mujeres y 39 hombres) de un centro de formación de profesores. La investigación aplicó un cuestionario de nuevo cuño que contenía 30 ítems para calibrar las actitudes de los alumnos hacia la adopción de tecnologías orientadas a la personalidad. Los resultados indican que, aunque los estudiantes poseen conocimientos teóricos adecuados sobre las tecnologías de desarrollo de la personalidad, existe consenso sobre la necesidad de aumentar la formación práctica. En respuesta, se elaboró un curso estructurado que comprendía 10 lecciones teóricas, 10 clases centradas en la aplicación de tecnologías de desarrollo de la personalidad y 15 sesiones prácticas bajo la supervisión del profesor. Este curso aumentó significativamente la confianza de los estudiantes y sus actitudes positivas hacia el uso de estas tecnologías en entornos educativos. Los resultados subrayan el potencial del cuestionario desarrollado para evaluar la aptitud de los estudiantes de magisterio en la aplicación de tecnologías de desarrollo de la personalidad, cruciales para su eficacia como futuros educadores. Además, el estudio subraya la necesidad de integrar amplios componentes prácticos en los programas de formación del profesorado para dotar a los educadores de las habilidades necesarias para aplicar eficazmente estrategias educativas orientadas a la personalidad. Este enfoque garantiza que los futuros profesores estén bien preparados para adaptar sus métodos de enseñanza a las diversas necesidades de los alumnos de primaria, mejorando así los resultados educativos.

Palavras clave: competencias del profesorado; estrategias académicas; contenidos educativos; aprendizaje potenciado por la tecnología; interacción profesor-alumno; evaluación de destrezas.

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Introduction

Challenges in the field of education in the digital age require the search for effective approaches to work with children starting from primary school. In education of the 21st century, there is a need for an approach using personality-developing technologies, since they help to identify the strengths of each student, which is especially important in the era of digitalisation, when various processes are automated and it is necessary to develop the personal creative skills of future specialists. Personality-developing learning technologies allow identifying and developing the strengths of each student, creating a productive team of students when personal qualities are encouraged rather than humiliated under the pressure of standards. Learning with a personalised approach involves adapting the learning process to the needs of students, constantly considering the level of knowledge to track the dynamics of progress in understanding educational material, the speed of learning, and other characteristics of each child. More and more schools are educating children with a personalised approach, as it is more effective for the learning outcomes of each individual child. The use of modern digital technologies can also significantly improve learning processes with a personalised approach, since using various applications, it is possible to make learning plans, considering the strengths and weaknesses of each student, and distribute educational material into blocks with different amounts of material.

Modern trends and practices of integrating personality-developing educational technologies during the teaching of humanities subjects in primary school involve the use of interdisciplinary approaches, innovative forms and methods of teaching, and the introduction of technologies into educational activities (Cherepovska et al., 2021; Zholdosheva, 2022). In the study by Yan (2021) indicates that the use of technology and conventional teaching methods in the humanities subjects helps to bridge the gap between textbook material

and technology development, and also allows students to use technology efficiently. Moreover, the use of technology for personality-developing contributes to the comprehensive development and formation of digital literacy of students, the development of skills for effective teaching of a modern student who knows how to rationally use technology when learning (Zdravkova, 2023).

The results of the study by Major et al. (2021) show the effectiveness of a personalised approach using technological support in teaching students aged 6-15 years, which adapts and adapts to the level of students. Ambele et al. (2022) and Yildiz et al. (2020) reported that a personalised approach is effective for teaching mathematics and literacy, regardless of whether teachers participate in the personalisation of learning. The study by Schmid et al. (2023) identified three perspectives on the use of digital tools in teaching practice with a personality-developing approach, namely, the use of technology according to the wishes of teachers, students, and in accordance with the school strategy. For example, personality-developing learning technologies that are used in primary schools include tools such as digital literacy programmes (I Read), mathematics education programmes (ST Math), drawing, modelling and coding platforms (Scratch). The use of technology should contribute to the improvement of the learning process, allowing students to get an interesting and interactive learning experience (Kozub et al., 2025; Svyrydiuk et al., 2022). For example, I Read focuses on digital literacy to improve reading skills, ST Math allows students to improve their understanding of conceptual concepts of mathematics through interesting visual effects. The Scratch programming language introduces students to coding in a convenient playful way, contributing to the development of computational thinking in the early stages of learning.

