

An Experience of the Creation and Approbation of the Learning Course “NIT and TFE” for Future Teachers

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Abstract. The article presents the experience of forming the ICT-competencies of future teachers of elementary school and early education. The course is developed on the Moodle platform for distance education. The course objective is training of future teachers to use ICT in their pedagogical activities, understanding the role of ICT, its opportunities and perspectives for improving educational process.

Keywords. Distance learning, Moodle, ICT-competencies, future teachers of elementary school.

Key Terms. Teaching Process, Teaching Pattern, ICT Tool, Competence Formation Process.

1 Introduction

The tendency of the development of information society, changing the teacher's role from a source of knowledge to facilitator and the approval new state standard of elementary school, which includes Informatics as required course for all pupils starting from the second year led to increasing the priority of the course “New information technologies and technical facilities of education” (NIT and TFE) for professional training of future elementary school teachers.

Now lecturers of this course observe such tendency: students use the ICT more often and have better skills of working with different applications. The data, got from the entrance survey, have confirmed it. Really, there is no sense to repeat the school course of Informatics: 89% of students have their own computer or laptop; 70% of respondents have free access to the Internet outside university; 78% of students have stated they are skilled in using Office programs, Internet, printers, scanners; 51% of respondents have experience of self-reliant learning of software. 49% of students feel comfort and enjoy working at the computer, 33% – feel assurance. So, there is a need to move accent from the learning “buttons” in Informatics to understanding ICT creative potential for teaching and applying it in future pedagogical activities.

It had identified a need to research changes of goals and assignment, content, methods and forms of teaching this course, peculiarities of its realization and analysis of received results.

2 The Essence of the Research

The course “NIT and TFE” is a single discipline in computer sciences in the curriculum for undergraduate students of specialty “Primary education”, except students studying at specialization “Basics of Informatics”. The course “NIT and TFE” is a base for studying the discipline “New information technologies in preschool education” (8 hours of lectures and 12 hours of practical lessons) for undergraduate students of the specialty “Preschool education”. The overall objective of these disciplines is training of future teachers to use ICT in their pedagogical activities, understanding the role of ICT, its opportunities and perspectives for improving educational process.

The objective of the course implemented such educational and training tasks:

- to uncover the importance of role, opportunities and perspectives of the ICT in preschool and elementary education, train the skills of studying with the ICT and reasonable using these technologies in future professional activities;
- to familiarize the students with the basic facilities and methods of the modern information technologies, their theoretical and technical basis;
- to give to the students knowledge, abilities and skills, which let them learn and develop independently having in mind the effectiveness of using ICT in their future professional work;
- to organize students’ creative activities in making their own computer programs for teaching;
- to give an opportunity to each student to realize his educational trajectory in a way of differentiation and increasing the quantity of creative tasks;
- to encourage students to make a collection of e-resources for learning;
- to form the basics of information culture of the students.

The importance of the educational and training tasks listed above requires a priority status of this and similar discipline in the curriculum of pedagogical specialties. In our opinion, it would be reasonable to extend this course and add a lot of academic hours at the expense of variation part of the curriculum. For example, at the Department of Preschool and Elementary Education of Kherson State University (DPEE and ES KSU) there is only 18 academic hours for work in auditorium: 4 hours for lectures and 14 hours for practical lessons, while the quantity of time for independent work is 36 hours. It requires making clear tasks, forms and terms of the students’ work. It was confirmed by the results of final poll in which fair quantity of students had expressed an opinion to add a lot of academic hours and extend this course.

The actual level of the development of Internet-services lets an educator write an electronic summary (e.g. in form of presentation), regularly change content without any expenses for re-edition. Students can use such electronic resources in any time, if they pass a lesson or wish to revise the material. Students can get distance

recommendations from the educator or other students about different questions concerning their tasks. Students can also load the files with an executed work to the site for control. Students have the opportunity to evaluate the course and a quality of its teaching and in this way the administration can perform monitoring. This type of organization of studying has already become a standard in many leading universities all over the world.

