Training Future Primary School Teachers to Organize Game-Based Music Activities

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Abstract: The article analyzes the current role of a game as a universal cognitive method based on relevant literary sources to justify the need to reform the system of professional training for primary school teachers. The article aims to develop, theoretically justify and experimentally verify the newly modelled pedagogical conditions for training future primary school teachers to organize game-based music activities of primary school pupils, as well as methods of implementing these conditions in teacher education. Importantly, the article demonstrates how the author's methodology for implementing these pedagogical conditions has been developed, implemented and quasiexperimentally verified. As part of preliminary, technological-practical, and creative-organizational stages of such professional training, the new model involves the consistent use of the author's techniques and algorithms to organize students' activities in the framework of professional-oriented courses, research projects, as well as an optional course "Practice of Organizing Game-Based Music Activities for Primary School Pupils". The international relevance of the article lies in developing and implementing universal educational conditions to train future primary school teachers to organize game-based music activities under today's conditions of globalization and informatization. The obtained data indicate some positive changes in quasi-experimental groups due to the implemented pedagogical conditions at the final stage of the research.

Keywords: *gnoseological-cognitive approach, reflexive readiness, student development, methodical skills, integrated approach, educational work, creative approach.*

How to cite: Marievych, N., Kuziv, M., Doroshenko, T., Aliksiichuk, O., Borysova, T., & Fedorchuk, V. (2022). Training Future Primary School Teachers to Organize Game-Based Music Activities. *Revista Romaneasca pentru Educatie Multidimensionala, 14*(1), 15-31. https://doi.org/10.18662/rrem/14.1/505

Introduction

The introduction of cultural dominants in today's educational system puts increasing demands on professional-pedagogical training of primary school teachers, who should be able to develop culture and spirituality in pupils. Thus, it is essential to reform the system of professional education and strengthen its cultural focus by enhancing the artistic-pedagogical training of primary school teachers.

The professional activities of primary school teachers are quite specific, given their multifunctionality, versatility, diversity of artistic and creative activities, communicative emotionality, and multi-vector pedagogical interaction. In this regard, primary school teachers should provide high-quality teaching and ensure the personal development of pupils due to their gradual involvement in various activities, including game-based music ones.

Although being the leading activity in preschool, games retain their developmental and educational positions in primary school and act as a certain painless transition from preschool to actual school learning. Primary school teachers should not consider game-based activities as something unnecessary. Instead, they are to implement the most important functions of pupils' game-based activities (creative, communicative, diagnostic, corrective). It is game-based activities that enhance the learning and development of pupils. At the same time, game-based music activities of primary school pupils create additional conditions for their successful socialization through aesthetic interaction.

There are some noteworthy studies on teacher training, including on the educational potential of music in primary school (Evstigneeva, 2005; Nesterovych, 2010; Pavlova, 2005).

A detailed analysis of relevant scientific literature (Abdulina, 1990; Masol et al., 2006; Otych, 2009; Nerubasska & Maksymchuk, 2020; Melnyk et al., 2019; Sheremet et al., 2019; Gerasymova et al., 2019; Onishchuk et al., 2020; Maksymchuk et al., 2020; Bantock, 1989; Birch & Ladd, 1997; Cooper & Molntyre, 1994; Cornett & Smithrim, 2001; Gaitskell, 1982; Noddings, 1995; Rokeach, 1972) shows that a narrow professional and one-sided approach to pedagogical-musical training makes future teachers less willing to engage in educational work with pupils. These studies also prove that general pedagogical skills form the basis of pedagogical excellence that future primary school teachers require to organize game-based music activities for pupils.

As noted by Melnychuk (2006), there are certain links between pedagogical-musical training and pedagogical-musical education. At the same

time, the concept of "pedagogical-musical education" is viewed as the process and result of professional training which allows teachers-to-be to adjust to educational innovations due to general pedagogical and special knowledge and skills. Subsequently, they become ready to realize the artistic and creative potential of pedagogical interaction with pupils based on the national and universal human values.

