

TECHNOLOGY-ENHANCED COURSE IN ENGLISH THEORETICAL GRAMMAR AND PHONETICS AT THE TERTIARY LEVEL

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Abstract. The advancement of technologies and the recently forced lockdown by Covid-19 are bringing changes to the organisation of the learning process by accelerating the introduction of e-learning to create a learner-centred technology-based approach to English studies, thus stepping towards digital humanities. These trends initiated the institutional project Mobile and Desktop Software Integration in Bachelor and Master Study Programmes. The present study, using a questionnaire, elicits university students' attitudes to the mobile applications and speech analysis software-based seminar activities in Moodle e-course in accordance with the blended learning model selected for the studies of theoretical grammar and phonetics. It is a cross-sectional, focused, and exploratory case study, comprising a description of factors, contributing to the problem of blended learning model selection. The yielded data demonstrate that students do not possess extensive prior experience with the use of software and mobile applications to study English grammar and phonetics. After completing seminar tasks, they favourably account for the integrated blended learning materials and consider that those facilitate their learning process.

Key words: blended learning, learning management system (LMS), theoretical grammar and phonetics, digital tools

INTRODUCTION

The advancement of technologies and the recently forced lockdown by Covid-19 have led to the shift of the learning paradigm, change of teacher and student roles and a different organisation of the learning process. Authorities of higher education institutions have been actively introducing the elements of e-learning, mobile learning, flipped learning and blended learning delivering a variety of subjects, using these frameworks in order to create a favourable environment for a learner-centred approach. It ensures the access to educational resources through links, enabling the learners to create and share the content, thus, expanding the boundaries of the classroom. Moreover, there are mobile applications and

downloadable software that go beyond the functionality of learning management system (LMS) *Moodle*, as they are currently in focus of the English language grammar and pronunciation studies, so their integration is to be considered. The implementation of the mobile applications and downloadable software in English Philology Bachelor Study Programme and in particular in the studies of *English theoretical grammar and phonetics* is determined by limited functionality of LMS *Moodle*, transition from four to three years of Bachelor studies as well as the need to advance students' digital competence in humanities. To bridge this gap, the institutional project *Mobile and Desktop Software Integration in Bachelor and Master Study Programmes* was implemented to design the digital seminar tasks for the courses of these programmes including the course in question.

Prior to commencing the research, the following research question was formulated: What will be students' attitude to the introduction of blended learning model aimed to ensure the exposure to digital course materials and facilitate student involvement?

The goal of the research, therefore, is eliciting students' attitude to the mobile applications and speech analysis software-based seminar tasks designed and selectively integrated in *Moodle* e-course in accordance with the blended learning model selected for the studies of *English theoretical grammar and phonetics*. The obtained results serve as a cornerstone for further study course digitalization and introducing blended learning elements.

In order to reach the goal, the following enabling objectives were set: (1) to investigate and select the blended learning model for facilitating the learning of *English theoretical grammar and phonetics*; (2) to administer the pre-questionnaire in order to elicit information about the students' familiarity with the *Moodle* functions, mobile applications and downloadable software; (3) to create two sets of customized digital materials: one set of seminar tasks for mobile applications-based studies of theoretical grammar and the other set for speech analysis-based studies of theoretical phonetics. (3) to select the tasks from each set and integrate them in the *Moodle* component of the course within the limits of the seminar hours allotted in this course; (4) to elicit students' attitude to the integrated tasks by administering the questionnaire.

LITERATURE REVIEW

Blended learning has been shaped and developed by researchers and educators for several decades, therefore, the key theoretical considerations need to be established for the present research.

Blended learning mode is defined by scholars as an innovative concept the most characteristic aspect of which is an organic integration of relevantly selected face-to-face teaching approaches and online teaching (Moebis and Weibelzahl, 2006; Garrison and Vaughan 2008; Lalima and Dangwal, 2017; Linder, 2017). Linder (2017), considering the aspect of blending proportion,

explains that online component may vary, but should constitute at least 30 per cent. Linder (2017: 11) compares blended learning environments with traditional classrooms in terms of design and claims that blended courses require particular attention and alignment in the design stage to ensure that the face-to-face and online activities are organised efficiently to integrate different modalities. This integration is manifested at three levels (the first and the second level serve as a basis for course tailoring and content digitalization within the present study): (1) blending traditional and web-based classroom setup; (2) blending media and tools in learning environment; (3) blending various pedagogical approaches (Whitelock and Jelfs, 2003).

