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Development of Students-Speech Therapists' Professional Competences in the Frameworks of Informational and Educational Environment of University

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Abstract

The relevance of study issue reflects the search of technological resources promoting an effective development of student speech therapists' professional competences in the field of diagnostic and corrective-developing activities. Implementation of developing competence model implies the use of differentiated approaches in teaching, the combination of traditional methods and innovative technological working outs. Authors' electronic program as a way for training skills that are needed in solving pedagogical diagnostic and corrective-developing tasks is regarded as one of didactic resources in informational-educational environment of University. The goal of the present paper is analyzing the effective use of author's electronic program in training teachers-speech therapists for forming diagnostic and correctional-developing competences. In this case the main research method is the competent approach aimed at productive use of integrated knowledge in practice, promoting creative capacities and self-development of graduates, thereby implementing the development of students-speech therapist's professional competences through the resolution of pedagogical tasks, using electronic resources. Research highlighted difficulties and "problem areas" at each level of competences development (knowledge, skills, and abilities) while elaborating diagnostic and correctional-developing program of competences. Analysis of results permits the elaboration of an electronic didactical resource which is based on algorithms of multidisciplinary tasks aimed at development of professional skills and abilities in the field of special training and education. The importance of research results for practice is confirmed by the fact that they are directly focused on resolution of pressing challenges concerning the development of students-speech therapists' professional competences, and they may effectively develop such competences in the frameworks of University informational-educational environment.

Keywords: professional competences, diagnostic competence, correctional-developing competence, informational-educational environment, electronic program, students-speech therapists, higher education educational program.

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Introduction

Development of professional competences for graduate students is a significant goal for implementing a higher education educational program. As far as in current circumstances knowledge is updated very fast and social requirements to learning outcomes are really high, the leading approach in training professionals is the competence approach aimed at development of individuality and its enrichment.

Zimnjaja (2009), Khutorsky (2013), Dvulichanskaya (2011) and Gilmanshina (2007) and others in their works refer to theoretical grounds, methodological relevance and prospects of using competence approach in education.

The Federal State Educational Standards of Higher education of 3rd generation (FSES, 2018) are aimed at the solution of competence approach tasks by the help of modern electronic educational technologies (2018). Interactive technologies are part of electronic educational environment (further EEE) of University and have greater resources in graduate training, and development of professional competences. A key competence of teacher-speech therapist is mastering the ability of projecting an individual children development path based on result of diagnostic screening.

Recently in system of correction-development support important changes occurred due to necessity of developing individual adapted educational and training program for children having speech disorders. Numerous monitoring of employers showed that frequently junior teachers-speech therapists are not able to innovatively apply to logopedic practice theoretical knowledge gained at University. This circumstance reflects the necessity of complementary and special works to ensure that students accumulate integrated knowledge for the further use of those latter in practice. Search of new, synergetic approaches to development of professional competences of future teachers-speech therapists underscores the necessity of elaborating an interactive resource, an author's electronic program designed to creation of an individual development path for children with speech disorders.

Review of national and foreign researches makes clear that specialists pay great attention to implementation of higher education electronic educational environment. Belim, Larionov, & Rakitzky (2016), Noskova, Tumaleva, & Shilova (2012), Skibitzky (2009). Vojtovitch (2016) and others in their works refer to that in Russian education information educational technologies for effective management of educational process are used, to students the access to modern information sources is granted and, finally, to quality training of specialists.

Preeminently, by educational environment in university practice of different countries are meant creation and implementation of massive online courses. Works of Buchan (2010), Conole & Oliver (2002) pay particular attention to analysis of online projects concerning e-learning. Tham and Werner (2005) showed the advantages of further e-learning in higher education system. Stoltenkamp (2012) integrated the model of informational resources in unified electronic environment is analyzed. De Freitas & Oliver (2005) ask an important question about the impact policy in e-learning field may have on changes in higher education is discussed.

In the approach towards training of teachers-speech therapists are highlighted innovative, pedagogical techniques allowing students to possess key professional competences and skills in diagnostic and correctional-developing field at an adequate level. At the present stage, a main competence for teachers-speech therapist is the ability to predict the content of individual path of child development using results of screening. This ability is an integrated one and may be formed on the base of such personal traits like ability to carry out the analysis of problems using interdisciplinary knowledge, to apply theoretical knowledge to real pedagogical cases and to have a logical way of thinking.

Having a highly integrated level, such ability requires that educator uses additional didactical resources. E-learning program for creating individual development path for children with speech diseases, elaborated by one of the authors of the present paper (Shilova & Kvashin, 2017a, 2017b), available in EEE of university might be used as such resource. In national practice of special (defective) education we can find special methodological programs using information and communication techniques. Such electronic programs «Мир за твоим окном» (World outside your window), «Календарь» (Calendar), «Лента времени» (Timeline), «Звучащий мир» (World of sounds) and others, elaborated by employees of the Institute of special pedagogy of Russian Academy of Education Kukushkina, Korolevskaya, & Goncharova (1996), Korolevskaya (2010). Such programs are aimed at development of vital skills for children with special health needs. A large-scale use of such programs as didactical tools in practice of teachers-speech therapists is made. Work of Kitik (2007) and Nikolaeyeva (2016) refer to experience concerning the use of electronic program for teaching defectologists.

