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Professional Culture of the Specialist of the Future

FORMING GENERAL PROFESSIONAL COMPETENCE AMONG UNIVERSITY STUDENTS BY MEANS OF POLY TECHNOLOGY

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Abstract

Poly technology, located on the Google+ platform, was chosen to create a virtual learning environment for the "Foreign Language: Basic Course" training course, in particular, in the aspect of preparing student projects, in view of its interactivity and as one of the possible tools for forming general professional competence among university students. Poly technology allows you to structure the independent activities of students (the bachelor's level) and also monitor it. In particular, the teacher can track the fulfillment of the student's study assignments, directing and / or commenting on their educational activities. Particular attention is paid to the general characteristics of Poly technology, located on the Google+ platform, showing its advantages and disadvantages. After completing the course, a survey of students to find out their assessment of the course on the Google+ platform using Poly technology showed a high degree of satisfaction with educational opportunities on the Google+ platform and with their academic results.

1. Introduction

At present, there is a need for constant improvement of the professional level, mastering of new achievements by students. The processes of globalization lead organizations to the fact that the importance of information exchange in different training fields is intensified through its distribution among working groups that cannot interact face to face, disseminating educational information through time, distance, educational organizations by means of information and computer technologies.

The use of information technologies in modern education is not only expedient but also pressing and will allow the teaching staff to meet one of the goals set for university lecturers - the preparation of a diversified personality. Unlike traditional technical means of education, information technologies allow not only giving students a large amount of knowledge, but also developing their intellectual and creative abilities, teaching them to independently acquire new knowledge, working with various sources of information. In the federal state educational standards of higher professional education of the new generation, the requirements for the graduate are presented in the form of competencies expressed in the ability of the graduate to perform certain professional functions. The issues of formation of competences among students are dealt with in the works of Almazova (Almazova, Baranova, & Khalyapina, 2017), Zemlinskaya (Zemlinskaya, 2012), Khalyapina (Khalyapina, 2014), Odinokaya (Odinokaya, 2016; Odinokaya, Zhigadlo, & Petrov, 2018), Popova (Popova, Almazova, Khalyapina, & Tretyakova, 2017), Zhigadlo (Zhigadlo & Odinokaya 2017) and others. Among the foreign authors treating this issue, we note Amadio (Amadio, 2013), Hürsen (Hürsen et al., 2011), Benito-Osorio (Benito-Osorio, Peris-Ortiz, Armengot, & Colino, 2013), Illeris (Illeris, 2012), Lambrechts (Lambrechts, Mulà, Ceulemans, Molderez, & Gaeremynck, 2013), Pepper (Pepper, 2011), Van der Velden (Van der Velden & Allen, 2011), Wagenaar (Wagenaar, 2014) and others.

2. Problem Statement

For graduates of technical directions of higher education (bachelor's degree) in the approved GEF 3 ++ among the general professional competences, one can note the competence - information and communication technologies for professional activity, which is expressed in the student's ability to solve standard tasks of professional activity on the basis of information culture using information and communication technologies, including the domestic manufacturer's software, taking into account the basic requirements of information security Nost.

To date, in the study of the discipline "Foreign Language: Basic Course", the need to use information and communication technologies for solving standard problems of professional activity is underlined. So, to do a test, you should get a positive evaluation for each of the types of work: a test (test) after each lesson (themes: Personality, Travel, Work, Language) (is the leading teacher); monological utterance on one of the topics studied (Personality, Travel, Work, Language); written work in accordance with lesson by lesson syllabus; home reading; work on the distance learning course (http://dl-hum.spbstu.ru/enrol/index.php?id=197 "English language, basic course, level B "; intermediate test; final test, and also, design work.

Currently, there is a vast number of programs for the implementation of project activities. Despite the fact that students prepare educational projects, the issue of choosing a tool for preparing a training

project using the potential of new information and communication technologies remains open. In this regard, the issue of developing and applying information and communication technologies in educational practice that allow one to effectively resolve this issue becomes particularly topical.

3. Research Issues

We decided to investigate to what degree Poly technology will prove to be a useful tool for preparing students' academic projects. Also, the paper considers the methodological potential of Poly technology, located on the Google+ platform, in teaching foreign language to students of non-linguistic areas of training, in particular, to review its characteristics, as well as to identify its advantages and disadvantages.

Poly platform is not the only online resource available to students. One can easily find alternatives which might be better in some regards. So why should we use Poly? The main reason is that Poly is profoundly integrated into the Google software which makes it more convenient to work with this platform. Secondly Google has got a wider computer audience which is important for applications aimed at community work. The wider audience is the more interactive resources they post online for further shared work.

4. Purpose of the Study

Poly technology, located on the Google+ platform, was chosen to create a virtual learning environment for the "Foreign Language: Basic Course" training course, in particular, in the aspect of preparing student projects. The purpose of the study is to determine the degree of student satisfaction with the educational capabilities of Poly technology, located on the Google+ platform, as well as their academic results in the curriculum discipline "Foreign Language: Basic Course."

