Theoretical foundations and practice-oriented technologies for the development of professional competence of music teachers in the in-service training system

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Abstract. The article is devoted to the development of music teachers' professional competence in the in-service teachers' training system. The contradiction between the requirement of professional standards for the music teachers' work and their preparation in the in-service teachers' training system is discussed. The basic concept of the research - "professional competence" was specified, its structure was analysed, and the content was substantiated. The model of music teachers' professional competence included such components as key components (informational, regulatory and communicative ones); an operational component; intellectual and educational component. The music teachers doing in-service training course were the participants of an experimental group and a control group. The results of input diagnostics showed the priority of using active forms of study for the experimental group. The detailed description of teaching technologies, used for the experimental group, was presented in the article. They included problem lectures, role games, business games, discussions, etc. The reliability of the output diagnostic results was proved with the help of t-test. The results showed decrease of the number of the music teachers with the low level of professional competence and increase of group members with high level of professional competence. Thus, the findings of the research proves the effectiveness of the model of music teachers' professional competence.

1 A problem statement

Social, spiritual, material and technical transformations in the life of Russian society and the world community put forward a system of requirements for education as an institution that ensures the effectiveness of these changes. Under such circumstances, a high level of professional competence is required from a teacher, as a bearer of general cultural and professional values. Conceptual foundations and requirements for improving the

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professionalism of teachers, including music teachers, within the framework of in-service training are reflected in the Federal Law "On Education in the Russian Federation", the professional standard "Teacher (pedagogical activity in preschool, primary general, basic general, secondary general education) (upbringer, teacher)", as well as a number of documents reflecting the procedure for organizing and implementing educational activities in this area. This highlights the fact that the theoretical and practice-oriented training of music teachers in in-service training courses is aimed at developing the professional competence of listeners. Nevertheless, in the domestic system of professional development of music teachers, the experience of the institutes of additional professional education in this direction is not systematized sufficiently.

In accordance with this, difficulties arise in resolving the contradiction between the requirements of the professional standard for the work of a music teacher and his/her training in the system of in-service training to perform work functions, through which the components of the listener's professional competence are manifested. Thus, the above stated questions reflect the key research problem.

1.1 The objective of the work

The methodological basis of modern scientific approaches to the definition of the notion of professional competence of a teacher, disclosure of its essence and structure are presented by the works of V.A. Adolf, Yu.V. Vardanyan, V.P. Bezdukhova, T. Brazhe, V.N. Vvedensky, R.Kh. Gilmeeva, I.A. Zimnaya, E.F. Zeer, V.A. Izvozchikova, N.N. Lobanova, M.I. Lukyanova, A.K. Markova, A.M. Novikov, V.A. Slastenin, G.S. Trofimova, G. Bernhard, H. Markus, R. Sterner and others. The studies by E.B. Abdullin, Yu.B. Aliev, O.A. Apraksina, B.V. Asafyev, E.V. Grebenyuk, I.R. Levina, D.B. Kabalevsky, L.P. Kozyreva, I.V. Pigareva, E.R. Sizova, T.F. Fursenko are devoted to the formation of the professional competence of a music teacher in the system of university training, partially highlighting the development of this competence in the system of in-service training.

In this study, we take the developments of the stated above authors as basis and expand the range of the issue under consideration from the standpoint of the system of music teachers' in-service training.

2 Results of the research

To achieve this goal, the following objectives were set:
– to analyze the structure of teachers' professional competence, to substantiate the content of music teachers' professional competence;
– to substantiate the in-service training courses content for music teachers from the professional competence development standpoint;
– to present the experimental work results.

To accomplish the first set objective, the basic concept of the study was clarified and an interpretation of its substantive basis was given, taking into account the specifics of music teachers' professional activity.

It was revealed that the basic concept of "professional competence" is interpreted as the general ability of a specialist to mobilize his knowledge, skills, as well as generalized ways of performing actions (E.F. Zeer) [1] and considered as a set of abilities and personality traits necessary for successful professional activity.

Foreign researchers D. Britel, D. Podell, S. Kaminski, T. Crowl argue that professionals differ from other specialists in the level of competence while making immediate decisions

and the ability to correctly navigate in all matters related to their direct work. This point of view is supported by such foreign scientists as Sh. Feiman-Nemser and B. Yusko [2].

The expediency of using the concept of "teacher's professional competence" is due to the breadth of its content, the integrated characteristics that combine the concepts of "professionalism", "professional abilities", etc. This is confirmed in a number of studies. For example, V.N. Vvedensky [3] believes that the professional competence of a teacher is his/her ability to effectively carry out professional activities: mastery of new methods, successful performance of professional duties. R.Kh. Gilmeeva [4] believes that this is an integrative characteristic of the professional and personal qualities of a teacher, the combination of his/her knowledge, skills and experience in the system of professional training, which is developing dynamically.

