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Gareyev A. A.

Kalashnikov Izhevsk State Technical University, Izhevsk, Russia

DEVELOPING A MODEL FOR TECHNICAL UNIVERSITY UNDERGRADUATES' SELF-LEARNING WITH THE HELP OF PROFESSION-ORIENTED BLOGGING

As the number of teaching hours allocated to language learning in technical universities is being reduced, there is a need for a more efficient use of time spent by students on independent work. This paper states that the use of ICT (Information and Communication Technologies), especially of blogs which have an educational potential in terms of organizing independent work of students, is underestimated in research and educational literature.

The purpose of the article is to present and describe a pedagogical model for organizing independent self-learning work of technical university undergraduates, which is based on their profession-oriented blogging in English. The paper gives a brief description of the model and the approaches used to implement it. It also indicates the criteria developed specifically for evaluating students' blogs. The model was tested in Kalashnikov Izhevsk State Technical University as a part of teaching experiment.

The experiment results demonstrate a high level of the students' professional language competence which confirms the effectiveness of the presented model. Moreover, it has been proven that students can keep blogs independently, without teachers' guidance; as they are well familiar with the general rules of creating web pages in social networks and can easily start a profession-oriented blog in English.

Key words: blogging, teaching model, self-learning, technical university, language training.

About the author: **Gareyev Andrei Alexandrovich**, Post-Graduate Student, Assistant Lecturer of the English Department, Kalashnikov Izhevsk State Technical University (Izhevsk, Russia); e-mail: andrei.gareeff@yandex.ru, ORCID ID 0000-0002-4969-1012.

Introduction

Given that the number of English classes in a non-linguistic university is limited (two academic hours per week is a norm), more attention should be given to the organization of undergraduates' self-learning. However, a mere increase in the amount of students' self-guided work does not bring positive results [1]. Therefore, there is a need for new educational technologies. First of all, a successful integration of classroom and out-of-class students' work requires that a teacher should solve a number of problems. They are as follows:

- ensuring *regular completion of the homework*;
- keeping students *motivation sufficiently high to allow them* to perform their independent work throughout the whole English language course;
- organizing *an educational environment* in which the students can create an educational product as a result of their self-work.

These problems require serious consideration. The majority of students are keen on using ICT such as mobile applications and social networks. The students' willingness to resort to ICT may be of great help when dealing with foreign language learning. One of the most underestimated ICTs in education is blogging. The activities students perform when blogging are essentially the same as those they perform when they have a social media page, which is something most students do on a daily basis. For this reason blogging can be viewed as a perfect tool for solving the three aforementioned problems. If the students manage to choose a topic for blogging that they are good at, it increases their motivation to write posts regularly throughout the course. The most well known blogging platforms have a built-in "comment" feature that allows creating a linguistic educational environment and stimulates communication among the bloggers.

Many scholars (J. Bloch, J. D. Betts, S. J. Glogoff, T. Hourigan, L. Murray, etc.) point out that blogging can be used in facilitating language learning and teaching, the development of writing skills as well as creative and critical thinking. However, blogs are not used in independent students' work, even though their educational potential in this respect is enormous. As G. J. Baxter et al. claim in [2], no pedagogical models have been developed that incorporate Web 2.0 tools, particularly blogs, in students' self-learning activity. Hence, this paper discusses the development of a teaching model that includes professionally-oriented students' blogging in English. The developed model was tested during a pedagogical experiment in which each student from the experimental group was asked to start a profession-oriented blog in English and make a presentation of his or her findings at the end of the course. The topic of each blog was chosen by the students on the condition that it was directly related to their field of study and complied with the curriculum.

1. Methodology of the Research

Although blogging can be used to improve different educational aspects, here only those related to foreign language learning are discussed. The first section of the paper covers some of the research on using blogs in language learning. The second section presents the model for independent students' profession-oriented blogging based on the findings related to the application of ICT to the development of professional language competences.

