Practical Implementation of Blended Learning

in Terms of English as a Foreign Language at

Technical Universities

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Abstract The present day economic and political situation requires specialists who are both knowledgeable in their field and able to communicate in a foreign language as there are a lot of opportunities for professional development and exchange of experience, as well as overseas career prospects. This is especially true for professionals in technical areas such as gas, oil and electronics. Tomsk universities are known for their high level of educational standards, but there is a clear lack of academic hours allocated for learning foreign languages in technical higher schools. That is why we are looking for new ways of reinforcing foreign languages acquisition by our students to make them better equipped for the future. In our paper we discuss opportunities of adopting blended learning for teaching foreign languages at National Research Tomsk Polytechnic University. The topic under consideration is urgent as blended learning provides opportunities for students to master a foreign language to the degree required of today's specialists in technical areas and allows us as teachers to accomplish this task in the limited amount of academic hours allocated for studying foreign languages by the curriculum. The discussion in the present paper is based on the results of incorporating blended learning in one of the courses offered by NR TPU in academic year 2014/2015.

Keywords: blended learning, E-course, information and communications technology, learner-centered education, learning process, technical higher schools

Introduction

The XXI century has become a new era for the Russian Federation. The country is continually facing new challenges in all areas: political and economical, cultural and scientific. The country is in the process of establishing international relations and integrating into the global community. Higher engineering education has also been significantly affected by these challenges. It is difficult to underestimate the role of today's engineering education in the development of the modern society. Nowadays, the society requires highly-qualified specialists who are competitive not only in the Russian but also in the international labour market. That is why higher technical education is becoming a framework for social, economic and technological advancements involving such aspects as engineering knowledge, professional competences, abilities and skills. It is particularly important if engineers have a good command of a foreign language and can apply it in their professional activities. In this regard "Foreign Language" as an integrated discipline is becoming crucial along with the other major disciplines in future engineering education at technical higher schools.

Background

At present information and communications technology is developing rapidly in all fields of human activities, and higher education is not an exception. The teaching staff constantly faces absolutely new approaches to training specialists. At the same time technological knowledge is becoming old-fashioned quite as fast as new technology is being developed and introduced. As a result, this determines the demand in obtaining information from foreign sources and essential requirement for future specialists to apply linguistic skills as a means of cross-cultural communication in solving professional problems related to their field of expertise. Consequently, the "FL" discipline becomes a key component in preparing future sought-after technical specialists along with compulsory special subjects.

At the same time most Russian technical higher schools allocate only a limited amount of academic hours for learning foreign languages since the standards they are based on were developed many years ago. This results in the situation when more emphasis is put on professional disciplines rather than general education ones, among which comes the "FL". Today students are supposed to attend FL practical classes for two academic years twice a week (four academic hours), which makes it almost impossible to master this subject to a degree necessary for accomplishing professional communication and functioning as high-level specialists in the modern world. The only possible solution to eliminate the gap between what knowledge and skills requirements a modern specialists must possess and the lack of academic hours for this is adapting new methods and approaches in teaching foreign languages. In this respect, blended learning steps in and becomes a method which wins popularity among teachers at Russian technical universities as it provides the opportunities of intensifying the learning process, develops student involvement and caters the individual needs of learners.

General Concept of Blended Learning

It is necessary to consider the concept of blended learning in detail. There are many definitions of this term. B. Albrecht asserts that "blended learning is bringing together Face-to-Face classroom instruction with web-based activity" [1]. At the same time, J. Bersin considers blended learning as "the combination of different training media to create the optimum training program for a specific audience" [2].According to M. Driscoll, blended learning refers to a combination of working patterns based on modern Internet technologies as well as combinations of various pedagogical approaches used in class. The method under consideration is also related to educational technologies associated with training in the process of face-to-face interaction [4]. The author emphasizes that the educational technologies should provide the development process of face-to-face interaction and correlate with the professional objectives presented in the syllabuses. All things considered, blended learning comes down to a reasonable combination of traditional teaching and e-learning. It allows using the strengths of both educational approaches, as well as minimizing the weaknesses.

