Bridging Technical and Academic English Studies in the Online Course for Post-graduate Engineering Students

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Abstract
Foreign language courses for academic purposes prepare students for the specific academic requirements at the tertiary level of education. English as the language of international exchange aims not only to improve students' level of English, but also to improve the language skills necessary for the academic environment. The study course "English for Master Students" at Latvia University of Life Sciences and Technologies is designed for the development of postgraduate engineering students' English academic writing and oral skills, and enrichment of the technical vocabulary. In the last few years, the blended approach has been applied in the study process with the additional learning material supplied in the e-studies of the university's website accessible via the university's online platform. In 2024 the above mentioned course integrated an innovative self-study online course "Foundations of Academic English" worked out in the framework of the project "Digitalization initiatives for the improvement of study quality in the field of strategic specialization of universities" which offered self-study learning materials for developing academic English skills, including writing abstracts. The aim of the present research was to explore post-graduate engineering students' reflections on the efficiency and benefits of such a self-study online course in post-graduate engineering education. The research was based on the post-graduate students' survey and mini-focus group discussions. Overall, the results of both the survey and the focus group interview revealed that respondents' opinion about the online self-study course was very positive suggesting that self-study online courses can be effectively integrated into the syllabus in the framework of blended learning.

Keywords: Academic English, Engineering Education, Blended Learning, Online Self-Study Course

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Introduction

Studying English for professional and academic purposes adds an international dimension to university programmes where study courses in engineering sciences for local students are implemented in their native language. Erasmus mobility has become an important characteristic of higher education, and English as the language of international exchange has found a stable place in the curricula of engineering sciences of universities across Europe.

The course "English for Master Students" at Latvia University of Life Sciences and Technologies is integrated into the master's degree programme for engineering students. The course is designed to prepare students for academic and research activities by focusing on developing skills necessary for reading and understanding scientific and professional texts in English, raising awareness of the genre of the publications of scientific papers, participating in discussions, writing for academic purposes, using and practicing professional terminology of the subject field in language tasks. Since the pandemic, a blended approach has been implemented using additional learning materials available on the "Moodle" platform of the university's website.

In 2024 the study course "English for Master Students" integrated an innovative self-study online course "Foundations of Academic English". The course was worked out in the framework of the project "Digitalization initiatives for the improvement of study quality in the field of strategic specialization of universities" funded by the European Social Fund (further: Digitalization Project). The aim of the project was to strengthen digital capacity and introduce digital initiatives in six Latvian universities, integrating technological solutions into the content and process of study courses. The main objectives of the project were the following: 1) strengthen and develop students' digital competences by integrating the latest digital solutions in the university study courses; 2) ensure development of students' digital competences; 3) strengthen the capacity of students in the use of artificial intelligence and machine learning. The online self-study courses in various subjects were available in the university's Moodle platform. As part of this project, the authors of the article piloted the self-study online course "Foundations of Academic English" (further: the self-study online course) developed on the Moodle platform by colleagues from another university. During one semester in 2024, two groups of postgraduate engineering students participated in this blended learning course, which combined online and on-site learning.

It seemed worthwhile to evaluate the benefits or drawbacks of the Digitalization Project initiative of integrating a self-study online course into the syllabus of the study course "English for Master Students". Therefore, the aim of the present research was to explore post-graduate engineering students' reflections on the efficiency of such a self-study online course in post-graduate engineering education.

Theoretical Overview

English for Academic Purposes (EAP) refers to teaching and learning English as a foreign language in the academic context encountered in university settings. Its main aim is to facilitate learners' studies or research activities through the medium of English (Flowerdew & Peacock, 2001; Hyland, 2006; Paltridge & Starfield, 2013). It is considered a branch of ESP (English for Specific Purposes) which has recently expanded together with the growing number of Erasmus+ mobility opportunities and international students studying in English in European universities.

As EAP is designed to provide learning materials to study or conduct research in English, it refers to a wide range of academic activities including (Gillet & Wray, 2006): 1) pre-university, undergraduate and postgraduate teaching (from materials design to lectures and class-room activities), 2) classroom interactions (tutorials, feedback, seminar discussions, etc.), 3) research genres (journal articles, conference papers, grant proposals, etc.), 4) student writing (tasks, exams, theses, etc.). The language content is focused on academic discourse, the syllabus is based on needs analysis and designed to enhance task performance in academic contexts which determines the language structures (Alexander et al., 2019).