5. Research Methods

Poly is an interactive website created by Google with the help of which any user can download, share, have access, and also create their own three D models that are freely available for use in educational projects, thus contributing to the manifestation of inventiveness among students and give students the opportunity to use community models and make them their own ones in Paint 3D or simply view and interact with three-dimensional selected content in one place. Remix 3D is a creative community for all students.

An asset is free 3D models or scenes created using Tilt Brush, Blocks, or any free 3D program that produces a file that can be uploaded to Poly. Many assets are licensed under the CC BY license, which means developers can use them in the apps, free of charge, as long as the user is given credit. There are thousands of assets available for use at poly.google.com. A student does not need a Google account to access.

By enabling organizations to use the Poly API in their own systems, Google offers a seamless experience to 3D virtual / augmented reality developers, boosts their productivity and sets the ground for a strong and growing ecosystem. Poly features a free online library containing thousands of free 3D objects or scenes for use in virtual reality and augmented reality applications. Students have the

opportunity to search the free 3D models in the OBJ file format. Most models can be remixed using Tilt Brush and Google Blocks. Poly free 3D objects or scenes can be viewed using Google Cardboard or Daydream View. Students can also take part in the creation of simple animated GIFs of the objects or scenes available for downloading. Whether a student is creating an intense space walk in VR or a serene garden of AR flowers, he will find the ingredients he needs in Poly.

6. Findings

The main feature of Poly technology is that students in one place create and edit web content directly using the browser. Students noted the positive impact of Poly technology on learning. In particular, the formation of competencies related to finding information, improving personal ways of thinking was recorded. As a positive value for the learning process, most of the participants in the experiment noted the value of Poly technology for acquiring specific skills, expressing their thoughts, opinions and expanding their areas of interest. Students mark that it is so natural to work with Poly technology. They observe that working with Poly technology is challenging.

There are some features that still require some upgrade on Poly. In particular, sometimes students' model automatically rotates in an unusual direction. When a model is uploaded as an OBJ file format, an orientation in space is sometimes wrong, which leads to an unusual rotation around the model. In order to fix this, a student can use the straighten tool on the right and use the arrows to position the model. However, this straighten tool is only available for OBJ uploads.

There are some issues that are related to image overlay file size. It was recommended to make sure students' images were not too big. It was necessary to edit them down in the dimension. Some individual photo can stop the process. There is a mega pixel limit. We suggest considering the technology of work at each stage. Working with Poly technology supposes the existence of conditionally allocated three stages, successively replacing each other in the educational process.

I. Installation stage. The main task of this stage is the conscious choice of the topic for presentation. Students are encouraged to first select the subject of the training unit (one of the four training units), and then, within the student's chosen unit, select one of the five topics for the curriculum. The choice of this or that topic can be viewed as an image reflecting the student's values. This stage involves interaction with both the teacher and the students of the group. Students can carry out the project for one person, alone or in pairs. A greater number of co-workers, as a rule, can lead to a decrease in the quality of the project work. A compelling task is to get acquainted with the possibilities of Poly technology.

Before they start their educational work with Poly technology students are surveyed, in particular, to reveal the degree of students' acquaintance with interactive technologies. This diagnosis uncovers the already existing knowledge and skills of students related to the application of information and communication technologies in their educational activities in a technical university, in particular, when learning a foreign language. The diagnostics carried out by us allowed us to further compare the results of studies at the end of the training course. The goal of introducing Poly technology is to arouse interest in its learning opportunities and use it as one of the tools for preparing training projects. The first methodological step is to familiarize students with the possibilities of using Poly technology as a tool for

creating an educational project. The next theoretical step is to get acquainted with the key characteristics of Poly technology. To master this technology, an explanatory-illustrative method and work with educational information are used. Students need to use the vocabulary for the selected unit in the training project. Particular attention is paid to the use of elements of the research method in the selection of educational information used in the project work, especially literature, on the student's chosen topic.

At the beginning of the project work the students are brainstorming, during which they offer to answer several questions about the project topic to their fellow students, then further project work is carried out. The final step of this stage is the presentation of different points of view of students on the selected academic topic and its discussion during the debate and the use of Poly technology. It is supposed to analyze own experience of Poly technology use by students from other groups, and in the further prospect to compare it with their own experience.

II. Experimental work. To ensure productivity and independence, you need to acquire the knowledge and skills related to Poly technology, you need to organize the experience with its use. The focus of this stage is the creation of such examples of student work as a product in the form of a 3D presentation, performed with its own thoughtful content and use, subject to learning the vocabulary. At this stage, the teacher helps them to overcome the difficulties that students may encounter when working with Poly technology, contributing to the formation of competence - information and communication technologies for professional activities, which is expressed in the student's ability to solve standard tasks of professional activity based on information culture using information and communication technologies.

