Teaching English pronunciation using technology
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Introduction

Teaching English pronunciation has always been a multifaceted process involving the expert knowledge of phoneticians, teachers, and technology developers who all contribute to delimiting the content and aims of pronunciation courses, methods used in the process of learning pronunciation and technological devices used for pronunciation training.

The goals of pronunciation training are constantly changing, and experts are still looking for appropriate pronunciation goals (Hahn, 2004; Field, 2005; Munro, 2010; Metruk, 2020; Yenkimaleki & van Heuven, 2021). The preference of segmentals over suprasegmentals or the contrary approach is still being investigated (Munro, 2010; Metruk, 2020). The preference of one over the other can, at the practical level, be decided by a course book analysis (Pavliuk, 2020), which is a popular method of investigating the content of pronunciation training. According to Straková (2004), both students and teachers work with course books for 75% of the time; thus, course books’ content and quality are considered essential for language learning in classrooms. The importance grows even more in distance learning, where many students who are unable to attend online courses can only rely on course books. In terms of pedagogical approaches to teaching pronunciation, the traditional training methods still seem popular (Foote et al., 2016). However, studies investigating the use of different technologies, including automatic speech recognition (Saraclar & Khudanpur, 2004; McCrocklin, 2016) or possible application of artificial intelligence (Noviyanti, 2020; Zhang, 2021a; Zhang, 2021b), have appeared. Another important aspect of including technology into the educational process is the issue of e-learning in general (Liaw et al., 2007; Liaw, 2008; Park, 2009; Cimermanová, 2011; Arkorful & Abaidoo, 2015; Srivastava, 2019; Abbasi et al., 2020) and for pronunciation training in particular (for review see Vančová, 2020b). Until 2020, e-learning, blended learning, flipped learning and creating virtual learning spaces appeared to be relatively marginal compared to traditional face-to-face learning. The research investigated the optimum conditions for its implementation and other factors relevant for its pedagogical success.
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Educational processes have undergone dramatic changes since spring 2020 all around the world. Irrespective of teaching and learning preferences, education has shifted to the distance form. For many learners, it meant working with textbooks and worksheets. For other learners, it meant working behind a computer, a tablet or a smartphone screen. Personal contact has been substituted with communication via emails, messages, chats or letters in post-boxes.

This was also the case in Slovakia, where schools were closed from early March 2020. The situation in secondary education was summarised by the report by Ostertágová & Čokyna (2020). According to the study, in spring 2020, schools were able to start online teaching within a week after the closure, and 81.5% of pupils had access to online learning, 7.5% of pupils had no access to distance learning, and the remaining 18.5% did not want to study via the Internet. Those students used printed worksheets that the teachers sent to their post-boxes. Teachers combined online and offline forms of work with students, and asynchronous forms of learning were dominant (e.g. sending homework by email). One of the most frequently cited reasons was that the teachers did not feel prepared for online learning. As the report indicates, there is room for improvement of distance forms of learning, and the document suggested steps into rectifying the situation in the future. The overall quality of this form of teaching seemed less efficient in comparison to face-to-face learning. One of the causes the teachers mentioned is insufficient computer skills. As a result, several recommendations were formulated, including teacher training and building infrastructure for teachers and learners.

Concerning higher education, universities (except medical programmes) were mostly educating online. In regard to how it was seen by students, the situation was investigated by the Slovak Accreditation Agency for Higher Education via a questionnaire addressed to university students (available online, 2021). The students reported the universities managed the teaching process well; however, almost 40% of students stated the extent of information they received online was lower. Approximately a similar number of students lacked contact with their teachers, who typically sent them worksheets and assignments. As far as the development of interpersonal relationships was concerned, a
third of the students lacked social contact, which did not allow them to network; therefore, creating connections essential for their future careers. The official investigation into distance learning in Slovakia was complemented by a range of studies by researchers from different institutions sharing experience and findings (Fatrcová-Šramková et al., 2021; Tóbolová et al., 2021), investigating the practices, as well as students’, parents’ and teachers’ opinions (Barnová et al., 2021) and also the use of different learning systems (Kocianová, 2021; Kramecová, 2021).

This publication aims to present an investigation into the learners’ experience with an e-learning course in a questionnaire study, present the results of an action research, and a course book analysis comparing the pronunciation targets in course books and their correspondence with pedagogical documentation.

The first chapter discusses the current goals of pronunciation teaching defined in the CEFR (The Common European Framework of Reference for Languages), the document shaping educational policies in Europe, including Slovakia. The key concept is intelligibility, which will also be explored.

The second chapter presents the use of technology in pronunciation training, particularly across different organisational forms (e-learning, blended learning, flipped learning), and finally, concepts of computer-assisted pronunciation teaching, the use of automatic speech recognition and artificial intelligence for pronunciation training.

