







Impact of practice-centered learning on the development of students' professional identities: Learning outcomes

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Abstract

The progress of education in our country is still constrained by the low status of teaching. The comprehension and growth of university students' stages of professional identity creation are not well researched. This issue is now recognized on both a theoretical and practical level. This research aimed to examine the effectiveness of providing practice-centered learning in the construction of students' professional identities. The study employed a mixed-data collection strategy. A random sample of respondents was used to generate quantitative data. The study involved 253 learners at "Baishev University," Aktobe, Kazakhstan. According to the study's findings, low levels of development have been found in students' professional identity, motivation and interest in professional self-development. This demonstrated the importance of resource support for educational innovations as well as the development and implementation of technology-based practice-centered learning for future teachers. As a result of evaluating the implementation of technology-based practice-centered learning and resource support for educational innovations, positive dynamics shaping learners' professional identities are identified. Thus, the study's findings confirmed our hypothesis that using practice-centered learning to foster students' professional identities has a positive impact when systemic and technological approaches are used.

Keywords: Exploring, Influence, Practice-centered learning, Professional identity, Social responsibility, Students.

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Contribution of this paper to the literature

This study examines whether students' motivation and interest in professional self-development are positively impacted by the author's practice-centered learning approach to the development of their professional identities by using technological and systemic approaches to training that were not addressed in earlier studies.

1. Introduction

Teachers are primarily responsible for improving educational standards. Strengthening their professional status and continuously improving their professional identity will improve the learning process and the secondary education system as a whole. However, these changes have occurred in the context of professional and educational development or during the process of enhancing their qualifications.

The most effective systems are distinguished by their ability to consistently attract high-quality staff to the classroom resulting in improved learning outcomes. The implementation of restrictive student selection methods for teacher education programmes and the establishment of effective teacher evaluation methods serve to accomplish this objective. This strategy enhances the status of the teaching profession and leads to an increasing number of qualified applicants emerging. However, the current selection of students in our country entering teacher training programs may lead to the fact that the weakest school graduates will form the basis of the teaching staff in the future. The secondary education sector in Kazakhstan remains one of the most reform-oriented. However, there has been no radical modernization in this area. The ultimate positive outcome of ongoing reforms is not yet apparent. The low status of the teaching profession remains a limiting factor in the development of school education (Nagima et al., 2023; Ospankulov, Zhumabayeva, & Nurgaliyeva, 2023).

An analysis of international experience reveals that the teaching profession will be selected by the best candidates who consciously want to become teachers ensuring the success of the education system. All national education strategies should focus primarily on attracting and retaining the most qualified applicants for teaching. According to the 2015 Programme for International Student Assessment (PISA) research, only 5.4% of Kazakh students in their 15th year want to become teachers. Students who desired to become teachers and those who wanted to pursue other jobs differed in their math, reading and science skills by 25 points, 24 points and 26 points respectively. According to the Organisation for Economic Co-operation and Development (OECD) (2018), this data implies that students who wish to become teachers are almost a year behind peers who wish to pursue alternative professions. The loss of traditional values, meanings and motivations for activity and the presence of a large number of universities that provide training all contribute to an uncertain situation that makes improving a teacher's professional identity in our country extremely difficult. Many university graduates never progress beyond the stage of immediate professional adoption. The traditional teacher education system does not fully address this problem. The regional labor market requires teachers who are eager to develop and improve their teaching skills as well as engage in qualified professional activities.

1.1. Problem Statement

Professional identity has increasingly become the focus of educational research (Eslamdoost, King, & Tajeddin, 2020; Taşdemir & Seferoğlu, 2022; Zhao, 2022). According to many researchers, professional identity develops through professional training, professional education and self-education (Kavrayıcı, 2020; Tomlinson & Jackson, 2021). One of the most important life decisions is choosing a career because it affects a person's entire way of life and social circle. The primary standards for students' professional growth have historically been activity efficiency and the absorption of professional skills and abilities. However, these criteria are not sufficient to assess the level of professionalization which also implies acceptance of the chosen profession and readiness for professional self-improvement (Cruess, Cruess, & Steinert, 2019; O'Sullivan, Steinert, & Irby, 2021; Wahid et al., 2021).