This makes it possible to assert that the professional competence of a teacher is a complex, integrative concept. We adhered to this position in our study.

An analysis of existing developments on the problem of studying teacher's professional competence indicates the diversity of interpretations of its structure and content. V.A. Slastenin [5] interprets the structure of a teacher's professional competence as a set of sequentially unfolding actions (some of which can be automated (skills) based on theoretical knowledge and aimed at solving pedagogical tasks. In accordance with the judgments of V.A. Adolf [6], I.A. Zimnaya [7], N.N. Lobanova [8], L.M. Mitina [9], N.A. Gluzman and N.V. Gorbunova [10], et al., we came to the conclusion that the structural scheme of the complex integrated concept of "teacher's professional competence" includes four components: professional and content (basic) one, professional and activity-oriented (practical) one, professional and creative one, professional and personal component. The constituents of these components are knowledge, skills, experience, motivation and personal qualities of the teacher, that condition both his/her readiness to perform pedagogical activity actively and the pedagogical activity itself.

Certain aspects of the music teachers' professional development were considered by E.B. Abdullin, Yu.B. Aliev, O.A. Apraksina, L.G. Archazhnikova, B.V. Asafiev, E.V. Grebenyuk, I.R. Levina, D.B. Kabalevsky, L.P. Kozyrevat al. For example, L.G. Archazhnikova [11] made an attempt to develop a professiogram for a music teacher. The scientist identifies several essential areas in the structure of his/her professional activity, including: organizational area; cognitive area; research area. At present, consideration of the music teachers' professional competence content is of particular interest to scientists and practitioners. Modern researchers quite widely examine the pedagogical conditions for the formation of professional competence of a music teacher in the university education system (V.F. Gorbenko and L.P. Kozyreva [12], E.V. Grebenyuk [13], etc.).

Foreign researchers also note the importance of the content and technological components of music teacher training, both in the system of higher education and in the system of continuing education (P. Burnard, E. Georgii-Hemming [14], T. Budreva [15], L. Laor [16], D. Kovalev, G. Khussainova, S. Balagazova, T. Zhankul [17], J. Ballantyne and K. Zhukov [18] and others.

However, in our opinion, for a deep substantiation of the structure of music teachers' professional competence, we can take the teacher's professional competence model in the in-service training system developed by V.N. Vvedensky [19].

The above mentioned model provides for such levels as: general one (for all teachers, taking into account the main pedagogical developments); partial one (for teachers of a specific educational institution; it is developed by a methodological service, taking into account the conditions and specifics); specific one (determined and accepted by the teacher himself/herself). The general level of the presented model consists of key (informational, regulatory, communicative) and operational competencies. V.N. Vvedensky defines the main target of the professional development system as an opportunity to reveal the teacher's

personal resources. In this regard, the objectives of improving the teacher's intellectual abilities come forward, that becomes the basis of his/her intellectual and pedagogical competence.

Let us consider the characteristics of the above mentioned competencies, taking into account the substantiation of the main structural components of the teacher's professional competence:

– Informational - include certain amount of information - knowledge (K);

– Regulatory - the presence of skills to manage one's own behaviour - skills (S);

– Communicative - are formed in the process of one's development and self-development - knowledge, skills and experience (K, S, E);

– Operational - a set of specific skills necessary for the implementation of professional activities - experience (O);

– Intellectual and pedagogical - the development of innovative activity ways - experience, motivation and personal qualities of the teacher (E, M, P.Q).

Let us clarify these components taking into account the professional activity of a music teacher. So by the key components we mean:

– informational component - knowledge of the music education content and students' upbringing, age characteristics and their readiness for musical education and upbringing, fundamental methods of musical didactics and the latest teaching technologies, etc.;

– regulatory component - the ability to analyze and self-analyze a music lesson, implement an integrated approach in teaching art and aesthetic disciplines, possess the vocal and choral work method, etc.;

– communicative component - erudition, creative activity, culture of speech, artistry, visual contact with the class, etc.

The operational component implies the presence of the musical and pedagogical improvisation skills, interpretation of musical works, the art of conducting techniques, etc.

By the intellectual and pedagogical component, we mean the ability to create problem situations and an atmosphere of interest among students in music lessons, the use of art integration elements and various methods of musical didactics, etc.