Electronic educational environment is a powerful organizational knowledge management resource in students graduating. Didactical electronic tools available in EEE give educators and students additional opportunity for formation of professional competences. In this regard, the approbation of new electronic resources, i.e. e-learning program for projecting an individual development path for children with speech diseases is a pressing challenge in professional training of teachers-speech therapists.

Research methods

Research methods

During researches following theoretical (analysis, synthesis, specification, aggregation, projecting), diagnostic (testing, method of objectives and tasks), experimental (ascertaining, training, referencing, experimental), mathematical statistics methods and results of graphical representations was used.

Competence approach, granting conceptual structurally-substantial model of the competence Zimnjaja's (2018), Khutorsky's (2013), Dvulichanskaya's (2011) and others; Vygotsky's (2004) fundamental provisions concerning correlation of learning and development for special children, Vygotsky's (2004) scientific ideas of general and special regularities of disabilities, fundamental provision of systemic approach to organization of corrective works (Nazarova, 2011), scientific conceptions of structure of abilities (Rubinstein, 2015; Teplov, 2009), scientific ideas of structure and function of educational environment (Polivanova & Ermakova, 2000; Savenkov, 2008; Khutorsky, 2013) were used as methodological bases of researches.

Experimental basis of research

Experimental basis of research are Moscow State Regional University (Moscow, Russia), Kazan, (Volga Region) Federal University (Kazan, Russia).

Stages of research

Research was carried out in three stages:

- At the first stage theoretical and methodological bases of researches were defined, objective and main goals were stated, theoretical review of philosophical, psychological and pedagogical scientific literature, thesis works on the issue and also of literature on theory and methodology of pedagogical researches was carried out, a plan of experimental research was prepared;

- At the second stage an evaluation of results of experimental work for development of key competences for future teachers-speech therapists in diagnostic and correctional-developing fields using tools of information educational environment of University, author's electronic program was carried on;

- At the third stage a systematization and aggregation of research results gained during first two stages were carried on, the text of paper was arranged.

Results

Structure and content of pedagogical training with the use of electronic program for building diagnostic and corrective-developing competences of students-speech therapists.

Using competence and scientific approaches towards general and special regularities of disabilities, Vygotsky's ideas concerning correlation of learning and development of special children, basic ideas of systemic approach in organization of training, scientific conceptions about structure of abilities, structure and functions of educational environment, a version of virtual practice for building skills of future teachers-speech therapists in correctional-develop practical fields e-learning program was elaborated.

The program was been given a hierarchical structure and included a set of pedagogical tasks in electronic form. Each task had his conditions and range of options to solve. Sequence of pedagogical tasks had as bases principle of logical and cognitive procedures, considering the interpretation of learned by students systems of scientific conceptions, interdisciplinary medical, psychological and pedagogical knowledge.

Electronic program was elaborated by one of the authors of the paper using e-learning center and educational techniques of Moscow Region State University and it is a part of electronic educational environment of University (Shilova & Kvashnin, 2017a; 2017b). The program is used as an interactive method of a step-by-step formation of professional skill that is necessary for teachers- speech therapists.

Result of application of program to educational process is the building of indispensable abilities for mastering basic element of teaching activity of teacher- speech therapist: analytic abilities when considering the structure of speech development of children; logical abilities of projecting corrective-pedagogical process, abilities concerning the control and evaluation of results of teaching activity.

All questions and tasks of program are grouped in three blocks: 1. Tasks for defining the level of speech development of children, structure of speech disease, forms of logopedic support, 2. Task for forming a corrective-developing environment for children with speech diseases, 3. Tasks for choosing specialist for cross-sectorial cooperation. Result of sequential resolution of tasks is a structured variant of individual development path of children with speech diseases. A practical uses of created development path for children on practical training was planned.

Conceptual core in designing program and its further uses in training students-speech therapist are systemic activities oriented at approach based on updating of interdisciplinary knowledge (medical,

psychological and pedagogical knowledge) in the analysis of psychological and pedagogical situations. Structural element in using electronic resource relays on sequence, the progressivity of obtained results as basis of logical patterns of final result: an individual development path for children with speech diseases. The multiplicity of pedagogical tasks reflects typology of possible variants of development of speech diseases and represents the substrate (basic) level of elaborated interactive forms.

Performance of logical tasks encouraged students-speech therapists to use all scientific knowledge they gained in analyzing problem situations. It promotes the development of scientific thinking, the ability of rely on scientific logical in variable problem situations.

Technique of forming professional competences using program was based on following components: updating of interdisciplinary medical, psychological and pedagogical knowledge, analyzing pedagogical situation and obtaining results. Control function included in the program was aimed at that students reach their goal an could strengthen their motivation in gaining competences.

At the final stage of competence professional building in educational process the elaborated electronic resource was used.