The relevance of these issues is due to the lack of research by researchers in Kazakhstan. Research and analysis of this issue revealed the following contradictions:

(1) The involvement in the construction of professional identities at different stages of training and the lack of appropriate learning in universities in our country.

(2) There is a lack of international research in comparison with other countries aimed at identifying and constructing the professional identity of teachers.

Thus, an in-depth study is urgently required to address the issue of how students' professional identities evolve during their academic training. This research aimed to examine the effectiveness of providing practice-centered learning in the construction of students' professional identities.

1.2. Research Contribution

The main contribution of this study is a critical review of the formation of students' professional identities in a pedagogical university. Teachers' professional identities need to change significantly as a result of the new school. The main obstacles to the advancement and quality of school education are the low status of teaching in Kazakhstan, the low degree of professional identity development among students, the lack of enthusiasm for upcoming teaching activities and the lack of interest in professional self-development. Attracting and retaining the best candidates for the teaching profession is an integral part of any national education strategy (Finland, Singapore, South Korea, etc.) (Pollari, Salo, & Koski, 2018; Tonga, Eryiğit, Yalçın, & Erden, 2022). Primary evaluation enabled the identification of factors that substantially lower the outcomes of university students developing their professional identities: a lack of a suitable teaching strategy in colleges, school graduates who chose to become teachers due to low passing scores, those who failed the competition for other specializations and those who were not even awarded a four-year state stipend. This process is very challenging because there are several universities that develop future teachers which has led to uncertainty. The result includes new elements of the strategy for the development of the identity of students in the country based on the results of international studies by leading powers in this area. The implementation and development of practice-centered learning as a

method for fostering students' professional identities at the university while considering the distinctive characteristics of Kazakhstan's regions will support the advancement of teaching in Kazakhstan.

2. Literature Review

2.1. Definition of the Term Identity

Occupational identity is an interdisciplinary topic that falls within the problematic domain of labor psychology but it is grounded in the prescriptions of personality, social and developmental psychology (Hihara, Umemura, Iwasa, Saiga, & Sugimura, 2021; Waterman, 2020). Characteristics of identity as a phenomenon ("identity", "continuity", "integrity") and its components (connections of the ego, social roles (society), the state of the body) have been defined in the works of Albarello, Crocetti, and Rubini (2018); Guenther, Wilton, and Fernandes (2020) and Simons (2021). Identity is constantly refined and revealed later on. Identity aspects such as the adoption of samples and standards (individual and group) are highlighted in the works of Han, Liu, Evans, Song, and Ma (2020) and Lo, Grotevant, and McRoy (2019) among others. The term identity is included in the concept by Pfeifer and Berkman (2018). The self's stability, conscious aims and values and personal and emotional maturity are also included (Bogaerts et al., 2019; Topolewska-Siedzik & Ciecuch, 2018). The work of Waterman (2020) places more emphasis on the component of identity development. According to him, identity is the ability to clearly exercise one's right to self-determination which includes selecting one's values, beliefs and life goals (Branje, De Moor, Spitzer, & Becht, 2021). Identity is presented as a cognitive system that regulates behavior under relevant conditions (Akdemir, 2018; Caza, Vough, & Puranik, 2018; Walker, 2022). Based on the review of studies by Kantar and Yalcin (2023), the characteristics of this concept can be identified. Durkheim, in particular, raises the question of the mechanisms by which social identity is formed and the influence of individuals' affiliations with different groups. The theory of social identity translation without using the term "identity" revealed the structure and processes of constructing the individual's "social essence." According to this theory, in traditional societies, a person's identity is formed directly from the present culture and is followed by norms and values that are common and specific to the type of social organization (Kurtz, 2022; Rawls & Turowetz, 2021). According to the sociologist, the term "identity" refers to two interconnected aspects of a person's place in society: knowledge of the system in which they operate awareness of the problem and norm of self-determination and their place in the normative space. In this case, identity is not a state but a structural characteristic of a person (Sugimura, Gmelin, van der Gaag, & Kunnen, 2022). Social identity is addressed within the framework of symbolic interactionism. This theory holds that people's perceptions of themselves have an impact on how an individual perceives himself. A person looks into external representations as if in a "mirror" and reflecting the latter, forms an opinion about himself (Siljanovska & Stojcevska, 2018). He introduced the idea of the "generalized other" as a means of associating an individual with a group. Three categories of identities express an individual's identity as well as their social determination: social identity refers to how others characterize an individual based on their membership in a group (the "social I") (Doeselaar, Becht, Klimstra, & Meeus, 2018). The theories present the phenomenological sociology of knowledge. The authors define "identity" as a synonym for the concepts of "self-image," "self-concept" and "self-description" (Gros, 2021). The concept's integrative approach is founded on the original idea of the multidimensionality of self-consciousness which holds that social, cultural and personal components are interrelated. The idea of identity is still one of the most difficult and elusive in science despite many research methodologies seeking innovative advancements and applied research.

