Implementation of interaction principle in teaching pedagogical subjects in university

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ABSTRACT:
The goal of the study is theoretical justification of methodological foundations of interactive teaching technology in higher school, description of practical implementation of interactive technology, and analysis of its results. The article presents a retrospective view on Russian studies of interactive teaching technology in higher school, problems of its use, and specified requirements. A model of formation of students’ preparedness to use methods and forms of interactive teaching was suggested and tested under two institutes: 1. Federal State Budget Educational Institution of Higher Education "K.G. Razumovsky Moscow State University of technologies and management (the First Cossack University)", 2. Institute of Foreign Languages, Moscow City University. The conducted experimental research has shown the effectiveness of interactive teaching technology and allowed to make a conclusion that optimisation can go along the road of improvements of educational content (programmes, course books, demonstration aids, etc.), namely bringing the content in accord with the needs of modern society and abilities of students. Optimisation can be achieved through introduction of new forms and methods of teaching which would allow to get the best possible results in less time or with less efforts.

RESUMEN:
El objetivo del estudio es la justificación teórica de los fundamentos metodológicos de la tecnología de enseñanza interactiva en la escuela superior, la descripción de la implementación práctica de la tecnología interactiva y el análisis de sus resultados. El artículo presenta una visión retrospectiva de los estudios rusos de la tecnología de enseñanza interactiva en la escuela superior, los problemas de su uso y los requisitos especificados. Se sugirió y probó un modelo de formación de la preparación de los estudiantes para utilizar métodos y formas de enseñanza interactiva en dos institutos: 1. Presupuesto estatal federal Institución educativa de educación superior "K.G. Razumovsky Universidad Estatal de Moscú de tecnologías y gestión (la Primera Universidad de cosacos)", 2. Instituto de Lenguas Extranjeras, Universidad de la Ciudad de Moscú. La investigación experimental conducida ha demostrado la efectividad de la tecnología de enseñanza interactiva y ha permitido concluir que la optimización puede seguir el camino de la mejora del contenido educativo (programas, libros de texto, ayudas de demostración, etc.), es decir, poner el contenido de acuerdo con las necesidades de la sociedad moderna y las habilidades de los estudiantes. La optimización se puede lograr a través de la introducción de nuevas
1. Introduction

We consider the problem of introducing innovative educational technologies to a higher educational institution as an important component of the system of Russian higher education. Analysis of scientific studies (Panina and Vavilova 2008; Panfilova 2009; Catalano and Catalano 2015) shows that the change in the educational paradigm of higher school logically leads to new teaching technologies (including the interactive ones) aimed towards personal development and self-development of each participant of the educational process: both teachers and students (Gavronskaia 2008; Bikbulatova, Orlova, Rabadanova, Shishov And Yulina 2016; Abdulaeva, Gireeva, Bikbulatova, Rabadanova, And Yulina 2017). In contemporary research and educational literature interactive educational technologies are understood as technologies carried out by active interaction of students within the educational process (Kashlev 2011; Shishov 2016).

In accordance with M.V Gulakova and G.I. Kharchenko who believe that interactive teaching technology is education based on logical use of forms and methods of active teaching, from the simplest to the most difficult ones, including role play, elements of discussion, game-like final lessons on a topic, etc. (Gulakova and Kharchenko 2013), we consider the training of students as a task-oriented, systemic, dynamic process in a higher educational institution which is characterised by active interaction of students and teachers. Such organisation of the educational process which has subject-subject and mutual development nature is aimed at the transfer of professional knowledge, skills, and experience to future specialists, at formation and development of their professional mastery and culture, at stimulation of creative innovative thinking and interest in professional activity, etc.

Analysis of scientific literature on higher school pedagogics showed that efficient ideas on optimisation of teaching subjects in higher educational institutions through interactive teaching methods were already suggested in 1960-80s as a result of the development of theory and practice of intense studying.

For instance, Russian researchers of the 20th century noted that it was necessary to form an ability of scientifically substantiated, independent, and productive thinking in a future teacher. Such ability is required for the analysis of educational situations and solution of teaching and educational tasks both at theoretical and practical levels, and this, as they noted, was the weakest point in professional psychological and pedagogical training of future teachers.