When selecting the blended learning model, Alammary, Sheard and Carboni (2014) propose three distinct design approaches: low-impact blend when extra activities are added to the existing course; medium-impact blend when activities are replaced in the existing course; high-impact blend when the blended course is built from scratch. The implementation of these design approaches in the present study are uncovered in the section *Setting and Blended Learning Model*.

Researchers (Terbeek, Cremer and van Klaveren, 2019: 2459-2466), who have carried out systematic literature review on the concept of blended learning, conclude that higher education institutions worldwide ‘place blended learning at the heart of their educational vision’. The mentioned researchers also emphasize the role, responsibility, commitment, skills, and knowledge of educators to integrate technology relevantly in the study process. The outbreak of the world pandemic has made the changes to the organization of the learning process even swifter and challenged higher education institutions by quick solution search and implementation. The blended learning has been diversified by the integration of technology that is (1) commonly used on daily basis – mobile applications and mobile phones and (2) purpose-specific software.

The growing significance of mobile learning and integration of mobile applications in language learning have been noted by researchers, highlighting benefits and deficiencies. Stockwell (2013: 201) has predicted and drawn attention to their role in the shift of ‘learning context from more formal settings to something that occurs as an accessible part of learning both in and out of classroom’. the application of mobile phones in education thus refers also to the infrastructure required for blending, so Grunewald Nichele and Zielinski do Canto (2018) draw attention to ‘Bring Your Own Device (BYOD)’. This uncovers the limitation regarding ‘the lack of policy support and governmental investment and the negative social attitudes of people towards mobile phones in the school environment (i.e. in Italy, Greece, UK) because of cheating, cyber-bullying, etc.’ (see Tsinnakos, 2013), infrastructure prior to introducing mobile technologies in the learning process and planning additional time and resources (Salaberry, 2001; Colpaert, 2004; Tsinnakos, 2013: 16). What concerns learning grammar, the scholars (Brown, 2009; Ligi and Raja, 2017) emphasize that the use of blended learning models diversifies task types, provide the functionality to

visualize the results, provide feedback, use different interaction patterns as well as encourage self-paced learning making learning possible any time anywhere.

The purpose-specific software (speech analysis tools) application in the instruction of phonetic aspects has been promoted by Busa (2007) who claimed that it might open a new perspective in pronunciation teaching. Traditionally, this software has been used in the research and description of acoustic aspects of phonetic features as described by Reetz et al. (2009/2020) and is widely applied in linguistic research. For example, Morris and Hejna (2020) have used *Praat* in their recent research in sociophonetics of pre-aspiration occurrence, duration, and noisiness in Welsh spoken in Bethesda (Gwynedd). Speech analysis software has been found useful by numerous studies in teaching suprasegmental and segmental aspects of pronunciation. Earlier research focused on technology-enhanced suprasegmental aspects such as pitch contour models of native speakers (e.g. Levis and Pickering, 2004; Hardison, 2004) and also more recent research (Yamane et al., 2018) the effect of viewing intonation contours created in *Praat*. Speech analysis software benefits in teaching segmental pronunciation aspects and the use of visual feedback in their teaching have been described by researchers (e.g. Olson, 2014; Okuno and Hardison, 2016), which have been summarized by Yoshida (2018).

However, there is considerably little research devoted to speech analysis blending modes in LMS. Wilson (2009) has addressed blending by involving students in the activity that coupled *Praat*-based practice of aspiration with the provision of instant feedback in LMS *Moodle*. Students self-measured their voice onset time (VOT) in *Praat* and then used LMS *Moodle* choice activity for reporting about their range of VOT. This enabled to track the students whose aspiration measures were outside the normal range and provide individual feedback. Such blend, according to blend levels suggested by Whitelock and Jelfs, (2003), displays low to medium impact. Similar approach to blend mode has been applied (see Luo, 2016) in the experimental study that explored the blending of peer assessment homework in LMS *Blackboard* for improving students' pronunciation performance, in which feedback was in a form of a textual comment. High-impact blend mode has been applied by Yan et al. (2018) who have used a specific web-based platform of two modules: an adaptive training module and peer review module for EFL pronunciation training embracing segmental and suprasegmental features thus applying high impact blend mode.

