

## POSTGRADUATE ENGINEERING STUDENTS' REFLECTIONS ON BLENDED LEARNING IN ACADEMIC ENGLISH COURSE

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**Abstract.** Within the COVID-19 pandemic period teachers at higher educational institutions have been forced to shift their traditional classroom strategies to blended learning which involves a combination of online instructional format with traditional face-to-face one. This approach to education has also been adopted by foreign language teachers of the Latvia University of Life Sciences and Technologies and integrated into the Academic English course for postgraduate engineering students. The present research highlights the importance of reflection in the educational process and is aimed to investigate students' perceptions of their blended learning experience. In the course of the study, a semi-structured interview and a questionnaire were administered involving postgraduate engineering students. The analysis of the results obtained in student reflection provided empirical evidence to the claim that the students were advantageously influenced as a result of the blended learning environment in the Academic English course. Most of the students confirmed that all necessary Academic English skills – reading, writing, listening and speaking can be developed in a hybrid format, that blended learning environment promotes self-directed learning skills and enhances motivation to study the foreign language. The majority of the respondents reported value of virtual reality that increased meaningful interaction and built a sense of community and spoke in favor of continuing education in blended learning context. The final part of the article presents conclusions of the research findings and recommendations for the EAP practitioners which could also be used in an ordinary post pandemic study process.

**Keywords:** English for academic purposes (EAP), blended learning, self-directed learning, Gagne's model.

### Introduction

The Academic English course at the Latvia University of Life Sciences and Technologies is aimed at the development of postgraduate engineering students' foreign language knowledge and skills to apply them creatively in spoken and written communication necessary for taking part in student mobility and professional and academic activities in the international environment. The course consists of learning professional terminology related to engineering sphere and applying the theoretical concepts in practical tasks in which students analyse professional and academic texts, develop their communication skills and academic language skills writing business letters, summaries, annotations, take part in case studies, discussions, role plays, debates, give presentations, collaborate with group mates, reflect on their learning.

Prior to the pandemics, Academic English course for postgraduate engineering students involved in-person traditional classroom setting. Nowadays, in case a COVID-19 outbreak happens in the area, in order to ensure safety and quality of education, EAP teachers are adopting blended learning approach. Utilising it educators can temporarily provide fully online lessons until it is allowed to return to the classroom and teach face-to-face. This, as a consequence, means that learning is becoming more concentrated on the use of computer and technology assisted strategies. Though, classroom learning is still considered the largest component of the course.

The present research emphasises the importance of reflection in the educational process and is aimed to examine students' opinions on their participation in Academic English in the framework of blended learning. The research suggests that blended learning used in the Academic English course offers a positive solution for studying during the COVID-19 pandemic period: by combining aspects of online and in-person methodologies blended learning provides postgraduate engineering students with benefits of both.

Term 'blended learning' is used interchangeably in research literature as 'differentiated instruction', 'hybrid learning', 'technology-mediated instruction', 'web-enhanced instruction', 'mixed-mode instruction'. There are many components that can comprise a blended learning model, including: instructor-delivered content, e-learning, webinars, conference calls, live or online sessions with instructors, and other media and events, e.g., Facebook, e-mail, chat rooms, blogs, podcasting, Twitter, YouTube, Skype, web boards, etc.

Blended learning is one of the most remarkable trends in education change [1; 2]. Although blended learning involves a challenging adjustment process and it is time consuming to develop necessary pedagogy for implementation of this modern approach, it is becoming increasingly popular and expanding quickly in higher educational institutions.

According to Arney [3] blended learning is ‘a formal education program in which a student learns: at least in part through online learning, with some element of student control over time, place, path, and/or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student’s learning path within a course or subject are connected to provide an integrated learning experience’.

Hannon and Macken [4] suggest three models of blended learning. The first model, called ‘blended presentation and interaction’, involves a flipped classroom approach in which students watch podcasts and read online resources independently then meet in classroom tutorials and seminars and interact face-to-face in groups based on these resources. The second model, called ‘blended block model’ begins with a block of intensive face-to-face sessions in the classroom, followed by blocks of communicative and collaborative practice online. And the third model, which is predominantly online but can still be considered blended as it involves both synchronous techniques, which allow students go through the learning path together accompanied by their instructor (e.g., discussion forums and group work), and asynchronous methods, which allow students to acquire new knowledge and practice skills at a pace that is optimal for them (e.g., watching lecture podcasts, reading online resources). Thus, one or more of the following contexts can be covered by blended learning: combining different types of delivery media, combining instructional methods and combining in-person and online instruction.