The Academic English course at Latvia University of Life Sciences and Technologies is integrated into the curriculum of the master's degree programs for postgraduate engineering students, where the focus is on learning professional terminology related to engineering subject fields and applying the theoretical concepts in practical tasks, the development of knowledge and skills necessary for the reading of scientific and professional texts in English, listening to reports and discussions which is then followed by giving the feedback by speaking and writing for academic purposes.

In the last few years, the blended approach has been applied in the study process with the learning materials made available through the university's e-studies platform.

Blended learning combines online educational materials with traditional in-person classroom methods. The advantages of blended learning are widely described in scientific literature, they include: improving student motivation, promoting active participation, enhancing autonomy and teamwork, creating new forms of interrelation between teachers and students, allowing greater flexibility and accessibility, boosting digital intelligence, and potentially improving student learning outcomes (Pizzi, 2014, Megahed & Hassan, 2022, Sinkus & Ozola, 2022).

Methodology of the Research

This research evaluated the suitability of the Digitalization Project's online self-study English course for post-graduate engineering students integrated into the syllabus of the university's study course "English for Master Students". The post-graduate students' English language proficiency level ranged from B1 to C1 (most students had level B2).

The structure of the project's self-study online course "Foundations of Academic English" is very well designed. It comprises five units covering key topics such as characteristics of Academic English, cohesion and coherence of academic discourse, academic vocabulary, genres in academic writing, an abstract, explanations of English grammar rules. The students' native language is not used in the course, all instructions and learning materials are provided in English. Each unit includes the following:

1. A video with a narrated presentation in each unit (approximately 10 minutes long),
2. A quiz: digital lab practice,
3. Links to supplemental sources,
4. A unit quiz.

The course content was introduced and discussed during in-person seminars, while the activities of the self-study online course were completed on the Moodle platform during lessons and assigned as homework. The settings of quizzes allowed students to have several attempts to improve their scores and to consolidate their learning.

The research was designed in two stages. Firstly, the opinion of post-graduate students of engineering sciences was researched. It was decided to focus on one unit of the course, namely, on writing an abstract as a genre of academic writing. Students were administered an online questionnaire consisting of five questions in the anonymous online survey (Google Forms). The respondents (n=61) were asked the following questions:

1. Did the online presentation content effectively help you develop knowledge and skills in abstract writing?
2. Was the language and terminology in the online presentation clear and understandable?
3. Was the online presentation appropriate for your background and knowledge level?
4. Were the terms clearly defined?
5. Please rate how useful the online presentation was.

The second stage involved one mini-focus group discussion in October, 2024. Mini focus groups normally involve three to six people (Litosseliti, 2007, Oates & Alevizou, 2018). During group interviews and focus group discussions with people who do not feel comfortable in face-to-face interactions, focus groups offer a more 'safe' and informal environment where participants can share views, experience, beliefs, and attitudes in a free and open discussion about a particular topic (Krueger & Casey, 2015). Post-graduate engineering students expressed their reflections and feeling regarding the effectiveness of the self-study online course for acquiring knowledge of writing abstracts. The research methods were a survey, a focus group discussion and a monographic analysis. The research question is the following: Is the integration of Academic English self-study online lessons in the post-graduate study course «English for Master Students» relevant in post-graduate engineering students' opinion?

Results and Discussion

The results of the online survey show that the respondents have a positive opinion of the online course. A significant 91.8% of the students gave a positive answer to the first question if online presentation content effectively helped them develop knowledge and skills in abstract writing. Regarding the questions of whether the language and terminology, as well as the online presentation, were appropriate for their background and knowledge level, 93.4% and 98.4% of respondents, respectively, answered positively (Fig.1). It is necessary to mention that the voice-over and instructions of the course were in the English language, but it did not hamper the learning process.

Survey Question	Percentage of Positive Responses
The online presentation content helped develop knowledge and skills in abstract writing.	91.8%
The language and terminology were appropriate for the students' background and knowledge level.	93.4%
The online presentation was appropriate for the students' background and knowledge level.	98.4%

Figure 1: Respondents' Evaluation of the Difficulty Level of Digitalization Project's Self-Study Online Course

The results are somewhat surprising therefore more detailed explanations were expected during the focus interview later. The question, if the terms were clearly defined, received 90.2% answers “Yes”. The question was to find out if engineering post-graduate students could easily grasp the meaning of linguistic terms used in the explanations but the evidence witnesses that they could understand everything. It should be noted that the online learning material served as the support material for the topics studied during the face-to-face classes, and the explanations were received before doing online self-study activities.