To conclude, blended learning models is a combination of a face-to-face instruction with online mode of delivery. It is defined by higher education institutions as a part of their vision. Blending presupposes the combination of traditional and virtual classroom setup, mixture of media and tools as well as a synergy of pedagogical approaches. It may be of a low, medium, or high impact. Digitalisation may occur at a course level, when online element is an integral part of the study process, for instance due to confined teaching hours. It may also be seen at a task level, when blending happens on case-to case basis and methodologies pursue different aims, e.g. student engagement.

RESEARCH METHODOLOGY AND SUBJECTS

The present paper reflects a part of ongoing research regarding the implementation of digital tools in Bachelor and Master Study Programmes in English Philology, which was initiated in 2018 as an institutional project. As a result of it, digital seminar tasks were designed and piloted. The present paper is cross-sectional research, as defined by Dörnyei (2007), employs focused and exploratory case study as a research method (2005). It includes the selection of the blending model for introduction of digital tools-based tasks within the course of *English Theoretical Grammar and Phonetics* and eliciting students' attitude as a reaction to blending model introduction thus aimed to answer the research question listed in the introduction. This research method was selected as the research comprised a description of subjects and factors contributing to the problem of blended learning model selection for seminar task design and dealt with collecting the opinion of the sample rather than proposing the ultimate solution.

The questionnaires were used as data collection tools in order to obtain data on students' prior experience of digital materials use and elicit the students' attitude to the digital seminar tasks designed for the studies of theoretical grammar and phonetics.

The research subjects comprised 40 students (30 full-time and 10 part-time) whose prior experience in using mobile applications and downloadable speech analysis software *Praat* in learning English grammar and phonetics was explored by administering questionnaires. In further steps of the study the number of research subjects comprised those 28 Bachelor Study Programme full-time (20 students) and part-time students (8 students), who had registered for the course of *English Theoretical Grammar and Phonetics*.

PROCEDURE

The research commenced with the theoretical framework review and the selection of the blended learning model to facilitate learning theoretical grammar and phonetics by integrating the customized digital materials (mobile applications and downloadable software). It continued with administering the pre-questionnaire (see Appendix 1) in order to elicit information about the students' familiarity with the *Moodle* functions and mobile applications and downloadable software. Further, two sets of customized digital materials: one set of seminar tasks for mobile applications-based studies of theoretical grammar and other set for *Praat*-based studies of theoretical phonetics were created and piloted within the framework of the institutional project. The tasks were selected from both sets and integrated in the *Moodle* component of the course within the limits of the seminar hours allotted to the mentioned course. The tasks were integrated into *Moodle* through its affordances and used as low and medium impact blending. Finally, students' attitude to the integrated tasks was elicited by administering the questionnaire.

SETTING AND BLENDED LEARNING MODEL SELECTION

The selection of blended learning model comprised three steps. First, after the review of the secondary sources on the fundamentals of blended learning, the setting referring to the institutional prerequisites was considered. The study process organization at the University of Latvia, as described in Karapetjana et al. (2016), which is strongly supported by Student Council, includes the requirement to digitalise courses. It means more active use of LMS *Moodle* in full-time and part-time studies, thus increasing the exposure to the subject matter and student involvement. In addition, such digitalization enables the addressing operational costs, including the use of facility, printing, and publishing expenses. Meanwhile, there was a scarcity of digital resources in the *Moodle* component of the course *English Theoretical Grammar and Phonetics* that called for the integration of relevant tools and transition to blended modality. This was the reason why the course *English Theoretical grammar and Phonetics* was in the focus of the second stage of the institutional project *Desktop Software Integration in Bachelor and Master Study Programme* immediately after the completion of the first stage of the project – the seminar task design for normative courses the results of which are presented in conference proceedings (Kuzmina, 2019; Vincela, 2019).

Second, the pedagogical implications were considered to align the functionality of blended model with the aim, objectives, and content of the course. The umbrella aim of the course is to view *English Theoretical Grammar and Phonetics* in the context of other branches of linguistics. Course objectives focus on the specific features of theoretical grammar and phonetics. Thus, the component of the theoretical grammar discusses English as an analytical language outlining the key grammatical features. The traditional accounts on parts of speech are presented drawing their semantic, morphological, and syntactic peculiarities. The review of grammatical categories involves a correlational analysis of grammatical forms and meaning. The course component of the theoretical phonetics provides an insight into the segmental (sound structure) and suprasegmental (accentual structure, syllabic structure, intonation) aspects of English, introduces problems of phonetic and phonemic investigation of English with an emphasis on the pronunciation latest developments. These course content aspects are fundamental for English Philology undergraduate studies, as it is a pre-requisite in syntax acquisition and sociophonetics acquisition at the Master's level. Therefore, the specific grammatical and phonetic features that are in the focus of the mentioned course objectives framed the content component of the blended learning model comprising digitalized seminar activities.