For this reason, in 1980-90s teaching based on the problem approach became almost the only effective way to stimulate students to apply academic knowledge in practice in schools. During that time there appeared a number of methodological forms and methods of interactive teaching, such as educational situations modelling, educational games of different functions: didactic (developing the ability to evaluate educational phenomena, study them, analyse, predict the results of educational influence on a person, generalise and make conclusions); methodological (providing students with the methodology of preparing and conduction educational events in school); stimulating-developing (activisation and intensification of students’ cognitional activity, development of creative thinking as well as professional and personal qualities of a future teacher); pedagogic (formation of students’ active life attitude within the system of general training of a specialist with a degree, active participation in reorganisation of educational process in a higher educational institution or school) (Bikbulatova, Orlova, Rabadanova, Shishov and Yulina 2016); communicative-organisational (development of students’ abilities to interact with different groups of children, parents, teachers, etc., development of organisational abilities and management
There is also a problem of improvement of professional training of future specialists through intensification of the educational process. In educational science intensification of professional training of students is considered as the method of improving the efficiency of educational work which encourages the introduction of innovative technologies and scientific achievements. (Bulanova-Toporkova 2002)

An example of intensification of educational process through interactive educational technologies in higher educational institutions is the use of trainings, methods of group task solution, situational role play, group discussion, etc.

For instance, professional activity modelling according to a certain situation helps students to adapt to the set conditions as well as solve the set tasks using personal and professional potential. Behaviour and activity strategies chosen by the participants clearly demonstrate the logic of interaction within the selected professional field. At the same time, each participant realises and processes their attitude to behaviour strategy and the chosen role. Thus, by analysing the situation students get acquainted not with an abstract theoretical generalisation but get immersed in the reality (Abdulaeva, Gireeva, Bikbulatova, Rabadanova, and Yulina, 2017). Students do not only generate ideas but in fact create the process of studying finding themselves in the situation of active interaction with each other, which imitates real communicative relations emerging between people within joint activity. Analysis of the situation requires the students to ask themselves questions and look for answers while generalising the view on the method of task solution. (Catalano and Catalano 2015; Ceresia 2016)

As analysis of Yu. Gavronskaya’s experience shows, effectiveness of role play depends on psychological (creative humanist relationships within the study group), personal (corresponding personal orientation of students), and methodological factors, while the significance of role play, in case it is naturally introduced into the system of speech training, consists in consequent orientation of students towards the improvement of their speech activity as a component of creative professional self-improvement (Gavronskaia 2008).

Another interesting experience is development of pedagogical speech of future teachers through the methods of active studying within laboratory classes on psychology and within scientific and research work of the problem study group. Efficiency of the developed system of psychogymnastic exercises for the formation of pedagogical speech has been proved in practice. The system includes methods aimed at the development of speech skills and abilities, at mastering additional means of pedagogical speech, and development of active listening skills (Suvorova 2001; Shevchenko 2009).

Realising the problem of improvement of future teachers training in higher educational institutions, we have turned our attention to V.A. Slastenin’s fundamental study in which the qualifying description of elementary school teacher with a specialisation in “Pedagogics and methodology of elementary school” is studied as a normative model (Reserves of intensification of the educational process of pedagogical higher school: interuniversity collection of scientific works, 1990; Slastenin 1984, p. 10-15)

A.V. Ivanov suggested a development model of pedagogical culture of a supervising teacher based on the principle of development of teacher's professionalism: from mastering the basics of pedagogical work to comprehension, methodological self-improvement, coming to the level of educational and research development in accordance with individual characteristics and interests of a specialist (Ivanov 2005, p. 148).

A model of formation of professionally oriented identity of a future teacher in a group of students was developed by E.N. Bobonova. She identified the conditions of effective formation of professionally oriented identity of a future teacher, which included the condition of educational process being rich with pedagogically oriented play activity in a group of students (Bobonova 2007). I.Yu. Mezhueva suggested a model of development of creative
activity of a future specialist in professional foreign language activity (Mezhueva 2004).