2.2. The Place of Professional Identity in the Structure of Professional Development

The pedagogical universities are the primary source of the success of school reform. The effectiveness of the country's secondary school system depends on having teachers who are well qualified and motivated. Many authors regard the selection of a profession and professional path as well as the planning and implementation of a professional career as the most important spheres. Kristoffersen (2021) and Symanyuk, Borisov, Berdnikova, Tomberg, and Ryabukhina (2019), choosing a profession and professional path as well as planning and executing a professional career are the most significant fields. For this reason, the term "professional identity" is used to highlight the distinctiveness of the professional path as a domain of identity development rather than to draw a distinction between professional identity and personal identity. The complex interactions between personal identities also need to be taken into account. Professional identity totally determines personal identity if work activity is the ultimate purpose of living (Yazan, 2018). Professional identity should be viewed as a phenomenon that is reflected both at the individual and social levels (Matthews, Bialocerkowski, & Molineux, 2019). On a social level, identity is determined by acceptance of the professional community's meanings and ideas.

In the process of professional identification, an individual defines himself in a certain category. The process of professional self-determination is divided into four stages: indeterminate occupational identity, imposed occupational identity, suspension of occupational identity (crisis of choice) and formation of occupational identity. A person's sense of identity establishes the conditions necessary to realize individuality which serves as the foundation for the process of establishing personal and professional rules.

Professional identities are formed through a series of interrelated processes which are as follows:

- Appropriation of general group characteristics and assimilation of norms and stereotypes of the behavior of the chosen professional group.
- Attributing to oneself learned group norms and stereotypes using them as regulators of one's behavior.

The development takes place in two directions through the following processes:

a) Assimilation and accommodation: There is a selection of novel elements in the identity framework and then the structure fits these components.

b) Evaluation: Determining the meaning and value of identity content and the interplay of these processes over time leads to the formation of meaningful and value-based dimensions of professional identity.

The professional identities of a student and a specialist are two different phenomena. During the professional training phase, only the prerequisites for professional identity are laid, the formation and further development of which take place after the initial adaptation of the young specialist during more intensive professional activities

(Baking, Ibarra, & Mukminin, 2023; Carvalho, De Amorim-Ribeiro, Do Vale Cunha, & Mourão, 2021; Phillips, Dzidic, & Castell, 2022). Thus, professional identity is a sense of independent, conscious ownership of the work performed. It can be interpreted as the result of one's efficient and purposeful labor and business activities. It is necessary to develop the professional component of one's self-concept. There is a level of organization in the identity structure. Professional identity has distinct qualities as a cultural and educational strategy. It cannot be achieved as a static goal of education but through the dynamics of self-development, vocational training and professional independent activity. Theoretical and experimental studies made it possible not only to discover several unexpected possibilities for this problem but also to identify a range of unresolved issues and promising areas for further research.

