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Teacher Education as the Development of Student Teachers' Preconceptions and Beliefs

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The article examines the role of initial pedagogical preconceptions and beliefs held by students in teacher education programs as they begin to engage with pedagogical education curricula. It highlights the significance of school experiences in shaping these beliefs. The article analyzes the reasons for their sustainability during the subsequent acquisition of the educational program by future teachers at the university level. The author argues for the necessity of designing teacher education programs in the form of a sequential and specially organized transformation of initial pedagogical preconceptions and beliefs, aimed at fostering conceptual change and developing the practical thinking of future educators.

Keywords: teacher education; teacher training; initial beliefs; initial pedagogical preconceptions; conceptual change; practical thinking; teacher thinking.

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Педагогическое образование как развитие исходных педагогических представлений

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В статье рассматривается роль исходных педагогических представлений студентов педагогических направлений подготовки, с которыми они начинают освоение программ педагогического образования. Показана роль школьного опыта в формировании таких представлений. Анализируются причины их устойчивости в ходе дальнейшего освоения будущими педагогами образовательной программы в университете. Автор считает необходимым проектирование программ педагогического образования

как процесса последовательной и специально организованной трансформации исходных педагогических представлений, их концептуального изменения, направленного на формирование практического мышления будущих педагогов.

Ключевые слова: педагогическое образование; подготовка педагога; исходные представления; исходные педагогические представления; концептуальные изменения (conceptual change); практическое мышление; мышление педагога.

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Introduction

One of the primary directions in the reform of the teacher education system is the enhancement of future teachers' practical readiness for independent professional activity. Over the past decade, a series of significant steps have been taken in the Russian Federation aimed at addressing this task. From 2014 to 2017, a project for the modernization of teacher education was successfully implemented, which led to the development of the new Federal State Educational Standard for Higher Education (FSES HE) in the field of "Education and Pedagogical Sciences" [15]. This standard outlined the general professional competencies necessary for future teachers to engage in teaching activity in accordance with the requirements of the professional teacher standard [12], which, in turn, is focused on achieving the educational outcomes of students as specified in the Federal State Educational Standards for General Education (FSES GE) [16]. In this way, it was for the first time that the standards for student education within the general education system, the professional activities of teachers, and teacher preparation were fully coordinated.

The new teacher education standard is based on activity-based approach, within which the primary unit of teacher education programs is not the traditional academic discipline but a professionally-oriented module aimed at preparing student teachers for solving typical professional tasks. These modules integrate the necessary theory, practice, and research work. This created conditions to address one of the oldest problems in vocational education: the misunderstanding among students of how the theoretical material they study relates to their future professional activities. In this context, the theoretical section of the module becomes not merely a content of acquiring scientific knowledge but knowledge that is learned as tools for solving typical professional tasks. The newly developed FSES for teacher education has led not only to a substantial increase in practical training hours but also to a revision of the role and place of practice within the educational program.

Instead of the traditional understanding of practice as a way to illustrate theory, a "school-university partnership" model was adopted, recognising schools and teachers as sources of practical knowledge and methods of action no less important than the theoretical components of the pedagogical curriculum. The new model of practice involves a distributed scheme of organisation, whereby practice becomes an integral part of each professionally-oriented module, as well as a long-term

student teachers practice during the final year of study, enabling the integration of all previously acquired professional action methods from the modules (Margolis, 2021; Margolis, 2014) [6; 7].

The process of reforming teacher education received an important impetus in 2022—2023, when, under the initiative of the Ministry of Education of the Russian Federation, the existing standards of general education were revised. The list of subject-specific knowledge to be acquired by students was clarified, and based on this, the project to create the "core of pedagogical education" [17] was implemented. This project defines the content of subject preparation for future teachers, irrespective of the university where they undergo their training. This crucial stage of reform ensured the establishment of a level of subject-specific and methodological preparation for teachers that is necessary for mastering the educational content reflected in the updated general education standards.

Finally, the third phase of reforming the pedagogical education system, implemented in 2023—2024, was the creation of centres for conducting demonstration exams at pedagogical universities under the Ministry of Education of the Russian Federation. These centres are specially equipped venues for demonstrating the professional competencies acquired by graduates and for the independent assessment of their practical readiness to organise student teaching in accordance with the general and teacher education and professional standards.

