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Methodology of development of reference outlines in the university training of students – future teachers of preschool education

Feruza K. Xomudjonova* (a), Asliddin U. Nurmatov (b), Veronika B. Dankova (c), Agzam A. Valeev (d)

(a), (b) Shakhrisabz State Pedagogical Institute, 181301, Shakhrisabz (Uzbekistan), 10 Shakhrisabz street, xomudjonovaferuza@shdpi.uz (a), asliddinnurmatov1992@gmail.com (b)
(c), (d) Kazan Federal University, 420008, Kazan (Russia), 18 Kremlyovskaya street, veronika.veretennikova.71@mail.ru (c), agzam.valeev1952@yandex.ru (d)

Abstract

Maintaining the quality of teaching in university training is an urgent task for teachers. The implementation of the federal state standard of higher education in the direction 44.03.02 "Psychological and Pedagogical Education" provides for the formation of systemic thinking, as the ability to search, analyze and synthesize information, and apply a systematic approach to solve search problems. It turns out that conducting lectures and practical classes should take into account the activation of students' learning and cognitive activity, and, at the same time, form their skills of analysis, classification, systematization, generalization of information, its logical construction, highlighting of essential connections. For this purpose, teachers' reference outlines can be useful. The given article describes the author's methodology of developing reference outlines for future teachers of preschool organisations for individualization of training and providing targeted assistance to students, on the example of the formation of pedagogical thinking and professional and pedagogical competence. The didactic, competence and qualimetric approaches were the methodological basis of the study. One of the leading methods of pedagogical qualimetry – group expert evaluation – was chosen as the main research tool. On the basis of the expertise, the content of the author's methodology for the development of reference outlines of students – future teachers of preschool education was determined.
The materials of the research can be useful for university teachers in the process of preparation and targeted correction of students' preparedness, oriented to professional-pedagogical activity, as they allow a more reasoned approach to the design of individual educational trajectories of students.

Keywords: model of development of reference outlines, future teacher, preschool educational organization, reference outlines, individual educational trajectory.

* Corresponding author. E-mail: xomudjonovaferuza@shdpi.uz

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Introduction

In the process of teaching psychological and pedagogical disciplines of future teachers in practical training – a university teacher, as a rule, faces the fact that the student does not always understand the meaning of this or that psychological and pedagogical phenomenon, as well as the peculiarities and regularities of child development. In our opinion, university training of students can be oriented, including in the implementation of academic disciplines and modules on the profile 'Psychology and pedagogy of preschool education' with the teacher's use of reference outlines, allowing in a more accessible form to explain the material to students. Traditionally, the technology of reference outlines is implemented on the basis of the information collation principle in the form of tables, figures, and schemes, which ensures the successful memorization and assimilation of educational material by students (Kodzhaspirova, 2014). However, it should be noted here that in order for theoretical and practical training to be effective when using reference outlines, they should, firstly, take into account the advanced training principle, taking into account the content of the prospective needs of the preschool education system in accordance with the federal educational programme of preschool education. Secondly, the reference outlines should include learning, cognitive, and independent work of students. Thirdly, the reference outlines should develop students' independent and research skills.

Purpose and objectives of the study

The purpose of this study is to describe the author's methodology of developing reference outlines, which allows optimizing both the process of developing outlines and activating students' independent activity to form their professional-pedagogical competence in the direction of training 44.03.02 "Psychological and Pedagogical Education" (profile "Pedagogy and Psychology of Preschool Education"), which is determined by substantiating the method of group expert evaluations.

The research questions included expert evaluation of the content of the methodology of developing reference outlines, as well as analysis of the possibility of individualization of learning and providing

targeted assistance to students in the formation of pedagogical thinking in the mastering of professional and pedagogical competencies.