2.3. Formation of Professional Identity Students in the Process of Studying at the University as a Pedagogical Problem

There are many studies related to the problem of the professional identity of teachers (Chavez, Faure Ninoles, & Barril Madrid, 2023; Triutami & Mbato, 2021). However, finding strategies for teachers to develop their professional identities while undergoing university training is a significant challenge (El-Soussi, 2022). Casanova-Fernández, Joo-Nagata, Dobbs-Díaz, and Mardones-Nichi (2022) show that the process of forming professional identities among students at a pedagogical university is carried out step by step. In the work of Keiler (2018), three main stages in the formation of the professional identity of students and future teachers are identified: the primary choice, the confirmation of this choice and its implementation in activities. Kwangmuang, Jarutkamolpong, Sangboonraung, and Daungtod (2021) proposed learning strategies that can improve students' critical thinking skills: learning through discussion in a small group, using context (material) which allows to develop critical thinking skills and applying assessment methods that will turn the process for the development of students' critical thinking skills into a personally significant one. The formation of professional identity is provided by a combination of the following conditions: the activation of students' desire for self-knowledge, professional self-determination and professional identification of a person at the initial stage of education at a university. Awareness by students of their personal and professionally important qualities, abilities and opportunities for professional growth and development helps to realize the meaningful saturation of educational activities and enrich semantic connections. Since the personal and professional development of students at a university directly depends on professionally significant values and personal meanings that lie in professional activities, it is therefore advisable to stimulate students' desire for self-knowledge and professional identification in the process of professional training. The adoption by future teachers of personal and professional qualities, abilities and opportunities for professional growth will intensify the meaningful saturation of educational activities and the enrichment of semantic connections (Madin et al., 2022). Through the organization of self-knowledge, bachelors will be oriented to the value-semantic content of their consciousness. The emergence and awareness of a significant professional goal, idea or meaning (the content component of a professional orientation) is an important factor in the formation of the professional identity of students at a pedagogical university. In addition, the issues of high-quality training of innovatively oriented teaching staff based on a single process of obtaining, disseminating and applying new knowledge is now becoming a priority. The second condition for the formation of a professional identity is the widespread use of innovative technologies and active learning methods. These forms of work contribute to the formation of the image of the profession and the image of I by increasing the motivation of bachelors to study by actively participating in certain situations, creating an informal atmosphere in the learning process and requiring a quick response.

2.4. Practice-Centered Learning in Higher Schools

The teacher and the student are the subjects of educational activities when personality-centered interaction is implemented; techniques are developed during their interaction that support self-development and self-realization as well as an analysis of the cultural values of the learning process' subjects (Berberyan, 2020; Gamage, Dehideniya, & Ekanayake, 2021; Sahin, 2019). The development of comfortable learning environments, pedagogical support, dialogue and participation are the primary educational conditions for personality-centered cooperation between a teacher and a student. These include optimizing the university's learning process, the teacher's preparedness to use ICTs and the integration of cooperation technologies into the pedagogical process (Lee & Hwang, 2022). Teachers should consider the gap that currently exists between the theoretical instruction and practical experience that students receive during pedagogical activities in real-world settings when creating their educational programmes.

The following are the essential characteristics of practice-centered professional education that set it apart from other educational paradigms:

- Goal-setting is based on preparing a student for a specific professional activity based on the needs of the economy a specific customer or employer.
- Social partnership is defined as involvement in professional activities. Regional educational organizations of economic representatives direct customers, consumers and beneficiaries of educational outcomes.
- In the educational process, priority is given to forms of practical training that focus on developing specific and standard skills and competencies.

The competency-activity paradigm states that practice-centered education seeks to create professionally and socially significant skills in addition to knowledge and skills through the acquisition of practical experience (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020). Thus, practice-centered learning can be described as a system of gradual involvement of students in the process of cognition of basic subject knowledge through the development of technologies for their qualitative and quantitative selection, systematization and evaluation of their reliability and through the use of a set of specialized training techniques, forms and technologies (Cherukunnath & Singh, 2022; Moltudal, Krumsvik, & Høydal, 2022; Schmid, Pauli, & Petko, 2023).