Third, the differences between full-time and part-time programme studies were considered. The main difference is the number of contact hours. In full-time studies there are 64 contact hours, whereas 16 contact hours are envisaged for

part-time studies, which are compensated by independent work. Another point is the humble number of hours allotted to seminars (two hours devoted to grammar and two to phonetics). It implies that historically the course was delivered by using teacher-centred approach with little student involvement. Due to these nuances, blended learning design approach, which is outlined in Table 1, differs for full-time and part-time modes of studies according to the level of blending. Low impact or activity level blend was selected for full-time course, whereas medium-impact or course level blend for part-time course.

Table 1 Blending of materials and activities

Low impact blend, full-time studies		Medium impact blend, part-time studies	
Digital informative materials			
Purpose	Mode	Purpose	Mode
Facilitate content coverage	<i>Moodle</i> availability (various format files, created online pages)	(a) Facilitate content coverage (b) Compensate for contact hours	<i>Moodle</i> availability (various format files, created online pages)
Digital activities			
Tasks of activities	Mode	Tasks of activities	Mode
Introductory task	Technology-based face-to-face	Introductory task	Technology-based face-to-face
Core task 1	Technology-based face-to-face	Core task 1	Online, integrated in <i>Moodle</i>
Core task 2	Online, integrated in <i>Moodle</i>	Core task 2	Online, integrated in <i>Moodle</i>
Follow-up	Face-to-face discussion	Follow-up	Online discussion integrated in <i>Moodle</i>

Low-impact blend envisaged the alternation of face-to-face and mobile applications and speech software-based tasks of the activity that was integrated in *Moodle* component of the course by applying LMS affordances (e.g. links and assignment functions). They aimed at the promotion of interactive, learner-centred acquisition of course content by complementing the digitalized informative materials. As to part-time studies, course level blend was selected as relevant. First, the purpose of course content-based digital informative materials was not only to facilitate but rather compensate contact hours, which accounted for their amount in the *Moodle* component for part-time studies. Second, as it is observable in Table 1, online component throughout the digitalized activity tasks was dominating in comparison with face-to-face component.

PRE-QUESTIONNAIRE

Before the software choice and seminar task design, it was vital to acquire the data uncovering the students' prior experience, which was explored by administering a questionnaire. The aim of this pre-questionnaire, consequently, was to elicit students' prior use of LMS *Moodle* functions as well as their familiarity with mobile applications and speech analysis tools – the core software for the design of the activities (see questionnaire in Appendix 1).

The pre-questionnaire was filled in by 40 students among which 8 students (20%) were the first year and 32 (80%) the second-year students who accordingly had not experienced the course in English theoretical grammar and phonetics. They were offered the multiple-choice questions to find out what functions of LMS *Moodle* they had already used throughout their studies (see Table 2). The answers revealed that the students had predominantly used LMS for exercises, self-tests as well as getting acquainted with the new material. These results implied smooth transition to blended modality as far as it would involve familiar functions of LMS. However, LMS was less used by the students for their communication with peers. The data in Table 3 shows the students' generally positive (55%), however, also mixed attitude, answers 'maybe' and 'don't know', (42.5%) to LMS *Moodle* functions they were familiar with.

Table 2 LMS Moodle functions used by students (N=40)

LMS Moodle functions	Number of students	%
The presentation of new material	32	80
Exercises	37	92.5
Self-tests	28	70
Wiki	15	37.5
Glossary	18	45
Online tests	26	65
Communication with peers	13	32.5
Communication with teaching staff	21	52.5
Other (please specify)	0	0

Table 3 Usefulness of LMS Moodle (N=40)

Do you find it useful in your studies?	Number of students	%
Yes	22	55
No	1	2.5
Maybe	8	20
I do not know	9	22.5

In addition, the students were offered to answer which of the mobile and desktop applications they had already used in language studies. It was found that 62 per cent of them had applied *Kahoot* and 47.5 per cent *Quizlet* in their studies, whereas only a few students had used such applications as *Seesaw* (2.50%) and *Plickers* (2.30%). Voice recorders had been used in language studies by 42.38 per cent of the students, whereas none of them was familiar with the application of speech analysis software *Praat* in language studies.