The training of future teachers should prepare them for the use of personality-developing technologies, which includes the search for pedagogical approaches and the use of digital technologies. At the moment, there is insufficient data in the scientific literature regarding the preparation of future teachers for the use of personality-developing technologies while teaching humanities subjects. Based on this, the purpose of the study was to investigate the features of preparing future teachers of humanities subjects to use personality-developing educational technologies in primary school. Research objectives:

- To highlight the criteria of students' readiness to use personality-developing technologies in the study of the humanities.

- To investigate students' opinions about attitudes, confidence in the use and the need to improve knowledge regarding the use of personality-developing technologies in primary school while studying humanities subjects.

- To investigate the relationship between the assessment of the components of attitude, confidence, and the need for further education with the academic success of students.

- To develop and test the effectiveness of a course on learning personality-developing technologies for future primary school teachers.

Literature review

The training of future humanities teachers using personality-developing technologies provides for the introduction of the study of a personality-oriented approach into their learning processes. The process of teaching future teachers using personality-developing technologies focuses on the development of personal characteristics of the teacher, understanding of children, the ability to find approaches to teaching children with different levels of knowledge and the information assimilation rate.

Effective training of future teachers allows interacting productively with students in the future, understanding the level of development of students, making learning plans based on personal qualities. Learning about students' characteristics also bridges the gap between the end of training and the first year of working with children, as the teacher's readiness to use personality-developing technology is beneficial to their relationship with students (Ketko, 2020). The selection of personality-developing learning technologies provides a comfortable learning environment, a favourable psychological climate in the classroom. This requires knowledge of each student's developmental and personal characteristics. The characteristic features of the use of personality-oriented technologies in the learning process are consideration of individual personality characteristics, motivation for learning, a favourable environment for achieving goals, the use of effective forms, means, methods of teaching, creating conditions for cooperation and joint creativity in the classroom, cooperation between teachers and students, increasing responsibility for the quality of learning, actualisation of student personal growth as the basics of their independence, self-esteem improvement. By

understanding the different skills and abilities of the student, teachers can effectively interact to develop research thinking, which contributes to active learning.

Hacques et al. (2021) argued for the need to develop research activities in children, since this is a predictor of learning in general. Quinlan (2021) pointed out the importance of the approaches that teachers use in the process of studying humanities for learning effectiveness. Shemshack and Spector (2020) argued that it is necessary to select learning approaches based on the needs, level of knowledge, behavioural characteristics, level of culture, and pace of learning of students in the classroom. Kim et al. (2019) noted that the development of pedagogical skills involves constant reflection, continuous teacher training. It is critically important to evaluate, in fact, what the teacher applies directly during training, and not only on what kind of training the teacher has. In the classroom where students, and especially novice students, learn, skill development takes place which is greatly influenced by the behaviour and teaching strategies applied by the teacher. Personality-oriented learning technologies provide for the adaptation of the educational process to the needs of students, considering their level of knowledge and understanding, speed of perception, and other features. With the help of a personal approach in primary school, it is possible to develop students' skills and abilities much more effectively, to understand their talents and aptitude for learning subjects.

To understand the characteristics of each student, it is necessary to have current control skills in order to determine the necessary skills for improvement. To do this, it is necessary to regularly evaluate the characteristics of students during training. As shown by Tetzlaff et al. (2021), personalisation of learning is most effective when students' characteristics are repeatedly and frequently measured, and these data are used to systematically adapt learning. According to the researchers, providing the same content to students with different levels of knowledge, understanding, motivation levels and interests is ineffective. To assess the readiness to use new methodologies, Endot et al. (2021) recommend studying the factors of teacher readiness, self-efficacy, and intrinsic motivation. In their opinion, a competent teacher should be familiar with various approaches to teaching in primary school. These include competence-based, activity-based, personality-oriented approaches, and the ability to develop children's talents. To ensure that teacher training meets the requirements of modern society, it is necessary to update curricula and the content of educational material in time.

According to Bernacki et al. (2021), personality-developing learning involves the application of several principles and concepts. One is individualisation of learning, which focuses on adapting learning to meet the unique needs of each student. The other is the development of metacognition, which concerns the ability to reflect and regulate own thinking and learning processes. Kryucheva and Tolstoukhova (2021) emphasised that providing the same content to students with different qualifications, personal characteristics, interests, and needs is not enough. A personality-oriented approach to learning implies the development of self-organisation skills, encouraging interest in learning about the world and the disciplines studied. According to researchers, a personality-oriented approach to learning is a difficult task in modern educational systems. According to experts, it is still at the stage of development, especially the preparation of future teachers for the implementation of these technologies.