Despite the many years of generally positive reforms in the pedagogical education system in the Russian Federation, several serious issues in the practical training of future teachers for the complex and multifaceted nature of pedagogical work remain unresolved.

One of the issues that requires in-depth study is the gap between theory and practice. This problem has a diverse nature and can be formulated in different ways. However, the common theme among these formulations is the question of how to ensure the translation of theoretical scientific knowledge into practice within the framework of pedagogical education programs. One of the key reasons preventing future teachers from developing professional practices based on the content of their theoretical training in pedagogical education is the initial pedagogical beliefs and preconceptions they bring with them to university.

Initial Pedagogical Beliefs

It is well known that prior knowledge, experience, and beliefs influence how learners acquire the content of an educational program (Vygotsky, 1935) [1]. Although this thesis is primarily applied to the learning of elementary and secondary school students (Posner et al., 1982; Chi, 2005; diSessa, 2017; Sinatra & Seyranian, 2015; Vosniadou, 2014) [18; 21; 26; 35; 38], it is equally applicable to the acquisition of professional education programs.

In the context of this article, we will examine it more specifically in relation to teacher education programs.

Initial pedagogical preconceptions and beliefs of future teachers (sometimes referred to as "everyday concepts or "intuitive beliefs") have been extensively studied in the works of researchers since the late 1970s.

One of the earliest and most important studies in this field is D. Lortie's research, *Schoolteacher: A Sociological Study*(1975), which not only demonstrated the existence of such beliefs among future teachers but also described the mechanism by which they are formed (Lortie, 1975) [33]. This mechanism was

coined as the "apprenticeship of observation." According to Lortie, the long-term experience of students observing the actions of various teachers leads to the formation of poorly formalised, incomplete, yet highly persistent beliefs about the content and characteristics of teaching as pedagogical activity. As noted in Lortie's work [33] and in several later studies (Johnson, 1994; Richards & Pennington, 1998) [29; 34], the beliefs formed in students regarding teaching models are substantially incomplete and one-sided. Students typically observe only the external aspects of teaching and fail to perceive the internal dimensions related to the teacher's plans, motives, and goals, which are aimed during a lesson at the class or the individual student. However, despite their incompleteness and lack of awareness, these preconceptions and beliefs are remarkably persistent in relation to efforts to change them during the process of teacher education or even while teaching practice on basis of school settings. As one of the young teachers interviewed metaphorically describes it, "I know I'm doing it wrong, and I would like to change, but I can't and keep going back to my old ways" (Johnson, 1994) [29]. Even when dissatisfied with their initial beliefs about the goals and tasks of teaching, the absence of practical alternatives often leads novice teachers back to the methods they learned through observation during their own student experiences.

All of the above leads many researchers (Borg, 2004) [20] to the general conclusion that most teacher education programs have a very limited impact on transforming the initial pedagogical preconceptions and beliefs of future teachers. In D. Kagan's work (Kagan, 1992) [31], it is shown that this is primarily due to the fact that initial pedagogical beliefs act as a kind of "filter" through which teachers interpret the teaching methods they are studying. This "filter" is usually so effective that even pedagogical situations observed by students in practice rarely lead to a change in their initial beliefs and attitudes.

In the study by E. Joram and A. Gabriele (Joram & Gabriele, 1998) [30], an attempt was made to conduct a more in-depth study and structure the initial pedagogical beliefs of students undergoing teacher education. The study identified the most significant initial beliefs and attitudes of first-year students in teacher education programs and assessed the impact of the program on changing these attitudes. The researchers were able to identify several of the most typical initial pedagogical preconceptions and attitudes (beliefs) of students.

One of the most important of these initial beliefs is the students' conviction regarding the relatively low value and significance of university theoretical courses compared to the role of practice in their training programs. In fact, this belief reflects the initial view held by many future teachers of teaching as a relatively simple set of skills and abilities. The analogy used by E. Joram and A. Gabriele (Joram & Gabriele, 1998) [30] compares this belief to learning how to ride a skateboard. It is clear that one can study the theory of skateboarding and the concept of maintaining body balance, but the value of learning such theory is evidently minimal compared to the practical attempts to learn how to ride the skateboard. As shown in the interviews conducted by the researchers, most future teachers, who evaluate the theoretical part of their teacher education program as much less significant compared to the role of practice, assume that teaching consists of a relatively simple set of skills

and abilities, comparable in complexity to skateboarding.

