

Methodology of formation the professional competencies of students in the use of interactive technologies

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Abstract: The article examines the following questions: we have studied the original methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard. In article formation process at students the competence of using an interactive board theoretically locates in work practice. The developed Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard. Methodical ensuring process of formation at students the professional competence of using an interactive whiteboard in work practice is developed. Criteria, indicators, levels of efficiency of process of formation at students of professional competence of use of an interactive whiteboard in work practice are defined. Experimentally proved the effectiveness of the Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard.

Key words: *Methodology; Professional competencies; Students; Interactive technologies; Interactive whiteboard; Model*

1. Introduction

The level of research scientific problem: In this paper, we will try to review the main scientific literature on the subject of the significance of methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard, which includes the basic works by Aaron, M., Dicks, D., Ives, C. & Montgomery, B. (2004), Alejandro Tiana, José Moya and Florencio Luengo (2011), Beauchamp, G., Parkinson, J. (2005), David Carr and Don Skinner (2009), Dostál, J. (2011), Ezziane, Z. (2007), Fariza Achcaoucaou, Laura Guitart-Tarrés, Paloma Miravittles-Matamoros, Ana Núñez-Carballosa, Mercé Bernardo and Andrea Bikfalvi (2012) and their scientific followers: Ishanov, P., Bekmambetova, Z. (2013), Parshina L. (2014), Sakenov, D. Zh, et al. (2012), Schantz, E.A (2012) and others. But most of all, according to scientists Nicolas Fernandez, Valerie Dory, Louis-Georges Ste-Marie, Monique Chaput, Bernard Charlin and Andree Boucher (2012), Garrison, J. A., Schardt, C., & Kochi, J. K. (2000) they were reflected in tutorials. Penetration into education of new interactive technologies, including interactive board is the reason of it. The most actual this problem becomes during work practice of students. Work

practice is directed on formation of pedagogical knowledge, skills, on formation professional to competence of students in the conditions of complete pedagogical process.

2. Literature overview

The concept of " professional competence", "Interactive whiteboards" was studied by Kathleen A. Brown-Rice and Susan Furr (2013), the authors of "Preservice Counselors' Knowledge of Classmates' Problems of Professional Competency" (Kathleen A. Brown-Rice and Susan Furr (2013), and Smith, H.J., Higgins, S., Wall, K., Miller, J.(2005), the authors of "Interactive whiteboards: boon or bandwagon? A critical review of the literature" (Smith, H.J., Higgins, S., Wall, K., Miller, J.(2005). During practice students show ability to build effective communications, applications of forms and techniques of active education, including competence of use of an interactive board, and also application of information technologies. The analysis of researches of Aaron, M., Dicks, D., Ives, C. & Montgomery, B. (2004), Alejandro Tiana, José Moya and Florencio Luengo (2011), Beauchamp, G., Parkinson, J. (2005), David Carr and Don Skinner (2009), Dostál, J. (2011), Ezziane, Z. (2007), Fariza Achcaoucaou, Laura Guitart-Tarrés, Paloma Miravittles-Matamoros, Ana Núñez-Carballosa, Mercé Bernardo and Andrea Bikfalvi (2012), Ishanov, P., Bekmambetova, Z.

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(2013), Parshina L. (2014), Sakenov, D. Zh, et al. (2012), Schantz, E.A (2012), Nicolas Fernandez, Valerie Dory, Louis-Georges Ste-Marie, Monique Chaput, Bernard Charlin and Andree Boucher (2012), Garrison, J. A., Schardt, C., & Kochi, J. K. (2000), Glover, D., Miller, D., Averis, D., Door, V. (2005), Graziano K. J. (2012), Timothy Ellis (2004) brings us to thought that in order that the interactive board joined in pedagogical process and were effectively used in it, it is necessary to prepare methodically competent, initiative, creative student competent in this regard, capable to solve problems of work practice at modern school.

In this regard the special place in system of vocational training of students is taken by formation process at students of competence of use of an interactive board in work practice at comprehensive school. An interactive whiteboard (IWB) is a large interactive display that connects to a computer. A projector projects the computer's desktop onto the board's surface where users control the computer using a pen, finger, stylus, or other device. The board is typically mounted to a wall or floor stand. The first ever board was developed in 1991. They are used in a variety of settings, including classrooms at all levels of education, in corporate board rooms and work groups, in training rooms for professional sports coaching, in broadcasting studios, and others. In our opinion, the interactive board is means of implementation of process of professional activity.

Thus, in the direction of our spend research on formation at students the competence of using an interactive board in production the practice allows to allocate the literature and state of affairs analysis as the basic opposition between need of educational institutions for experts, the ability to use interactive boards in professional activity, and existing approaches to professional training of students as the future of the teachers, not providing to this requirement. The designated contradiction defined a research objective: to find new approaches to professional training of students who in the professional activity during work practice will use interactive boards.