The principle of blended learning is reflected in the "flipped classroom". In accordance with J. Schell, an expert in pedagogical innovation, "flipped classroom" is a pedagogical model where the main steps of the learning process, for instance, a lecture and an assignment have actually been reversed [5]. It means that students acquire theoretical materials independently through video lectures, webinars or video podcasts provided by the teacher while the classroom work is mainly dedicated to various learning activities carried out under the guidance of the teacher such as drilling, discussions, role-plays, round table discussions, etc. The acquisition of new material is usually realized in two ways:

- students complete self-assessment tests in the electronic environment;
- students work in the classroom under the guidance of the teacher dealing with a variety of communicative activities.

The "flipped classroom" model is considered to be the most acceptable towards FL learning since the development of communicative competence of students implies prominence under the conditions of limited amount of academic hours allocated to the discipline "FL" at technical higher schools of the Russian Federation. Without doubt, communicative competence is acquired only when students interact with each other in the classroom along with self-directed learning in the electronic environment when they participate in webinars, online conferences, forums and chats.

It should be mentioned that some students with low level of FL proficiency may feel confused and uncomfortable working in the classroom when comparing themselves with more proficient students. Such students usually overcome the so called psychological barrier working in the electronic environment, as sitting in front of a computer screen they increase their self-confidence and decrease their personal level of stress and anxiety. Having time to work on their own and prepare for the lesson positively influences the students' work in the classroom. The students participate in debates and open discussions more actively and demonstrate positive outcomes. What is more, the efficiency of traditional in-class learning rises dramatically since class hours are used not for theoretical materials which have been

learned by the students by means of electronic educational resources, but for applying the knowledge they acquired at home through creative activities.

Having considered the concept of blended learning, the main benefits and challenges related to the application of this approach should be analyzed. The benefits of blended learning are as follows:

- 1. blended learning allows involving much more participants into the learning process in comparison with traditional educational model;
- 2. approach under study is rather flexible since the students have excess to educational resources uploaded into the electronic environment any time and any place suitable for them;
- 3. blended learning exercises the learner-centered approach since each student has an opportunity to choose the amount of educational material necessary for his/her level and the work patterns suitable for him/her;
- 4. blended learning encourages students' autonomy development as they learn how to plan and organize their learning process efficiently focusing on the ultimate outcome;
- 5. blended learning raises students' motivation and stimulates their interest to the discipline "FL" as they work with a variety of electronic resources, multimedia and interactive learning materials represented in the electronic environment;
- 6. feedback between the participants of the learning process allows the teacher to monitor students' activity and make allowances where relevant;
- 7. students have the opportunities to see the results of their learning activities on time, get assessment and teacher's recommendations on correcting mistakes;
- 8. blended learning allows students to learn a foreign language at their own pace and show better results.

One of the most significant challenges of blended learning is that it meets new requirements in relation to all the participants of the learning process due to the newly-assumed functions of the teacher and the students, who are involved in this process. These functions are especially important as they are concerned with the organization of the learning process related to the discipline "FL". The teacher, in this case, becomes a facilitator organizing synergy of students and encouraging them to act and work independently. Thanks to blended learning, students reject the role of a passive consumer of knowledge and turn into being an active participant of the educational process, their independence and responsibility for performance and learning outcomes increase as well. Taking into account all the advantages listed above, we can easily draw a conclusion that using this educational model in learning foreign languages is not only practical, but beneficial for both students and teachers.

However, as any other innovation, the integration of blended learning into the educational process is entangled with a whole group of factors existing in the present-day general system of higher technical education in Russia. One objective factor is the need in electronic educational content. It is necessary to have relevant materials and technical infrastructure, time and financial resources, as well as highly-qualified specialists in this expertise area. Special training courses in the field of e-learning should be organized for the teaching staff at technical higher schools before or in the process of implementing blended learning. The factor, which might contribute to or impede with the integration of blended

learning into the educational process is the level of computer competence of both teachers and students [6]. It should be mentioned that, in spite of the challenges of implementing blended learning into the educational process, many Russian higher educational establishments support the implementation of information technologies and readily apply them in the learning process.