The elicited prior experience of the students was a significant component of practicality criterion that was considered in the choice of software and the activity design.

SOFTWARE SELECTION

Once the blended learning model for the digitalized seminar task integration was selected and students' prior experience and preferences as to LMS *Moodle* functions collected, the next stage was software choice. It was performed according to the criteria proposed by researchers (see Yoshida, 2018; Terbeek et al. 2019: 2466; Grunewald Nichele, Zielinski do Canto, 2018; Kuzmina, 2019) who have suggested viewing software features (functions, practicality including students' familiarity with the software) in relation to course objectives.

Software functionality was viewed in the context of the course *English Theoretical Grammar and Phonetics* content and objectives. The functionality of the mobile applications *Quizlet*, *Kahoot*, *Quizalize* and *Classtools.net* were selected as relevant affordances for the digitalized tasks aiming at grammatical categories that are outlined in the course objectives. As to the coverage of phonetic aspects of the course, the affordances of speech analysis software *Praat*, which was created by Paul Boersma and David Weenink, are relevant to address segmental and suprasegmental phonetic features outlined in the course objectives.

Practicality of the software was viewed from two angles, its accessibility and students' familiarity with the software as they have reported in pre-questionnaire. The mobile applications *Quizlet*, *Quizalize*, *Kahoot! mobile apps* were viewed as relevant for teaching theoretical grammar, because they are open software and comply with the students' previous experience elicited by the pre-questionnaire. In the process of analysis, it was concluded that the features of *Classroom.net* resources are also relevant to the subject matter and may be considered in further research. Speech analysis software *Praat* meets practicality as it is conveniently downloadable open software. However, the pre-questionnaire revealed that *Praat* was completely unfamiliar to the students irrespective of the contemporary growing and diversifying use of technology. However, the relevance of *Praat* functionality to course content and objectives is a significant factor for its application. Therefore, it was decided to apply it, however, envisage the familiarizing stage with *Praat* functions that would be required for the completion of a particular stage of the task. In addition, the availability of tutorials was envisaged to provide additional support regarding the functions of

this software. The students' familiarity with LMS *Moodle* functions, according to the pre-questionnaire results, was another technology-based precondition towards piloting of the tasks and blended mode implementation.

To conclude, the selection of tools for blending was based on a set of criteria that was observed, the primary being the correspondence to the learning objectives alongside with further considerations of software functions and pre-questionnaire implications. Pre-questionnaire results by informing about the students' familiarity with mobile application and speech software prepared the set-up for the task design and implementation. The mobile and web-based applications and speech analysis software *Praat* were selected for creating seminar tasks within the framework of the studies of *English Theoretical Grammar and Phonetics* to shift the traditional face-to-face, lecturer-centred instruction by expanding the online mode of delivery.

TASK DESIGN

Task design has been performed taking into consideration course goals and functionality, practicality and students' familiarity with this software. The mobile-application and speech analysis software task design occurred alongside with the transformation of the study programme from four to three years of studies and the promotion of student-centred studies by the increasing of seminar hours in the course. This complied with the project *Mobile and Desktop Software Integration in Bachelor and Master Study Programmes* goal, and therefore a package of seminar activities was designed serving multiple purposes, i.e. for programme transformation and as a practical guide for the implementation during COVID-19 forced remote work.

The summary of the digitalized activities devoted to grammatical categories is included in Appendix 2, Table 5. It is important to note that the functionality of the applications goes beyond the functionality of LMS, thus complementing it. They were designed complying with the course objectives and following the framework outlined in Table 1. They were used to make students acquainted with the terminology (Introductory task with Quizlet), facilitate pair-work and group-work (Core task 1 with Classroom.net), create self-tests (Core task 2 with Quizalize) and mock-test (Kahoot!). The discussion was organised face-to-face using the visualisation of results with full-time students and in *Moodle* with part-time students. The major difference between the LMS functionality for test creation and the selected app is simple in-built algorithm for data analysis to evaluate students' mistakes and propose extra exercises (*Quizalize*) as well as foster cooperative learning (*Classroom.net*, *Kahoot!*). Such task setup accounted for low impact blending model in full-time studies and medium-impact blending model in part-time studies.