3. Methodology and methods.

Theoretical basis of research are the leading concepts of the personality development; theory of the content of education; modern theories and concepts of higher education; regulations on essence of complete pedagogical process; pedagogical researches about the nature of the teacher's work; researches on formation of the teacher's professionalism; researches on the teacher's professional competence formation; ideas of system, personal, activity, humanistic, axiological, ackmeological approaches; idea of subject activity of the personality in the course of her activity; development of technological approaches and variable technologies of education. The methodological basis of research was made by theories, concepts of professional competence

formation, modern psychological and pedagogical theories and concepts of professional education. For the solution of a goal of research the following methods were used: problem solving by a complex of methods, among which the leading position took the followings: the methods of theoretical analysis (comparative analysis, system modeling) diagnostic (test, questionnaire, interview, survey, self-assessment, peer assessment) and empirical (the study of practical experience, observation) and experimental methods of mathematical statistics.

4. Analysis result

The novelty of the scientific research results. Formation at students the competence of using an interactive board in work practice is a process of training students to use an interactive board in work practice on the basis of school which includes a projection of an interactive board as funds of implementation of ways of pedagogical activity for complete pedagogical process, direct acquaintance of students to types, the main functions, purpose of an interactive board; discussion and practical activities of students by definition of a role and a place of an interactive board in pedagogical process, to the analysis and the accounting of requirements to the most interactive board, use conditions, creation of didactic materials; competences of students according to the decision the various the pedagogical tasks connected with using of an interactive board in modeled or real pedagogical process with further obligatory discussion and the analysis of proposed solutions; methodical development on use by students of an interactive board in teaching and educational process in a subject with the subsequent their protection in modeled pedagogical process and approbation in production practice. The interactive board serves as an source of educational information and the tool for assimilation and the maintenance of a training material, development and education students during work practice. Formation at students the competence of using an interactive board in work practice includes the following structural components: motivational, substantial, activity. Using by students an interactive board in work practice is caused by the following competences:

- it is rational to ability to use an interactive board in educational processes;
- ability to use program pedagogical with products of an interactive board;
- ability to develop plans of educational occupations with using of an interactive board and to carry out them;
- ability to analyze educational occupations with using an interactive board;
- ability to use an interactive board for work simplification on collecting, processing, preservation and information transfer;
- ability to prepare presentations and micro presentations on an interactive board;

- ability to produce a distributing material, to select the software and tasks on an interactive board for individual work of pupils;
- ability to fix elements of educational process by means of an interactive board;
- ability to find necessary information in educational process in world information system;
- to use an interactive board for development of own creative ability, satisfactions of informative and professional requirements;

To know service regulations of an interactive board, sanitary and hygienic requirements and requirements of fire safety and safety measures during using an interactive board. These competences are the generalized indicators of use by students of an interactive board in work practice. These components of formation at students the competence of using an interactive board in work practice define levels and criteria of their formation. Formation levels at students the competence of using an interactive board in work practice: high, average, low. Criteria and formation indicators at students the competence of using an interactive board in work practices:

- The substantial - assimilation of knowledge, concepts, categories about an interactive board;
- The motivational - interest, requirement, readiness for use of an interactive board;
- The activity - mastering actions on using an interactive board, existence of abilities of the rational organization of using an interactive board.

Formation at students the competence of using an interactive board in work practice, demands the special organization of the pedagogical conditions

which component are motivational, substantial and activity conditions. The motivational part of pedagogical conditions assumes stimulation of motivation of using an interactive board in work practice; the substantial part of pedagogical conditions consists in orientation of process of using an interactive board in work practice on formation of modern interactive knowledge, with providing its personnel, methodical, material components; the activity part of pedagogical conditions provides active participation of students in using an interactive board in work practice. On the basis of the carried-out analysis of works of Aaron, M., Dicks, D., Ives, C. & Montgomery, B. (2004), Alejandro Tiana, José Moya and Florencio Luengo (2011), Beauchamp, G., Parkinson, J. (2005), David Carr and Don Skinner (2009), Dostál, J. (2011), Ezziane, Z. (2007), Fariza Achcaoucaou, Laura Guitart-Tarrés, Paloma Miravittles-Matamoros, Ana Núñez-Carballosa, Mercé Bernardo and Andrea Bikfalvi (2012), Ishanov, P., Bekmambetova, Z. (2013), Parshina L. (2014), Sakenov, D. Zh, et al. (2012), Schantz, E.A (2012), Nicolas Fernandez, Valerie Dory, Louis-Georges Ste-Marie, Monique Chaput, Bernard Charlin and Andree Boucher (2012), Garrison, J. A., Schardt, C., & Kochi, J. K. (2000), Glover, D., Miller, D., Averis, D., Door, V. (2005), Graziano K. J. (2012), Timothy Ellis (2004), Kathleen A. Brown-Rice and Susan Furr (2013), Smith, H.J., Higgins, S., Wall, K., Miller, J.(2005) we offer Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard in Fig. 1.