3. Method

3.1. Research Method

The study employed a mixed-data collection strategy. A random sample of respondents was used to generate quantitative data. Professional identity is a central issue in professional training programs and teachers need to understand what kind of identity they are building and how it can be measured and evaluated. Therefore, it is crucial to use both qualitative and quantitative data to demonstrate appropriate control of the formation process. The principle that multiple measurements need to be used to improve data reliability has become one of the fundamental elements of triangulation procedures (Arias & María, 2022; Timans, Wouters, & Heilbron, 2019). In a study of these methodological forms, interactions are formed within the framework of qualitative or quantitative methods and carried out in inductive or deductive logic. The ability to compare qualitative and quantitative methods based on the following criteria: induction or deduction, subjectivity or objectivity and the capacity for generalization is also helpful for developing new methodologies and data collection tools (Casula, Rangarajan, & Shields, 2021). These techniques are mixed to highlight each person's best traits. Therefore, the data obtained using a combination of methods will be more precise than the data obtained using a single method. This serves as the primary rationale for mixed studies (Mohajan, 2020; Mueller et al., 2018).

3.2. Research Sample Formation

The study involved 253 people at "Baishev University," Aktobe, Kazakhstan. The experimental group (n = 133) used practice-centered learning as an effective means of constructing students' professional identities. The educational process was unchanged in the CG (n = 120). At the same time, a balanced composition of the groups was achieved and the reliability of the results was ensured since the experimental group was significantly weak (according to the incoming diagnosis).

The study was granted permission by the university administration. The study was explained to the students who were informed that their information would not be shared and would only be used for study testing. The tests were limited to students who could take part in the study.

3.3. Research Approach

Practice-centered learning technology for future teachers has been carried out in four stages: the diagnostic stage, the design-target stage, the procedural stage and the evaluative-effective stage.

At the *diagnostic stage*, teachers' actions were aimed at determining the effectiveness of the university's teaching process as well as the stage of learners' professional identity development. The criteria for the professional identity structure (motivational, cognitive and personal) and its diagnostic methods have been determined.

In the technology's design-target stage, collaborative activities are created for every subject being taught with the intention of consistently planning educational tasks, taking into account the unique skills of the students and projecting the outcome. At the *procedural stage* of the technology, organizational conditions were implemented.

At the *evaluative-effective stage* of the technology, the results are examined as positive dynamics of the level of construction of the professional identities of learners in terms of motivational, cognitive and personal components.

The *first organizational requirement* is the modernization of pedagogical education content according to teacher professional standards.

This means that

(1) Updating the educational program by aligning professional competencies with the list of labor functions outlined in the teacher's professional standards.

(2) Changing approaches to analysis and learning outcomes.

(3) Adopt a modular approach to building pedagogical programs. The content of the module includes theoretical, practical, research and reflection blocks.

The *second organizational requirement* is the student-centered approach which emphasizes the learner's unique qualities and subjective experience, the process of natural self-development of his or her inclinations and creative potential, the development of the professional "I" and maintaining adequate self-esteem. This method of instruction fosters each student's natural self-expression, encourages initiative, independence and choice in how they work and helps them move from a passive to an active stage of developing their professional identities. The standard's existing capabilities allow for an individualized educational process through the availability of a choice of forms of pedagogical support and additional professional programs. Grading tasks, differentiated help and individual and group counseling will be developed for each student.

The *third organizational requirement* is to design an educational environment that equips students with new ways of knowing and gaining quasi-professional experience: optimization of forms and methods of practice-centered learning, activation of the use of modern educational technologies by teachers to build an educational interaction (pedagogy of cooperation, game technologies, information and communication, design, case technologies), immersion in quasi-professional activity through the modeling of professional activity (classes in pedagogical workshops, solving pedagogical problems and situations).

3.4. Instruments for the Collection

We developed a diagnostic toolkit to evaluate university students' level of professional identity formation. It comprised a self-esteem study based on motivational, personal and cognitive criteria as well as a student survey and test results to identify the emergence of professional interest, confidence in choosing a career, understanding one's place in professional activities and an evaluation of students' life strategies and instrumental and terminal values.

3.5. Data Analysis

Parallel designs are used in data analysis to separate quantitative and qualitative results for practical interpretation. The primary data was analyzed using descriptive statistics. Fisher's angular transformation and the student's t-test were used to compare mean values in pairs. A Pearson's correlation analysis was used to investigate the relationship between the variables under consideration.