1.1. Blogs in Foreign Language Learning

When thinking about some possible tools that could solve the issues of regular homework completion, enhancing motivation and creating an educational product, information and communication technologies are what comes to mind first. Talking about the importance of ICT and computer-aided technologies, A. Alm suggests that their advantage is that they focus on learners' inner motivation and are able to support a basic student's need for learning, that they support learners' desire to be efficient in any activity they perform [3].

We believe that a blog is an ICT tool that has an enormous educational potential and is universal in application. A blog is essentially a website comprising a number of chronologically arranged entries with an option of leaving comments to these entries. The communication through websites and blogs is not new for today's generation of students due to their active use of social networks. Keeping a blog on a regular basis does not differ much from keeping a social media profile page. However, when the goal of keeping a webpage shifts from entertainment or self-promotion into learning, the methodology of this task changes dramatically [4].

The benefits of students' blogging are limitless. J. Bloch in his study demonstrates how blogging allows students to elaborate their own writing style and develop a sense of relatedness to a social group overcoming the feeling of being isolated from society [5]. T. Hourigan and L. Murray in their study show how blogging can be used to develop students' creative and critical thinking [6]. Other studies show how blogging facilitates language teaching and learning in virtual and hybrid learning environments [6, 7], how it helps the understanding of a language's complexity, fluency and grammatical correctness [8, 9], how it can turn learners from data consumers into data contributors [4, 10] and how it stimulates language practice in an authentic learning environment [11].

Despite all these attempts to use ICT and blogs in language learning, there is no methodology in pedagogical and scientific literature that describes how the ESL (English as a second language) learner should keep a blog on a professional topic and how to organize independent students' work based on this kind of blog writing. To solve this problem, the technology that would help to organize independent students' blogging with an algorithm of specific steps must be developed. The first stage of this development process is to focus on the creation of a pedagogical model that would become the basis of this technology. The draft of the model with its theoretical and methodological approaches, teaching tools and necessary pedagogical conditions is presented in 1.2.

1.2. The Model's Description

The key elements of the model – its goal, approaches, didactic tools, pedagogical conditions of its realization and expected results of the students' independent work – are shown in Fig. 1.