A theoretical analysis of relevant scientific sources has made it possible to characterize the basic definitions of the research. First, *game-based music activities of primary school pupils* are understood a) as an educational phenomenon, structurally and functionally subordinated to the motivational-axiological, thematic, and procedural-organizational objectives of the child's personal development; a) as a means of strengthening the child's socialization during his or her appropriate involvement in voluntary, artistic, multicultural interaction. Second, a musical game is interpreted as a specific way of communicative and artistic interaction among children. It creates an emotional and artistic playfield for the full development of the primary school pupil's personality via game-based music activities, dancing, poetry, rhythmic movements, dramatization.

Importantly, the process of training future primary school teachers to organize game-based music activities is considered as part of artistic training that covers all components of the educational process at pedagogical universities. Besides, it goes along with general pedagogical training and consists of certain stages to train future primary school teachers for such activities in the unity of preliminary, technological-practical, and creative-organizational stages.

A total of 124 teacher students have provided their voluntary consent to participate in the quasi-experimental research.

An important component of the overall readiness to organize music education of primary school pupils is the *readiness of future primary school teachers to organize game-based music activities*. Such readiness is seen as a holistic emotional-psychological and thematical-methodological construct that involves pupils' aesthetical focus on the organization of game-based music activities (the priority of pedagogical action), acquisition of artistic and pedagogical knowledge as a system (cognitive-artistic awareness), development of appropriate skills (creative and methodical), evaluation of its effectiveness when solving problems of music and aesthetic education (reflexive and regulatory activities).

Current studies on the educational potential of game-based activities allow one to consider the control over game-based music activities of primary school pupils as the organization of creative subjective interaction

between teachers and pupils during the stages of musical games focused on the creation of an age-appropriate artistic playground to enhance musical and creative activities.

However, it is still important to study how primary school teachers can effectively organize game-based music activities for pupils in the context of the theory of professional-pedagogical training and actual teaching practice. Mass school practice shows that the control over game-based music activities of primary school pupils is mainly of intuitive character. Therefore, it is vital to systematically solve the contradictions in the theory and practice of professional education for future primary school teachers. It is because they negatively affect the development of readiness to organize game-based music activities in primary school. These contradictions are the following:

- between the need for optimal realization of the pedagogical potential of children's game-based activities and the spontaneous level of teachers' control over it in school practice;

- between the need for reliable methods to ensure the continuity of preschool and primary education and the widespread underestimation of the place and role of game-based activities in the educational process of primary school;

- between the need for teachers with sufficient readiness to use artistic factors of pupils' successful socialization and the insufficient level of future teachers' artistic training;

- between teacher students' need for professional development (by mastering the basics of game-based techniques) and the lack of organizational and methodological support for this very aspect within professional teacher training.

As one can see, the choice of the research topic is motivated by the need to solve the above-mentioned contradictions, clarify the research problem and highlight its importance for pedagogical practice.

The aim of the article lies in 1) the development, theoretical justification and experimental verification of the author's methodical disclosure of preliminary, technological-practical, and creative-organizational aspects in the organization of game-based music activities for primary school children.

The research hypothesis is as follows: given the above-mentioned contradictions, it is possible to model new educational conditions to organize game-based music activities for primary school pupils and, as a result, increase their effectiveness. Thus, this research seeks to develop and verify such conditions.

Current Aspects in the Organization of Game-Based Music Activities for Primary School Pupils

Numerous psychodidactic studies have shown that appropriate modelling of music education has some positive effects on pupils' cognitive abilities, including executive neurophysiological functions such as planning, working memory, and inhibition. Even a randomized study of these effects on primary school pupils (establishing the links between educational attainment concerning other subjects and music education) contains rather interesting results. As stated by Jaschke, Honing & Scherder (2018), "children of the visual arts group perform better on visual-spatial memory tasks compared to the three other conditions." At the same time, the scores on "inhibition, planning and verbal intelligence" have significantly increased in the two music groups as compared to the visual arts and no arts controls (Jaschke et al., 2018). Finally, the researchers claim that "mediation analysis with executive functions and verbal IQ as mediator for academic performance have showed a possible far transfer effect from executive subfunction to academic performance scores" (Jaschke et al., 2018).

These positive effects on cognitive abilities indeed require long-term music education. However, expressive results may be evident only after two – two and a half years of musical influence.