Literature review

The analysis of existing scientific, pedagogical, and methodological sources allowed us to assess the current situation regarding the implementation of reference outlines in university training. It was revealed that the reference outlines have been widely spread in domestic education since 1990 by S.N. Lysenkova, V.F. Shatalov (Lysenkova, 1988; Shatalov, 2015) and other scientists. For example, V.F. Shatalov (Shatalov, 2015) argued that the reference outline constitutes a system of reference signals that provide a structural connection and provide a visual design that replaces the system of meanings, concepts, ideas that are interrelated as components and, among other things, require accurate and understandable decoding. According to S.N. Lysenkova, the technology of reference schemes (i. e., supports) is regarded as a method of advanced training, providing preliminary trial study of the most difficult material, namely familiarization with the concepts of the future topic, their clarification, etc. At the same time, the use of reference schemes allows the learner to develop reasoning and evidence, fosters independence, gives confidence, and brings satisfaction from learning (Lysenkova, 1988).

For example, I.A. Zimina considers the reference outline as a means of encoding reference information on the basis of original logical flowcharts, which are fixed by symbols, drawings, etc. The author notes that the reference outlines made by students in practical classes independently ensure the assimilation and understanding with maximum specificity and brevity of the study material (Zimina, 2015). In the context of our study, the research of Yu.A. Shikhov and V.P. Repin seems to be very important because it considers the design of a model for the development of reference outlines, allowing to optimize both the educational process itself and to activate the learning and cognitive activity of students. The authors characterized the blocks of the model (target, project, organizational, diagnostic), which ensure the movement from competence-oriented goals of creating reference outlines to the result of their application in practical seminars to optimize the training process. The advantage of this model is that the formulated didactic conditions for the development of students' reference outlines provide high motivation for students in the study of educational material. At the same time, the conditions do not take into account the individual needs and interests of students when choosing reference outlines in the learning process. E.V. Valiullina's work presents a model of organization of learning and cognitive activity by means of reference outlines, which provides clear guidance in improving and activating students' mental actions during learning (Valiullina, 2007). The author clearly describes in the model the formation of a system of cognitive activity to master the learning material for effective memorization of the studied information when solving thinking

tasks, including its application in practice with subsequent repetition. At the same time, the model proposed by E.V. Valiullina does not take into account the taxonomy of learning objectives and learning outcomes of a future qualified specialist, specified in regulatory and legal documents.

As the analysis of foreign psycho-pedagogical literature has shown, it also widely presents the material on the development of reference outlines for individualization of learning and providing targeted assistance to students. Thus, in the works of many researchers, for example, S. Black, J.D. Allen, B.J.M. Swoger, K.D. Hoffman (Black & Allen, 2017; Swoger & Hoffman, 2015) reveal the essence of reference outlines to be a source of information for students; they in a way provide them with personalized assistance that ensures that they avoid all kinds of problems with the study material and penetrate deeply into the topic.

Reference outlines, according to foreign researchers, can be called an abridged version of the teaching material presented by the teacher; hence, it is an effective way of learning various ideas and concepts. Thus, the ability to take notes in the form of reference outlines becomes an important skill in the life of every student.

According to the Cornell method (Pauk & Owens, 2010), the reference outline can be divided into three parts. The first part includes general information, where the key points of the topic under study are written down. This part of the reference outline summarizes the information as much as possible, which is a clear and concise record. The second part contains a supplement to the general information; for example, the main theses of the subject under discussion are recorded here. The last section is considered to be the final one; it is a summary, which reflects the main idea that the student should formulate independently. At the same time, when working on the outline, it is necessary to correctly highlight the key points related to the most important educational concepts of this particular class. It is also important, according to the researchers, that the reference outlines do not look monotonous, and looking through them, the main ideas are easier to remember. And the essential element of the reference outline is considered to be the technique of outlining based on the use of visual aids, which improves the mental processing of information. As foreign pedagogical practice shows, the reference outlines are the most important didactic skill for successful learning of students, as well as an excellent guide both for them, who need help, and for the university teacher, who needs to improve his/her teaching technology.

In this regard, foreign practice uses an outline template to create a reference outline to facilitate student learning, which presents, among others, the following positions: a) the reference outline develops students' skills in researching and organizing their notes; b) the reference outline allows comparing and prioritizing topics and ideas to be included in the text; c) the reference outline contributes to the development of a

common structure for the work; d) when working on the reference outline, it helps to identify unnecessary information that does not correspond to the central topic; e) the reference outline helps the student to plan goals in his/her cognitive activity; f) the reference outline itself, in the form of a template, can also act as a short alternative to the whole text.