Accordingly, the performance of music teachers directly depends on their professional competence level. We support the opinion of scientists and practitioners that teaching activities can be qualified on the bases of three levels: low, medium, high.

To solve the research problem related to experimental work, involving the substantiation of the content and technological component of in-service training courses for music teachers from the standpoint of developing professional competence, a preliminary survey of music teachers in Sevastopol was carried out. The results of the survey showed that the priority types of training for music teachers are such active forms of work as business and role-playing games (30% of respondents), training courses (20% of respondents), etc. This made it possible to form a control and experimental group of listeners who expressed a desire to undergo in-service training on the basis of Sevastopol State University under the program "Topical issues of theory and methodology of music education and upbringing of students of educational institutions" (36 hours).

The objective of the course of the control group was to increase the level of music teachers' professional competence by considering modern approaches to the implementation of musical education and schoolchildren upbringing. The program prioritized the use of traditional methods and technologies for working with students with partial inclusion of interactive elements.

The main objectives of the course for the experimental group included: increasing the teachers' professional competence level through the development of certain components of professional competence (key competences, operational, intellectual and pedagogical competences) in order to ensure readiness for the implementation of musical education and

students' upbringing, stimulating interest in self-education and self-realization in the process of cultural component formation of education. The program of the experimental course assumed the priority of using interactive forms and methods of working with listeners.

The various forms of work with the specification of the educational tasks of this course is presented below in details:

1. A problem-based lecture allows to intensify the position of teachers and their experience in solving the problem, which contributes to the key component development of professional competence in students. For example, when considering the topic "Methodological aspects of music education and upbringing of students", the listeners are asked problematic questions that are discussed in the form of a dialogue, namely:

– Justify the features of an integrative approach to teaching music;

– Justify the musical didactics methods choice during the lesson.

2. Lecture as a dialogue, the purpose of which is to develop the key component of professional competence among the listeners.

For example, when considering methodology fundamentals of the students' music education, the listeners were asked to divide into three groups and prepare the main theses to substantiate their opinions.

A discussion was held by the end of the task, during which the teachers not only expressed their point of view, but also determined the ways for further independent study of the topic.

3. The creation of a music lesson construction during a practical lesson is carried out with the aim of adjusting the methodological training of listeners, that is, the development of key and intellectual and pedagogical components of professional competence among teachers.

Taking certain stages of the teacher's activity during a music lesson as a basis, the listeners are divided into several teams, which make up a meaningful characteristic of each technique with a justification of its effectiveness at this stage of the lesson.

4. Group discussions (from Lat. discussio - research, discussion, consideration) are carried out with the aim of mastering the technique of a music lesson introspection, that is, the development of key, operational, intellectual and pedagogical components of professional competence among teachers.

5. Practical lesson with the group work "Algorithms for meaningful analysis of musical works".

The listeners are divided into groups and, based on several fragments of a musical work, reveal the patterns of all expressive methods at each stage of the work's intonational image development, predict the development of its artistic idea, reveal the interaction of individual musical images under the influence of the idea's development logic into the musical drama of the work.

Then a representative of each group presents the development of practical algorithms for the meaningful analysis of a piece of music.

6. Role-playing game "Musical Marathon", the purpose of which is to gain students' experience in the field of methods of conducting music lessons in elementary school, which contributes to the development of operational, intellectual and pedagogical components of professional competence.

The participants of the game are divided into several teams, which work on the musical tasks of a certain elementary school grade. The listeners of these teams act in turn as a speaker, opponent, reviewer.

When assessing the participants in the role-playing game, the ability to conduct a scientific discussion, the logicality and consistency of the presentation, as well as the ability to pay attention to the peculiarities of the music lesson methodology in elementary school,

the substantiation of the effectiveness of using various forms and methods of schoolchildren music education accounting for their age and individual abilities, are taken into consideration.

At the end of the "Musical Marathon", the listeners by open vote determine the best speaker, opponent and reviewer.

7. The business game "Jigsaw" is carried out to strengthen the practical orientation of educating teachers, that is, the development of their operational, intellectual and pedagogical components of professional competence. The trainees are divided into four "domestic" groups for the purpose of independent preparation of a music lesson in secondary school.

The game algorithm is given below:

– listeners present fragments of the developed lessons for the members of their "domestic" group, substantiate their opinion on the effectiveness of forms and work methods;

– teachers are united in "expert" groups, where each participant becomes an expert and must fully convey creative methodological developments to the members of other groups and receive useful information from representatives of other groups;

– participants return to the "domestic" groups and share the creative findings of the other group members and prepare joint conclusions on the methodology of the lesson;

– a representative from each group comes up with an original idea.