4. Results and Discussion

Table 1 compares and summarizes the answers of 1st and 2nd -year students.

Table 1. Comparative analysis of the answers of 1st and 2nd year students to the questions of the group questionnaire.

Question	First-year students' responses		Second-year students' responses		Φ _{emp} (p)
	Yes	Now	Yes	Now	
Have you decided on the profession of a teacher?	13 (22.8%)	44 (77.2%)	33 (37.1%)	56 (62.9%)	1.851 (p<0.05)
Would you like to engage in teaching activities?	24 (42.1%)	33 (57.9%)	32 (36%)	57 (64%)	0.743 (p>0.05)
Have you been engaged in pedagogical work?	18 (31.6%)	39 (68.4%)	26 (29.2%)	63 (70.8%)	0.307 (p>0.05)
Have you participated in conferences on pedagogical topics?	11 (19.3%)	46 (80.7%)	15 (16.9%)	74 (83.1%)	0.371 (p>0.05)
Will you work on what specialty you are studying?	15 (26.3%)	42 (73.7%)	29 (32.6%)	60 (67.4%)	0.813 (p>0.05)

In response to the survey question, "Have you decided on the profession of a teacher?" thirty-three (37.1%) senior students and thirteen (22.8%) first-year students gave positive answers. Thirty-three (42.1%) first-year students and 32 (36%) second-year students responded to questions about their interest in teaching and learning activities. In response to the survey question, "Have you been engaged in pedagogical work?" only 26 (29.2%) second-year students answered "yes" compared to 18 (31.6%) first-year students. The question "Have you participated in conferences on pedagogical topics?" showed that 11 (19.3%) first-year students have already managed to try their hand at science compared to 15 (16.9%) second-year students which indicates a greater interest among first-year students. 15 (26.3%) first-year students answered positively to the question, "Will you work on what specialty you are studying?" against 29 (32.6%) second-year students. There were significant statistical differences across student groups on issues related to professional self-determination (Φ_{emp} = 1.851; p<0.05). Other statistical analyses revealed that the proportion of first-year students who answered "yes" to questionnaire questions is roughly equal to the proportion of second-year students who answered the same way. This means that there have been no significant changes to the positions under consideration. During the first two years of study at the university, the curriculum consists primarily of general scientific subjects with specialization beginning in the third year.

The desire to improve one's skills and learn new information as well as motivation are crucial factors in the career decision-making process. Understanding future teachers' levels of motivation in choosing professions and their formed professional qualities allows us to gain an understanding of their value orientations, understanding of the essence of the profession and awareness of themselves in the profession. The survey's next question "How do you rate your motivation to study at a pedagogical university (on a seven-point scale)?" was not selected at random. Many first-year students (51%) have low motivation to study at a pedagogical university and 25 students (44%) rate their motivation at 3-5 points out of 7 based on a survey. Only 3 (5%) first-year students want to study at a pedagogical university (see Figure 1).

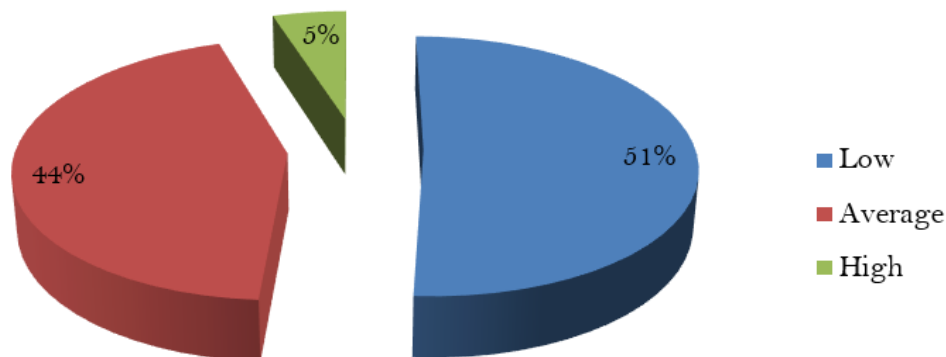


Figure 1. Levels of motivation in choosing a profession (First-year students).