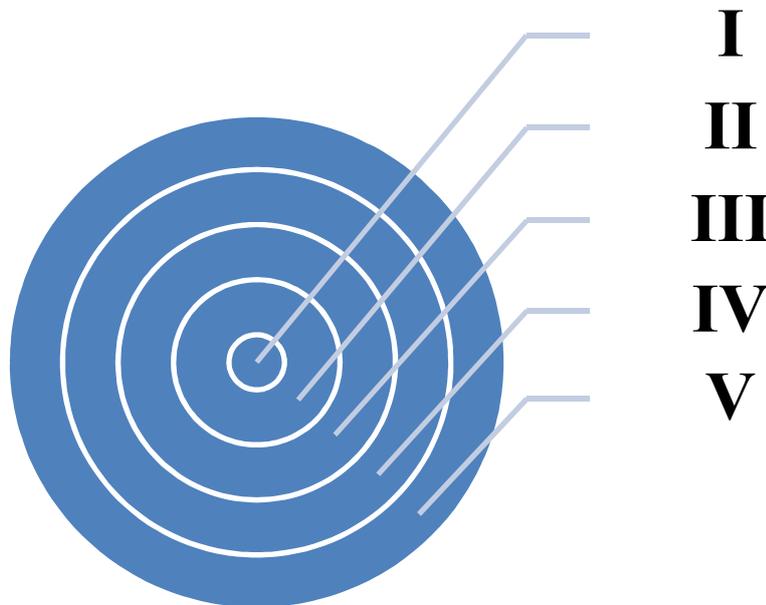


Fig. 1: Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard

The explanation to Fig. 1: Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard:

I – Motivational, substantial, activity components formation at students the competence of using an interactive board in work practice.

- II – Competences of using by students of an interactive board in work practice.
- III – Formation levels at students the competence of using an interactive board in work practice: high, average, low.
- IV – Criteria and formation indicators at students the competence of using an interactive board in work practice.
- V – Motivational, substantial and activity conditions of formation at students the competence of using an interactive board in work practice.
- VI – Conditions of using by students of an interactive board in work practice

5. Discussion

Scientific originality and uniqueness of Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard. For checking of pedagogical efficiency of the Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard, the structure and the main content of experimental work on formation at students the competence of using an interactive board in work practice in pedagogical conditions organized on the basis of offered Model is developed. 57 students of experimental (EG) entered selection

surveyed at a stating stage and control (CG) of groups. Proceeding from the results of research received at a stating stage, it is possible to claim that, despite available positive experience on formation at students the competence of using an interactive board in work practice, in existing practice of work necessary pedagogical conditions aren't realized. During experimental work the following became clear. The considerable part of students isn't motivated to use of an interactive board in work practice. Educational process of establishment isn't directed on the organization of using an interactive board in work practice.

Experimental work at a forming stage was constructed by means of realization of all structural components and the put conditions of Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard. Diagnostics of level of formation at students the competence of using an interactive board in work practice was carried out with using the rating monitoring system which allowed to reveal steady increases of level of formation at students the competence of using an interactive board in work practice to what results of experiment in experimental (EG) and control (CG) groups before experiment (figure.2) testify.