El-Mowafy et.al. [5] believe that blended learning should be used in professional higher education courses as it is the most appropriate way to satisfy the need of industry and profession and enhance student learning by maximizing the understanding of theoretical principles, gaining knowledge and development of technical, practical and professional skills, ensuring students’ active involvement in the learning process. Researchers highlight the potential of some blended learning components such as flip teaching and collaborative learning.

Brown [6] states the use of the blended learning approach reduces educational expenses essentially replacing pricey textbooks with electronic devices, increases time efficiency and convenience for the user, and provides that ‘essential one-on-one, personal understanding and motivation that only a human instructor can provide’. This results from combining the traditional learning process with elements of ICTs.

There are other numerous advantages of blended learning described in research literature. Scientists point out that blended learning is more effective than purely in-person or purely online classes [7-11]. The researchers point out that by using a combination of digital instruction and face-to-face learning:

- higher levels of student achievement can be reached;
- students can access materials easily;
- student soft skills can be nurtured;
- student retention is enhanced;
- student attitudes towards learning can be improved;
- students can work at their own pace ensured they fully understand new concepts before moving on;
- communication between teachers and students improves;
- learners can have more autonomy, self-regulation, and independence in order to succeed;
- education can become personalised, replacing the model where a teacher stands in front of the classroom and everyone is expected to stay at the same pace;
- students can better evaluate their understanding of course material via the use of computer-based qualitative and quantitative assessment modules;
- student simultaneous independent and collaborative learning experience for university can be facilitated;
- students-centred approach can be used, teachers can support individual students who may need individualised attention;
- teachers can streamline their instruction to help all students reach their full potential.

However, there are some drawbacks of blended learning implementation reported in research literature. Among the major disadvantages are:

- loss of classroom community feelings and lack of support from the teacher, cultural adaptation: the instructors should be willing to transform themselves into new organizational culture [12];
- technical issues and inconveniences regarding the online component of blended learning that has to be tackled as revealed: web page timed out, slow internet accessibility and difficulties in uploading course materials, interrupted sessions during online discussions [13];
- ICT literacy of teachers, lack of experience [14];
- students from different social economic backgrounds might face difficulties in accessing or adapting into the online learning component due to lack of IT skills and knowledge; the matured older generation students should be well-equipped with the rapid ICT technology advancements [15];
- challenging group work because of difficulties with management in an online setting, ineffective use of blended learning, demotivation [16];
- increased workload, time commitment, lack of pedagogical skills [17].

### Materials and methods

Having examined the advantages and disadvantages of blended learning reported in scientific literature, the authors of the present research adopted this approach and integrated it into the Academic English course for postgraduate engineering students. Within the period of two study years, 2020-2021 and 2021-2022, six groups of postgraduate engineering students, in total 73 respondents participated in the experiment. Learning became 'blended' by necessity as Covid-19 outbreaks appeared, the teachers were forced to switch to online learning lasting from three weeks till several months. Fifty three students of professional Master's degree program studies Forest Works and Machinery, Forest Economy and Policy, Ecology and Forestry, Wood Materials and Technologies and twenty students of academic Master's degree program studies Environmental Engineering, Hydro Engineering, Landscape Architecture, Construction Science and Land Use Planning took part in blended learning in the Academic English course.

Robert Gagne has developed a model which is based on the information processing model in the adult education and focuses on the learning outcomes. Application of Gagne nine-step model promotes learning since it helps to structure the teaching process and employs holistic approach to teaching. Gagne's nine events [18; 19], which include gaining attention, communication on the results to be achieved, activation of prior knowledge, presentation of new content, providing learning guidance and support, elicitation of the performance (opportunity to use new information), feedback, performance evaluation, enhancing retention and transfer, can be applied in the context of blended learning in a variety of ways depending on the learning outcomes and the subject field. The studies in Academic English for Master students were designed to follow Gagne's instructional design of nine steps:

1. warm-up activities at the beginning of lessons;
2. explanation of the aims and learning outcomes of each lesson;
3. association of new information with the learning material studied previously;
4. presentation of the new material by academic staff;
5. providing learning guidance and support during the study process by various visualization and interactive activities;
6. elicitation of the students' performance where students were encouraged to use new information participating in case studies, discussion groups, role plays, debates; giving a presentation, collaborating with group mates in face-to-face sessions, team projects, chats and forum discussions, shared presentations, email correspondence, blog posts in the online learning mode via Moodle e-learning system available at the university;
7. the feedback given by the academic staff on the students' performance (short tests, BBB interactive polls, discussions);
8. performance evaluation by grading (written tests and seminars either face-to-face or online);
9. enhancing retention and transfer of the acquired knowledge and competence (revision tasks, discussions).

There was a wide range of communication technology provided for online content – Big Blue Button, Zoom, MS Teams, chat on the University page, Goggle docs, Kahoot, Miro, Padlet.