The thematic summary of the digitalized seminar activities devoted to phonetic aspects is included in Appendix, Table 6. Each of the designed activities

follows the blending mode framework presented in Table 1 and comprises four tasks. The introductory task of each activity, which is face-to face for full-time as well as part-time students, offers a concise overview on the pronunciation aspect included in this task. It also includes the demonstration and practice of *Praat* functions. Core task 1 of each activity is devoted to the observation and analysis of an example of pronunciation aspect the activity is devoted to. In the case of low-impact blending core task 1 is technology-based face-to-face task; however, in the case of medium-impact blend core task 1 is performed online by applying *Moodle* functions (assignments, embedded instructions, links to software and feedback in *Moodle*). Core task 2 of each activity envisages individual work at observation of speech samples with the help of *Praat* and documentation of the obtained results. Core task 2 is fully integrated in *Moodle* through assignment functions and embedded links, irrespective of the blend level. The follow up task is devoted to the face-to-face discussion in low-impact blending, whereas online discussion – in the case of part-time studies, i.e. medium level blend.

The seminar hours of the course *English Theoretical Grammar and Phonetics* allowed the piloting of three activities, so two mobile application-based activities aiming at grammatical categories and one speech-analysis based activity devoted to phonetic aspects were selected for piloting.

PILOTING

The selection of the tasks for piloting was matched with the available seminar hours. Therefore, two mobile-application based activities and one *Praat*-based activity were selected for piloting.

The number and types of activities, alongside with the students' prior experience as to the use of mobile application and speech analysis software, strongly depends on the number of seminar hours that can be devoted to the activity level component of blended studies.

1 PILOTING ACTIVITIES IN QUIZALISE, KAHOOT! AND QUIZLET

To meet the needs of theoretical grammar, *Quizalize*, *Kahoot!* and *Quizlet* apps were selected. The first stage of the task was familiarisation with the concepts of open and closed parts of speech as well as their syntactic roles. Following this, the students were provided with electronic flash cards in *Quizlet*, covering the key terminology. Later on, the same terminology was integrated into multiple choice and cloze exercises. Finally, the students were encouraged to complete a matching task set up as an online game with a follow-up discussion. This activity setup enables the teacher to generate various activity types, having in the basis the same terminology for the students to master as well as minimise time, resources and increase students' involvement.

The *Quizalize* and *Kahoot!* apps were used to design multiple choice tests as a midterm and mock test before the examination. The full-time students were encouraged to do it in class with a follow-up discussion, whereas for part-time correspondence students it was assigned for independent study, which is determined by the number of contact hours. The back-end of the functionality of the software enabled the teacher to see the detailed activity performance conditions, e.g. The number of attempts students undertook, time required how their progress has increased as a result of multiple attempts as well as automatically assign additional tasks to work with weak points, visualising the statistics, which are supplementary features to those available in *Moodle*. The functionality of the selected software is well suited to compensate to the gap in contact hours between two study modes. A follow-up discussion was organised in *Moodle*.

2 PILOTING OF PRAAT-BASED ACTIVITY

Activity 1 (see Appendix Table 2) devoted to the *Praat*-based observation of British English vowels was selected for piloting the low-impact and medium-impact blend models (see Table 1). Two seminar hours were devoted to this activity for full-time students and one seminar hour for part-time students. The introductory task was covered during the face-to-face seminar hour in full-time and part-time studies. During this activity, the acoustic properties of vowels, were introduced and discussed, respectively formant 1 (F1) and formant 2 (F2) variations, depending on gestures. Students were also familiarized with the functions of *Praat*, which they would require for core task 1 and core task 2 – formant measurement extraction. They also practiced these *Praat* functions to gain confidence in their application, and, if necessary, ask for clarifications. Core task 1 included full-time students' in-class work on the observation and discussion of the vowel acoustic features in the proposed examples. Part-time students performed core task 1 as an online assignment in *Moodle* (according to the task outline and links leading to the required resources) and they also received online feedback on it. In order to perform Core task 2, the students uploaded speech samples to *Praat*, then observed and documented the formant (F1) and (F2) values of vowels and compared their results with the results presented in literature. Core task 2 was performed and submitted online by full-time as well as part-time students by applying *Moodle* functions (assignments and embedded links). Online feedback was provided on the submitted assignments. Follow-up discussion of core task 2 results and insights were discussed with full-time students during their second face-to-face seminar hour, whereas *Moodle* discussion forum was used to manage the discussion online with part-time students.