Stages of introduction of electronic program in pedagogical education for formation of diagnostic and corrective-develop competences.

Introduction of electronic program in education of students-speech therapists for formation of diagnostic and corrective-develop competences suggested the following experimental stages:

- defining base level of knowledge and skull in diagnostic and correctional- developing kind of activity using test methods, pedagogical supervision and self-evaluation, statistical processing of research results;

- carrying out a training experimental research using electronic resource of educational environment of University, the author's e-learning program;

- defining efficiency of electronic program use in pedagogical process as tool for development of student's professional logical thinking while gaining professional competences.

Ascertaining method

The research reached 120 Baccalaureate senior students of Moscow Region State University (Moscow, Russia) and Kazan (Volga Region) Federal University (Kazan, Russia) specialty "Special (defective) education". At the initial stage two groups were created: experimental (EG) and control (CG). The experimental group consisted of 60 baccalaureate students of Moscow Region State University and 60 baccalaureate students of Kazan (Volga Region) Federal University.

Both groups were tested. Test questions were elaborated considering programmatic requirements of discipline module "Logopedics" and gave possibility to define competence level (knowledge, abilities, skills) of students in diagnostic and correctional-developing fields. Right answers highlighted that interviewed used interdisciplinary medical, psychological, pedagogical knowledge, and also that they possess a certain level of professional logic. For each right answer student scored 1 point, for wrong answer 0 points. Conventionally all test questions were grouped in two blocks. Block 1 questions (further Block1) concerned theoretical and practical aspects in screening procedures of speech diseases. In turn, all questions of such block were split into three sections (further Section1, Section 2, Section 3). The questions of first section (Block1.Section1.) had as theme the selection of children's age and speech diseases were diagnosed. The questions of second section (Block 1. Section 2.) foresaw the correlation of

logical conclusion to age. The questions of third section (Block 1.Section3.) included tasks for choosing right variants of logopedic conclusions for children of different age groups.

Block 2 question (further Block2) reflected the understanding of organization, content, techniques of correctional-developing work. All questions were split into three sections (Block2.Section1.) aimed at selection of methodological support of different forms of logical tasks. The questions of second section (Block 2. Section 2.) are aimed at selection of right variant of algorithm of logopedic task. The questions of third block (B2. Section 3.) are aimed at definition of different variants of team collaboration of specialist with children with speech diseases**.**

Each section of first and second block of tasks had 5 questions.

For one block (Block 1, Block 2) the maximum score for right answers was 900 point, the minimum score 0

For one section of the block (Section1, Section 2, Section 3) the maximum score was 300 point, while the minimum was 0

Besides, an analysis of students' self-evaluation level concerning their readiness to afford the procedure of psychological and pedagogical screening and work as speech therapists was carried out (on a 5-point scale). The graduation of self-evaluation was defined as follow: 5 points, high level, 4-3 point middle level, 2-0 point low level.

Results of researches underwent quantitative and qualitative processing

Test processing showed that experimental group students had got 470 points, and control group students 489 points, answering to questions of diagnostic block.

At ascertaining stage of experiment A quantitative analysis of results reveled that experimental and control group students scored a largest amount of points, respectively 230 and 238 points while answering to questions of block 1 first section (Block1.Section1.). Future teachers- speech therapist faced more difficulties when they answered the question of block 1 third section (Block1.Section3.), as far as they had to choose the right variant option of speech therapist report for children of different age groups (Experimental group 70 points, Control group 75 points). When students answered question of block 1 second section (Block1.Section2.) about the correlation of speech-therapist report to children age, an average index was got (Experimental group 170 points, Control group 176 points). Test results of experimental and control group for question of block 1 are shown in figure 1.
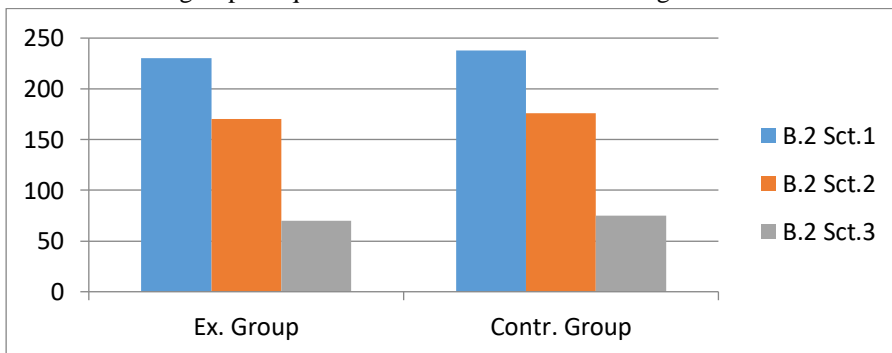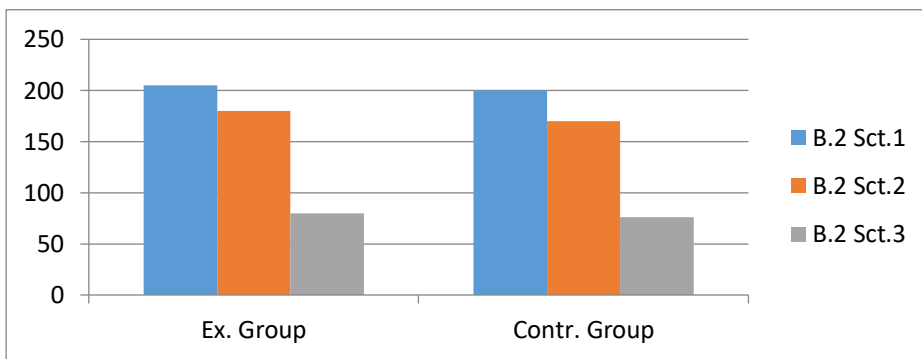