## Results and discussion

In order to evaluate the usefulness of the blended learning, it was important to find out students' opinion about implementation of this approach, therefore the authors of the resesearch article engaged students who took part in the course in reflection about it. First, a semi-structured interview was administred involving five students to define the impact of blended aproach on their learning. The students were asked open-ended questions, which allowed for a discussion with the interviewee rather than a straightforward question and answer format. The interviewees were asked questions about a) convenience and flexibility of online learning in comparison with face-to-face in-class learning; b) clarity of online course requirements; c) quality of students' interaction with teachers and with other students; and d) students' attitudes and engagement with learning.

The interviewees' overall impression about the course was positive, they pointed out that they were advantageously influenced as a result of the blended learning environment. The students evaluated the differences between traditional classes and those which applied blended learning and they stated they appreciated access to two different learning styles - both of which they considered had distinct advantages, they could still study at their own pace using learning materials on virtual learning environment, while also having some classes in-person, which enabled insightful discussions and collaboration with peers and immediate feedback from the teacher. The students also mentioned that blended learning reduces some of the disadvantages of the classes conducted solely on-line. According to the students, it was also important to divide classes into the traditional and online ones in appropriate proportions, if possible.

On the basis of the interviews, a questionnaire consisting of thirty statements was designed to gain a detailed insight into the usefulness of blended learning. Seventy-three postgraduate engineering students took part in a questionnaire following the Academic English course completion. The respondents completed the Likert-type questionnaire in which they ranked statements about the course they took part in as 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree' and 'strongly disagree'. The results of the findings are presented in Table 1 below.

Table 1

### Postgraduate Engineering Students' Opinion about Blended Learning in the Academic English course

No.	Statement about blended learning experience in the Academic English course	Average		Strongly agree	Disagree	Range
		$M_o$	$M_e$	1 + 2	4 + 5	
1.	Blended learning was flexible and easily accessible.	2	2	39	22	28
2.	Blended learning positively influenced development of English communication skills.	2	2	57	10	6.5
3.	After the course I feel more confident to use academic English.	2	2	40	22	26.5
4.	I applied what I had learned in practice and it enhanced my understanding.	2	2	52	10	12.5
5.	I would like to continue studying in a blended learning format.	1	2	51	10	15
6.	Online sessions fostered meaningful interaction.	2	2	48	18	22
7.	Digital opportunities increased my engagement in the course.	2	2	60	5	2
8.	It enabled me to balance assignments and external obligations.	2	2	51	17	15
9.	Provided with access to learning when I was in quarantine.	2	2	56	9	9
10.	Provided a safer learning environment.	2	2	44	16	24.5

Table 1 (continued)

No.	Statement about blended learning experience in the Academic English course	Average		Strongly agree	Disagree	Range
		$M_o$	$M_e$	1 + 2	4 + 5	$R_{1+2}$
11.	All necessary Academic English skills – reading, writing, listening and speaking can be developed in a blended learning format.	2	2	46	15	23
12.	It reduced isolation and stress.	1	2	56	11	9
13.	Increased my interest in the Academic English subject.	2	2	56	10	9
14.	Learning in a blended format built a sense of community.	2	2	50	8	17.5
15.	I developed English language skills.	2	2	51	14	15
16.	The course promoted self-directed learning skills.	2	2	59	13	3
17.	I learned professional vocabulary.	2	2	40	21	26.5
18.	The course encouraged greater responsibility for my learning.	1	2	55	11	11
19.	Blended learning increased opportunity to connect with the professor.	2,4	(2)	37	25	29
20.	I developed presentation skills.	2	2	49	14	20
21.	I was actively involved in the course.	2	2	50	8	17.5
22.	I learned to define professional terms.	1		57	10	6,5
23.	I developed academic language skills.	1	1	61	2	1
24.	I learned to apply professional terminology in discussion.	3	3	20	21	30
25.	Reading scientific articles provided me with insights related to my dissertation.	2	2	44	14	24.5
26.	Various activities of blended learning enhanced my motivation.	1	1	52	11	12.5
27.	I have become more confident in speaking about my research.	2	2	58	7	4,5
28.	It stimulated me to read research papers individually and then discuss with peers.	2	2	49	5	20
29.	It gave me deeper understanding on things related to my research.	1	2	58	6	4.5
30.	I easily got used to blended learning in the course.	2	2	49	9	20
<b>Sum</b>				<b>1495</b>	<b>374</b>	

Assessments Strongly Agree + Agree are domineering. Their sum (1495) is statistically significantly different from assessment Disagree and Strongly disagree sum (374). Thus, *it can be concluded that the students' opinion about blended learning approach application in the Academic English course is positive*. Assessments Strongly Agree + Agree (1 + 2) have a wide range (20...61). In some cases, statistically significant difference cannot be observed, for instance, statement 19: 'Blended learning increased opportunity to connect with the professor.' ( $p > 0.127$ ), and statement 24: 'I learned to apply professional terminology in discussion.' ( $p > 0.87$ ). For the statement 19, Median cannot be defined in actual fact, it is in brackets (2).