The course described above satisfies all these norms and the Moodle platform for distant learning helps even the beginner to realize it conveniently and easy (see <http://ksuonline.ksu.ks.ua>).

Let us describe the course in detail.

The main webpage visualizes a structure of the course; it consists of the annotation to it and the blocks with hyperlinks to the each topic. The course contains an entrance poll and testing, they help to learn about the audience better, identify the level of residual knowledge of Informatics of the educators that gives an opportunity to optimize future educational process. According to the results of the entrance test students are subdivided in two levels of difficulty of the tasks: intermediate Level A and advanced Level B. The course includes also a final poll. Despite the fact the students spend a lot of time at the computer, they use it mainly for entertainments. So the level of residual knowledge of the school Informatics course is low and 79% of students studied at level A, respectively 21% performed the tasks of level B. The latter level we proposed to the students, which showed high results of entrance test: a quantity of right answers had to amount more than 75 %.

The content of lectures includes the basic definitions of ICT, approaches to using ICT in education and classification of pedagogical software, new tendencies as Web 2.0 and so on. Theoretical part of the course also contains modern requirements of elementary teacher's ICT-competency. The priority of the course is its professional focus, so content of lectures includes the important questions such as peculiarities and approaches to using ICT, sanitary and hygienic norms of working at the computer in kindergartens and elementary schools, recommendations for choosing pedagogical software.

We formulated the following requirements to the practical tasks for students on the ground of methodological literature analysis:

1. Using ICT in the educational process, on the one hand, facilitates to the systematization of student's knowledge in this sphere, on the other hand, reduces the level of creative activities. Therefore, the need to increase amount of creative tasks appears to be the compensation for such ICT influence.
2. Tasks should be directed to the forming self-education skills that is one of the factors of the further professional development.
3. Tasks should raise internal motivation for education, particularly for studying opportunities of using ICT in the future teaching practice.
4. Tasks should be oriented to the future professional activities.
5. Tasks should form understanding of modern tendencies of the ICT development and using it in the educational process.

Practical tasks are structured in four blocks: "Information and communications", "Creating and using an educational presentation", "Text documents for a teacher", "Using of Excel program in pedagogical practice" and distinguished between two levels: intermediate Level A and advanced Level B. Students are subdivided on two

groups according to the results of the entrance test (see Table 1). We consider starting of the course with the topic “Information and communications” to be principally important, because not every student has an experience of distance learning and unfortunately a lot of students even don’t have e-mail or don’t use it. Therefore, we had to teach students to use the Moodle platform for distant learning and give tutor’s consultations in a case of difficulties or technical problems with electronic correspondence.

Table 1. The plan of the course “NIT and TFE”.

The academic hours	Theme blocks	Auditorium tasks			Independent work	
		The content of the tasks		The forms of control	Content of the tasks	The forms of control
		A (intermediate)	B (advanced)			
2/1	Information and communications	Search of the information on the theme: “Educational programs for children”, adding the web-pages to the “Favourite”, filling the table following the example for 5 sites.	Creating the site by the tools of Google sites, filling the main page and the page of the useful recourses (minimum 5).	Loading the file to the site. The hyperlink to the blog on the educator’s e-mail box.	The acquaintance with the rules of network etiquette. Formulating 5-10 rules of using the Internet for children of primary school age.	The answers in a text form.
2/2		Forums and polls. Searching the forums of the professional themes, registration and participation in one of them. Creating a poll.	Creating the poll on the free service and allocation it on the own site.	The hyperlink to the site on the educator’s e-mail box.	The acquaintance with the document “ICT competency standards for teachers”.	Test on KSU Online. Loading the file to the site.
2/5	Creating and using an educational presentation	Producing “diapositive” tale with music support	Creating an interactive visual aid.	Loading the file to the site.	The acquaintance with the document “Design of educational products in MS PowerPoint”. Making test with triggers.	Loading the file to the site.
2/4		Creating didactical game with the hyperlinks.	Creating didactical game with the triggers.	Loading the file to the site.	Making the design of all presentations.	Loading the file to the site.