Figure 1. Test results for questions of block 1 at ascertaining stage of experiment

While answering questions of Block 2 (organization and content of correctional-developing work)

experimental group students score 465 points, when control group students scored 446 points.

What concerned mentioned block, students of both groups faced difficulties in answering questions concerning selection of methodological support for different forms of logopedic activities. Experimental group students scored 200 points when answered question block 2 section 1. (Block2.Section1.), and control group students scored 200 points. Question of block 2 third section (Block2. Section 3.) about different forms of team collaboration of specialists with children having speech diseases posed difficulties both to experimental group students and to control group. (Experimental group 80 points, control group 76 points). Answers to questions of block 2 second section (Block 2. Section.2) gave an average index. Questions of this block were aimed at highlighting which abilities are needed for drafting an algorithm for logopedics activities (Experimental group 180 points, control group 170 points). Test results of experimental and control group for question of block 2 are shown in figure 2.

**Figure 2. Test results for questions of block 2 at ascertaining stage of experiment**

While analyzing results concerning students' self-evaluation level concerning their readiness to carry on diagnostic screening, no one of students highly estimated his/her skills in such professional field (on a 5-point scale). 80% of experimental group students and 73% of control group students evaluated their readiness as middle, (3-4 points of self-evaluation scale), when 20% of experimental group students and 27% of control group students have a low level of self-evaluation (1-2 points of self-evaluation scale). Self-evaluation chart of students-speech therapists concerning their readiness to carry on diagnostic screening is shown in figure 3.
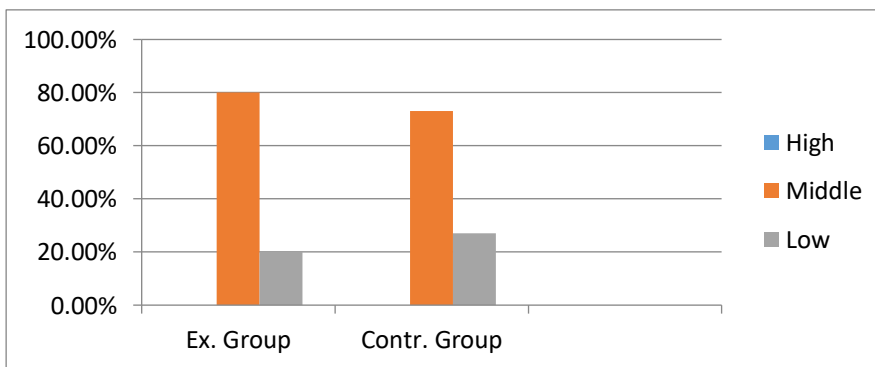
Figure. 3. Self-evaluation chart of students-speech therapists concerning their readiness to carry on diagnostic screening at ascertaining stage of experiment.

During self-evaluation test concerning readiness to carry on diagnostic screening, in their comments students of both groups indicated difficulties of such kind of activity: poor practical experience, theoretical knowledge were never applied to practice, gaps in knowledge, not confidence in applying knowledge, poor practice and so on, which fully corresponds to data acquired by test .

Result analysis of self-evaluation concerning readiness to plan of logopedic activities, selection of content ant training techniques showed that none of control and experimental groups did not highly esteemed his/her skills (5-point self-evaluation scale). 57% of experimental group students and 53% control group students evaluated their self-evaluation as middle (3-4 points of self-evaluation scale, 43 % experimental group students and 47% control group students who had been interviewed, evaluated their readiness to implement correctional-developing work as low. Self-evaluation chart concerning the readiness to plan logopedic activities, selection of content and training techniques is shown in Figure 4.
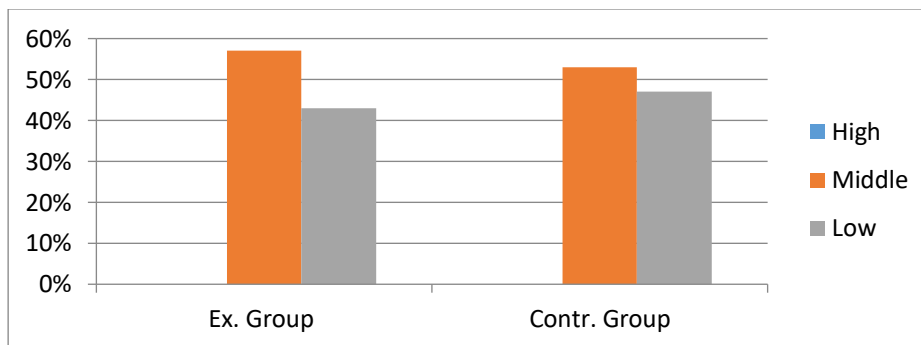
Figure4. Self-evaluation chart concerning the readiness to plan logopedic activities, selection of content and training techniques at ascertaining stage of experiment.