8. The choir practice allows to strengthen the practical component of the lesson in the field of vocal and choral work methods with schoolchildren, which contributes to the development of the operational, intellectual and pedagogical components of the professional competence of music teachers.

The trainees are divided into three "domestic" groups, which independently work on individual assignments on the topic of the lesson.

At the beginning of the practical lesson, these groups discuss homework for 15-20 minutes, substantiate the main stages of learning a separate vocal and choral work with schoolchildren and the peculiarities of the development of their vocal and choral skills.

The result of the lesson is the presentation of one of the participants from each group, summing up the results on the topic of the lesson.

9. Discussion "Modern artistic and pedagogical technologies" contributes to the development of key and intellectual and pedagogical components of the professional competence of music teachers.

At the beginning of this form of lesson, it is necessary to inform the listeners with the rules of discussion and accept them. At the next stage, there is a discussion of problematic issues regarding the implementation in the practical activities of students of the following artistic and pedagogical technologies: interactive, integrative, problem-heuristic, game, etc.

During the discussion, teachers express their views on the theoretical and practical significance of the artistic and pedagogical technologies under consideration, as well as further independent study of the educational topic.

10. The purpose of the panel discussion (with elements of "brainstorming") "Contemporary music lesson at school" is the formation of the experience of joint participation in the discussion and consideration of problems in the practical activities of students, i.e. it is aimed at developing the operational and intellectual-pedagogical components of the professional competence of music teachers.

While conducting discussion, teachers are invited to discuss the following questions: How to captivate students with the subject? What technologies and methods of musical didactics will make the learning process more interesting?

Their collective discussion is carried out using elements of "brainstorming" and includes the following stages: preparatory (formation of "idea generators" and "experts"

groups to select the best ideas); warm-up (the ability to quickly answer the stated questions); main (fixation by an "expert" of each group's ideas expressed by its "generators"); evaluative (selection of the best ideas by "experts" with substantiation of criteria); final (substantiating and presenting the best ideas, checking the basic knowledge of students on the methods of teaching music at school).

11. The defence of educational project has the form of a round table discussion "Workshop of the Future" and contributes to the development and implementation of innovative approaches, methods and technologies in the field of music education in teachers' practical activities, development of the intellectual and pedagogical component of the professional competence of students.

To conduct the round table, a presenter is selected. He/She organizes this work and maintains an atmosphere of free discussion of topical problems of music education, considered in the creative projects of the audience. After the completion of the work, the best graduation projects are determined with the aim of their further use of creative ideas in the city teachers practice work.

Thus, two stages of experimental part of research were implemented, namely: the control and experimental groups were formed and the content and technological foundations of the experimental course "Actual problems of the theory and methods of music education and upbringing of students of educational institutions" were substantiated.

In order to identify the effectiveness of the experimental part of research, a toolkit of "input" (B1) and "output" (B 2) diagnostics was developed, including: questionnaires for self-assessment of music teachers (the aim of questionnaires was to indentify levels of components of teachers' professional competence and criteria for their assessment); a diagnostic form (to check an independent assessment of the professional competence level of teachers). The diagnostic form includes questions on the content and methodology of music education and upbringing of students.

At the first stage, the processing of the results of self-assessment and independent assessment of teachers was carried out in the following sequence:

1) The index of the professional competence components development was calculated for the participants in each group according to formula 1:

$$S_n = \frac{S_1 + S_2 + \ldots\ldots + S_n}{M}$$

(1)

S_n – index of development of each component of professional competence;

S_1 – the sum of points scored by each listener for these components;

M – the number of listeners in the group;

2) The growth of the index of professional competence components development was defined according to formula 2:

$$\Pi P_i = S_n \times B_2 - S_n \times B_1$$

(2)

ΠP_i – an increase in the formation indicator of each professional competence component;

$S_n \times B_1$ – the general level of the professional competence components development index, based on the results of input diagnostics;

$S_n \times B_2$ – the general level of the professional competence components development index, based on the results of output diagnostics.

3) The indexes of the professional competence components development were calculated for each group's listeners at the stage of the input and output diagnosis according to formula 3:

$$S_k = \frac{\sum_{i=1}^{n} S_n}{N}$$

(3)

S_k – coefficient of the index of each professional competence component development;
k – substantive component of professional competence;

$\dfrac{\sum_{i=1}^{n} S_n}{N}$ – the amount of gained points;

N – the maximum score for each professional competence component (for example, 45 - for the key component, 6 - for operational component, 9 - for intellectual and pedagogical component).