In accordance with the beliefs of many educational technology specialists, it is assumed that an effective approach to learning can increase the motivation and involvement of students in educational activities, which will lead to improved learning outcomes. However, despite the possibility of achieving such a result, a review of studies shows that it remains largely unimplemented.

Materials and methods

Study participants

The study involved 107 final-year students at a teacher's university with varying levels of success but with an average score of at least 68 (out of 100) (Table 1).

Table 1. Number and age of respondents who participated in the study.

Sex	Age (years)	Number of respondents	Level of academic success		
			Below average	Average	High
Female students	22.5	68	17.64% (12 students)	47.05 (32 students)	35.3% (24 students)
Male students	22.7	39	23.07% (9 students)	43.59% (17 students)	33.33% (13 students)

Source: compiled by the authors.

During the pedagogical internship, students observed the teaching using personality-developing technologies by experienced primary school teachers, and had the opportunity to conduct a lesson with students with the implementation of personality-developing technologies under their guidance. Next, the attitude, confidence and desire to improve knowledge regarding the use of personality-developing technologies among students were assessed, a course was developed to study the features of the use of personality-developing technologies, and the students' attitude to personality-developing technologies were re-evaluated.

Research tools

In order to assess the readiness of future teachers to use personality-developing educational technologies in the study of the humanities subjects, the assessment of various aspects of their practical activity during the process of pedagogical practice was carried out. In particular, the pedagogical skills of future teachers, the ability to navigate modern personality-developing technologies that can be used to teach primary school children, integrate them into teaching practice, and the ability to increase the involvement of primary school students in learning were evaluated. For this purpose, the questions proposed by Endot et al. (2021) were used. The evaluation was conducted using the Likert scale: 7 – very good, 6 – good, 5 – fairly good, 4 – normal, 3 – not very good, 2 – bad, 1 – very bad. This assessment was conducted by the practice supervisors (n=4) and the teachers – heads of the primary classes in which the students had an internship (n = 10).

In addition, a questionnaire was developed, which consisted of 30 questions, the answers to which determined the attitude, willingness to use personality-developing technologies for future primary school teachers, and an opinion on improving learning with the study of the characteristics of personality-developing technologies for primary school students. The questions were evaluated on a Likert scale from 1 to 5, where 1 – completely disagree, 2 – not completely agree, 3 – probably disagree, 4 – probably agree, 5 – completely agree.

Processing of results

After the survey, the study examined the relationship between the indicators of attitude, readiness for the use of personality-developing technologies in future primary school teachers, and the opinion on improving learning by studying the characteristics of personality-developing technologies and academic performance of students. To process the results obtained, methods of mathematical statistics were applied (correlation coefficients, the average value of student approval ratings and descriptive statistics were calculated, the Student's t-test was calculated between the evaluation indicators of the questionnaire components before and after the course training on the features of the use of personality-developing technologies). Mathematical statistics were carried out using MS EXCEL.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. A study was approved by National Ethics Commission of the Kyrgyz National University named after Jusup Balasagyn December 21, 2024, No 1076-A.

Results

Based on a survey of teachers on how students demonstrated their skills in using personality-developing technologies, the following results were obtained (Table 2).

As shown by the results of the overall teaching evaluation, prospective elementary teachers had an average level of confidence in the criteria provided. The ability to hold events of various contents was rated the highest (5.25, 5.08 points), the lowest was the ability of female students to organise work between students in small groups (3.24 ± 0.71), evaluating students to plan the specifics of presenting material in future lessons (3.28 ± 0.54). There were no statistical differences between the grades of male and female students ($p > 0.05$). This assessment identified those criteria of students' readiness for practical activities that need improvement. The assessment of the components of readiness for the use of personality-developing technologies, understanding of their teaching and desire to improve the knowledge on the use of personality-developing technologies is presented in Table 3.

Table 2. Evaluation of skills and knowledge on conducting lessons using personality-developing technologies.