During the process of self-evaluation of correction-developing work conduction skill, experimental and control group students noticed difficulties in defining sequences of logopedic work, troubles in choosing correctional-developing techniques, lack of experience and methodological materials on creation of individual development path of children, insecure about how elaborate correction work plan and so on.

Basically, we can say that baccalaureate students' initial level of competence is uniform in both groups and is characterized by significant gap both in knowledge and skills.

Results of ascertaining experiment underscored that an approbation of interactive didactical resources (e-learning program) for formation skills of future students- speech therapist and making them read to carry on diagnostic and correctional-developing activities with children having speech diseases is needed.

Training stage

Goal of training stage is the approbation of interactive didactic resources (e-learning program) as one of tools for formation of professional competences of teachers-speech therapists.

E-learning program is part of distance learning system Moodle, integrated with C-1 system and webinar platform. Students of university had access to program using account of mobile campus. As they had passed the module "Logopedics", experimental group baccalaureate students were offered to create an individual development path for 3-7-year old children with speech diseases. Student simulated 36 versions of individual development paths for children with speech diseases, which gave a full view of different kinds of dysontogenesis. Then students showed to teacher the path in hard copy.

To students was offered to use video-lectures and presentations available on educational electronic environment of University, where key theoretical and practical questions about program of diagnostic and correctional-developing competences were treated.

E-learning program consisted of 15 tasks. Tasks of program were based on logical sequence of progressive identification of child speech dysontogenesis and choice of educational environment enabling to solve questions concerning pre-school child's development effectively. Students can get the final result of work with program only if they successfully solved all step-by-step tasks about the correlation of psycho-physical age-specific features of children and speech diseases structure, forms of logopedic support and content of correctional-developing cooperation of specialists.

In projecting individual development path for children with speech diseases, the first step is task of forming professional skills in field of diagnostic-advisory activity. Firstly, student chose child age in the range 3-7-year old. Then, he/she had to fix the correlation of age to speech development level (task: choose a report on clinical and pedagogical classification corresponding to age). Right correlation gave baccalaureate students the possibility to solve next task: define the kind of possible speech disease using clinical pedagogical classification (dyslalia, dysarthria, rhinolalia, tachilalia, bradilalia, stuttering, and alalia). This way, an important logical progression of diagnostic competences was lined up: age→ speech development level→ kind of speech diseases, and thus it became a logical skill algorithm for analyzing speech level of children.

In performing following tasks, development of patterns for the creation of a correctional-developing environment for children with speech diseases was carried on. On the basis of collected data on speech development level, speech disease structure, definition of for logopedic activities with children, methodological support for frontal and individual training, areas and content of work for speech correction and development, baccalaureate students chose those specialists invited for implementing an effective correctional-developing work in the frameworks of interdisciplinary collaboration. In performing the tasks of this block, the logical scheme of planning personal-oriented correctional working program with children (the students- speech therapists' professional competence concerning correctional and developing activity to be developed) was elaborated.

Result of students' work were 36 different individual development paths for children, and thus the acquisition of professional competences as a consequence of gradual passage from one competences (knowledge) level to higher (ability, skill) level was confirmed.

Control stage

Analysis of training experiment results made possible to determine the efficacy of interactive didactic resource, e-learning program, to trace the dynamic formation of students' knowledge, skills and