The second initial belief described by E. Joram and A. Gabriele (Joram & Gabriele, 1998) [30] is the conviction held by a significant group of students, which can be summarised as: "I was taught this way, and the result works for me." This primarily concerns teaching models in which the teacher conveys and transmits educational information to students, without distinguishing, in most cases, between the processes of teaching and learning.

Another important initial preconception of future teachers is the belief that the process of learning does not present a significant problem for students and does not require any particularly complicated efforts on the part of the teacher. This belief is rooted in the student teachers inability to differentiate between their own learning experiences and the learning and understanding processes of their future students. In fact, such students equate their own experiences and ability to understand the material with the corresponding processes in their likely future students. The absence of difficulty in understanding the learning material (which they have long since mastered during their school years) leads to the false conclusion that there are no potential problems in mastering the material for real or potential students.

Finally, another initial pedagogical belief is the conviction held by some students that issues related to student learning, in terms of their difficulty for the teacher, are secondary compared to the importance and complexity of classroom management issues. This management includes not only following the lesson plan but also maintaining discipline during lessons.

While this statement reflects the objective difficulty of such issues for novice teachers, the management challenges are often viewed not in terms of fostering motivation and engagement in students but, first and foremost, as creating conditions for the effective transmission of lesson content in accordance with a predeveloped plan.

The results of the conducted diagnostics show that in the traditional design of the "Educational Psychology" course, only 17% of the 40 students surveyed changed their beliefs about the teaching process, and 26% about the features of the learning process. The majority of students retained their initial beliefs without modification (Joram & Gabriele, 1998) [30].

An equally interesting focus of the topic discussed is the students' perceptions not only of the nature of pedagogical work and methods of organizing teaching but also of who can be considered a good teacher.

Research on these perceptions reveals that the vast majority of students in teacher training programs define a good teacher as someone who is kind to children, has developed empathy, and is capable of offering them help and support. While this definition of a good teacher is unobjectionable, the issue arises from the dramatic mismatch between these qualities and the concept of a good teacher in terms of regulatory documents, standards, and list of professional competencies. In most cases, these documents define a good teacher as a highly qualified educator capable of ensuring the achievement of high educational outcomes among students — that is, a teacher who possesses the necessary knowledge and skills for this task. This discrepancy between the everyday perception of future teachers (shaped by their own experiences as former students) and the socially or state approved normative definition set by the goals of teacher education as a public institution has several important foundations.

The described contradiction objectively stems from the dual professional task of the teacher, who, on one hand, organises the effective acquisition of academic content and, on the other hand, does so through managing interactions with students and between them.

It is precisely this second task — organising interaction — that prevails in most students' understanding of what it means to be a good teacher, both among teacher education students and school pupils. Meanwhile, the first task (the mastery of academic content) is more commonly emphasised in normative public definitions. The failure to distinguish these different understandings of what makes a good teacher, or the overwhelming emphasis on the task of knowledge acquisition for teaching activity, leads to the preparation of teachers who find it difficult to become effective and capable of productive and multifaceted interaction with students. This is even more difficult to achieve considering that the teacher is involved not only in the teaching process but also in students' socialisation and development, which requires qualitatively different communicative competencies,level of psychological preparation, and the development of professional thinking in future educators.

This problem is further exacerbated by the fact that the admission process to teacher education programs does not usually include oral interviews or psychological testing. Moreover, the training programs themselves do not contain embedded components aimed at developing the professionally significant personal qualities of future teachers. The fundamental assumption behind this system of entry into teacher education programs is likely based on the belief that any applicant who scores a certain number of points on the Unified State Exam (EGE) can be trained to become a good teacher, regardless of the level of development of their professionally significant personal psychological qualities necessary for effective communication with all participants in the educational process, particularly with students.