No.	Criterion	Female students	Male students
1	Ability to hold events of different content	5.25±0.29	5.08±0.34
2	Ability to assess the level of knowledge of students	4.15±0.58	3.88±0.45
3	Ability to explain material to students with the worst academic performance without compromising the successful students	3.54±0.56	3.41±0.62
4	Ability to organise work between students in small groups	3.24±0.71	3.55±0.45
5	Individual approach to students	3.47±0.35	3.53±0.35
6	Assessment of students in order to plan the specifics of the presentation of material in future lessons	3.45±0.54	3.28±0.54

Source: compiled by the authors.

Table 3. The results of a survey of students on readiness and knowledge on the use of personality-developing technologies.

No.	Focus of the question	Content of the question	Male students	Female students
1	A	The use of personality-developing technologies will contribute to a better understanding of humanities by primary school students	3.258	3.029
2	A	The use of personality-developing technologies helps students develop critical thinking	2.525	3.232
3	A	The use of personality-developing technologies contributes to the development of social skills of primary school students	3.231	3.822
4	A	Learning using personality-developing technologies helps to increase the interest and motivation of students	3.834	3.584
5	A	Training in the use of personality-developing technologies is necessary for a high level of professional skills of a future primary school teacher	3.142	3.141
6	D	I would like more attention to be paid in teaching to study the features of the use of personality-developing technologies for students	4.231	4.215
7	A	The use of personality-developing technologies helps to better understand the characteristics of each student	3.325	3.25
8	A	The use of personality-developing technologies contributes to the development of self-learning skills in primary school students	3.212	3.311
9.	D	For the effective use of personality-developing technologies, teachers must regularly study and update their knowledge and skills	4.174	4.172
10	D	I believe that the use of personality-developing technologies helps to strengthen the relationship between teacher and students	3.995	3.963
11	A	I believe that teachers who use personality-developing technologies are more successful in working with diverse groups of students	3.072	3.131
12	D	I believe that during practice it is necessary to learn how to apply personality-developing technologies with students	4.221	3.695
13	D	Primary school teachers should have access to professional development in the field of personality-developing technologies	4.332	3.985
14	D	I believe that the curriculum needs to be improved with the use of personality-developing technologies, considering the features of student development	4.125	4.235
15	A	The use of personality-developing technologies will contribute to improving the learning outcomes of primary school students	3.199	3.052
16	C	The use of personality-developing technologies contributes to the development of self-regulation and self-management skills in students	3.305	3.071
17	C	I am interested in the personality traits of students and personal approaches to their learning	3.23	3.185
18	C	Personality-developing technologies contribute to the growth of understanding between students, as they understand their different abilities	2.285	2.497
19	C	I believe that the use of personality-developing technologies will contribute to the improvement of lessons at school	3.106	3.259
20	C	Learning with the use of personality-developing technologies will help me better meet the needs of different students	2.639	3.45
21	C	I am ready to teach children using personality-developing technologies	2.108	3.298
22	C	I feel confident in my skills in applying personality-developing technologies with primary school students	3.455	2.665
23	D	I would like to participate in professional development in the field of personality-developing technologies after studying at the university	4.236	4.236
24	C	Personality-developing technologies will help me manage the class better	3.756	4.048
25	C	I think that the use of personality-developing technologies will be effective not only in teaching humanities	3.093	3.831
26	D	I am ready to take the time to study the methods of personality-developing	4.363	4.363

		technologies		
27	C	I think that the use of personality-developing technologies will contribute to the development of students' emotional intelligence	3.548	3.14
28	C	I am ready to study and apply various methods to implement personality-developing technologies in the learning process	2.439	2.922
29	C	I feel that my skills and knowledge are sufficient to apply personality-developing technologies in the process of teaching primary school students	2.769	3.951
30	A	The use of personality-developing technologies will contribute to the development of self-learning skills in students, which, in turn, will contribute to their self-realisation	3.232	2.969

Note: A – attitude; C – confidence; D – desire to improve knowledge about personality-developing technologies in teaching primary school children.

Source: compiled by the authors.

As a result of the survey, it can be stated that the attitude of male and female students to the use of personality-developing technologies is at the average and above average level (3.28 ± 0.58 points), confidence in the use of personality-developing technologies is at the average and below average level (2.75 ± 0.61 points), desire for teaching material regarding the use of personality-developing technologies with primary school students is at a high level (4.27 ± 0.54 points). This indicates the need for in-depth study of the features of the use of personality-developing technologies in the learning process of future teachers. The relationships between the assessment components were strong, despite the different levels of assessment of these components (Table 4).

Table 4. Correlation between the assessment components in the questionnaire.