Hence, many international researchers believe that the reference outline is a useful strategy to help students visualize, identify, and organize information in a logical chain. Later on, students can use the structure of the reference outline for brainstorming and also for generating their ideas when writing thoughtful texts. Thus, foreign researchers believe that the development of reference outlines is consistent with the improvement and enrichment of teacher education, in particular, in providing targeted assistance to students and shaping their pedagogical thinking, not to mention that the correct use of reference outlines is also the key to the successful training of future specialists.

The analysis of publications gives grounds to assert that the development of reference outlines for students oriented to practical training is very relevant and significant. However, it should be noted that in the few publications devoted to this topic, little attention is paid to the justification of the levels of reference outlines on the basis of the formation of pedagogical thinking. This makes it difficult to organize the process of individualization of learning, providing an individual with the opportunity to consciously choose his/her educational trajectory in higher education. However, the specifics of the development of reference outlines in the university training of future preschool teachers, as well as the ways of its development, are also insufficiently studied.

Methodology

The proposed methodology for the development of reference outlines for students in the direction 44.03.02 “Psychological and Pedagogical Education” (profile: “Psychology and pedagogy of preschool education”), is based, in methodological terms, on didactic approach (Bogdanova, 2014; Osmolovskaya, 2021), competence approach (Subetto, 2007; Zeer, 2005) and qualimetric approach (Veretennikova et al., 2020).

The didactic approach provides theoretical and practical training as a flexible system that takes into account the types and tasks of psychological and pedagogical activities of future teachers, reflecting the interrelation of goals, methods, content of training, and diagnostics of results.

The competence approach is aimed at the practical training of future teachers by transferring from its subject-disciplinary and content side to the integrated results of the educational process, presented in a competence-based format in accordance with the federal educational standards.

The qualimetric approach to the methodology of development of student outlines implies the use of the method of group expert evaluations. It allows not only to determine the content and types of student outlines, but also to correlate them with the levels of pedagogical thinking and professional and pedagogical competence.

The study was conducted in 2024 on the basis of the Institute of Psychology and Education of Kazan Federal University. Ten teachers of the Department of Preschool Education of KFU and 10 students of the correspondence department of KFU with secondary professional education and pedagogical experience of work in a preschool educational organization took part in it as experts.

Results

The methodology of development of reference outlines in theoretical and practical training of future teachers, is considered with the help of procedures (Table 1).

Table 1. Procedures of the methodology of development of students' reference outlines.

№	The procedures	Table of Contents
1.	Formation of an expert group.	Assuming procedures of pedagogical expertise: – determination of the size of the expert group; – determination of the competence of candidates for experts by methods of mutual recommendations; assessment of reasoning; – determination of candidates with the highest values of the competence coefficients.
2.	Survey of experts in order to identify educational needs, difficulties in the use of reference notes in teaching.	Identification of enquiries, difficulties on the part of teachers, in which learners, teachers need to rank the identified difficulties in the use of reference outlines in teaching.
3.	Interviews with experts to identify the main requirements for using reference outlines in teaching.	Identification of basic requirements: presence of logical chains and semantic accents; autonomy; associativity and imagery; accessibility of reproduction by hand; use of symbols and abbreviations; structure.
4.	Survey of experts with the purpose of possibility of using the reference outlines in the educational process.	Identifying the possibility of application: formation and development of pedagogical thinking; formation and development of professional and pedagogical competence as a didactic unit; assistance in doing homework; form of written response; means of control; feedback; preparation of an oral response; development of creative abilities and independence; consolidation of new material with reliance on the outline.
5.	Selecting a taxonomic model of learning objectives.	The taxonomic model of learning objectives that connects the levels of formation of knowledge, skills, professional orientation, pedagogical thinking, professional and pedagogical competence of students has