Reasons for the Persistence of Initial Pedagogical Beliefs

The reasons for the persistence of initial pedagogical beliefs can, in our opinion, be conditionally divided into three groups. The first two groups are not so much related to the specifics of these beliefs as to the problems and approaches to the design of teacher education programs, which, in general, appear indifferent to the existence of such beliefs, either ignoring them or attempting to influence them in an extremely ineffective manner, leading to their persistence and maintenance until the beginning of the graduate's independent teaching career.

The first group includes general deficiencies in traditional approaches to designing teacher education programs, which prove ineffective in terms of influencing the theoretical content on the subsequent professional activity of graduates in general and on changing their initial pedagogical beliefs in particular. Under this approach, the academic content in the form of a set of theoretical courses is mastered at university and then illustrated in practice, usually at the end of the semester. It might seem that the current FSES HE has established an alternative to the disciplinary approach to teacher education through the modular approach, where theory and practice are integrated into a single educational unit. However, as demonstrated by the results of several studies (e.g., the 2024 monitoring of programs in "Psychological and Pedagogical Education") [7], the transi-

tion to modular programs has largely remained on the paper. In reality, traditional disciplinary structures continue to dominate the curriculum in most teacher education programs. It appears that the shift to modular programs was too complex for most teacher education faculties, both due to the need to revise long-established curricula of theoretical disciplines and the need to reassess relationships with practical training bases. These bases need to be more deeply involved, not only in showing and illustrating theoretical knowledge but also in responsibly developing professional competencies with universities, recognising the unique competencies and knowledge of teacher-practitioners as equally necessary as the theoretical knowledge formed at university. The new methodology of the modular approach, in which theory is not used to illustrate practice but instead is integrated into practice — into the method of solving typical professional tasks — seems to have been too unfamiliar for most university faculty. As a result, theory continues to be studied within the framework of historically developed set of academic disciplines, subjectively treated by students as an end in itself (often reduced to the need to successfully pass exams or coursework), disconnected from the resolution of professional tasks or its instrumental, or "tool-like," function, in the terms of L.S. Vygotsky [2]. This leads, on the one hand, to the loss of the opportunity to develop a meaningful relationship with the knowledge being studied and a significant reduction in students' academic motivation, on the other. An equally important consequence of preserving the disciplinary structure of educational programs is the fact that the opportunity for objectifying initial pedagogical beliefs, showing their limitations in solving professional tasks, and ultimately creating conditions for their reflection and conceptual development arises extremely rarely. As a result, theoretical knowledge does not so much become part of the future teacher's new way of thinking, as it is memorised, with little influence on pedagogical practices. The effect of "academic knowledge washout" identified in the late 1980s (Tabachnik & Zeichner, 1984) [36] shows that theoretical knowledge acquired at university, if not used in the organisation of one's own pedagogical activities, completely disappears from the professional arsenal of a novice teacher within the first year, replaced by practical generalisations that spontaneously arise during their activities or are transmitted by more experienced colleagues.

The second group of reasons, well described in a number of works by both Russian and foreign authors (Korniilov, 2000; Kulyutkin, 1983; Kulyutkin & Sukhobskaya, 1990; Clark & Lampert, 1986; Eraut, 1995) [4; 5; 9; 23; 28], is related to the very nature of theoretical content in teacher education programs and the difference between the foundations of academic knowledge and the knowledge required when solving pedagogical tasks in teachers' practice.

The transition of teacher education programs (as well as programs for specialists in a number of other professions) to universities, which began in Europe, the USA, and Russia from the late 19th century and was fully formalised in the mid-20th century, raised the need to prove that, like other "classical university" professions, pedagogy also has a comparable body of scientific knowledge with a similar level of validity (as in the natural, technical, or social sciences), which can therefore serve as the scientific foundation for teacher training. The problem, however, is that teaching is so complex and multifaceted that any at-

tempt to strictly academicise the study of it inevitably leads to significant simplifications of the subject compared to its actual complexity. Thus, there emerges a paradox: the closer scientific pedagogical or psycho-pedagogical research comes to the standards of academic research in other sciences, the less connected it becomes with the real conditions of pedagogical practice, and the less valuable the knowledge acquired may be when applied to solving practical professional tasks by teachers.