Assessment components	Confidence	Readiness	Desire to study
Confidence in the use of personality-oriented technologies	1	0.741	0.685
Willingness to use personality-oriented technologies	0.711	1	0.758
Desire to improve knowledge on the use of personality-oriented technologies	0.763	0.807	1

Source: compiled by the authors.

A comparison of the assessment of the components of the use of personality-developing technologies and academic success shows the following (Table 5).

Table 5. Correlation between the level of academic success, confidence, willingness and desire to study personality-developing technologies with primary school students.

Criteria		Confidence	Readiness	Need for further study
Academic success	Male students	0.801	0.571	0.755
	Female students	0.741	0.528	0.762

Source: Compiled by the authors.

As the results of the correlation analysis show, the level of academic success of students and female students affects whether students are confident in the possibility of using personality-developing technologies with primary school students. However, the level of academic success affects the willingness to use personality-developing technologies to a lesser extent (the average level of interconnection). This can be explained by the need for longer practical training in the use of personality-developing technologies to increase the level of readiness to use them in their future practice. The students' desire for a deeper study of the features of the application of personality-developing technologies have strong links with the level of academic success. This indicates the importance of the level of academic success of future teachers for their interest in using personality-developing technologies in future practice.

To improve the readiness and confidence of future teachers to use personality-developing technologies, an additional course has been developed for teaching the discipline 'Fundamentals of pedagogical skills'. During the course, the personality characteristics of different children, effective influence strategies for the development of motivation to learn, the features of personality-developing technologies for teaching in primary school were investigated, watching various clippings from films about the interaction of children and teachers, the influence of different pedagogical practices on children (a total of 10 theoretical classes) was organised. Next, practical classes were held with students, during which teachers used personality-developing technologies with them, to better understand the features of using these technologies and their impact on future students (10 classes). After that, practical classes were held, during which teachers attended classes in primary school to determine the personality traits of students, search for personality-developing technologies for them (attending 5 lessons), a discussion was held with experienced teachers on the selection of different

technologies for children, and the use of these technologies in the process of subsequent lessons with children (10 lessons). This was implemented during the lessons 'Native language', 'Foreign language', 'Art' and 'I learn the world'. The personality-developing technologies that students studied, which were used for classes with them, and which were taken during lessons together with experienced teachers are as follows:

- The technology of creating a situation of success.
- Humanities and personal technology of Sh.O. Amonashvili.
- Creating a situation of interest (to motivate students to study the material).
- Creating a situation to make choices about how to learn the material (providing the material in colour or black and white, small group learning with self-selecting group members, and other aspects of learning with choices for the child.
- The problem-search situation is the acquisition of experience in problematic, research, creative educational activities, which increases students' confidence in solving various problems, creating prerequisites for creative, independent search activities.
- A role-playing situation is the performance of a specific role (for example, a store clerk or a doctor) during the game, the study of the material is performed.
- Gaming technologies.
- Problem-based learning technology.
- Exploring digital applications with the ability to select personalised content.

After studying the specifics of using personality-developing technologies during theoretical classes, students prepared for practical classes with children, prepared materials for use in lessons, and created lesson plans using personality-developing technologies. Students also discussed many aspects of conducting lessons using personality-developing technologies with experienced teachers, and had the opportunity to conduct such lessons together with teachers. Taking a course on the application of personality-developing technologies positively influenced the results of a repeated survey of students on how they assess their attitude, confidence in the use of personality-developing technologies. After the course, the attitude score was 4.365 points for male students, and 4.412 points for female students (Table 6).

Table 6. Assessment of attitudes, confidence, and desire to improve knowledge on the use of personality-developing technologies before and after the course of study.

Assessment components	Male students			Female students		
	Before the course	After the course	t, p	Before the course	After the course	t, p
Attitude to the use of personality-oriented technologies	3.203	4.365	3.521>0.05	3.252	4.412	5.231>0.05
Confidence in the use of personality-oriented technologies	2.978	3.785	6.253>0.05	3.276	3.962	3.214>0.05
Desire to improve knowledge on the use of personality-oriented technologies	4.209	4.325	1.232<0.05	4.108	4.236	0.985<0.05

Source: compiled by the authors.