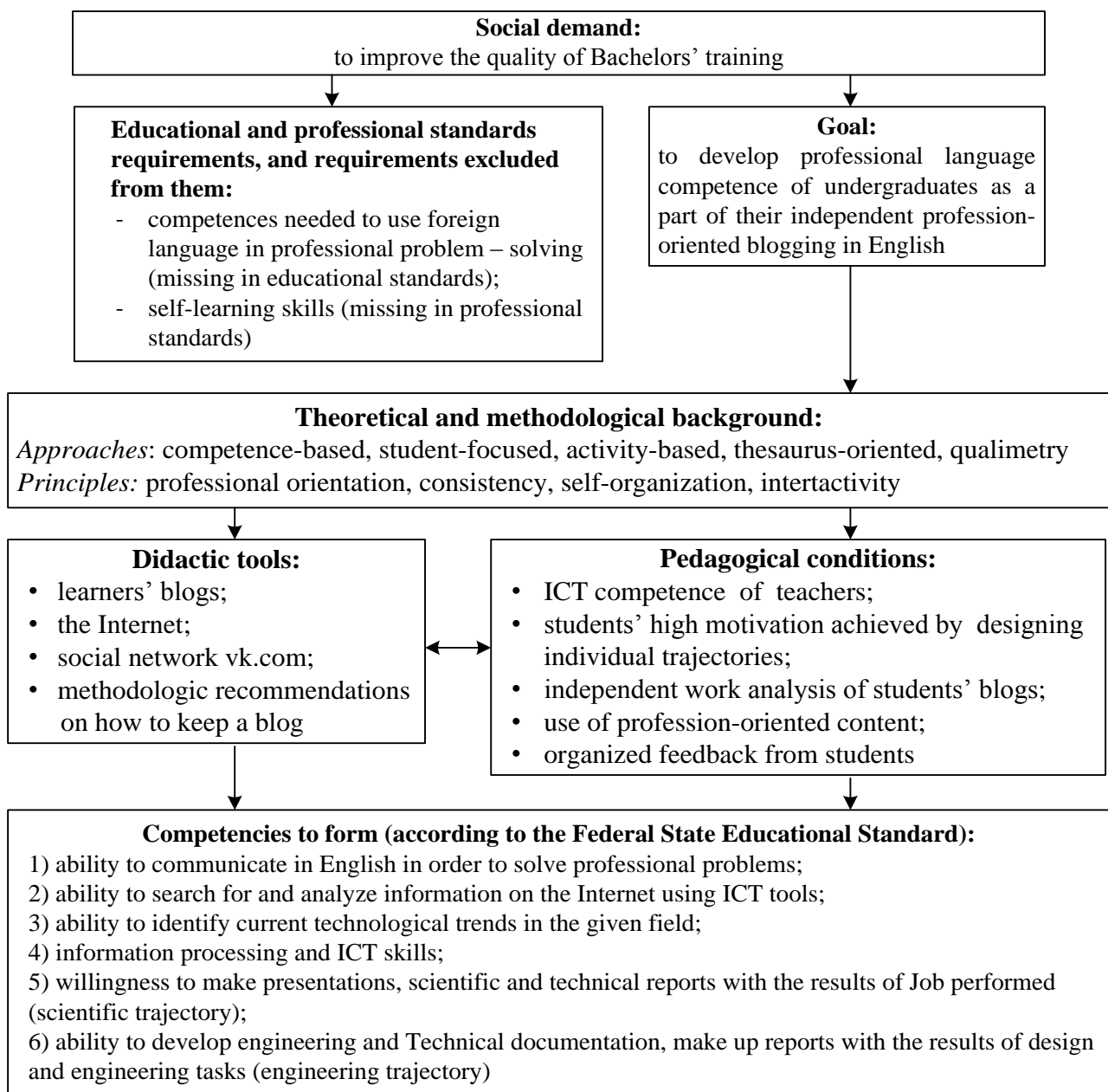


Figure 1 – Pedagogical model for organizing undergraduates' self-learning based on their profession-oriented blogging

The model is designed for second-year students majoring in tool-making (11.03.03 training program “Construction and technology of electronic devices”), although it is expected to be applicable to any technical or non-technical training programme. The primary goal of the model is to improve the quality of undergraduates' training in general and their professional English language training in particular. This is achieved by raising the level of professional language competence of students through profession-oriented blogging in English as a form of their independent work. However, the problem of defining a professional language competence and its constituents still remains open, as there exists a confusion of terms among many scholars in ESL teaching.

If the term “professional language competence” is primarily used by Russian educators and scholars, the terms “ESL” and “vocationally oriented language learning (VOLL)” are typically used in foreign pedagogical literature. As a result, a lot of confusion arises about the distinction between ESL and VOLL [12], where the latter is sometimes viewed as a part of the former, which is not always the case. To avoid unnecessary confusion, in this research we decided to use the term

“professional language competence” and follow the definition given by E. Mikhailova. Her definition suits perfectly into our context of using blogs as tools for developing communication skills and an ability to analyze information. According to E. Mikhailova, professional language competence can be viewed as “an ability and willingness of future Bachelors to solve communicative tasks in their professional field by talking to native speakers in a foreign language and searching and analyzing the information needed to study scientific and technical literature and documentation written in a foreign language in their field of study using ICT tools” [13].