The motivation of second-year students to study at a pedagogical university is shown in Figure 2.

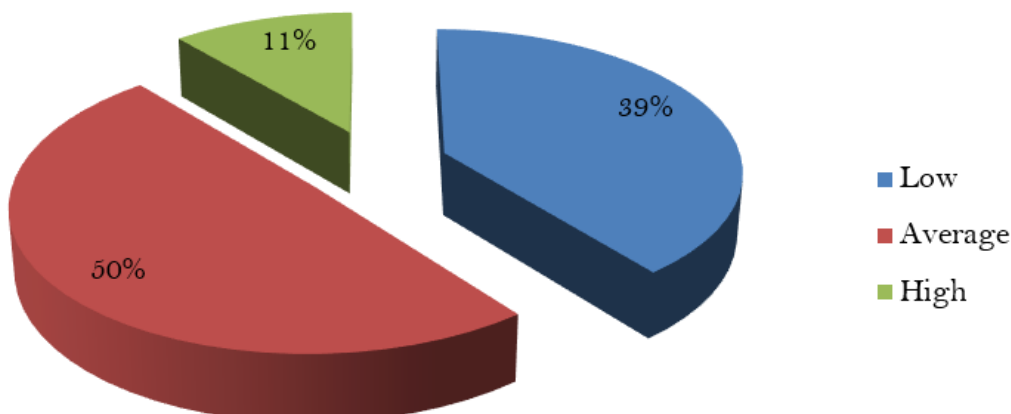


Figure 2. The motivation of second-year students to study at a pedagogical university.

A survey of second-year students showed the following results: 35 learners (39.3%) describe their level of motivation as low and 44 students (49.4%) rate their motivation level on a scale of 3 to 5 (out of 7). Only 10 students (11.2%) consider their motivation for learning to be high (see Figure 2).

According to the study's findings, low levels of development have been found in students' professional identity, motivation and interest in professional self-development. Based on the study's findings, it's possible to believe that a high proportion of those who entered pedagogical specialties did so due to "hopelessness," a lack of other options or the opportunity to study on a grant. It is possible due to the low passing score for pedagogical specialties as well as the low qualification requirements for employment. These results correspond to those of Wang, Zhu, Liu, Chen, and Huo (2018) and Matsuyama et al. (2021) in different student samples.

Resource support for educational innovations and the creation and implementation of technology-based practice-centered learning for aspiring teachers are necessary.

Table 2 compares and summarizes statistical data according to various criteria.

Table 2. Summary results on the criteria for assessing the professional identity of future teachers.

Criterion	Index	Stage	Control group	Experimental group
Motivational	Professional orientation	Ascertaining	Optimal - 22% Permissible - 78%	Optimal - 24% Permissible - 76%
		Control	Optimal - 29% Permissible - 71%	Optimal - 42% Permissible - 58%
	Satisfaction with the profession	Ascertaining	Low level - 0.04	Low level - 0.06
		Control	Average level - 0.1	Average level - 0.27
Personal	Professional intent	Ascertaining	The predominance of the middle level - 66%	The predominance of the middle level - 67%
		Control	The predominance of the middle level - 58%	High-level predominance - 51%
	Reflexivity	Ascertaining	The predominance of the middle level - 52%	The predominance of the middle level - 54%
		Control	The predominance of the middle level - 46%	High-level predominance - 43%
Cognitive	Level of professional identity	Ascertaining	Permissible - 5.7	Permissible - 5.9
		Control	Permissible - 6.5	Optimal - 8.0
	Pedagogical thinking	Ascertaining	The predominance of the low level - 49%	The predominance of the low level - 49%
		Control	The predominance of the middle level - 52%	The predominance of the middle level - 58%

The experimental group experienced the most significant changes based on the motivational component. According to the data, the majority of students in the experimental group is satisfied with their chosen profession as teachers and has the most positive motivational complexes. This shows that 42% of students are mainly motivated by intrinsic motivation which is equal to extrinsic enthusiasm. The presence of favorable internal dynamics is due to a general decrease in motivational complexes. Internal negative motivation is greater than or equal to external positive motivation (from 76% to 58%). This suggests that the negative attitude towards the process of teaching and obtaining a future profession has significantly decreased and more students want to fully devote themselves to their chosen profession. These findings are supported by an increase in "satisfaction with the profession". Positive changes have occurred in factors such as "the importance of the teaching profession in society," "the focus of work on the people around us," "constant creativity in work" and "the possibility of self-improvement".