Regarding children, effective factors of professional and general music education include the game-based acquisition of certain aspects of music theory. Çoban & Tuncer (2008), who conducted an experimental study of game-based music education of primary school children, proved the importance of the game-based development of musical rhythm. They observed how children learn "the two, four and eighth note values and rhythm patterns" and "whether they were able to identify the notes, reproduce them in beats and write down what they listen to (notation)" (Çoban & Tuncer, 2008). At the same time, the researchers compared the results of learning activities to extracurricular conditions (social background, extracurricular behaviour). Thus, the findings by Çoban & Tuncer (2008) confirm that game-based (not only musical) activities can significantly improve the skills of children in "recognizing, playing and writing down the note durations of quarter, half and eighth notes". Such success was partially influenced by non-educational social and biosocial factors (gender; the financial status of the family; the parents' educational background). However, such effects were not decisive (Çoban & Tuncer, 2008). Thus, one can conclude that game-based music activities act as a natural component, while the sense of rhythm and the determination of notes' duration depend

more on educational conditions than abilities, origin, gender, and other biosocial factors.

It must be noted that computer programmes are becoming more and more popular within music education. It is because they allow one to quickly develop and assess skills with the help of visual feedback. As rightly noted by Paney & Kay (2015), "computer programmes that offer immediate, concurrent singing feedback may help young students experience musical growth over a relatively short period of time even, perhaps, when formal musical instruction time is limited". Thus, the combination of information and communication technologies (ICTs) and music significantly stimulates self-education, self-control, self-organization, and self-evaluation among pupils. Indeed, ICTs perform some important didactic functions, such as 1) maintaining the intensity and positive background of the educational process; 2) developing self-education skills (primary school pupils are already very well able to use gadgets, as well as various educational and musical applications); 3) actualizing and strengthening interdisciplinary correlations between music and other school subjects.

Importantly, music education can be considered as a natural phenomenon in the framework of personal activity, hobbies, given that most people engage in music throughout their lives. The most common type of such activity is listening (perception). It is reasonable that such an effectively determined and intuitive attraction to music should be used in music education at schools. According to Hallam (2010), the involvement of adults in music throughout their lives is the result of active music-making in childhood at home or school. The researcher states that music acts as a) a means to pass time, alleviate boredom, relieve tension, and distract oneself from worries; b) a means to regulate mood and feel more confident; d) a means of communication; e) a means to develop social and personal skills; e) a means to achieve personal satisfaction (Hallam, 2010). The researcher also indicates, "while there has been less research on young children's emotional responses to music, physiological, behavioural, and concentration changes have been demonstrated". However, one can see that music plays a significant role in people's lives, and this influence is affective rather than intellectual, with the widest range of benefits for those actively involved in music-making. Accordingly, music education at schools should, at least in part, be associated with "inculcating a love of music" (Hallam, 2010, p. 791).

Nouwen et al. (2016) propose to follow "a four-phased Participatory Design (PD) trajectory: exploratory interviews, Proxy Technology Assessment using the MemoLine instrument, co-design sessions and evaluation of the first demonstrator". This project is similar to a digital

musical game, whose effectiveness has been proven experimentally and with the help of some positive feedback from the children themselves.

Consequently, it is stable feedback during game-based activities, positive incentives for good results, a wide space for interpretation, reception and creativity that make an educational musical game a promising and relevant educational tool and trend. In turn, it allows one to promote privacy, publicity, personal intention and other important conditions for self-realization and self-expression of pupils.

Implementation of the New Educational Conditions and Verification of the Didactic Model

A detailed analysis of the above-mentioned contradictions, as well as a study of relevant scientific and methodological sources, has made it possible to justify and model effective pedagogical conditions for training future primary school teachers to organize game-based music activities for pupils. These conditions are the following: implementing a gnoseological-cognitive approach to organizing game-based music activities for primary school pupils during professional teacher training; ensuring reflexive readiness of future primary school teachers to organize game-based music activities for pupils by developing their pedagogical excellence; developing future primary school teachers' methodological skills in organizing game-based music activities for pupils based on an integrated approach to educational work in primary school; introducing a creative approach to organizing game-based extracurricular activities in the context of music education.