ability in diagnostic and correctional-developing fields. At this goal, a control experiment was been organized, and to the latter were applied the same techniques used during ascertaining experiment. Test processing showed that when answering the question of diagnostic block (Block 1), experimental group students scored 699 points (before training, they scored 470 points), and control group students scored 512 points (before training, they scored 489). Figure 5 exemplifies that, as consequences of training experiment in experimental group the rate of students giving right answers (Block 1, section 1) concerning choice of children's age when speech disease is diagnosed, grew (before training 230 points, and after 293 points) grew. In control group, values for questions of this section of first block no significantly changed (in ascertaining experiment 238 points, in control experiment 242). Questions about correlation of logopedic report to age (Block 1, section 2) did not present difficulties to future speech-therapists of experimental group (170 points before training and 239 after it). Control group results further highlighted dynamic, but it was not so remarkable. (176 and 181 points). Experimental group students dealt with question of third section of first block (Block 1, section 3) better than control group students (in ascertaining experiment 75, in control experiment 89).
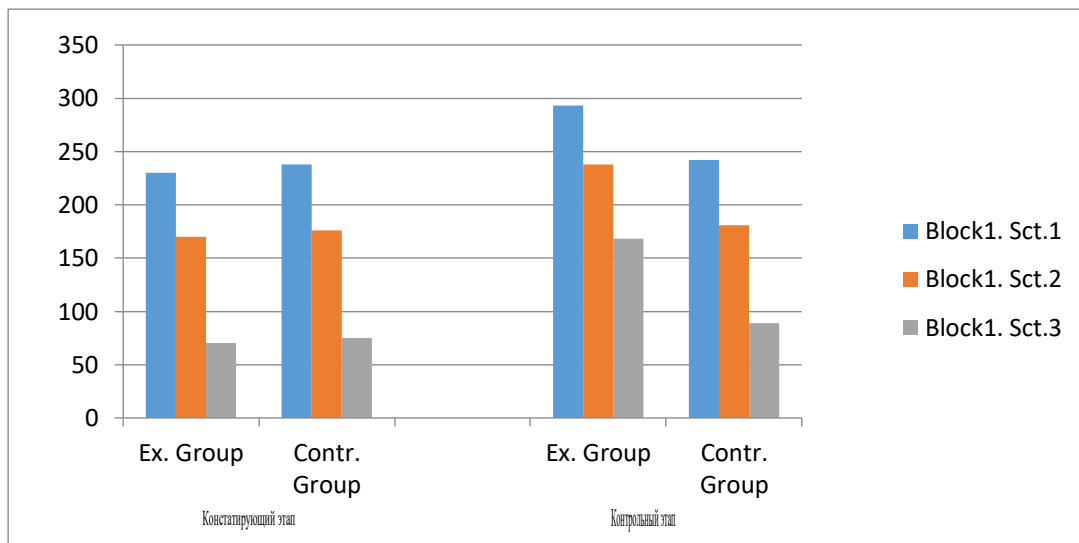
Figure 5. Test results of students concerning question of Block 1 at ascertaining and control stage of experiment.

Also in ascertaining experiment, analysis of Block 2 questions (organization and content of correctional-developing work) pointed out that control group students faced more difficulties in answering than experimental group (Figure 6). Eventually, experimental group students scored 687 points (before training 465), and control students 499 points (in ascertaining experiment 466 points). Answering questions of first section of block 2 (Block 2, section 1) experimental group students performed better than they did during ascertaining experiment (before training 205 point, after training 293). Choice of methodological support for different from of logopedic activities did not cause problems to experimental group students. Also control group students solved the problem, but quantitative results of interviewed control group students were lower (in ascertaining experiment 200 point, when in control experiment 223 point). Experimental group students performed tasks concerning skills for drafting an algorithm for

logopedics activities (Block 2, section 2) more successfully (before training 180 points, after 252 points) that control group students (at ascertaining stage 170, at control stage 183 points). Experimental group students showed a positive trend (before training 80 points and after 142 points) when solved tasks on definition of different versions of team collaboration of specialists working with children having speech diseases (Block 2, section 3). Control group students showed following results 76 points (at ascertaining stage 93 points).
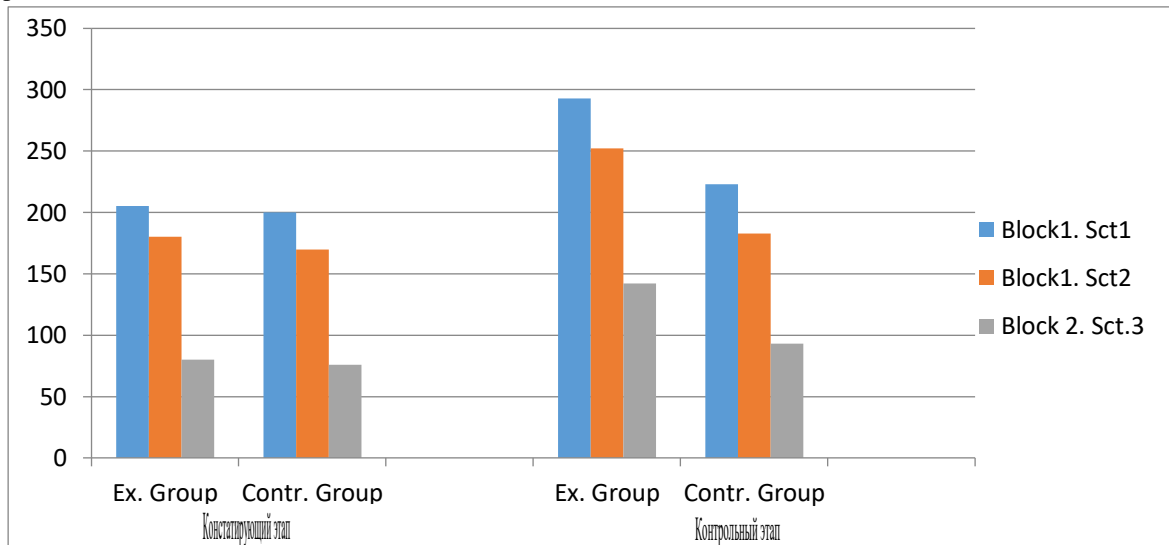

Figure 6. Test results of students concerning question of Block 1 at ascertaining and control stage of experiment.