The assessment of confidence in the use of personality-developing technologies also increased after applying the course on their study and practical application, and amounted to 3.785 points for male students and 3.962 points for female students, and the assessment of the desire to improve knowledge on the use of personality-oriented technologies increased, but since it was high before the course, there were statistical differences in comparison with the assessment there was no course before the application ($p < 0.05$). Thus, the study of the features of the application of personality-developing technologies and their practical application positively influenced the attitude of future teachers to such technologies, and confidence in their application.

Discussion

In modern education, the task of preparing future teachers to use personality-developing technologies while teaching the humanities in primary school is becoming increasingly urgent. This issue not only determines the quality of education, but also contributes to the development of students and helps to form key learning skills. Modern schools face challenges that require teachers not only to transfer knowledge, but also to develop the personality qualities of students.

According to López-Martín et al. (2023) and González-Fernández et al. (2024), the academic success of students is influenced by the teacher's reflection on students, professional development, and rational

planning of the learning process. According to Kilag et al. (2023), the needs of students are key to planning the presentation of the material. In this context, the use of personality-developing technologies makes it possible to meet modern requirements for effective teaching. This is especially important in primary school, when it is necessary to teach children to learn in general, to understand their strengths, and to develop their knowledge. The use of personality-developing technologies in teaching humanities allows utilising the potential of students for effective learning, developing their abilities, and creating a favourable classroom climate (Park et al., 2024; Asanov et al., 2024).

Following Bernacki et al. (2021), personality-developing technologies are an effective approach to learning, but its application requires constant work by a teacher, the selection of teaching tools and methods for students with different abilities and academic performance. In primary school, it is difficult to rank students by academic performance, and some performance indicators (for example, reading speed, speaking ability) are not always the most indicative criterion of student success, since they may be limited by character traits, ability to act in a team, or other personality traits. Teachers should understand the different characteristics of children's character, motivate them to develop their skills, and search for individual approaches to different children (Ramey et al., 2024). Future teachers may have difficulties with the ability to identify different characteristics of primary school children, and in order to improve these skills, it is necessary to provide qualified training during training, to evaluate different aspects of the preparedness of future teachers to timely correct the learning process and practical training.

According to Shkabarina et al. (2020) innovative technologies in the process of professional training of future teachers should be introduced in three stages – diagnostic, motivational, and activity and creative. In this study, the confidence of future teachers in their abilities to teach humanities disciplines using personality-developing technologies and readiness for their use were assessed, including desire for deeper learning of personality-developing technologies. Next, a course was developed on in-depth study of the features of personality-oriented technologies with practical application in the course of practical classes with experienced teachers. This positively influenced the attitude of future teachers, confidence in the use of personality-oriented technologies. To select appropriate technologies, teachers need to understand many characteristics of students, including their personality types (Chung, 2023; Wang, 2025).

Yu and Zhang (2021) identified three personality types of primary school students – resilient, overcontrolled, insufficiently controlled. According to the findings, teachers prefer to teach overcontrolled children who are characterised as prosocial, have sympathies from children and adults, obedient, non-aggressive, self-confident, and competitive. Resilient children are self-confident, independent, and able to concentrate on tasks. Insufficiently controlled children are characterised by impulsivity, disobedience, stubbornness, and high levels of physical activity (Zheng, 2024; Constantia et al., 2025). Each type of personality of students requires different approaches to learning, in addition, other individual characteristics of each student, inclinations and talents, and different factors of their lives must be considered. In order to find personality-developing technologies for students, it is necessary to have the skills of versatile assessment of the level of knowledge, understanding of the students' material, to prepare educational material for its maximum effective assimilation. For example, the study by Rodríguez-Martínez et al. (2023) proved the effectiveness of personalised homework for the 5th grade students, considering the mistakes made during the ongoing monitoring during lessons.

In order to use effective approaches to teaching students, a high level of motivation of teachers is necessary, and according to Endot et al. (2021) – high level of readiness to use different teaching methods and technologies. The students' willingness to use personality-developing learning technologies in this study was below average, and the students themselves expressed a desire to have more time for practical preparation for the use of personality-developing learning technologies. In addition, according to Christoforidou and Kyriakides (2021), student performance is strongly influenced by student assessment, the dynamics of their relationships, for example, praise and encouragement of students with the worst academic performance contributed to improving their level of knowledge. These data are also confirmed by the findings of Kellock (2020), who suggested that individualisation in student learning contributes not only to improving learning outcomes, but also to their better psychological state at school. Accordingly, it is necessary to improve the learning processes of future primary school teachers, to study different types of personality and effective learning strategies for them. For example, the results of experiment by Ruit et al. (2021) indicate an improvement in academic performance, using the development of the 'self-concept' of students, their personal qualities for learning outcomes. Thus, the training of future primary school teachers should include

modules on personality-developing technologies, a sufficient number of practical classes, internships, and supervision of experienced teachers. According to the results of the study, students rated their willingness to use personality-developing technologies as below average, although their confidence was at an average level.