To help students effectively form their professional language competence by means of blogging, the following theoretical approaches were applied:

- *competence-based approach*: the result of education here is viewed not as merely knowledge and skills, but as competences, a complex characteristic of a learner’s vocational skills and personal traits that reflects in his or her ability to use language in professional communication;
- *student-focused approach*: each of the students follows an individual educational trajectory (individually aligned curriculum) developed together with the teacher and focused on the student’s interests and inclinations;
- *activity approach*: a Russian variation of the constructivist approach that emphasizes and encourages active student participation in the learning process in contrast with ineffective passive acquisition of knowledge [14]; a blog as a Web 2.0 tool is designed specifically to support the writing process via comments, “likes” and page views;
- *thesaurus approach*: the idea that in order to evaluate the learner’s language skills it is enough to look at his or her thesaurus that can be represented as a set of concepts or terms in the given field and their definitions interconnected altogether (the issue is studied in detail in [15]);
- *qualimetric approach*: the methodology for translating qualitative parameters into quantitative ones which allows to measure and compare the results of the students’ training; in our case this approach is executed through a number of criteria that measure the level of professional language competence quantitatively and allow to analyze each student’s performance (the approach is thoroughly discussed in [16]).

The evaluation of undergraduates’ independent work and analysis of their blogs are conducted according to the list of criteria developed by the students themselves. These criteria include:

- *performance*, which shows the level of a student’s competence and is calculated as $P = C/4$, where C is the number of competences (see Fig. 1) formed in the student during the course;
- *systematicity*, which shows how systematic and organized the process of student independent blogging is and is calculated as $S = E/18$, where E is the number of posts written on time (with time difference less than two weeks) during the course;
- *relevance* to student’s field of study, which shows how relevant the content of a student blog is to his or her current field of study and is calculated as $R = T/50$, where T is the number of professional terms from a student’s thesaurus included in the thesaurus of the given major.

Apart from these criteria, students’ blogs are also evaluated by a group of experts. The choice of experts is based on their level of expertise both in English and in the given professional area. Their task is to evaluate the level of students’ English language competence and other competencies given in Fig. 1.

In the next paragraph we describe how the model with its main concepts and approaches was applied while conducting the pedagogical experiment.

2. Application of the Model

In order to test the model’s efficiency, a pedagogical experiment was conducted at Kalashnikov Izhevsk State Technical University in 2016–2017 academic year. 34 second-year students majoring in tool-making and mathematics took part in this experiment. Throughout the whole academic year these students kept their profession-oriented blogs in English. An example of a blog post written by one of the students is shown in Fig. 2.