E-course Based on Moodle as a Model of Blended Learning Implementation

In order to demonstrate effectiveness of blended learning in the context of foreign languages acquisition it is necessary to consider a particular E-course based on the educational information platform Moodle. The course was developed at TPU in 2014/15. The University uses the electronic educational platform Moodle as an information environment for the implementation of blended learning. The learning management system Moodle is considered to be one of the most reliable, versatile and widely-used information platforms among the specialists who practice e-learning and have experience in this sphere. This Web application provides opportunities for teachers to design E-courses that comply with all the requirements obligatory for such courses. Moodle provides course developers with a great variety of instruments to make their E-courses useful and educating for students. The course developers make use of such platform instruments as wiki, glossary, forums and chat rooms, lectures, tests and data base. The test system integrated into the platform allows teachers to design and upload into Moodle tests for various goals: self-assessment, students' independent activity, placement and achievement testing, etc. [3].

It should be mentioned that one of the success factors of implementing blended learning is the usage of three methods of delivery: same time/ different place (synchronous delivery), different time/ different place (asynchronous delivery) and same time/same place (traditional classroom or face-to face classroom delivery). For example, 30% of study time students spend working with tests or mastering educational materials online (asynchronous way of delivery), 30% of study time students are involved into participating in various webinars and video conferences (synchronous way of delivery) and 40% of study time students work in the classroom (face-to face classroom delivery).

Now, let us have a closer look at the E-course "English language for first-year students of IHTP. Module 2" designed and uploaded into Moodle for freshmen students of Institute of High Technology Physics, TPU. It should be noted that the course fully conforms to the above – mentioned requirements. It comprises three units: Travelling, Environmental Protection and Education according to the syllabus of the Russian Ministry of Education for the discipline "FL". One of the units of this E-course, namely the third unit "Education", is presented for detailed consideration in the present paper. Working with the course, students study the peculiarities of higher education in the Russian Federation and English-speaking countries. Upon completion of the E-course the learners will be able to:

- 1. talk about educational systems of Russia and English-speaking countries;
- 2. talk about National Research Tomsk Polytechnic University presenting the structure of this higher technical school, main research areas, prominent graduates and future outlook of TPU;
- 3. talk about students' life: daily routines, social activities and academic mobility.
- The E-course syllabus related to the unit "Education" is shown in Table 1.

Table I							
E-course syllabus, unit "Education"							

N₂	Activity/Instructional	Students'	Way of	Date	Index of
	Strategy	score, max.	delivery		Groups
1	Review of learning content (video lectures related to grammar theoretical material, work-book «Education» containing teaching materials on the topic)		Different Time/Different Place (asynchronous delivery)	20/04/2015- 25/04/2015	First year students, IHTP
2	Interactive online test on the topic «Established Universities» (online test with additional information provided in the feedback, drilling tests on vocabulary, useful hyperlinks, pair work)	0-2	Same Time/Same Place (traditional delivery)	27/04/2015- 02/05/2015	First year students, IHTP
3	Review of supplementary teaching materials (work-book «Education»), writing an informal letter «Students' life» and uploading it into Moodle.	0-1	Different Time/Different Place (asynchronous delivery)	04/05/2015- 07/05/2015	First year students, IHTP
4	Peer-assessment (students check the informal letters «Students' life» uploaded into Moodle, assess their peers' works and discuss the	0-1	Same Time/Different Place (synchronous delivery)	08/05/2015	First year students, IHTP

results in the chatroom)

5	Group discussion of the topic «TPU: scientific areas and future prospects».	0-1	Same Time/Same Place (traditional delivery)	09/05/2015- 13/05/2015	First year students, IHTP
6	Webinar "Academic exchange programs" (the teacher delivers a webinar presenting the most popular and accessible academic exchange programs for the students of IHTP)		Same Time/Different Place (synchronous delivery)	15/05/2015- 16/05/2015	First year students, IHTP
7	Online assessments & testing (an achievement test on the topic «Education»)	0-2	Different Time/Different Place (asynchronous delivery)	17/05/2015	First year students, IHTP
8	Summing-up: a role- play "Gap year" concerning academic exchange programs.	0-3	Same Time/Same Place (traditional delivery)	18/05/015- 26/05/2015	First year students, IHTP
	Total	10			

Having completed the unit "Education" the learners are supposed to develop their writing, listening and reading skills and acquire knowledge that would help them to:

- 1. use speaking skills in solving communicative tasks;
- 2. apply principal speech patterns and grammatical structures, widely used for social interaction;
- 3. read different kinds of texts and extract necessary information;
- 4. understand necessary information while listening to monologues, interviews and dialogues ,as well as watching videos;
- 5. express personal opinions clearly and logically in the context of written and speech communication.