The majority of students confirmed they developed academic language skills, were actively engaged in the course due to digital opportunities, promoted self-directed learning skills, became more confident in talking about research, developed English communication skills.

Similarly, another research in this field [14] highlighted practical advantages of the blended learning approach as it enhanced foreign language learners with collaborative activities and facilitated learning with interactive language skills. This study also revealed students' positive perceptions toward the blended learning application and extended a positive attitude for its successful implementation. Other scientists [20] also proved that foreign language learners had more motivation to take part in blended

learning activities compared with traditional foreign language classes, as well as they enhanced students' professional performances and led to academic achievements.

### **Recommendations for blended learning implementation**

In order to implement a blended learning approach in higher education, academic institutions should provide university facilities such as the Internet connectivity and student computer labs to support blended learning environment for both teachers and students. Intensive training programmes and digital skills development courses should be organised to provide teachers with practical implications on blended learning syllabus design. Educators should be equipped with the knowledge and resources they need to develop high-quality, communicative and collaborative learning experiences aimed at developing student Academic English language knowledge and skills using ICT. At the Latvia University of Life Sciences and Technologies, for example, teachers are supported by disseminated on-line and on site didactic modules which help them adapt their teaching methods for a blended approach and engage in the use of new tools and materials. Moreover, teachers are encouraged to communicate with their colleagues, share ideas and best practices and work collaboratively for effective blended learning implementation.

Setting up a blended context of learning, it is important to determine how much of the course will be online. Blended classrooms are designed to incorporate the e-learning experience to the course and use the Internet to reach students wherever they are. However, it is not designed to be completely online. It is recommended that only 25–50% of the course consists of online instruction. This percentage is required in order to maintain the benefits of face-to-face instruction. Thus, the teachers should find the balance between the two environments.

It is also imperative that educators start the first lesson with a description of the blended course content, explain what it will cover, identify learning goals and outcomes. Outcomes should define how students will achieve objectives and demonstrate competency in the Academic English matter. Specific outcomes could include classroom participation, oral presentations, online assignments, etc. The teacher should also determine how classroom and online performance will be assessed.

Furthermore, in the EAP course, teachers should encourage student meaningful communication and collaboration not only in face-to-face, but also in the online part of the course. Collaboration enables students to work together on a task to reach a common goal, solve problems, develop critical thinking skills and help each other learn. For technological solution of online learning part of blended-learning Latvia University of Life Sciences and Technologies uses learning management system Moodle that is the most popular one in the field of e-learning and the Big Blue Button platform. Teachers enrich the learning process by using various e-learning tools (Kahoot, Padlet, Miro, Mural, etc.) that engage student collaboration and communication in more flexible and attractive way.

It is also recommended to try different blended learning models, like ones described in this article above: 'blended presentation and interaction', or flipped classroom approach, or 'blended block model', or predominantly online mode that involves both synchronous and asynchronous methods. The teacher can provide students with blended experience combining different types of delivery media, combining instructional methods and combining in-person and online instruction.

Finally, systematic evaluation of blended learning success with respect to student achievement, satisfaction and learning outcomes should be done. At the end of the course, teachers should provide students with an opportunity to reflect on their blended learning experience, to evaluate knowledge they gained and skills they developed, which can empower the learners to make intelligent decisions about how to proceed with their learning in future.

### **Conclusions**

1. Blended learning has a significant potential to enhance learning in higher education, it is inevitable that it will become the norm in the future.
2. By combining aspects of online and in-person methodologies blended learning provides postgraduate engineering students with benefits of both. The analysis of the results obtained in student reflection provided empirical evidence to the claim that the students were advantageously influenced as a result of the blended learning environment in the Academic English course.

3. Postgraduate engineering students' opinion about blended learning approach application in the Academic English course is positive. Students believe that blended learning promotes self-directed learning skills, increases engagement in the course and interest in the Academic English subject, enhances collaboration with other group members, reduces isolation and stress and provides with access to learning during pandemic outbreaks.
4. The main goals of the Academic English course could be reached in blended learning environment. The majority of the postgraduate engineering students confirmed that blended learning facilitated development of English communication skills, academic language skills, promoted self-directed learning skills, the students were actively engaged in the course due to digital opportunities and gained more confidence in talking about their research. The majority of the respondents reported value of virtual reality that increased meaningful interaction and built a sense of community and spoke in favour of continuing education in blended learning context.

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