The "professional intentions" method was used to assess the *personal component* of future teachers' professional identities. The experimental group (51%) has a fairly complete picture of the nature of the pedagogical activity, work functions and life plans of the subjects associated with pedagogical activity. The experiment's control stage as measured by the indicator "reflexivity" revealed a positive trend in both the control and experimental groups. There is still an average level of reflexivity development (46% in the control group CG) and a more pronounced dynamic in the experimental group (EG) than a third-year students (43% have a high level of reflectivity). The students in the experimental group are dominant in social maturity, activity ability and sense of responsibility, communication ability, organizational ability, cultural level, erudition, outlook on life and other qualities. The EG students are distinguished by their readiness for pedagogical reflection and their ability to use the reflexive mechanism as a means of self-development.

Changes in the professional activity proposed by the methodology (teaching and training in methods) can be observed when evaluating the results of the cognitive part. The objective index evaluation of the CG was mainly at an average level (6.5 points) while that of the experimental group was at a relatively high level (8.0 points). The highest values are indicated on the scale: knowledge (of the theoretical foundations of the science of the taught subject, the theory of the development of science and its modern achievements, general and developmental psychology, new pedagogical approaches and technologies, psychological patterns of education, upbringing and development of students), possession (methods and techniques of self-education and self-education, methods of research work, the use of active and interactive forms and teaching methods). The indicator "pedagogical thinking" indicates an average level of formation. This implies that students consider it necessary to pre-plan the lesson and have a high level of creative pedagogical thinking when solving pedagogical situations.

The student's criteria revealed significant differences in the results of the methods used in both groups. Thus, the hypothesis put forward was established. During the control phase of the experiment, there were significant differences in the levels of formation of each component of professional identity between the two groups of learners. Thus, positive outcomes are the result of implemented organizational conditions as well as the introduction of the developed technology of practice-centered training for future teachers.

As a result of evaluating the implementation of technology-based practice-centered learning and resource support for educational innovations, positive dynamics shaping learners' professional identities are identified.

5. Limitations and Additional Future Directions

This research focuses on the development of students' professional identities as they train at university. As a result, all of the factors identified during the study are self-determined and reflect the respondents' opinions and perceptions.

Meanwhile, studying the professional identities of more experienced secondary school teachers would provide valuable data that could contribute to the development of effective mechanisms for both attracting and retaining teachers in the profession.

The study's sample covers the country's geographic region but it is limited in terms of participation from the country's pedagogical universities. Since pedagogical institutions provide the majority of teacher training include students from all pedagogical universities in the survey to greatly increase the sample's representativeness.

Furthermore, the inclusion of teachers' college students in the sample would reveal the motivations for choosing a career and the desire to remain within another target group, thus enriching the data obtained.

Conducting in-depth research in a specific context (only in small-class, private schools, etc.) would also make it possible to understand the extent to which the context and climate of a particular school influence the identity of teachers.

6. Conclusion

This study explored the effects of practice-centered learning as a means of forming students' professional identities. During the experimental process, the formation of a student's professional identity while studying at a higher educational institution occurred as a result of several interconnected stages: theoretical, applied and creative. The use of organizational conditions, practice-centered learning and co-centered tasks based on student interests and abilities contributes to students' professional identities. Furthermore, it demonstrated that the implementation of technology-based practice-centered learning for students as well as resource support for educational innovations positively affects not only the formation of students' professional identities but also their motivation and interest in professional self-development. The results proved that the transition to the modular principle of constructing pedagogical programs, the choice of an individual educational route, the development of professional motivation and professional self-development also contributed to an increase in the level of professional identity of students. Thus, the study's findings confirmed our hypothesis that using practice-centered learning to foster students' professional identities has a positive impact when systemic and technological approaches are used.

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