The calculation results are presented in Tables 1 and 2. The following abbreviations were taken into account: B1* ("input" diagnostics); B2* ("output diagnostics"); ПР* (growth); Kc* (key component); Oc* (operational component); IPc * (intellectual and pedagogical component) (Table 1).

Table 1. Comparative data of the coefficient of the professional competence components development based on the results of self-assessment of students ("input" and "output" diagnostics).

Professional competence components	Control group (CG)			Experimental group (EG)		
	B1*	B2*	ПР*	B1*	B2*	ПР*
Kc*	0.41	0.61	0.2	0.55	0.93	0.38
Oc*	0.50	0.66	0.16	0.54	0.88	0.34
IPc*	0.34	0.56	0.22	0.48	0.88	0.40

The results of Table 1 indicate that the greatest increase in scores in terms of professional competence components is demonstrated by the listeners of the experimental group, which proves the effectiveness of the study (Table 2).

Table 2. Comparative data of the coefficient of the index of the professional competence components development based on the results of students' independent assessment ("input" and "output" diagnostics).

Professional competence components	Control group (CG)			Experimental group (EG)		
	B1*	B2*	ПР*	B1*	B2*	ПР*
Kc*	0.33	0.49	0.16	0.39	0.78	0.39
Oc*	0.18	0.30	0.12	0.30	0.58	0.28
IPc*	0.24	0.40	0.16	0.40	0.68	0.28

The results presented in Table 2 also confirm the effectiveness of the experimental study. The greatest increase in the coefficient of the index of the professional competence components development of the students in the experimental group is observed in relation

to the key component (0.39) compared with the results of this component of the teachers in the control group (0.16).

To substantiate the conclusions of the experimental work, the obtained results were converted into a relative index (1 = 100%) and the index reliability was verified with the Student's t-test [20].

It was established that for all the components of the music teachers' professional competence t> 2. The highest index of the Student's test according to the results of independent assessment was among the experimental group listeners, namely the key component - t = 2.06; intellectual and pedagogical component - t = 2.07; operational component - t = 2.08.

Therefore, the effectiveness of the influence of the used experimental conditions on the development of the students' professional competence level was confirmed.

Further work to substantiate the results of the study involved the independent assessment data processing as the most objective factor, which determined the real level of the music teachers' professional competence development at the beginning and the end of the experiment.

Thus, taking the maximum relative formation index of the professional competence (the sum of the components) as 1, the relative parameters of this concept were determined, taking into account the previously justified three levels: low level - up to 0.33; medium level - from 0.34 to 0.66; high level - from 0.67 to 1.

This allowed to determine the number of participants with different levels of professional competence in each group (at the stages of the "input" and "output" independent assessment). Further comparison of the data obtained made it possible to trace the positive dynamics of changes, most acute among the listeners of the experimental group, namely: the number of music teachers with a high level of professional competence increased from 5 (20%) to 14 (56%), the number of participants with a low level of professional competence significantly decreased (from 11 (44%) to 1 (4%)). At the same time, in the control group, the number of listeners with a low level of professional competence also changed (from 14 (56%) to 11 (44%)). However, in general, the changes are not significant.

The effectiveness of the experiment is also confirmed by the results of the teachers' questionnaire survey at the end of the in-service training courses: 80% of the listeners positively assessed the effectiveness of the course, 92% noted the importance of using active and interactive forms of work to seize the opportunity of presenting and analyzing their own experience as well as outline ways for further self-improvement in professional activity.

3 Conclusions

The conducted research aimed at theoretical substantiation and practical proof of solving the problem of developing the music teachers' professional competence made it possible to draw the following conclusions:

Firstly, the concept of "teacher's professional competence" was clarified as an integrative characteristic of the body of knowledge, skills and experience, motivation and personal qualities. It ensures teachers' self-realization in their profession.

Additionally, the structure of this complex integrated concept was substantiated, including the key, operational, intellectual and pedagogical components.

Secondly, the content and technological components of music teachers' in-service training course "Topical Issues of Theory and Methods of Music Education and Upbringing of Students of Educational Institutions" have been substantiated. The course was aimed to

develop the professional competence of music teachers and conducted at Sevastopol State University.

Thirdly, the results of the experiment, which allow to draw a conclusion about its effectiveness, were substantiated, since the number of listeners in the experimental group with a high level of professional competence significantly increased and respectively decreased with medium and low levels in comparison with the control group.

Nevertheless, the study does not exhaust all aspects of the problem taken under consideration. Such an issue as the management of the teachers' professional competence development (including music teachers) in the in-service training system deserves broad consideration.

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