The academic hours	Theme blocks	Auditorium tasks			Independent work	
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2/2	Text documents for a teacher	Making the letter of commendation by merging the documents.	Creating labels for a student's exercise book.	Loading the file to the site.	The "It would be interesting to know"	Loading the file to the site.
2/1	Excel program in pedagogical	Statistical data analysis using MS Excel.	Statistical data using MS Excel.	Loading the file to the site.	Drawing the graphics and diagrams.	Loading the file to the site.
2	Final lesson	"Children and the computer": search of information, statistical data, its graphic presentation in MS PowerPoint.		Loading the file to the site.		Final complex test. Test. Conclusive poll.

Among practical tasks there are such ones as creating and editing a site by the tools of Google Sites, filling its informational content; communicating in a blog or forum on the professional topics; producing "diapositive" tale with music support; creating interactive visual aids and didactical games by means of MS PowerPoint; creating labels for student's exercise book; making letter of commendation by merging documents in MS Word; statistical data analysis using MS Excel etc.

We've got interesting results of anonymous final students' poll. They noticed that the most difficult creative tasks are the most attractive and useful for them. The data showed 64 % of respondents answering the question "What task was the most difficult one?" chose following answers: "Creating a didactical game with the hyperlinks", "Making test with triggers", "Producing "diapositive" tale". As an answer to the question "What task do you consider to be the most useful for you?" 79% of students have selected variants "Producing "diapositive" tale", "Creating a didactical game with hyperlinks", "Making letter of commendation by merging the documents". About 67% of students gave the following answers: "Producing "diapositive" tale", "Creating a didactical game with hyperlinks", "Making the poster "It would be interesting to know", "Make letter of commendation by merging the documents" on the question "What of the tasks did arouse the greatest interest?"

We have to mention that statistic data presented earlier characterize answers of students, who studied at Level A (79% of the whole group). Approximately such statistical data describe poll's results in the group of Level B.

The practical tasks have typical structure: a title, an objective, necessary software, criterion of assessment, examples of executed task, step-by-step instruction with illustrations. Also we have submitted video-lessons and put hyperlinks to subsidiary web-resources as collateral relief. Observing the network etiquette was the important requirement to the students' work.

Everyone can review the best students' works on the site "Virtual gallery of creative multimedia works of DPEE KSU students"

<https://sites.google.com/site/museumfdpo>, which shows the real example of using free internet services in educational aims.

Among the most original products in gallery we wish to grant next works of our students: “In the vegetable garden” (Irina Govrishchenko), “The games” (Tetyana Kydrevs’ka) and “Compare numbers!” (Svitlana Shrub).

This site motivates students to the higher quality of creating multimedia educational products and cultivates respective attitude to the copyright. Furthermore, the students’ participation in creating of the open collection of multimedia projects promotes further collaboration, exchange of experience among other teachers in future.

Tasks for independent work are not differentiated and do not require a high level skills of ICT using, directed to the generalization and deepening Informatics knowledge, understanding of the role and opportunity of using ICT in future professional activities. Students have the considerable quantity of time (36 hour) for the independent work that predetermined its clear organization (statement or problem, forms of control, execution terms etc.). Moodle Platform provides a possibility for an educator to regulate the time for execution of the tasks (for example, an access to the function “loading files” will be closed for students after the deadline).

It is well known that principle “effort here and now, but result – later” reduces the motivation. Therefore it’s important that all tasks should be checked and marked before the next lesson and if students get some educator’s comments or recommendations, they can improve their product and, naturally, get a better mark. Students submit a result of their work in form determined previously by educator like “submit file on the site”, “send hyperlink to tutor’s e-mail”, “test on the site” and etc.