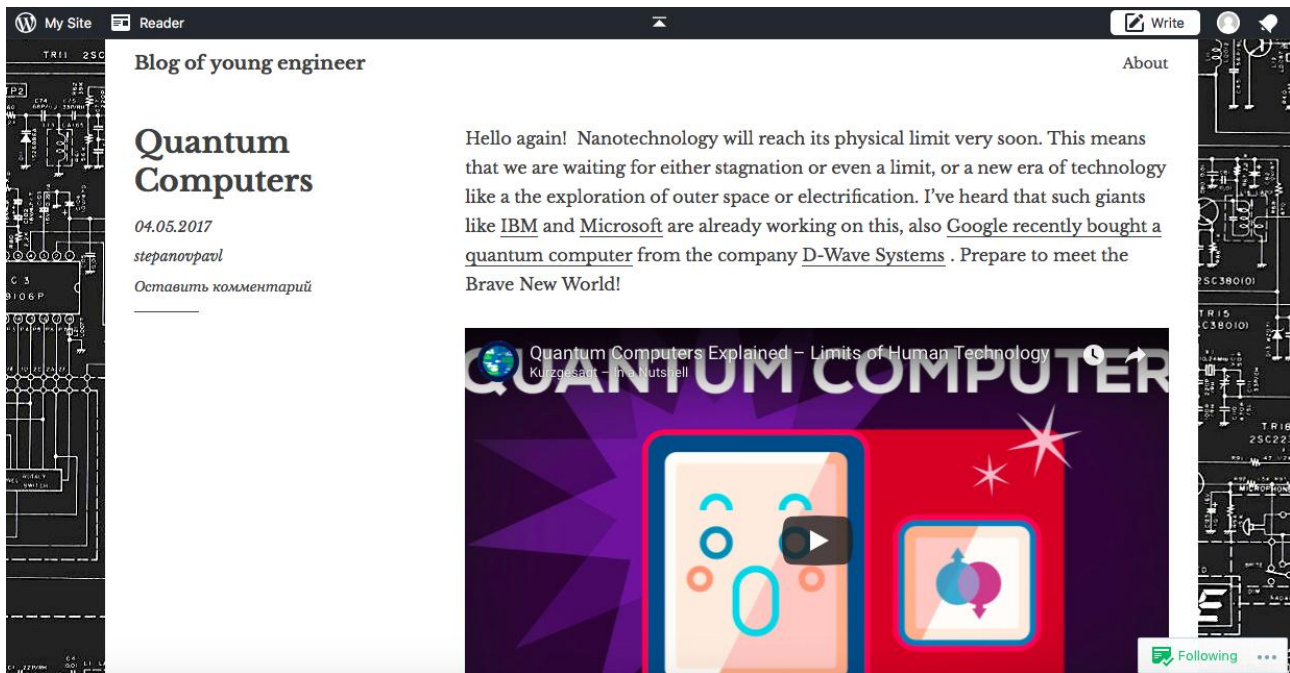


Figure 2 – Example of a student blog post on “Quantum Computers”

The blogging process began with the students’ choice of a topic. As the purpose of the course was to develop a professional language competence in students, they were free to choose a profession-oriented topic that they were good at. It helped to shift their focus from studying the language itself to the learning of the content given in the target language and thus facilitate their acquisition of professional vocabulary.

While writing blog posts on the chosen topic, the students were also asked to compose a thesaurus on the topic. The thesaurus consisted of 50 professional terms and phrases used in the student’s blog. The analysis of the students’ thesaurus made it possible to assess how well the students had mastered a certain professional vocabulary in the given subject area.

To establish direct communication with students and help the teacher to provide feedback on their blogs, an online community in the social network Vkontakte was created for the experimental group. Through that community the teacher could share all the necessary web resources and files as well as talk with every student via instant messaging about their blog and progress in the formation of professional language competence.

At the end of the academic year the students were asked to summarize the information in their blogs and make a presentation on their projects’ results and findings as a final activity and examination. The presentations were evaluated by both the teacher and the experts who participated in the experiment. The final grade was calculated on the basis of the quality of the blog posts, the relevance of the thesaurus and the quality of the presentation.

3. Results of the Model Testing

The testing process was conducted in four stages: the first test was taken at the beginning of the academic year. Control tests took place at the end of the third term and in the middle of the fourth one. The final test was taken at the end of the fourth term. The tests comprised open-ended tasks which evaluated the students’ summary-composition skills (competence 2 in the model), technical texts translation skills (competence 1) and the ability to find information (competence 2), analyze (competences 2 and 3) and present (competence 4) information taken from the Internet in the form of a review or report. These are the key competences which students develop while blogging [5]. The figures below compare the test results in the experimental and control groups of elementary (Fig. 3) and advanced (Fig. 4) students respectively. The numbers in the figures represent the percentage of test completion on average (e.g., 100% means that all the tasks were completed by all students in the group).

In Fig. 3 the high achievements of the experimental group students throughout the whole academic year are quite evident. The difference between experimental and control groups increased over time from -1% (minus indicates the dominance of the control group) to 8% and then to 14%. At the end of the course it dropped to a 4% difference.