The scientific knowledge underpinning many theoretical disciplines is obtained through the abstraction from the contradictory aspects and contexts of real pedagogical practice. Moreover, such knowledge remains predominantly mono-disciplinary, while solving most pedagogical problems requires teachers to possess interdisciplinary knowledge, integrated into a unified whole, which can be used to make effective pedagogical decisions.

According to Yu.N. Kulyutkin (Kulyutkin, 1983) [5], the weak influence of studied theory on the practical activities of future teachers is related to the fact that there is a significant gap between the theoretical concepts being learned and the specific methods used to solve practical pedagogical tasks. Kulyutkin suggests calling these intermediary elements "constructive schemes." Such schemes represent different forms of operationalisation of theoretical concepts, essentially ways of transforming them into tools for solving practical tasks. The absence of such operationalisation methods results in theoretical concepts being memorised rather than applied in practice, leading to their "devaluation" as subjective knowledge for the teacher.

It is also important to note that academic knowledge in theoretical courses in teacher education programs, being scientific knowledge, usually aims to understand an initial principle, uncover a pattern, abstracting from the contexts and "details." However, most professional tasks require teachers to transform the pedagogical situation, adjusting it to the goals of their activity and to the specific conditions under which it occurs (Korniilov, 2000) [4]. In fact, one of the reasons for the insufficient demand for theoretical knowledge is that it is abstract and rarely relates to the context of solving professional pedagogical tasks. A whole layer or level of necessary operationalisation and contextualisation of this academic knowledge is missing (Kulyutkin, 1983) [5]. To solve most pedagogical tasks, teachers need knowledge not in the abstract-academic sense, but knowledge about transforming the system of elements of the pedagogical situation with which they are dealing (Korniilov, 2000) [4]. In fact, this requires a different type of thinking, namely, practical thinking. This type of thinking and its characteristics have been deeply studied within the scientific school of B.M. Teplov [14] and in the research conducted by Yu.K. Korniilov's team at Yaroslavl State University [11; 13], as well as at the Institute of Psychology of the Russian Academy of Sciences [10]. Unfortunately, these studies have not had a significant impact on the methodology of building modern teacher education programs.

It would seem that solving the same problem of preparing future teachers for independent professional practice could be built within an alternative approach, based on analysing the practical generalisations of working teachers, reflecting on their experiences, and the implicit knowledge possessed by the best practitioners. Moreover, as some researchers, such as D. Schon (Eraut, 1995)

[28], argue, it is precisely the reflection on successful pedagogical experience, rather than relying on abstract academic knowledge, that underlies the success of expert teachers. However, for this purpose, such knowledge must be reflected upon by its bearers, objectified in a form accessible for transmission, and contextualised — that is, accompanied by some commentary on the conditions of its successful application. In other words, it must be transformed into the form of a case study as a distinct educational unit. This is what occurs in many training systems for other professions (doctors, managers, lawyers, etc.). In the case of teacher preparation, creating case studies — or, more precisely, case study libraries — still seems more like an exotic practice rather than a widespread educational norm. This is largely, it seems, because pedagogy has yet to develop a language for signifying professional practice, which would allow teaching activity to be translated into symbolic form and restored from that form.

The third group of reasons for the persistence of initial pedagogical beliefs is related to their own characteristics and the conditions under which they arise.

As noted earlier, such beliefs are the result of many years of students observing various models of teachers' pedagogical activity, primarily focusing on the external surface aspects of their behaviour and the sequence of professional actions in different typical situations. In most cases, this leads to the formation of initial beliefs in future teachers that are examples of procedural knowledge, the change of which, unlike declarative knowledge, is an extremely complex task (Anderson, 1983) [19].

Another important feature of initial pedagogical beliefs is their imagistic nature. The very process of observing teachers at work and actively participating in the learning processes organised by these teachers inevitably leads to generalisation and some degree of typologisation. It is clear that, lacking scientific concepts and analytical tools for studying professional activity, such generalisations are primarily made using images of the teacher's activities and personality as a professional. The initial beliefs formed in this way lead to the creation of generalised, image-based representations that could be seen as future personal theories of pedagogical identity (Clandinin, 1986; Crow, 1986; Elbaz, 1983) [22; 25; 27].