The third chapter presents the results of a questionnaire study aimed at collecting students’ opinions of the course ‘English phonetics and phonology’ taught in the distance form of an e-learning course. The questionnaire also contained a free-response section where students expressed a wide range of suggestions.

The fourth chapter introduces an action research study, which aimed to use free online electronic tools for training pronunciation within an e-learning integrated language skills course, which benefited from the application of elements of blended learning.

The fifth chapter presents the results of a course book analysis aimed at comparing the official requirements stated by the national pedagogical documentation and the content of officially approved course books
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of English. The analysis aimed to identify at what stage and if at all the target requirements are presented to students. In addition, pronunciation targets set by the course books were also listed. The course book analysis aimed to align the pronunciation targets presented in them to the CEFR levels. CEFR is then seen as the key pedagogical document shaping language policies in Europe.

The final part of the publication summarises the main conclusions and suggests recommendations for teaching pronunciation using technology.

This publication aims to broaden the current knowledge on pronunciation teaching using technology and the pronunciation training goals set by selected general English course books and inspire further investigation into this sphere of research.
1 The CEFR and the concept of intelligibility

Finding pronunciation training goals has been a challenge for many decades. The perceived difficulty of teaching and learning accent-free pronunciation in a foreign language caused a re-evaluation of these goals and that is also reflected in pedagogical documentation. The following chapter will explore these issues.

1.1 Phonological control in the Common European Framework of Reference for Languages

The CEFR (Common European Framework of Reference for Languages: learning, teaching, assessment; Council of Europe, Companion Volume, 2018) is one of the key documents shaping language learning policies in Europe, with Slovakia not being an exception. It was first compiled in 2001 and in 2018, a re-formulated document (Companion volume) was published. The document specifies requirements for foreign language learning, teaching and evaluation. It details the can-do descriptors according to competencies that learners should be able to do at levels A1 (the lowest level) to C2 (the highest level) of proficiency. Pronunciation is dealt with under the group of language competences, in particular phonological competence.

Bérešová (2013) claims the document was compiled as a descriptive framework providing “metalanguage” (p. 162) for different educational spheres and its intention is not to formulate suggestions, recommendations or guidelines. It was compiled as a result of the multitude of native languages across Europe and the subsequent necessity to reflect on the backgrounds learners have when learning a foreign language. The can-do statements are stated positively to appreciate the progress of learners.

As far as pronunciation is concerned, the newly formulated version of the CEFR (2018) brings to attention that phonology was the most vaguely described competence in the original document from 2001, because pronunciation displays the most variability among speakers from different language backgrounds, whose speech interfered with their mother tongue. In addition, the expectations on speakers seemed hard to fulfil, as speakers were expected to shift from accented pro-
nunciation at B1 level to accent-free pronunciation at B2. The authors view intelligibility as the principle governing pronunciation learning and have re-drafted the original chart of descriptors. Intelligibility is defined as the key factor defining individual effort that focuses on “how much effort is required from the interlocutor to decode the speaker’s message” (CEFR, 2018, p. 133).

The new set of descriptors for learning, teaching and evaluation is now fully developed for all six levels of proficiency (originally, only requirements for levels A1 to C1 were formulated), and also, the descriptors specify requirements of phonological control to overall sound articulation and prosodic features.

Looking closely at level A, a common feature for both sub-levels is collaboration – between the learner and a pronunciation model (e.g. “Can reproduce sounds in the target language if carefully guided”, A1, CEFR, 2018, p. 135), and a speaker and the listener (e.g. “The interlocutor makes an effort to recognise and adjust to the influence of the speaker’s language background”, A2; ibid.) on both segmental and suprasegmental levels, as the influence of the mother tongue is evident, but not hindering communication in familiar words. The use of prosody is adequate at the A2 level and limited to a familiar pattern at the A1 level.

Both B levels indicate learners’ progress – the influence of the mother tongue or other languages is weaker than at the lower level (e.g. “Can convey his/her message in an intelligible way in spite of a strong influence on stress, intonation and/or rhythm from other language(s) he/she speak”, B1, ibid.) and speakers do not need to repeat themselves. Mistakes are regular or systematic, but the speakers’ ability to make the correct sounds prosody is not limited to familiar words or phrases, but they can also use appropriate pronunciation over longer stretches of speech (e.g. “Can articulate a high proportion of the sounds in the target language clearly in extended stretches of production; is intelligible throughout, despite a few systematic mispronunciations”, B2, ibid.).