The author's model for training future primary school teachers to organize game-based music activities for pupils has been developed and verified based on theoretical principles of the research and the above-mentioned pedagogical conditions. The model consists of goal-oriented, methodological, operational-thematical, and effective components.

The operational-thematical component is based on the determined pedagogical conditions. Besides, it includes methodologically expedient stages for realizing these conditions (preliminary, technological-practical, and creative-organizational).

At the preliminary stage, general pedagogical training of future primary school teachers facilitated the aesthetic focus of pedagogical action in terms of organizing game-based music activities for pupils due to a gnoseological-cognitive approach. Future teachers learned how to use various methodological techniques ("musical moments"; "you are listeners") during profession-oriented training and teaching placement. Also, they created

"clouds of keywords" and held discussions on interesting topics ("The Voice of the Soul of the Ukrainian People"; "Classical Music Never Grows Old"; "Pop Music: Our Preferences"; "The Fairytale World of Music from Children Films).

The technological-practical stage made teacher students more aware of the artistic importance of music. They continued to improve their methodological skills, mastered the author's matrix of musical games based on the use of certain methodological blocks ("the synthesis of music and content"; "artists' integrity"; "researchers-musicologists"; "a dialogue of researchers-musicians"; "a journey into the world of art"). It must be noted that the preliminary stage involved the implementation of musicological, musical-theoretical, and musical-historical tours of the long-term game "An Intellectual Music Lover", while the technological-practical stage allowed teacher students to organize an artistic tour with the use of theatrical elements.

The creative-organizational stage sought to develop future teachers' creative and methodological skills and facilitate their reflexive-regulatory activity. It included an optional course "Practice of Organizing Game-Based Music Activities for Primary School Pupils" to expand objectives of teaching placement. Future teachers were also supposed to keep a special journal (called, "A Journey to the Land of Musical Games") in which they were to describe their individual training for organizing game-based music activities for primary school pupils. At this stage, they learned how to use some effective techniques ("author's innovation"; "the game compass"; "the maze") and algorithms for writing reflections about musical material.

The results of the stage-based training should be the overall readiness of future primary school teachers to organize game-based music activities for pupils by promoting aesthetic focus of pedagogical action, cognitive-artistic awareness, creative-methodical skills, reflexive-regulatory activity.

Thus, the methodology for identifying the studied phenomenon has been presented. The criteria for studying each structural component of future primary school teachers' readiness to organize game-based music activities for pupils have been singled out (axiological awareness of the educational potential of game-based music activities as the criterion of aesthetic focus of pedagogical action; high-quality integrative-theoretical training as the criterion of cognitive-artistic awareness; effective control over game-based music activities as the criterion of creative-methodical skills; stable focus on self-improvement and creative growth as the criterion of reflexive-regulatory activity).

It has become possible to identify the levels of readiness to organize game-based music activities in future primary school teachers based on the results of all diagnostic procedures and the selected criteria and indicators of such readiness.

The elementary-indefinite level is characteristic of teacher students who demonstrate a negative attitude towards game-based music activities and a passive attitude towards the use of musical games in primary school. Their knowledge about music and aesthetic education, as well as the ways of using music in educational work, is rather fragmentary. They cannot select and organize musical games since they are not much interested in improving, controlling, assessing, and analyzing such activities (32.1%).

The initial-indifferent level conditionally unites teacher students with a positive-passive attitude towards the organization of game-based music activities as part of aesthetic education in primary school. This determines the initial stage of learning about aesthetic education, the content of game-based musical repertoire and methods of musical games. Basically, these students can implement educational tasks through musical games, even though the skills they need for that are only partially developed. Also, they can select and organize musical games, as well as adequately assess their musical and aesthetic skills (40.9%).

The sufficient-generative level is suitable for teacher students who have an active attitude towards the use of game-based music activities in educational work with primary school pupils. They understand its developmental and educational value. Importantly, these students have sufficiently developed skills in organizing game-based music games to realize the objectives of aesthetic education in primary school. They have sufficient knowledge about the theory and methods of organizing such activities and strive for professional development and self-education. However, their practical activities are predominantly generative in nature (19.5%).