While analyzing result concerning students' self-evaluation level concerning their readiness to carry on psychological and pedagogical screening and implement logopedic activities, we noticed a positive dynamic in both experimental and control group students' data values. However, after training using e-learning program having task for development of logical professional thinking, development of proficiency, abilities and skills in diagnostic and correctional-developing activities, experimental group students gained confidence in their knowledge, which reflected values of self-evaluation of professional competences. In control group not remarkable changes at level of self-evaluation values were fixed. At level of self-evaluation of future speech-therapists' diagnostic and correctional-developing competences of future speech therapists positive changes happened by comparison with ascertaining experiment results. Nevertheless, in experimental group there were more remarkable changes, as far as number of students with high self-evaluation grew by 25% and number of student with middle estimation level decreased by 10% and low self-estimation level in diagnostic competences decreased by 15%.. Control group results indicated a low dynamic of diagnostic competences self-evaluation. Number of students with high self-evaluation show only a 10% increased, students with middle self-evaluation level are 77% (at ascertaining stage were 73%), when number of students whit low self-evaluation level decreased less than by 14% at ascertaining stage of experiment (Fig.7)
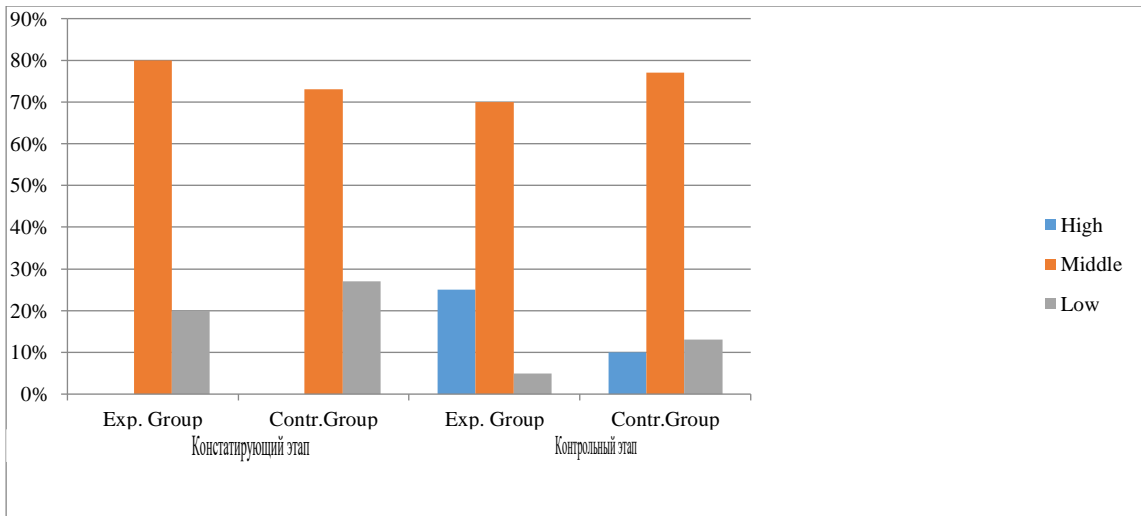
Fig 7. Distribution of students by level of self-evaluation of diagnostic competences formation at ascertaining and control stage of experiment.

It is needed to notice that positive dynamic concerning corrective-developing competentness was been noticed. It is possible to highlight significant changes in experimental group. 23% of students-speech therapists evaluated as high their level of readiness to implement correctional-developing activities with children having with special needs. (Before training 0%), 50% evaluated as middle their level (before training 57%), 27% evaluated as low (before training 43%). Control group students' self-evaluation level grew to a lesser extent. Only 5% of students evaluated self-evaluation level of diagnostic competences formation as high (before training 0%), and by 8% grew the number of students having a middle self-evaluation level and by 13% decreased the number of students with low self-estimation level (Fig.8).
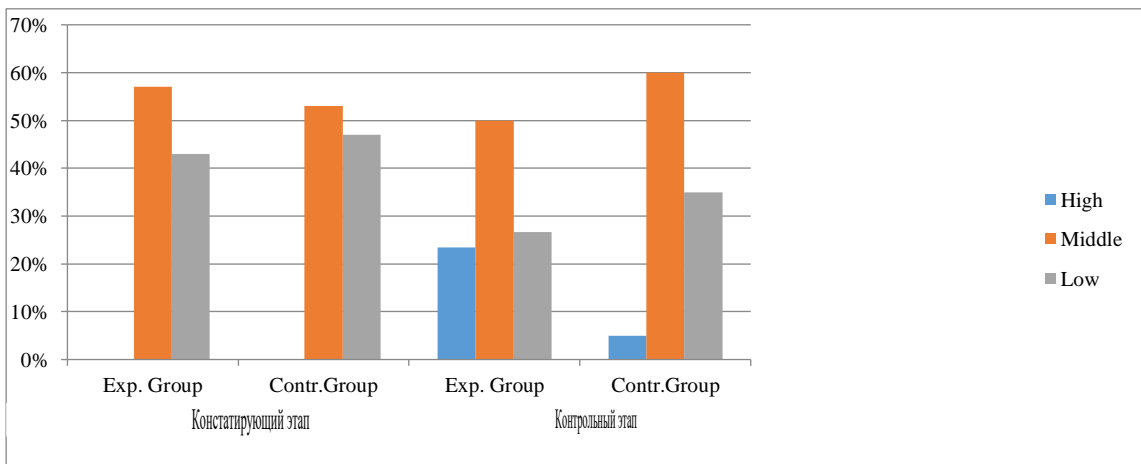
Fig. 8. Distribution of students by level of self-evaluation of correctional-developing competences formation at ascertaining and control stage of experiment