III. The final stage. At this stage, it is advisable to evaluate the quality of the executed design work using Poly technology and summarize: whether opinions were unanimous or differed, summarize the results of consideration of this issue. Especially, in our opinion, it is productive at this stage to present the views of contemporary scholars conducting research into these areas and identifying the current state of the issues under study. Also, issues of relevance are discussed, need and timely application of technologies such as Poly. Pedagogical diagnostics of the learning outcomes involved the measurement of the following parameters: organization, content, language, delivery, body language, visual aids. Students are invited to answer questions on the questionnaire. Now we are calculating the scores and comparing the results in the group. Students are asked to determine the result obtained from the point of view of the participants in the events and their own. The results of polling are brought to the attention of the students. Awareness of own results can contribute to the creation of the basis for further productive and favorable work with Poly technology, as well as the development of other information and communication technologies similar in their characteristics. At the end of this stage, students are invited to compare the study material with their own experience in presenting the project work. The form of this task can be presented in the form of essays, letters, etc.

The presented Poly technology was tested during the experimental work at St. Petersburg Polytechnic University of Peter the Great in 2018. The study involved 47 students. Pre-experimental questioning showed that almost all students assess the familiarization with various information and communication technologies as giving new opportunities rather than threatening. The respondents were asked to determine their preferences in relation to the use of various types of information and communication technologies and to assess their most important characteristics from their point of view, in

particular, for the presence of their qualities, which makes it possible to carry out an educational project and it is psychologically pleasant to work with. In the course of the study, a number of characteristics were identified that characterize the attitude of students towards information and communication technologies.

Thus, 83% of respondents prefer to work with information and communication technologies, which have an intuitive interface. All students - 100% noted the need for joint work when working with this resource. The basis of this preference is the similarity of values, interests, the pooling of material and technical resources.

Evaluation of the efficiency of Poly technology was made by comparing the pre-experimental and post-experimental surveys. The results of postexperimental testing showed that the evaluation of the use of Poly technology in the educational process was distributed in equal proportions among the respondents - half of the respondents expressed a preference for its further use, half of respondents believe that similar technologies can be used. The obtained results prove the effectiveness of Poly technology for promoting the formation of general professional competence among university students.

7.   Conclusion

In conclusion, we will sum up the results and denote the main results in the context of the discussed problems. Firstly, we note that the use of Poly technology contributes to the manifestation of interest in the academic topics of the discipline under study, in particular, the discipline "Foreign Language: Basic Course." In the meantime, we note that the use of Poly technology promotes the development of students' ability to work independently both in classroom and off-class hours, to implement joint work in practice, and also to increase the motivation to learn a foreign language.

Secondly, the Poly platform encourages team work as it allows users to upload their images for further processing by others. This quality can be applied to teaching foreign languages as well, especially in terms of studying vocabulary in a more exciting way. For instance, one student uploads a 3D image of a house (or any other object under study). All group members should list all possible parts of this object. On doing that the group places the house against the background of other object or objects. The task for the other group will be to list the components of these objects. This is where the valuable quality of the Poly comes to the front. All users can see how many times the original object was used in other images. Thus, when it comes to revision all these sets of compiled images can be used for checking the vocabulary, which will differ from traditional methods of testing vocabulary. We recommend using Poly technology along with traditional methods of pedagogy. Finally, by training future engineers with Poly technology, we go in advance for education materials and technologies in the teaching and learning process, updating the methodologies of foreign language, in particular, English and enrich the field of study. There is a need to provide ways of further planning, designing, producing and integrating Poly technology into language learning and vocabulary study. Moreover, it is a real opportunity to increase the productivity of teaching due to a possibility of ensuring constant updating of educational material. It should be emphasized that the results of this research must remain in focus of researchers. They must support and direct further studies in this field, putting researchers on the right track. The results totally proved the hypothesis.

Summarizing all the above, it can be said that at the beginning of the third millenium, information and communication technologies are built on the basis of the world wide web and can look like a "vast sea" of planet-scale "knowledge" represented in a special way. Both a teacher and a student face a challenge to raft in this vast sea. A teacher should obtain essential information on any particular subject area of Poly technology that later should lead to expanding the field of the unknown. We can conclude that Poly can be used both for global tasks (such as project work) and particular ones (such as memorising and checking words). Moreover, particular tasks can be assigned to students as a preliminary stage for a big scale task. Poly technology can come handy every time there is a need for a more creative and various academic environment. In order to achieve competence, it is essential for a student to be aware of information and communication technologies, in particular, Poly technology. Besides, teachers start realizing how significant and appropriate they are and how they can achieve desirable students' outcomes. Today, it turns out, that, teachers definitely seem to be interested in suggesting students a choice of educational technologies. It can lead to developing such skills as observation, awareness and flexibility that are so necessary in present-day co-environment. It is extremely important not be afraid of arising challengers of applying knowledge to practice. Students' willing to further develop and enhance their competences, helps to achieve productive students' outcomes. From our point of view, in the framework of modern pedagogical science, Poly technology is not only an interesting tool for human communication but it is also a tool of innovative searchers of didacts. The statistical data obtained from a questionnaire survey of future engineers before and after digest, confirm the provisions stated in the article. Based on the material studied, Poly technology can be organically extended to educational practice. At the same time, we should note that it would be desirable to get concentrated on country-specific interest field and overcome the limitations of the present study. It can be also stated that further studying of the analyzed topic plays an important practical role for the revealing other elements of Poly technology and their usage in teaching area.

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