№	The procedures	Table of Contents
		been chosen for the methodology under consideration (Dankova et al., 2024).
6.	Development of the classification of reference outlines based on the levels of pedagogical thinking development, allowing to determine the levels of professional and pedagogical competence.	Classification of reference notes by levels of pedagogical thinking according to qualitaxons of the three-level taxonomic model of learning objectives.
7.	Self-assessment of the level of professional and pedagogical competence.	To correlate self-assessment and external evaluation to the level of professional pedagogical competence.
8.	Developing criteria for evaluating reference outlines.	Determine the evaluation criteria: the conformity of the content of the outline to the main content of the studied topic; the literacy of information collation; the quality of the design of the reference outline.
9.	Reflection of theoretical and practical training; Generalization of the results of pedagogical expertise.	Correction of theoretical and practical training in educational and methodological support of the educational process at all stages of higher education.

Next, let us proceed to a more detailed description of the model of reference notes in the training of students in the educational process (Figure 1). It includes four blocks: target, design, organizational, and diagnostic-resultant.

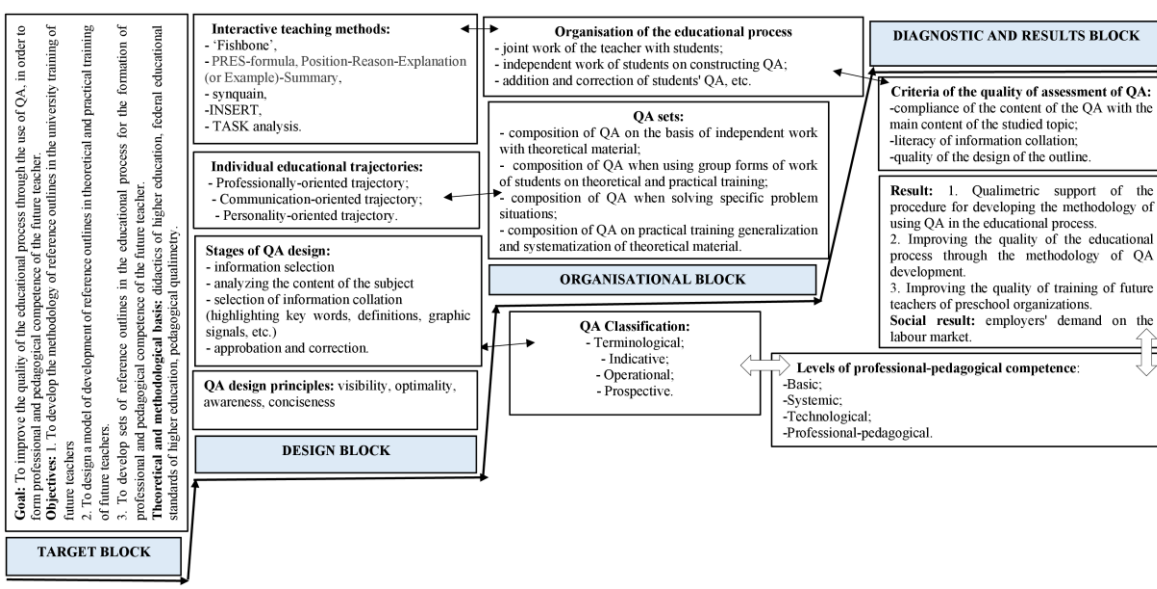


Figure 1. Model of development of students' reference outlines

The target block takes into account a set of external factors affecting the process of using the methodology of developing reference outlines in the training of Bachelor's degree students of psychology-pedagogical education according to the curriculum (URL: https://kpfu.ru/psychology/uchebnyj-process/uchebnye-plany). It reflects the social order of training a qualified competent young specialist, competitive in the regional labour market. It also forms the theoretical and methodological basis for the development of reference outlines based on didactics, federal educational standards of higher education, and pedagogical qualimetry.

The design stage includes pedagogical expertise and provides for the design of reference notes by type, taking into account the following principles:

– Demonstrativeness: ensures the involvement of reference outlines in the process of students' assimilation of psychological and pedagogical knowledge and the formation of their skills, abilities and competences;

– Information content: it implies that the most important and relevant information is laid down in the reference outlines;

– Optimality: reflects the need to form a minimally sufficient list of competences and the corresponding amount of teaching and learning support; it implies the choice of methods and means of compiling the reference outlines that allow for the formation of professional and pedagogical competence in the shortest possible time;

– Brevity: establishes that the fewer printed characters and words, the more effective the reference outline is for students, as they spend less time on self-preparation and reproduce the reference outline given to them more quickly.