To increase the readiness of future teachers, it is necessary to develop a professional development network, provide an opportunity for the practical use of personality-developing technologies (including using digital devices, viewing such lessons through video and other ways to increase readiness for the use of technologies in future practice (Mazhitovna et al., 2022; Zaitseva et al., 2023). Moreover, it will facilitate the use of various methods for self-learning in the process of pedagogical practice, according to Richmond et al. (2019). Similar results were obtained in the study by Pappa et al. (2024) regarding teachers' lack of confidence in integrating technology into curricula, lack of proper training. For improvement, it is recommended to create pedagogical communities where teachers could share their experiences, create professional development courses for teachers, considering their needs for practical teaching skills. Kamalov et al. (2022) indicate that teachers who want to meet the requirements of modernity will give preference to vocational education technologies and use them in their practice. Personality-developing technologies in the modern aspect are also understood as the use of digital technologies that allow personalising content. Bang et al. (2023) pointed out the possibility of using artificial intelligence to personalise learning, however, these studies require further verification regarding the use of artificial intelligence technologies by children.

Kaplan-Rakowski et al. (2023) showed the positive impact of the My Math Academy application, which delivers personalised content and assessment technologies to support a conventional learning programme on the learning outcomes of first grade students. Most of the skills of working with the My Math Academy application were associated with great success in learning. The study found that future teachers possess sufficient skills and are confident in the use of personality-oriented technologies in teaching at an intermediate level, and would like more practical training. The same applies to the use of applications that create personalised content.

Conclusion

The use of personality-oriented learning technologies is effective for primary school children, but their application requires a sufficient level of teacher training. The conducted assessment of the general competencies of future primary school teachers shows a sufficient level of ability to conduct activities of various contents with children (5.25-5.08 p.); ability to evaluate students (4.15-3.88 p.); ability to explain material to students with the worst academic performance without compromising successful students (3.54-3.41 p.); ability to organise work between students in small groups (3.24-3.55 p.); ability to evaluate students in order to plan the specifics of presenting material in future lessons (3.45-3.28 p.). The ability to choose an individual approach to students was assessed at an average level – 3.47-3.53 p. (maximum score of 7 points).

This is due to the need for practical work to apply theoretical knowledge in practice, to obtain the necessary level of experience for the better development of these qualities. A further survey of the students themselves confirms the teachers' assessments, and shows that future teachers feel good about personality-developing technologies, consider them effective for use in teaching practice, but would like to have more experience and practical skills to apply them. The desire to use personality-developing technologies had strong links with the level of academic success. This indicates that teachers who themselves have a desire to learn, which is expressed in learning outcomes, are more motivated to use personality-oriented technologies to effectively teach their students. The development and implementation of a course on the study and practical application of personality-developing learning technologies has positively influenced the attitude and confidence of future teachers on the application of these technologies in future practice. The conditions of theoretical study, the use of personality-developing technologies in teaching students themselves, and practical work with experienced teachers to determine the characteristics of students and the selection of effective technologies had a positive impact on the attitude and confidence of students to the use of personality-developing technologies. The study was conducted with the final-year students for a general assessment of the readiness of future teachers to use personality-oriented technologies in their future practice. The ability to apply person-centred technologies as pedagogical approaches and as the ability to pick up digital applications in future practice after learning in a conventional curriculum (without specially designed programmes) was assessed. The study can be considered a pilot, since 107 students took part in it, and a statement, since the results indicate the importance of further development of training programmes for future teachers.

Further research should be conducted to investigate the effectiveness of programmes for teaching students about the use of personality-developing technologies, practice (including using virtual reality), studying applications that allow selecting personalised content for students, and the possibilities of their effective use in the learning process. In addition, it is also possible to check the mood indicators of pupils after lessons with the use of personality-developing technologies, to compare the learning results of pupils who were taught using personality-developing technologies with pupils who were taught without these technologies, to investigate teachers' opinions on the effectiveness of using personality-developing technologies in teaching primary schoolchildren.

Data availability

Data available on request from the authors

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