Analysis of scientific studies on the problem of experimental modelling has allowed to make conclusions that any integral system has such important factors as integrative and systemic qualities; a certain set of parts, elements composing it; a particular structure of their organisation and interaction which integrates and connects the parts into the whole.

2. Methods

Basing on the works of scientists dedicated to the formation of professional-pedagogical skills of a future teacher, we have suggested a model of formation of students’ preparedness to use methods and forms of interactive teaching.

The designed model of formation of students’ preparedness to use methods and forms of interactive teaching has main factors of an integral system of development of students’ professional skills of using interactive forms and methods of teaching within teaching and educational process of a higher school. First of all, it is characterised by functional specifics present only in this system. Second, its structural components and their organisation allow to follow more precisely the correlation, interaction, and purposefulness of its typical qualities. Third, it includes specific content, forms and methods of influence on the formation of preparedness to use interactive educational technologies.

The whole description of the suggested model is not, of course, reduced only to the listed factors. However, in our opinion, they allow to consider it as an independent subsystem of integral scientific management of the process of preparing future teacher to innovative activity.

The suggested model is based on general principles of teaching and education, on professional orientation, on connection to life and pedagogical practice, on age, individual, and personal characteristics, on humanisation of the educational process, on development of initiative and independent action, on education in the group through the group itself, on the use of methods of interactive teaching, on learner-centred approach, on democratisation of “teacher-student” relationships as well as on the principles of training pedagogical staff which later provided the basis for the principles of implementation of interactive teaching, such as: activity principle, open feedback principle, experimentation principle (students actively search for new ideas and ways to solve the set tasks meanwhile developing important creative skills), communication trust principle, the principle of equal positions.

All these principles are closely interrelated, they supplement and enrich one another and are meant to be used in the educational process simultaneously.

Introduction of the suggested model as a training “Formation of future teacher’s preparedness to use methods of interactive teaching” into the educational process of students specialising in “Psychological-pedagogical education” and “Pedagogical education” of Federal State Budget Educational Institution of Higher Education “K.G. Razumovsky Moscow State University of technologies and management (the First Cossack University)” and Institute of Foreign Languages, Moscow City University has conditioned the solution of the following main tasks in their continuous succession and inseparable unity:

1) providing natural unity and close interconnection of all structural components of the model;
2) purposeful influence on all areas of student’s personality (intellectual, emotional and will, active-practical);
3) combining education with pedagogical practice;
4) creating positive emotional and moral psychological atmosphere in the group during classes, which should encourage the enrichment of professional experience of future teachers;
5) integration of education and self-education of future teachers, psychological-pedagogical support of student’s educational and practical activity; transfer from subject-object to subject-subject relationships;
6) purposeful pedagogical influence on the formation of professional interest of students and
stimulation of their participation in game classes;

7) formation of methodological knowledge and professional skills of students allowing to
develop and use the methods and forms of interactive teaching.

Successful solution of these important social-pedagogical and at the same time professional-
psychological and methodological tasks became possible due to deep and comprehensive
study of progressive experience of formation of professional-pedagogical skills of a future
teacher through interactive methods and forms of teaching as well as due to the search and
scientifically based organisation of the content, methods, and forms for implementation of
each of the set tasks.

It should also be noted that integrative approach to organisation of the system of formation
of students’ preparedness to use methods and forms of interactive teaching requires taking
into account the specifics of each of the model’s component.

It was important to identify the criteria and levels of formation of students’ professional
abilities to use methods and forms of interactive teaching so that the designed model would
function successfully and be scientifically organised.

The first (cognitive-theoretical) criterion identifies students’ theoretical preparedness to use
methods and forms of interactive teaching and is characterised by basic knowledge of main
psychological-pedagogical subjects and methodology of teaching them, knowledge in the
field of pedagogical communication, culture of professional behaviour and pedagogical
mastery, main definitions, classifications of interactive pedagogical technologies, knowledge
of the role of interactive teaching methods in the formation of professional abilities of future
teachers, knowledge of psychological-pedagogical conditions of effective use of methods and
forms of interactive teaching.