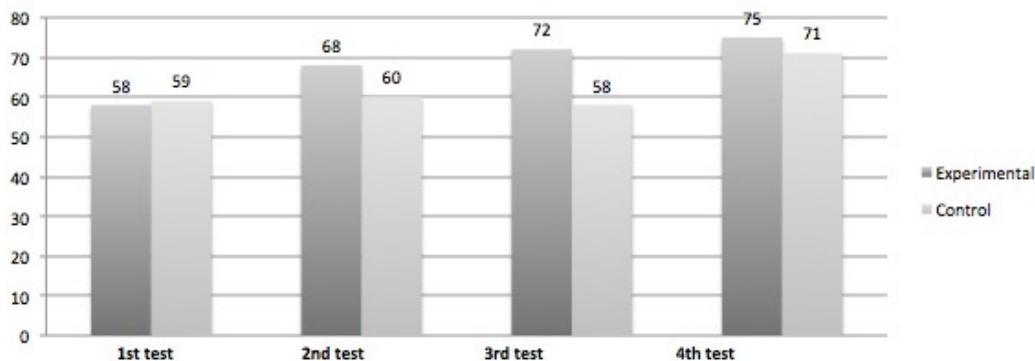


Figure 3 – Test results in experimental and control groups of elementary students (the numbers represent the percentage of completed tasks)

A similar dynamics can be observed in Fig. 4 for advanced students: the difference between both groups increased from 0% to 23% and then to 29% and finally decreased to 11% at the end of the course with the dominance in achievements of the experimental group throughout the course. Pay attention to the difference in the results. It is about twice as large as in the elementary group.

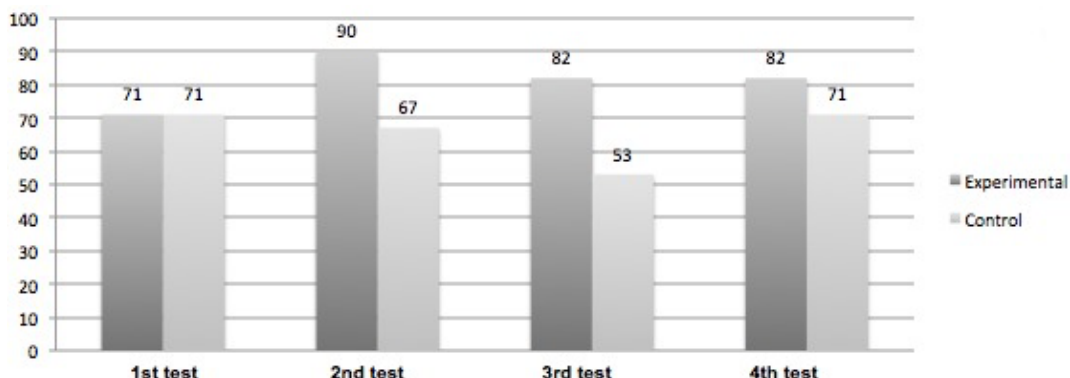


Figure 4 – Test results in experimental and control groups of advanced students (the numbers represent the percentage of completed tasks)

A larger difference between the groups of advanced students compared to the difference between the groups of elementary students (15,75% compared to 6,25% on average) can be explained by the fact that advanced students have many more opportunities for their self-learning when keeping a blog: they navigate much easier through the English segment of the Internet, find the necessary information, analyze and present it much better and faster. Furthermore, it allows them to choose the topics they are good at.

It is also necessary to mention that the decreasing test results in both groups (from 60% to 58% in elementary students from the control group and from 90% to 82% in advanced students and from 71% to 67% to 53% in elementary students from the experimental group) is a result of the increasing test complexity, not the decreasing students' performance.

Moreover, a drop in the amount of difference between the experimental and control group performance is observed in the last stage (after the third test), though before that the performance was increasing throughout the entire course. This can be explained by the difference in exam procedures for both groups. Unlike the control group students, who passed examinations in a traditional way (with examination questions), the experimental group students had to make a presentation of their independent blogging. While the control group students focused their efforts

on the preparation for the exam in the last stage, the experimental group students gradually shifted their focus onto making their final presentations and therefore spent less time blogging, i.e. developing the skills needed for performing well in the test.

Conclusion

In conclusion we can observe that application of the pedagogical model to organizing a self-guided profession-oriented blogging in English of undergraduate students increases efficiency of their professional language competence development. The vaster difference in the level of competence between experimental and control groups of advanced students shown in Fig. 4 implies greater applicability of the model to the students with intermediate (or higher) level of language skills. Due to their advanced abilities to search for, read and analyze information in English from websites blogging gives them a much greater advantage over their peers who do not form their competence via blogging.