The authors added a section “Recourses for You” as extra support for students, which contain the presentations of lectures, “Useful resources” – structured collating of Internet-resources, “Main definitions” (glossary). ‘Guide of algorithms’ contains instructions illustrating some operation of using MS Office. Such reference books decrease the task description, because elements of algorithms are not duplicated. The structure of such tasks is convenient both for “weak” and for “experienced” software users: it gives step-by-step illustrated instructions for the first ones, and it does not draw the advanced users’ attention to unnecessary detailed description that let them move quickly and independently.

The final block of the web-page helps an educator to organize the last lesson that includes complex task (55 minutes) and final test (20 minutes). Students must show skills of using as a minimum three of four program tools considered on the practical lessons and abilities to search and analyze information, identify a problem question, well-reasoned presentation of certain point of view and graphic visualization of data, particularly statistical. So we decided to choose sufficiently broad a general theme of the final task – “Children and computers”.

The aim of the final test is to check the main learnt statements of the lecture material. Test includes questions of different form with different quantities of the right answers. Every student has only one attempt to take the test.

The aim of the conclusive poll is to detect the level of student’s satisfaction by quality of methodical support of the course, to reveal the most interesting and useful topics for them, to identify new strategies of improving the course.

Thereby, developed course “NIT and TFE” fully corresponds to the actual level of educational process organization at the universities. The course can be “disseminated” at other educational institutions without attracting the authors of this course to teaching and organization lessons. At the same time, the electronic form of this course is open for modification and improvement.

3 Results

According to the schedule of KSU working in 2011–2012 academic year this discipline had been teaching in period from the 1st of September to the 29th of December for third year students of the Department of Preschool and Elementary Education. Generally, during the period 109 students finished this course.

The results of final poll are evidence of students’ understanding the role of ICT in future professional activities. So, on the question “Do you consider the skills of working at the computer to be an integral part of your teacher’s activity?” 47% students gave an answer “Yes” and 42% – “Likely yes than no”.

Students have estimated the quality of the course materials “NIT and TFE” as 9.29 (arithmetical mean) from 10 and novelty of lectures’ information for them – 7.59 respectively, practical tasks – 7.64 according to the ten-point system.

The students described their emotional state during studying course “NIT and TFE” like the following: 42% of them felt interest, 17% –enthusiasm, 12% – astonishment, 8% –pride, 8% –joy, 6% –anxiety, 4% –terribly and 2% –happiness.

Consequently, the approbation has confirmed positive results of our work.

As for further improvement of substantive component of the course we can also follow the student’s wishes expressed in conclusive poll. Summarizing students’ replies the future course may include studying of other different software (for example, MS Publisher, MS Project, Adobe Photoshop, MS Access etc.) and studying programs as MS PowerPoint (triggers), MS Word, MS Excel, using Internet, creating sites etc. more detailed for using them at school. Also students mentioned a wish to study methods of ICT using in professional activities and a need to add the hours of auditorium lessons.

4 Conclusions

Detailed and clear structure of the course is useful for supporting equal conditions and criterions (ruling “double standards” out) and makes the process of estimation of students’ academic achievements independent from the educator. We want to note, that such organization of pedagogical process “disciplines” both students and tutors: requires their regular attention and higher level of activity. Students note when they had problems, they got help from a lecturer during the lesson – 54% and during the individual consultations – 9% (10% of students didn’t have any difficulties at all and 25% got a help from their colleagues).

The participation of students in this project has become the factor of enriching their experience of effective ICT using in education. Such system makes possible for a

student to act as a subject of the educational process: it also influences on the further improving the course and through the poll takes part in estimation of developers' and educators' work.

Moodle distance learning platform makes it possible to present the course visualized and structured. It makes the educators' work highly organized and "transparent". The potential of Moodle led to the general positive student's attitude to the course, particularly, because students can make some tasks distantly. The experience of development of this course by means of Moodle is useful for educators of any other discipline as well.

One of the aims of the article is to present the experience of forming the ICT-competencies of future teachers of elementary school and early education. So, we hope to get feedback relative to advantages and short comings of our approach.

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