A POST-QUESTIONNAIRE

After piloting the above-described technology-based seminar activities (two of them targeted at grammatical features and one at phonetic features), the attitude of 28 full-time and part-time students who got enrolled and completed the course was elicited with the help of Likert scales, commonly (see Rasinger, 2013) acknowledged as an effective instrument for measuring such an abstract concept as attitudes. The students uncovered their attitudes by indicating the agreement/disagreement with the statements displayed in Table 4 on a scale from 1 to 7, whereby 1 indicated total disagreement and 7 indicated total agreement. In addition, the option ‘don’t know’ was included.

The results referring to the first statement to elicit how the students viewed the piloted mobile (*Quizlet*, *Quizalize* and *Kahoot!*) and *Praat*-based seminar tasks were predominantly evaluated positively, as they considered that these tasks facilitated their learning process. The responses show that the students acknowledge the positive impact of the piloted tasks on the furthering of their acquisition of the course content (mean score for grammar 6.25 and 6.30 for phonetics). This attitude of the students is reinforced by the mode – the most frequent answer (14 total agreement answers for grammar aspects and 15 total agreement answers for phonetic aspects).

Table 4 Post-questionnaire (N=28)

Statements	Grammar (G) Phonetics (P)	Mean	1	2	3	4	5	6	7	Don't know
Course assignments facilitated the learning process	G	6.25	0	0	0	2	4	6	14	2
	P	6.30	0	0	1	1	3	8	15	0
E-course materials facilitated the learning process	G	6.52	0	0	0	1	3	4	19	1
	P	6.24	0	0	0	2	4	4	18	0
Teaching methods facilitated the learning process	G	6.19	0	0	1	1	5	5	15	1
	P	5.64	0	1	2	2	5	5	12	1
The tasks embedded in the course correspond to its description and objectives	G	6.54	0	0	0	1	2	5	18	2
	P	6.60	0	0	0	1	1	6	19	1
Academic staff was available for tutorials	G	6.55	0	0	0	1	1	5	15	6
	P	6.50	0	0	0	1	2	4	17	4

The second statement demonstrates positive attitude to the usefulness as to the materials that were included in e-course (6.52 is the mean of theoretical grammar and 6.24 – of phonetics, with the prevailing answer referring to the total

agreement). Similarly, the third statement reveals the favourable attitude towards teaching methods applied during the piloting. Meanwhile, these results provide grounds for more detailed observation of the answers. The obtained results allow noticing the nuances of the students' attitude that signals the caution of some students, for example, towards the way the activities are blended within the course. The elicited answers referring to the question devoted to the applied methods function as a reminder for the explicit methodological structuring, description and managing of each step of the digitalized activity. Meanwhile, the students have acknowledged the additional support availability in a form of tutorials that was especially crucial in the case of the task devoted to phonetic aspects as it required the application of specific functions of *Praat* that initially the students were not familiar with. The obtained results, therefore, form an insightful basis for the furthering of the blended studies model within the framework of the course.

CONCLUSIONS

The review of secondary sources revealed that when digitalizing activities for blended learning environment involving mobile applications and desktop software, institutional, technical, and pedagogical implications are to be considered. The obtained results confirm that a stepwise tailoring of the blended learning model, which rests on a range of aspects such as fundamentals of blended learning, institutional setting, teaching mode, course goal and objectives, software affordance (mobile applications, speech analysis software and LMS), and their synergy are preconditions to an applicable blending mode that can function for student-centred attainment of course objectives.

First, the process of the digitalized activity design which envisages the application of a range of software uncovered the topicality of the eliciting of the students' prior experience, irrespective of the currently expanding technology use on daily basis. The prior experience implications might be decisive in the structuring of activities and their time frame planning, depending on the blend level (low or medium impact blend). In addition, the knowledge of students' prior experience can save the frustration that students might encounter while discovering the function nuances of specific software during their independent work on tasks. The prior experience can be decisive and as this research demonstrates, having at the basis the results of the pre-questionnaire, students' digital experience was extended.

Second, the piloting results confirmed that the designed activities, from the students' perspective, can facilitate course objective attainment. It implies the selected framework applicability, i.e. blend level of the piloted activities (low impact blend for full-time studies and medium-impact blend for part-time studies), including such components as follow-up discussion (face-to-face or online) of the individually obtained conclusions, feedback, e.g. score,

the possibility to track their record or compare their progress against the peers; visualised feedback data. Once these pre-conditions are observed, it yields positive attitude of the usefulness of the digital matter.