The creative-constructive level is shown by teacher students who have consciously and systematically mastered the theory and methods of organizing game-based music activities. They have a stable need and the ability to use a creative approach to organize such activities in primary school. These students know how to use musical games on a creative basis. Besides, they can effectively organize game-based music activities in the context of reflective analysis of their own pedagogical activities. Importantly, they actively employ a creative approach to aesthetic education of primary school pupils in practical work (7.5%).

The control stage of the quasi-experiment aimed to verify the developed methodology of training future primary school teachers to organize game-based music activities for pupils. It also sought to determine the dynamics of

quantitative and qualitative changes in the levels of components within students' readiness to organize such activities. It must be noted that this stage of the quasi-experiment was conducted at the premises of Mykhailo Kotsiubynskyi Vinnytsia State Pedagogical University (the faculty of music and pedagogy).

Figure 1 shows a comparative distribution of EG and CG students based on the levels of their readiness to organize game-based music activities for primary school pupils before and after the formative experiment.
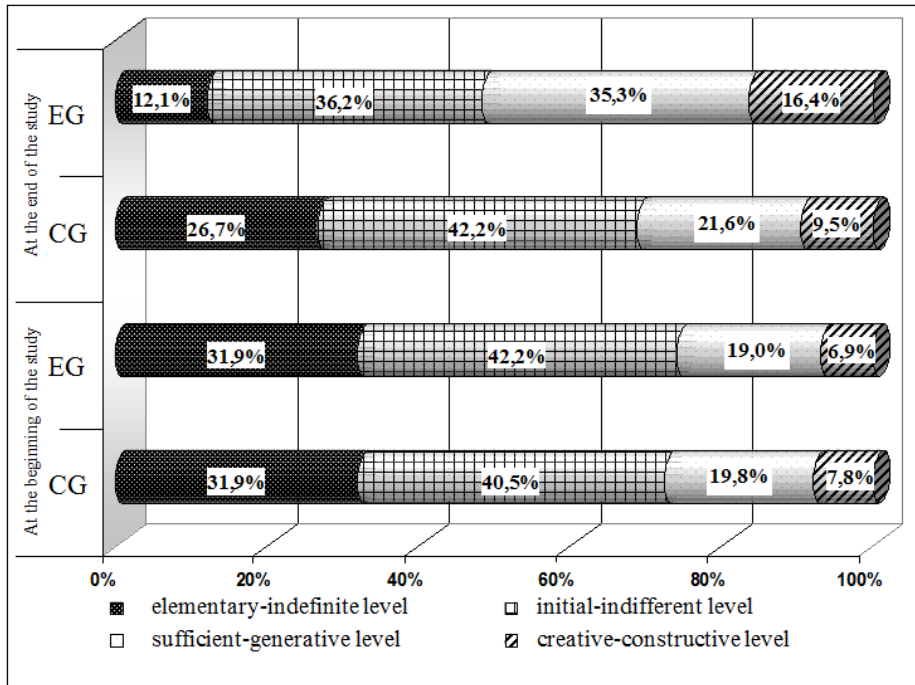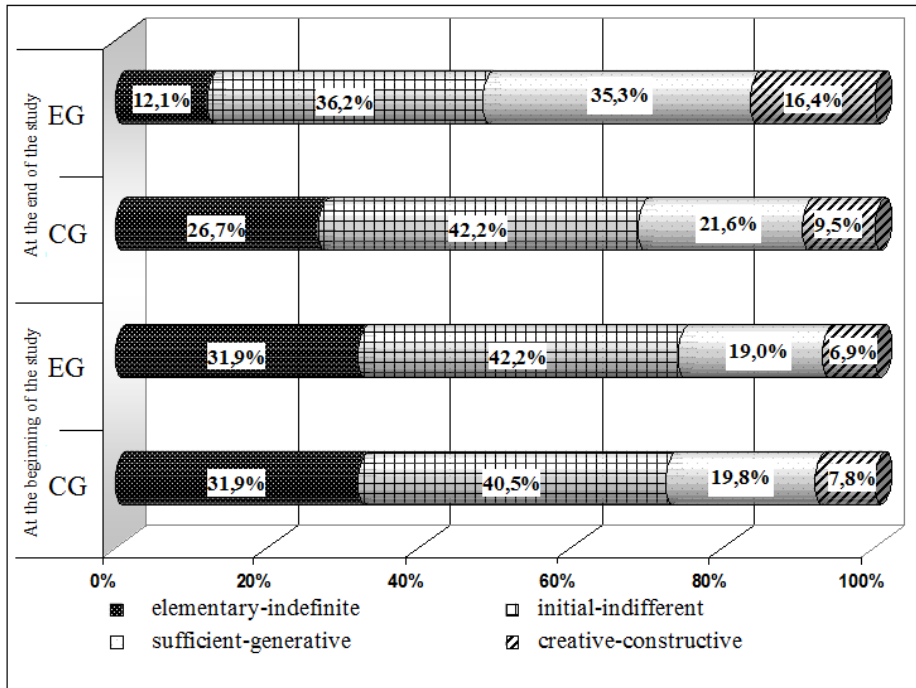
Fig. 1. *Changes in EG and CG students' readiness to organize game-based music activities at the beginning and the end of the experiment*
Source: Authors' own conception