In the educational process the developed reference outlines of students are realized in different types of activities:

1. Joint work of the teacher with the student on individual educational trajectories to fill in tables, schemes, etc.

2. Supplementing and correcting the students' reference outlines assumes that the teacher can prepare and bring the reference outline on the studied topic and distribute it to each student in advance. During the educational activity, students can follow the explanations of the material on the reference outline and make

their own notes and recordings on the already prepared plan. The activity is realized in the general education pathway, which is compulsory for all.

3. Independent work of students on the construction of reference outlines is aimed at their independent and research work within the framework of individual educational trajectories.

The implementation of pedagogical expertise in different types of reference outlines is carried out. A fragment of one of the questionnaires used for the expert survey is presented in Table 2, which deals with the development of the classification of reference outlines based on the levels of students' pedagogical thinking (Veretennikova et al., 2022).

Table 2. Fragment of the questionnaire pedagogical expertise in different types of reference outlines is carried out.

The level of pedagogical thinking	**Types of reference outlines**	**Characteristics of types of reference outlines**	**Expert opinion '+'/ '–'**	**Example remarks**
1.	*2.*	*3.*	*4.*	*5.*
Conceptual level	*Terminological type*	If its fulfilment requires fluent mastery of the conceptual and terminological apparatus of pedagogy, the ability to reveal the most essential connections and relations between concepts to achieve didactic educational goals.		
Operational level	*Indicative type*	If its implementation requires a systematic analysis of theoretical material or problematic pedagogical situation, the ability to identify the problem, determine the goal, tasks, and means of its resolution, to assess the effectiveness of solving pedagogical problems.		
Tactical level	*Operational type*	If its implementation requires the ability to summarize information, to find the principle of solving the pedagogical problem on the basis of psychological and pedagogical technologies.		
Strategic level	*Perspective type*	If its realization requires planning and designing professional and pedagogical activity, forecasting of its results.		

Dear colleague! In connection with the development of types of reference notes based on the formation of pedagogical thinking of students, we ask you to participate.

Column 1 shows the level of pedagogical thinking, column 2 shows the type of the reference outline. At the same time, column 3 considers the characteristic of the type of reference outlines by the trainees.
Indicate your opinion in the table in column 4:
– sign '+' if you agree with the allocation of this type of reference outline;
– sign '-' if you do not agree;
– sign '?' if you are in doubt about the answer.
Write your comments, suggestions and additions in column 5 'Notes'.

The design block of the model reflects the basis for the design of reference outlines on individual educational trajectories. Thus, in 2025, a survey of first-year students conducted at KFU Institute of Psychology and Education showed that such individual educational trajectories are in demand as:

– Professionally-oriented trajectory (40%): creates prerequisites for self-determination of students in the field of preschool education, providing for the solution of pedagogical and professional tasks related to the education and upbringing of children in pedagogical situations;

– Personality-oriented trajectory (15%): it is aimed at students' self-development in the field of preschool education based on their own educational needs and interests, contributing to the education and upbringing of children on the basis of a personality-oriented approach;

– Communication-oriented trajectory (45%): forms a systematic view of the student's pedagogical interaction related to the teaching and education of children in communicative activities, thus revealing the possibility of improvement in the field.

During the examination, a methodology for the development of reference outlines was drawn up, which consists of stages:

1. Selection of information: provides the selection and generalization of educational material, as well as its sorting within the framework of general education and individual trajectories. The content of the outline is determined by the content of theoretical material on the given topic of the discipline.

2. Content analysis: the main and secondary information is highlighted, and the order of presentation of the taught theoretical and practical material is determined.

3. Selection of the method of information collation: during the development, it is necessary to allocate reference signals, the totality of which will make up the reference outline on the topic of the discipline. It

will consist of key words, abbreviations, complete notes, definitions and formulations, graphic signals, digital materials, arrows, symbols.