The second criterion (reflexive-professional) is characterised by ability to select methods and
forms of interactive teaching in accordance with the age, level of knowledge, psychological
and individual specifics of students, taking into account the stage of the educational process;
introduce them into the educational process; ability to turn a communicative situation into a
game and organise this game; ability to generalise and introduce the experience of higher
school teachers who actively use methods and forms of interactive teaching; mastery of
pedagogical technique, person-oriented methods of pedagogical influence, professional
observation and reflection, etc.

Basing on scientific work of A.A. Abdulina (1990), we have singled out four levels of
development of professional abilities to use methods of interactive teaching:

- **Low (intuitive) level** characterised by reproduction of an insignificant part of main theoretical
  points, certain notions, classifications of interactive pedagogical technologies, description of play
  techniques based on emotional perception without enough understanding of the role of
  educational and pedagogical games in training of future teachers. The student is familiar with
  main professional-pedagogical skills, understands their content, structure, and meaning in
  professional-pedagogical activity when using any forms or methods of interactive teaching, but
  the demonstration of maturity of their skills is still limited. Professionally oriented help from a
  teacher is especially important at this stage of skills formation.

- **Average (reproductive) level.** At this level the student is familiar with main professional-
  pedagogical skills that should be formed in a teacher and classifications of interactive pedagogical
  technologies. The student shows interest to new facts and their explanation realising the
  importance of interactive methods for the formation of professional skills. The demonstration of
  ability to use any forms or methods of interactive teaching in practice is limited. Ability to select
  educational-pedagogical games is not skilful enough. According to reflexive-professional type of
  activity, this level is characterised by initial skills at the level of imitated unconsidered actions,
  mostly by samples. The student masters certain play actions which are used in typical
  educational situations. These actions are conducted with certain help of a teacher or
  independently by analogy with a sample. The activity is not skilful enough yet. The position is
  more instructive at this level.

- **Sufficient (reproductive-creative) level.** The knowledge of main definitions, classifications of
  interactive pedagogical technologies are developed enough, the student is fluent in the studied
  material. At this level the student is able to select academic materials with methods and forms of
interactive teaching and use them in practice. The student masters generalised skills for which methods and means of play activity are typical. Independent choice of a required system of actions in different situations is expected but with significant efforts of the student. The interest to independent search for effective ways of solution of educational tasks is developed together with the interest to independent identification and comprehension of play activity means with account of particular conditions, and practical actions in unusual situations. The position of the teacher at this level is of instructive-consultative nature.

- High (creative) level is characterised by perfect theoretical knowledge and identifies the ability of students to use methods and forms of interactive teaching: in the field of pedagogical communication; behaviour culture; classifications of interactive pedagogical technologies and their role in the formation of professional skills of a future teacher; it is also characterised by perfect mastery of professional-pedagogical skills as the basis of pedagogical mastery with rather high level of unusual pedagogical actions, creative approach to roles in a game. At this level of development, the student is able to independently create and introduce methods and forms of interactive teaching in educational and extracurricular work, predict and foresee the result of their actions and actions of those who they are going to teach. The position of the teacher at this level is of consultative nature.

Diagnosing the levels of formation of the ability to use interactive methods and forms of teaching students of psychological-pedagogical and pedagogical specialisations of higher schools, we actively used the methods of questionnaire, interview, observation, analysis of the results of students’ activity, methods of modelling the professional activity, innovative methods, etc.

3. Results

The conducted research among the students specialising in “Psychological-pedagogical education” and “Pedagogical education” of Federal State Budget Educational Institution of Higher Education “K.G. Razumovsky Moscow State University of technologies and management (the First Cossack University)” and Institute of Foreign Languages, Moscow City University shows that practical lessons with role play of problem situations were very effective. Problem situations similar to professional conflicts often emerged during the discussion of optimal solutions of pedagogical tasks, when participants of the game had different points of view and positions as each of them interpreted task solution in their own way, according to their life experience, attitudes, level of psychological-pedagogical knowledge and understanding of pedagogical processes. At classes students-participants of the game asked one another questions, specified them, put forward different hypotheses, showed their attitude to pedagogical situations, formulated their value judgement in the form of questions to their partners or in the form of a judgement system, substantiated their position, learned to understand the behaviour and state of game participants. Behaviour patterns were shown during the pedagogical game. Play activity of the students was based on collaboration and competition; a certain system of social and professional relations was formed. Specifics of tasks and problems solved during the game contributed to the formation and improvement of management and organisation skills as well as pedagogical management of a study group and pedagogical support of independent students.