The obtained data indicate some positive changes in the experimental group that occurred due to the implemented pedagogical conditions at the preliminary, technological-practical, and creative-organizational stages of the formative experiment. Consequently, the number of students at the creative-constructive level has increased by 9.5% (from 6.9% to 16.4%); the number of students at the sufficient-generative level – by 16.3% (from 19.0% to 35.3%). At the same time, the number of students at the initial-indifferent level has decreased by 6% (from 42.2% to 36.2%); the number of students at the elementary-indefinite level – by 19.8% (from 31.9% to 12.1%).

The value of the χ^2-criterion (46.42) calculated for the experimental group (which is higher than the corresponding limit value (9.21)) confirms the statistical significance of the changes in the levels of EG students' readiness to organize game-based music activities for pupils with an error of no more 1%. Regarding the control group, the value of the χ^2-criterion (1.54) (which is less than the

corresponding tabular value (5.99)) indicates that the changes in the levels of students' readiness to organize such activities are not statistically significant.

The scientific value of the obtained results is as follows:

– *for the first time,* the model of training future primary school teachers to organize game-based music activities for pupils has been theoretically justified and verified (preliminary, technological-practical, creative-organizational stages); effective pedagogical conditions for training future primary school teachers to organize game-based music activities for pupils have been determined (they are below: implementing a gnoseological-cognitive approach to organizing game-based music activities for primary school pupils during professional teacher training; ensuring reflexive readiness of future primary school teachers to organize game-based music activities for pupils by developing their pedagogical excellence; developing future primary school teachers' methodological skills in organizing game-based music activities for pupils based on an integrated approach to educational work in primary school; introducing a creative approach to organizing game-based extracurricular activities in the context of music education); the criteria for future primary school teachers' readiness to organize game-based music activities for pupils have been developed (axiological awareness of the educational potential of game-based music activities; high-quality integrative-theoretical training; effective control over game-based music activities; stable focus on self-improvement and creative growth); the levels of such readiness (elementary-indefinite, initial-indifferent, sufficient-generative, creative-constructive) have been identified;

– such concepts as "game-based music activities of primary school pupils" (an educational phenomenon, which is structurally and functionally subordinated to the motivational-axiological, thematic, and procedural-organizational objectives of the child's personal development; a means of strengthening the child's socialization during his or her appropriate involvement in voluntary, artistic, multicultural interaction) and "readiness of future primary school teachers to organize game-based music activities for pupils" (a holistic emotional-psychological and thematical-methodological construct that involves pupils' aesthetical focus on the organization of game-based music activities (priority of pedagogical action), acquisition of artistic and pedagogical knowledge as a system (cognitive-artistic awareness), development of appropriate skills (creative and methodological), evaluation of its effectiveness when solving problems of primary school pupils' music and aesthetic education (reflexive and regulatory activities)) have been *clarified*;

– both methods and forms of organizing game-based music activities for primary school pupils have been *further developed*.