4. Approbation. It consists of independent study of reference outlines by students in order to check their effectiveness.

The presented individual educational trajectories, as well as the principles and conditions of the educational process, are reflected in the organizational block.

Here is an example (Table 3), the reference outline of first-year students in the discipline 'Introduction to Pedagogical Activity'.

Table 3. The reference outline for first-year students.

The reference outline	**Competences to be formed**
General education trajectory	
Professional activities' objective – training and educating in the field of education in full compliance with requirements of Federal Educational Standards for Preschool Education.	
Familiarize yourself with Article 10 Chapter 2 of the Federal Law 'On Education in the Russian Federation'. Structure of the education system. 1.1. Analyze the article and present a model of the levels of general education in the Russian Federation in the form of a diagram. 1.2. Draw a conclusion about the importance of pre-school education in the general education of the Russian Federation.	GPC-1: able to perform professional activities in compliance with regulatory legal acts of the education sector and norms of professional ethics.
Professional activities' objective – training and educating in the field of education in compliance with requirements of professional standard "Educator"	
Personality-oriented trajectory	
2.1. Justify the use of the pedagogical concept of V.I. Slobodchikov and E.I. Isaev from the point of view of determining the priority direction in the education, upbringing, and development of preschool children on the basis of the Fishbone scheme. 2.2. Present the formation of a personal way of being at the stage of preschool childhood as a period of co-creation of the child's 'I' according to the proposed pedagogical concept in the form of a Venn diagram.	PC-1: able to project and organize training and education process of early age children in compliance with the educational programme.

At the diagnostic and results stage, the quality of the developed reference outlines is assessed according to the established criteria: the conformity of the content of the reference outline to the main content of the topic under study; the literacy of information collation; the quality of the design of the reference outline. At the same time, the final diagnosis of professional and pedagogical competence formation (Dankova et al.,

2024) is possible as the quality of reference outlines realization according to individual educational trajectories.

Discussion

In the context of scientific discussion, our study once again shows that the federal state educational standards of higher education determine that '...the number of lecture-type classes in general is no more than 50% of the total number of hours of classroom training'. It follows that lectures, seminars, and practical classes should be organized in interactive forms, including within the framework of individual educational trajectories. In this case, the teacher is required to spend more time preparing for the class, selecting teaching material and additional literature. As a rule, this is the reason for the decreasing popularity of the use of reference outlines. At the same time, it is noted that reference notes increase the effectiveness of the educational process, which is manifested in the activation of initiative and creative independence, conscientiousness, and responsibility of students. The methodology proposed by the authors makes it possible to classify the developed reference outlines taking into account the quality assessment, ensuring the formation of students' pedagogical thinking, as well as the specifics of the direction and profile of training.

According to experts' estimates, in modern higher education, effective management of its quality is impossible without the use of pedagogical qualimetry. The method of group expert evaluations (Valeeva et al., 2019) was used in the organization of pedagogical expertise, which makes it possible to algorithmicize the procedures for developing the methodology of students' reference outlines, which creates conditions for individualization of learning. The final expert assessment was a generalized collective opinion of qualified experts on all investigated issues (Cherepanov, 2006). The validity and reliability of the group expert evaluations is due to the fact that the expert group is formed on the basis of a preliminary quantitative assessment of their necessary and sufficient number, consistency, and competence of expert candidates.

The practical research is limited to the consideration of the methodology of development of reference outlines of future teachers of preschool education.

Conclusion

The results of the conducted research indicate that the methodology of development of students' reference outlines makes it possible to realize effective systematization of educational material, as well as to highlight connections and make a holistic picture of the studied individual topic or discipline according to

individual educational trajectories. At the same time, individualization of learning allows one to activate independent work with the help of reference outlines in the necessary volume, to find and apply the required information, contributing to the development of pedagogical thinking for planning professional results in the process of university training.

In general, the data obtained in the work demonstrate that the created qualimetric support of the methodology of developing reference outlines can be considered as one of the possible educational resources of teachers for the development of professional and pedagogical competence of students, in order to create teaching and learning support within the academic disciplines studied.

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