Test data give reason for concluding that the use of e-learning program in formation of key competences for students-speech therapist is efficient.

Discussion issues

Review of psychological and pedagogical literature reveals that there are not enough researches dedicated to using of special electronic resources for formation of professional competences for teachers-speech therapists. Training of modern pedagogue at university is aimed at educating a specialist with a creative personality able to productively use integrated knowledge in practice. It is possible to reach this goal using a competence approach aimed at result of education (Zimnjaja, 2009; Khutorsky, 2013; Dvulichanskaya, 2011; Gilmanshina, 2007) and others. The implementation of a competence model in educational university program is efficient if combining traditional training methods with developed technical innovations. Researches of national and foreign scholars concerning the use of different kinds of electronic instruments while training specialist refer to it.

Review of foreign scholars' researches showed that in competence model for training of specialists high attention is paid to use of electronic resources (Buchan, 2010; Tham & Werner, 2005; Štemberger, 2013), interactive educational techniques (Conole & Oliver, 2002; García-Barriocanal, Sicilia, & Lytras, 2007), digital simulators (Cleland, Scobbie, & Wrench, 2015; Samadi & Conkey, 2018; Bao, Zhang, & Wang, 2015; Lee et al., 2015).

Different versions of interactive training tools for specialists are examined in national scholars' works as well. At this moment, Malofeev, Nikolskaya, & Goncharova (2013) and Nikolskaya (2008) refer to the methodological use of interactive techniques in higher school.   In their works, authors place emphasis on the use in training teachers- speech therapists of electronic library on different cases of child development, visual models of children screening, algorithms of correction activity conduction. Also Kitik (2007) refers to electronic tools in training teacher- speech therapist.

However, as yet there are not researches in the field of elaboration and application of electronic program for professional competences formation in important field for teachers-speech therapist such like diagnostic and correctional-developing. In the logic of university educational progress pedagogical conditions of use of computer techniques when forming key competences based on integrated medical psychological and pedagogical knowledge and step-by-step acquisition by students if forms and methods of logical thinking projecting individual development path of children with speech diseases are not outlined.

Conclusion

Formation of professional competences in important for teachers-speech-therapists diagnostic and correction-developing fields is the main task in training future specialist. Solution of such task involves the use of a competence approach focused on development of a creative personality and improvement of professional knowledge, abilities and skill of future teachers- speech therapists. In connection with serious changes in system of correctional-developing support, junior teachers-speech therapists face difficulties applying to practice knowledge gained in University. Numerous monitoring of employers and interviews to junior specialists refer to them.

Informational-educational environment of University has high potential for developing key competences of future specialists. Combining traditional methods with developed technical innovations

grants higher level of skills and ability mastery. From such standpoints, electronic didactical resources play an important role in training graduate.

Goal of our research is analyzing the efficiency of use of author's electronic program for formation of diagnostic and correctional-developing competences in educational process of teachers-speech therapists.

At the first stage (ascertaining) of experimental research problem areas" at each level of formation (knowledge, skills, abilities) of diagnostic and correctional-developing competences were highlighted and middle and low self-evaluation levels of students' readiness to implement process of logopedic screening and different forms of correctional-developing activities. Obtained data refer to students' difficulties in using interdisciplinary knowledge when answering question, inability to apply logical thinking to analysis of diagnostic and pedagogical situations, difficulties in translating theoretic knowledge in practice.

Results of ascertaining experiment defined content the following (training) stage of experimental work. During training experiment, control of effective use of interactive didactic resources - e-learning programs as one of tools for forming professional competences of teacher-speech therapists was carried out. Content basis of computer program was the algorithm of interdisciplinary tests aimed at development of students' professional skills and abilities in diagnostic and correctional-developing field. Result of progressive performance of tasks, students moved from one competence level (knowledge) to higher levels (skills and abilities).

Control stage of experiment confirmed this trend. When results of ascertaining and control stage were compared, was been proved that level of professional competences formation is higher in experimental group than in control one.

Carried out experimental research gave the possibility to confirm the efficient use of electronic didactic resources in formation of key competences for teachers-speech therapists.

Review of philosophical literature on logics, philosophy of language and cybernetic approach to training gives the possibility to confirm the validity of results of carried out experimental researches, as far as those latter lead to conclusion that ethical and communicative aspects in formation of teachers-speech therapists' professional competences must play an important role while elaborating e-learning programs.

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