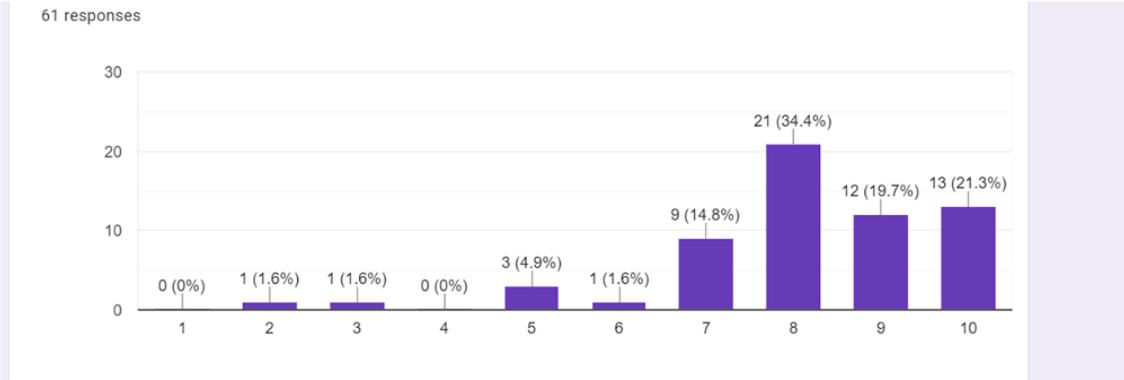

Figure 2: Respondents’ Evaluation of the Usefulness of the Digitalization Project’s Self-Study Online Course (the Evaluation Scale From 1 to 10, Where 1 Is Very Bad, 10 Is Outstanding)

In the last question, respondents were asked to rate the usefulness of the online presentation on the scale from 1 to 10, where 10 is outstanding, and 1 is very bad. It can be concluded the total of 75.4% of respondents gave scores from seven to ten thus confirming that the learning process was successful and helpful (Fig. 2). Another reason for such positive opinions is that present-day students are called Generation Z or post-millennials. It is a generation that grew up in the age of the internet and digital technologies, they are accustomed to engaging with videos and different online instructional materials found on the Internet.

Table 1: The Summary of the Focus Group Interview

No	Students’ reflections regarding the self-study online course	Positive/Negative
1	Knowledge of how to write abstracts, academic vocabulary	Positive
2	Good quality of online learning materials	Positive
3	Good structure of the course	Positive
4	Online material is more understandable and easily accessible	Positive
5	Insufficient English knowledge of learners for online self-study	Negative

During the second stage after having summarized the above-described findings, the authors carried out the study by conducting a mini-focus group discussion. The students' spoken responses were analyzed to identify key factors reflecting their attitudes towards the online course. Some positive feedback from the interviews included the following quotes: “I will use the acquired knowledge in writing abstract; online learning material is more understandable and more easily accessible than simple texts or "paper" tasks; I learned more about academic writing which was presented in good quality, it went step by step through the information and made me look up and translate some words which I did not know”. However, there were some negative opinions, such as: “It was useful, but the presentation form was rather uncomfortable to use, I would have preferred a readable format, not a video”, “If my English skills were better, then an online lesson wouldn’t be a problem. It’s hard to

express myself without vocabulary and basic knowledge, it took me hours to complete the unit quiz".

The analysis of the focus interviews leads to the conclusion that, according to the respondents' opinion, they acquired the necessary knowledge because the online self-study course had a good structure, and high quality, it was easily accessible, students could take time and go step-by-step, however, if students had insufficient English language proficiency, the course proved to be a challenge and thus not very effective.

Conclusion

Overall, the results of both the survey and focus group interview revealed that post-graduate students' opinion about the online self-study course was very positive. Present-day students are at ease with digital technologies and appreciate online learning materials developed by the teaching staff. However, some of the answers in the focus group interview gave evidence that a negative attitude towards online learning might be caused by insufficient English proficiency level as well as the dislike for the online format. The authors recommend introducing a new topic and explaining the vocabulary during face-to-face lessons in order to support students in their individual online learning activities to achieve better results. The self-study online course for post-graduate engineering students can be effectively integrated into the syllabus of the university's study course in the framework of blended learning.

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