Another and probably more interesting conclusion is that the students did not have any written guidelines or formalized rules on how to keep a blog in English. They had to find out all the blogging details on their own or use the tips given by their teacher in classes. This can be explained by the fact that most students' abilities to write posts and deal with technical features of social networks are structurally similar to blogging. Consequently, a high degree of freedom and the absence of a strict algorithm to follow did not hinder the students' ability to blog independently. On the contrary, it allowed them to have more time every week for completing the task and putting more effort into their blog. This observation indicates that working on a task which calls for being creative and staying motivated (due to the relevant and motivation-raising topic of the blog) might be enough for undergraduates to improve their foreign language skills in their professional field.

In the next stage of this research the algorithm concerning the issue of keeping profession-oriented blogs will be provided as well as the necessary technology.

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Гареев А. А.

*Ижевский государственный технический университет имени М.Т. Калашникова,
Ижевск, Россия*

ОПЫТ РАЗРАБОТКИ МОДЕЛИ ОРГАНИЗАЦИИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ СТУДЕНТОВ ТЕХНИЧЕСКОГО ВУЗА НА ОСНОВЕ БЛОГОВ ПРОФЕССИОНАЛЬНОЙ НАПРАВЛЕННОСТИ

В связи с сокращением количества занятий по иностранным языкам в технических вузах возникает потребность в более эффективном использовании времени, выделяемого студентам для самостоятельной работы. В статье приводятся доводы в пользу использования блогов, потенциал которых в плане организации самостоятельной работы студентов недооценен в научно-педагогической литературе.

Целью статьи является обоснование модели организации самостоятельной работы студентов технического вуза, основанной на ведении ими блогов профессиональной направленности на иностранном (английском) языке. Приводится краткое описание модели и основных подходов к ее реализации, а также разработанных критериев, позволяющих провести оценку блогов студентов. Модель была апробирована в Ижевском государственном техническом университете имени М. Т. Калашникова в рамках педагогического эксперимента.

В статье делается вывод об эффективности разработанной модели на основании высокого уровня сформированности профессиональной иноязычной компетенции студентов в результате проведения педагогического эксперимента. Кроме того, доказана возможность осуществлять самостоятельную работу с использованием блогов без дополнительного методического обеспечения, так как студенты, будучи знакомыми с методикой ведения веб-страницы в социальных сетях, способны самостоятельно обучиться ведению профессионально-ориентированного блога на английском языке.

Ключевые слова: блог, педагогическая модель, самостоятельная работа студентов, технический университет, профессиональная иноязычная подготовка.

Сведения об авторе: **Гареев Андрей Александрович**, аспирант, ассистент кафедры английского языка, ИжГТУ им. М. Т. Калашникова (г. Ижевск); e-mail: andrei.gareeff@yandex.ru, ORCID ID 0000-0002-4969-1012.

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Kuznetsova L. B.

Saint-Petersburg State University, Russia

Schemeleva I. Y.

National Research University Higher School of Economics, Russia

DO ESP / EAP COURSE BOOKS FOR RUSSIAN STUDENTS PREPARE PROFESSIONALS OF THE INFORMATION AGE?

The modern world of work is unthinkable without such a tool as the Internet. However, can the modern student use this tool to its full potential when its resources are in English? The aim of the research project was to explore whether English language course books written by Russian authors for university students prepare future professionals to effectively work with resources in this language on the Internet. Do these materials contain tasks aimed to teach and practice such skills? To answer the research question, the authors analyzed 30 course books for teaching English at the tertiary level, which were published in Russia in the years 2007–2017, to see if they contain tasks developing students' skills in using Internet-based English resources. To provide evidence that students do need such skills, we used the findings of a small-scale research project conducted by