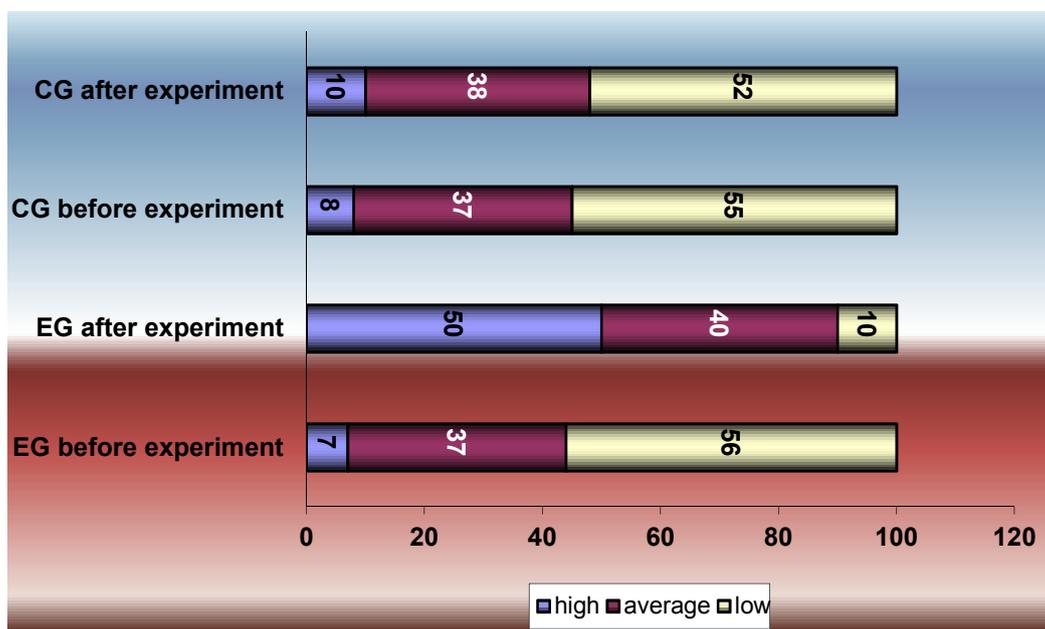


Fig. 2: Diagnostics of level of formation at students the competence of using an interactive board in work practice

The analysis and processing of results of experiment revealed that in experimental groups the number of students with high level of formation the competence of using an interactive board in work practice after experiment increased – by 43%, the number of the students who have reached the average level of formation the competence of using an interactive board in work practice after experiment increased – by 3%, the number of the students having low level of formation he

competence of using an interactive board in work practice after experiment decreased – by 46%. Results of experiment in control groups testify to increase in number of students with high level of formation the competence of using an interactive board in work practice – for 2%, the average level of formation the competence of using an interactive board in work practice – for 1%, reduction of low level of formation the competence of using an interactive board in work practice – for 3%.

Thus, the obtained experimental data confirm efficiency of the developed Model of formation at students the competence of using an interactive board in work practice and the pedagogical conditions of formation put in Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard, such as motivational, substantial and activity conditions. The motivational part of pedagogical conditions stimulated motivations of formation at students the competence of using an interactive board in work practice; the substantial part of pedagogical conditions focused formation process at students the competence of using an interactive board in work practice on formation of modern interactive knowledge, with providing its personnel, methodical, material components; the activity part of pedagogical conditions provided active participation of students in formation the competence of using an interactive board in work practice. Results of research demonstrated that change at students of experimental groups of character and the organization of formation the competence of using an interactive board in work practice due to realization of all structural components of Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard became considerable distinction between control (CG) and experimental (EG) groups.

6. Conclusion

The novelty of the scientific research results. As a result of the conducted research in work formation process at students the competence of using an interactive board theoretically locates in work practice. In work the formation Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard is developed, approved and proved. Methodical ensuring process of formation at students the competence of using an interactive board in work practice is developed and approved. Criteria, indicators, levels of efficiency of process of formation at students the competence of using an interactive board in work practice are developed and approved. The organization and carrying out a pilot study and check of an efficiency of offered Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard is developed.

Unlike the works of Aaron, M., Dicks, D., Ives, C. & Montgomery, B. (2004), Alejandro Tiana, José Moya and Florencio Luengo (2011), Beauchamp, G., Parkinson, J. (2005), David Carr and Don Skinner (2009), Dostál, J. (2011), Ezziane, Z. (2007), Fariza Achcaoucaou, Laura Guitart-Tarrés, Paloma Miravittles-Matamoros, Ana Núñez-Carballosa, Mercé Bernardo and Andrea Bikfalvi (2012),

Ishanov, P., Bekmambetova, Z. (2013), Parshina L. (2014), Sakenov, D. Zh, et al. (2012), Schantz, E.A (2012), Nicolas Fernandez, Valerie Dory, Louis-Georges Ste-Marie, Monique Chaput, Bernard Charlin and Andree Boucher (2012), Garrison, J. A., Schardt, C., & Kochi, J. K. (2000), Glover, D., Miller, D., Averis, D., Door, V. (2005), Graziano K. J. (2012), Timothy Ellis (2004), Kathleen A. Brown-Rice and Susan Furr (2013), Smith, H.J., Higgins, S., Wall, K., Miller, J. (2005) broad analytical approach to this problem, allowed to us develop Model methodology of formation the professional competencies of students in the use of interactive technologies the example of the use of the interactive whiteboard. The content of professional training of students to use of an interactive board in the work practice, realized on the basis of any discipline during the whole period of training, has to include subject and intersubject knowledge; experience of implementation of ways of activity in standard and creative situations, both in the field of a subject, and in the field of universal educational abilities.

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