Finally, the blending of the digitalized activities within *Moodle* component of the course confirmed the topicality of the shifting the proportion of course delivery hours towards increasing the seminar hours for attaining the institutional goal towards the digitalization and student-centred studies. The piloting process allowed to observe that on the one hand the blended learning mode activities promoted controlling, even investing in reducing of operational costs. However, on the other hand, during the implementation piloting revealed the topicality of a relevant, up-to-date institutional infrastructure for blending, i.e. computer labs, broadband connection, or students must bring their own devices.

The designed activities, their blending, piloting, and the obtained data allow their putting into practice and furthering institutional decisions by organizing the learning process in COVID-19 conditions that is experiencing unexpected changes when digitalisation has become compulsory.

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Tool

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APPENDIX 1 PRE-QUESTIONNAIRE

1. What is your gender?
 - Male
 - Female
2. What is your age?
 - 18–25
 - 26–35
 - over 35
3. Have you used Virtual Learning Environment (Moodle; WebCT, other) to practice grammar and pronunciation at university?
 - Yes
 - No
4. Do you find this learning environment useful?
 - Yes
 - No
 - Maybe
 - I do not know

5. What functions of VLE have you used at university?

- the presentation of new material
- Exercises
- Self-tests
- Wiki
- Glossary
- Online tests
- Online exams
- Communication with peers
- Communication with lecturers/teachers
- Other (please specify)

8. What functions did you lack?

9. What applications have you used in addition to VLE to study English grammar and pronunciation?

APPENDIX 2 SUMMARIES OF SEMINAR ACTIVITIES

Table 5 Summary of mobile application-based seminar activities

Software	Functionality and Procedure
<i>Quizlet</i>	It is a useful application to learn vocabulary as its features enable a teacher to create pairs for matching. However, in grammatical terms, it might be a way to teach definitions, match colligations or jumbled sentence structure. For instance, within the framework of the present study, it was used to design a matching exercise on parts of speech and their syntactic roles. It enabled the students to memorise the required terminology.
<i>Kahoot!</i>	It is an application which enables the teachers to create multiple choice tests with a time limit, which simulates or enables to automate test or exam environment. The tests are run in class and the answers are submitted via mobile phones creating competition spirit and enabling the students to track their progress on the screen. The drawback of this app might be the dependency on the broadband Internet connection especially for larger groups. Within this research it was used to run a mock test before a midterm test.
<i>Quizalize</i>	It possesses similar features to those of Quizlet and Kahoot! and enables teachers to make tests and set them in class or at home as an interactive online test adding pictures, if required. It also allows teachers to import questions from spreadsheet or Quizlet or integrate features with Google Classroom. Its advantage is having the basic data analysis algorithm, the software analyses students' mistakes and proposes extra exercises. In this study it was used to create an activity to practice verb patterns with the infinitive and gerund.

Software	Functionality and Procedure
<i>Classtools.net</i>	It is a desktop application which contains a mobile friendly version to create interactive games, for instance, create a crossword with terminology, turn a test into an arcade game (e.g. Pacman or races), Connect Fours to systematise or divide concepts into four groups. The disadvantage of the tools might be a lower quality graphics and a bigger screen might be required for some tools. However, if students may use tablets, the issue of the screen size is addressed.

Table 6 Thematic summary of *Praat*-based seminar activities

No	Theme of the activities	Outcome
1	Introduction to <i>Praat</i> -based visualisation of acoustic aspects of BrE monophthongs	Table filled in with the observed data concerning the quality of monophthongs (F1 and F2 values) in the observed spectrograms of BrE speech samples
2	<i>Praat</i> -based research of the quality of the selected monophthongs in the selected English accents	Table filled in with the observed data concerning the selected monophthong quality (F1 and F2) in the observed accent samples. The obtained data comparison with the data obtained about the quality of BrE monophthongs
3	Introduction to <i>Praat</i> -based visualisation of voice onset time (VOT)	Table filled in with the observed visual data available in spectrogram view concerning BrE consonants that are included in the task: VOT, visualisation of presence/absence of voicing
4	<i>Praat</i> -based research of linking <i>-/r/</i> , intrusive <i>- /r/</i> in rhotic and non-rhotic accents	Transcribed speech samples arranged according to rhotic/non-rhotic accents and the presence/absence of <i>/r/</i> .

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