Let us consider the final activity which summarizes the whole work with the unit "Education": a role-play "Gap year". The main objectives of the role-play are:

- to practice new vocabulary units and speech patterns using them in the situations close to real-life;
- to develop speaking skills, especially negotiating and bargaining;
- to learn to express their own opinions on the issues provided in the role-play and come to an agreement;

The problem statement of the role-play has also been uploaded into Moodle along with the description of the roles. The teacher gives the roles to the students a week before the role-play, providing them with instructions on how to get ready for the role-play. The role-play description is presented in Table 2:

Table II The role-play description

Problem Statement

The university is piloting an academic exchange program. This program enables students of our university to spend a year/semester studying as an exchange student abroad. Today we are meeting several students, faculty and university staff. There are several things you should discuss. You can also add any other points for consideration.

Description of roles

1. The Rector of the university

You should start the discussion and make a decision afterwards.

- You would like the best students of your university to participate in the academic exchange program.
- Discuss how you can measure the results of their study at a foreign university.

2. The Dean of a department

- You would like the best students of your department to participate in the academic exchange program.
- Discuss what subjects are obligatory in the curriculum of a foreign university.
- Suggest events the students should take part in (conferences, workshops, seminars, cultural activities, etc).

3. Student(s)

You would like to be enrolled for the program as soon as possible.

- Tell about your academic and scientific interests, your achievements and prospects.
- Discuss your curriculum within the academic exchange program and the results you expect.

4. Supervisor(s)

- Discuss the requirements for the participants of the academic exchange program: year of study, language proficiency, academic achievement, etc.
- Discuss the applicants' plans upon completion of the course.

5. Linguistic supervisor(s)

- Discuss what should be done for the participants of the program to be well-prepared for international communication.
- Tell the applicants how they can self-study to improve their English.

6. Head of the financial division

You are interested in additional investments in the academic exchange program. Discuss who can invest and how they can benefit from the university students' participation in the program.

7. Teacher of English

You would like to accompany a group of students during the program. Discuss what assistance you can provide the participants with.

8. Father/mother of a student

You worry about your child living abroad far from relatives and friends.

- Discuss how you can get the latest news from your child.
- Find out information about accommodation options and the living conditions, medical insurance, etc.

Conclusion

Taking into consideration all the above-mentioned facts, the following conclusions can be made:

- 1. flexibility of the blended learning model allows teachers to apply the learner-centered approach and adapt the traditional educational process to individual characteristics of students;
- 2. the method under study promotes efficient use of time for traditional classroom activities;
- 3. the blended learning model involves applying up-to-date communication technologies based on the principals of the learner-centered approach and students' autonomy;
- 4. flexibility of the blended learning model allows students to master FL any time and any place appropriate for them;
- 5. information intake is optimized and the amount of processed learning materials increases due to complying with individual and psychological peculiarities of learners;
- 6. the blended learning model offers a variety of interaction forms both for students and for teachers since learners communicate with each other and the teacher not only in the classroom, but also by means of forums and chat rooms;
- 7. the flexible monitoring system based on assessment criteria for evaluating the products of the students' creative activities helps to provide self control and peer assessment, thus. enhancing students' autonomy;

8. information competence of students increases due to the use of information and communication technologies in the learning process.

Without doubt, blended learning appears to be the top-priority model in modern educational environment representing incontestable advantages both for teachers and students. The given approach allows optimizing time expenditures and increasing the learning process efficiency in general. Studying within this educational model each student becomes an active participant of the learning process and gets an opportunity to build his/her individual educational path taking into account his/her personal needs. All this enables to prepare future competent specialists who will become competitive in the international labour market.

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