For instance, one of the tasks was to describe a complicated conflict situation from students’ pedagogical practice. Students of the whole group were offered to play out this situation and analyse it. During such games the ability to quickly evaluate the situation, get oriented in it and switch attention was formed.

The obtained results show that difficulties in preparing and holding interactive classes are justified by the significance of the achieved results.

The designed model can be effectively introduced either through traditional forms such as lections, seminars, practical lessons, pedagogical practice, methodological consultations and instructional advice or through innovative forms including pedagogical dramatization, contests, educational games, trainings, art lessons.

As our observations show, trainings, imitation forms and microlessons are most popular with students.

When designing the suggested model, we paid great attention to students’ independent
work which presupposed attending practical lessons of the teachers who actively used methods of interactive teaching, going to research libraries, getting acquainted with modern psychological-pedagogical and methodological literature including the description and designs of any interactive techniques of contemporary Russian and foreign authors.

Students’ independent work is also reflected in our training programme “Formation of future teacher’s preparedness to use methods of interactive teaching” which includes creative tasks for independent work.

4. Discussion

It should be noted that the criterion of optimisation effectiveness of the process of teaching with interactive methods is teacher’s professional level as well as compliance with the requirements to modern technologies, such as:

- Correspondence between teaching technologies and nature and needs of students in individual and group activity, ensuring their active participation in the educational process;
- Increasing students’ motivation to participation in different play actions by vividness and emotionality;
- Correspondence between the selected methods and cognitive and other abilities of the audience;
- Use of possible technical means of teaching, required level of methodological and didactic support solving the tasks of understanding, remembering, and acquiring information;
- Logical connection with previously acquired material, formation of strict notion on the possibility to use the obtained knowledge in practice (Pasishnikov 2008; Rabadanov 2012).

When using teaching technologies, a teacher correspondingly needs to:

- thoughtfully use methodological techniques, didactic materials, and technical means of teaching in accordance with the goals and tasks of particular lessons;
- take into account quality contingent of students, their individual and social-psychological specifics, cognitive abilities, interests, nature of activity;
- know how to create emotional background of joint activity and manage it with account of age specifics and psychological state of the audience;
- manage one’s own emotional state and possess the means of emotional charge of the audience; it is important if the moment of positive fixation of new directives and stress relaxation within significant competition happens at a lesson (Jia, Hu, Cai, Wang, Li, Runco and Chen 2017);
- know about the content and latest changes in professional field of the subject filling the material with life-like play situations and examples from practice (Development of professionalism of a higher school teacher: methodological study guide, 2009).

However, the teacher can face difficulties in the use of play technologies, the main of which is their own ability to be flexible and adjust their style of interaction to play tasks (Jia, Hu, Cai, Wang, Li, Runco and Chen 2017). The most important thing in a group discussion is teacher’s ability to organise it in such a way so that there is no confrontation but joint search for the solution of the problem. Among the mistakes pointed out by designers of interactive teaching methods the most wide-spread are the following:

- critical statements and evaluation of participants’ actions and opinions;
- “clumsy encouragement” of those who are afraid to offer their opinions in the group’
- inability to work with aggressive manifestations during group discussion;
- inability to show support to participants of the discussion and motivate joint work;
- lowered emotional reactions, inability to get engaged in group process (Ivanov and Rabadanov 2016).

Thus, to make the process of optimisation effective, one should take into account psychological preparedness of a teacher for innovative activity and through methods of interactive teaching form students’ professional skills required for efficient intensification of the educational process in a higher educational institution (Shishov 2016).

Summarising the conducted research, a conclusion can be made that optimisation can go along the way of improvement of education content (programmes, course books, demonstration aids, etc.), such as: bringing the content in accord with the needs of modern society and student’s abilities. Optimisation can be achieved through introduction of new forms and methods of teaching which would allow to get the best possible results in less...
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