According to most researchers, initial beliefs (which fully encompass the initial pedagogical beliefs of future teachers, formed during their school experience) are interrelated to varying degrees. The nature of these interconnections, according to different authors, can range from quasi-independence to strong connections, forming a kind of "naive" theory. For instance, A. diSessa (diSessa, 2017) [26] argues that these preconceptions are virtually independent of one another (the concept of *knowledge in pieces*), while C. Vosniadou (Vosniadou) suggests that different initial preconceptions form a kind of theory (similar to the relationship between concepts within a theory) (theory framework) [37]. Most researchers, however, lean towards the idea that there are some connections between different initial preconceptions, though these connections are much weaker than the relationships between concepts in a formal theory (framework).

In the case of pedagogical initial beliefs and preconceptions, one could assume that the imagistic generalisation of various aspects of a teacher's activity appears quite interconnected, particularly if the integrated image is somehow gener-

alised into a subjective representation of what constitutes a good teacher.

This embeddedness of initial pedagogical beliefs in something resembling a system adds further complexity to the process of changing them during teacher education. The reasons for this complexity lie in the fact that the learning process (from the perspective of constructivist ideas) involves integrating new information into an already existing system of knowledge and beliefs. In most cases, this implies a mild restructuring of the previously formed system and the integration of a new element. However, when new knowledge is fundamentally different in nature from the already established system of beliefs, such integration requires a profound restructuring of the system, which typically leads to significant difficulties and resistance from the learner. This is precisely what occurs in some cases during the process of acquiring teacher education programs, when mastering a new concept or method of action requires changing not just one previously existing initial pedagogical preconception, but the entire system of interconnected beliefs.

This situation is well explained by A. Corporaal (Corporaal, 1988) [24], who highlights the reasons for the limited impact of theory, studied within teacher education programs, on the actual practice of graduates. According to Corporaal [24], the reason for this is that the dominant method of teaching students in these programs does not focus on integrating new knowledge into the system of initial pedagogical beliefs with which the student begins their education. The lack of such integration, especially when the theoretical knowledge studied is fundamentally different from initial beliefs, does not lead to a restructuring of this belief system. On the contrary, in most cases, the system remains largely unchanged, with the theoretical knowledge merely being memorised, without altering the thinking patterns of future teachers.

The mechanism described above is clearly illustrated by one of the most common initial pedagogical beliefs, according to which a significant number of students entering teacher education programs believe that the main professional task of a teacher is to effectively present the learning material. At the same time, most experts and curriculum developers in teacher education programs argue that the teacher's main task is to organise the learning and understanding processes of students regarding the educational content. This understanding of the teacher's professional task is rarely found in initial pedagogical beliefs (Weinstein, 1988) [38].

According to Posner et al. (1982) [18], new concepts developed within teacher education programs compete with initial pedagogical beliefs. Abandoning these beliefs in favour of the newly developed concepts implies that the new concepts should appear more justified, more plausible, and capable of helping to solve the professional tasks that future or beginning teachers will face more effectively. The difficulty in meeting these requirements is clearly seen in the previous example of future teachers' belief that explaining the educational material is the primary task of the teacher. Transforming this belief into a more complex understanding — that the teacher's main task is organising students' understanding of the content — requires, according to Posner et al. [18], that students recognise the limitations and inefficiency of their initial belief. However, organising such a development of students' beliefs faces three complex issues that arise during this transition (Wubbles, 1992) [39].

Why, if clear presentation of educational material is not the teacher's main

task, is it so widely practised in real pedagogical contexts? Why, within teacher education programs, is this topic also often presented in lecture form? And why, finally, is the common feeling that we are learning when someone explains something to us well ignored? If the new beliefs are not more effective in solving practical tasks than the initial beliefs, the transformation of the latter becomes unlikely. Since future teachers typically do not encounter educational situations in which the difference between what and how the teacher explains and what and how the students understand is obvious, initial beliefs remain largely impervious to change, as they appear to be subjectively well-founded and effective.

Thus, the formation of new concepts and understandings in future teachers not only requires the program developers to understand students' initial pedagogical beliefs but also necessitates the design of teaching situations and forms of learning that facilitate the process of reflecting on these beliefs (Wubbles, 1992) [39] and reveal their inefficiency compared to the new concepts in solving typical professional tasks.