The practical value of the obtained results lies in developing and verifying experimentally the author's methodology of implementing pedagogical conditions for training future primary school teachers to organize game-based music activities for pupils; creating and realizing an optional course "Practice of Organizing Game-Based Music Activities for Primary School Pupils" within degree programmes on primary education; compiling and publishing manuals as educational and methodological support for the organization of game-based music activities for pupils by future primary school teachers as part of teaching placement.

Finally, theoretical provisions and methodological techniques presented in the research can be used to improve the teaching of general pedagogical-musical courses in higher education institutions, as well as the system of graduate teacher training.

Conclusions

Game-based music activities of primary school pupils is an educational phenomenon, which is structurally and functionally subordinated to the motivational-axiological, thematic, and procedural-organizational objectives of the child's personal development. They act as a means of strengthening the child's socialization during his or her appropriate involvement in voluntary, artistic, multicultural interaction.

The readiness of future primary school teachers to organize game-based music activities is seen as a holistic emotional-psychological and thematical-methodological construct that involves pupils' aesthetical focus on the organization of game-based music activities (priority of pedagogical action), acquisition of artistic and pedagogical knowledge as a system (cognitive-artistic awareness), development of appropriate skills (creative and methodological), evaluation of its effectiveness when solving problems of primary school pupils' music and aesthetic education (reflexive and regulatory activities).

The obtained results show that the criteria for determining such readiness involve a) axiological awareness of the educational potential of game-based music activities; b) high-quality integrative-theoretical training; c) effective control over game-based music activities; d) stable focus on self-improvement and creative growth that allow one to identify the levels of future primary school teachers' readiness for research activities (elementary-indefinite, initial-indifferent, sufficient- generative, creative-constructive).

The study of future primary school teachers' readiness to organize game-based music activities for pupils indicates the lack of a single holistic system of methods to develop teacher students' ability to organize these activities effectively. A detailed analysis of the current teacher training system reveals that the majority of future primary school teachers are mostly at *elementary-indefinite (32.1%) and initial-indifferent (40.9%)* levels of readiness to organize game-based music activities. This, in turn, prompts the search for ways to improve such a situation and develop appropriate methods.

The author's model of training future primary school teachers to organize game-based music activities for pupils (which consists of goal-oriented, methodological, operational-thematical, and effective components) has been defined and validated. The research hypothesis has been proved in the context of modelling the described process. Thus, the effectiveness of pedagogical-musical training can be facilitated by the determined pedagogical conditions for training future primary school teachers to organize game-based music activities for pupils. These conditions are the following: implementing a gnoseological-cognitive approach to organizing game-based music activities for primary school pupils during professional teacher training; ensuring reflexive readiness of future primary school teachers to organize game-based music activities for pupils by developing their pedagogical excellence; developing future primary school teachers' methodological skills in organizing game-based music activities for pupils based on an integrated approach to educational work in primary school; introducing a creative approach to organizing game-based extracurricular activities in the context of music education.

The author's methodology for implementing these pedagogical conditions has been developed, implemented, and verified during the quasi-experiment. As part of preliminary, technological-practical, and creative-organizational stages of such professional training, the new model involves the consistent use of the author's techniques and algorithms to organize students' activities in the framework of professional-oriented courses, research projects, as well as an optional course "Practice of Organizing Game-Based Music Activities for Primary School Pupils".

The quasi-experiment shows that the introduction of the author's methodology has increased the level of EG students' readiness to organize game-based music activities. Thus, the number of students at the creative-constructive level has increased by 9.5% (from 6.9% to 16.4%); the number of students at the sufficient-generative level − by 16.3% (from 19.0% to 35.3%). At the same time, the number of students at the initial-indifferent

level has decreased by 6% (from 42.2% to 36.2%); the number of students at the elementary-indefinite level – by 19.8% (from 31.9% to 12.1%). Thus, the author's methodology is indeed effective. The goals and objectives of the research have been achieved, and the research hypothesis has been confirmed.

This research does not disclose all aspects of the problem under study. In this regard, it is essential to study how to ensure the continuity of methods and forms of organizing game-based music activities for preschool children and primary school pupils based on the use of multimedia technologies.

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