Conclusions and Recommendations for Improving Teacher Education Programs

Summarising the above, the following conclusions can be drawn regarding the key characteristics of the initial pedagogical beliefs of future teachers:

1. The vast majority of students entering university teacher education programs already possess formed initial preconceptions and beliefs about the nature of pedagogical work, the content and methods of pedagogical activity, teaching styles, and models of teacher-student interaction.

2. In most cases, these beliefs are not subject to any specifically organised work by university faculty aimed at identifying, reflecting upon, or discussing their features and limitations. As a result, a significant proportion of students retain these beliefs in almost unchanged form (coexisting with memorised theoretical information) until they begin independent practical work, where these beliefs transform into a "personal practical pedagogy" in the face of the challenges and uncertainties encountered by young professionals.

3. The persistence of these beliefs, in our view, is not only related to the many years of students observing the pedagogical practices of different teachers (D. Lortie, 1975) [34], but also to the fact that throughout this period, students participate in their own learning activities, organised by teachers according to their beliefs about teaching. It is this active involvement, rather than mere observation, that allows students to form their own beliefs about the learning process. These beliefs do not always replicate teachers' methods, but in some cases may be based on rejecting them.

4. The experience gained through observing pedagogical activity and participating in it is not only formative for specific beliefs about pedagogy but is also closely linked to the emotions it evokes. This forms not just representations but cognitively-affective constructs that are better described as initial beliefs (Korthagen, 2017; Wubbles, 1992) [32; 40], which serve as the basis for developing personal pedagogical theories (which aligns with L.S. Vygotsky's position on the unity of affect and intellect) [3, p. 251].

5. Such emotionally charged experiences differ significantly from the experience offered to students in most teacher education programs, where the studied theory is primarily presented verbally, leading to memorisation rather than the

formation of new units of professional thinking. Furthermore, the content of these programs is mostly intellectually detached and rarely linked to strong emotions, which prevents the creation of sufficient potential for transforming previously formed beliefs.

Thus, while personal meanings and pedagogical beliefs are formed during school education, in university education, many students are primarily exposed to memorised definitions and representations rather than deeply engaged learning.

Key Recommendations for Teachers and Leaders of Teacher Education Programs:

Based on the conclusions formulated above, the following recommendations are, in our view, essential for the improvement of teacher education programs:

1. Students entering university teacher education programs (just like school pupils) are not a "tabula rasa" upon which a professor or teacher can "write" what the curriculum dictates. Rather, the preparation of future teachers should be designed as a gradual transformation of their initial pedagogical beliefs (which are often superficial and unconscious) into what can, with some approximation, be called pedagogical concepts or personal practical theories.

2. The transformation of initial pedagogical beliefs into pedagogical concepts during the acquisition of a teacher education program does not happen automatically. It requires special organisation from the program's faculty. The focus of this work should be on creating conditions for the exteriorisation of initial beliefs, organising their collective and individual reflection, and constructing more advanced and conscious representations that will facilitate effective solutions to professional tasks.

3. Given that most initial pedagogical beliefs are not only cognitive but also cognitively-affective constructs, their transformation can, in our view, only occur if the program developers create educational-professional situations where students experience emotions and feelings. The solutions to professional problems they master should lead to the formation of personal meaning, rather than simply memorising specific scientific definitions or theories.

4. The opportunity for developing initial beliefs arises not so much from comparing them with theoretical and scientifically-based knowledge but from their application in practice and the analysis of the problems and limitations that arise, demonstrating the inadequacy or inefficiency of initial beliefs. This, in turn, necessitates a real, rather than a declarative, shift towards a modular approach in the design of educational programs.

5. Developing initial beliefs becomes a key task of teacher education programs only if the objective of these programs is not merely the acquisition of knowledge or the teaching of skills (or methods of action), as specified in the current standards, but the formation of a specific type of practical thinking in the graduate — pedagogical thinking.

6. Achieving this educational goal is possible only if teacher education programs distinguish between the processes of students' teaching and their learning, and move towards designing activities that focus on the learning processes of future teachers.

7. The implementation of the above goals and recommendations implies the need for the development and launch of a research program on pedagogical thinking, including initial beliefs, practical generalisations, and the patterns of their conceptual development.

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