Finally, learners of both C levels of foreign languages should rely on pronunciation to convey finer shades of meaning with control, without significant interference of the mother tongue (e.g. “Can articulate virtually all of the sounds of the target language with a high degree of control. He/she can usually self-correct if he/she noticeably mispronounces a
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sound,” C1, ibid.). On the C2 level, learners should speak accent-free and with clarity and precision (e.g. “Intelligibility and effective conveyance of and enhancement of meaning are not affected in any way by features of accent that may be retained from other language(s),” C2, ibid.)

The CEFR has shaped language policies in an international context, and Slovakia is one of the countries that align its national curriculum with the CEFR. The set of requirements for pronunciation learning remains relatively vague, as it reflects the admittedly vague descriptors for individual proficiency levels in the original version of the CEFR from 2001.

The original document from 2001 recommended the following techniques for pronunciation training: “a) simply by exposure to authentic spoken utterances; b) by chorused imitation of i) the teacher; ii) audio-recorded native speakers; iii) video-recorded native speakers; c) by individualised language laboratory work; d) by reading aloud phonetically weighted textual material; e) by ear-training and phonetic drilling; f) as d) and e) but with the use of phonetically transcribed texts; g) by explicit phonetic training; h) by learning orthoepic conventions (i.e. how to pronounce written forms); i) by some combination of the above” (Council of Europe, 2001, p. 153). All the techniques, as mentioned earlier, relied on approximating a model and raising awareness between the contrasts of the mother tongue and the foreign language. The phonological control defined the list of segmental and suprasegmental features has also been removed from the new document (compare Council of Europe, 2001, p. 116-117). Isaacs and Trofimovich (2012) confirm that intelligibility and comprehensibility were a criterion in rating scales of the 2001 version of the CEFR. The CEFR was created to set general language learning targets and requirements for all foreign or second languages taught. However, Topal (2019) points at the differences between teaching pronunciation in ESL and EFL contexts, as the goals and setting of learners are different. For particular languages, experts need to set specific pronunciation of linguistic competencies the speakers must master at individual proficiency levels.

As far as English is concerned, the CEFR created and formulated profiles on grammar and vocabulary, which assigns grammatical features and vocabulary items to individual proficiency levels. For instance, the
can-do-statement “combining two adjectives with ‘and’ is a form belonging to the category of combining appropriate for level A1 (“The teachers are very nice and friendly). A1 BREAKTHROUGH; 2007; Polish; Pass” (http://www.englishprofile.org/english-grammar-profile/egp-online). Similarly for vocabulary, the base word ‘and’ is supported by the guideword ‘also’ and is also assigned to the A1 CEFR level belonging to the topic communication (http://www.englishprofile.org/wordlists/evp).

However, an investigation into the accuracy and correspondence of these grammatical structures reflected in course books have been studied (Sucháňová, 2021; Vlčková, 2021). Bérešová (2018) analysed the way learners of English assign proficiency levels to grammatical structures. Liashuk (2020) investigated the reflection of intercultural competence in EFL coursebooks.

As for pronunciation, the website (http://www.englishprofile.org/963-language-research/pronunciation-planner) states the pronunciation profile is being compiled at the moment of writing this publication (i.e. 2021) and is protected by password, therefore not available to the general public. However, the website addresses the difficulty of assigning the CEFR levels to individual pronunciation aspects since these aspects can be presented to learners on different vocabulary items and contexts. For instance, the phoneme /p/ appears in words of all CEFR levels.

In addition, the website authors give the mother tongue (L1) the priority in terms of the shaping element to the foreign language pronunciation. Kelly (2000) identified the typical mistakes foreign learners with the same mother tongue make. The overview indicates that each different group of speakers face unique difficulties when learning English pronunciation. For instance, Králová (2011) or Metruk (2017) analysed Slovak learners’ mistakes when pronouncing English dental fricatives; however, according to Kelly’s publication, Spanish learners would not necessarily find these phonemes challenging in pronunciation training. This example suggests that further investigation into the goals in pronunciation training must be carried out for individual language speakers rather than globally.
1.2 Intelligibility

The central concept the CEFR (2018) builds phonological control around is *intelligibility*. Munro (2010, p. 7) views it as a “noncontroversial” goal of pronunciation practice accepted by teachers because they believe all learners should be understood in communication. Munro traces the concept back to the turn of the 19th and 20th centuries. Isaacs and Trofimovich (2012) also see the agreement of pronunciation trainers in accepting intelligibility as a current pronunciation goal. Levis (2005) contrasted the *intelligibility principle* with the *nativeness principle*. While the nativeness principle in pronunciation learning is based on the belief that all learners should be able to, and strive to achieve accent-free pronunciation in a foreign language, the intelligibility principle accepts learners’ limitations. It aims for pronunciation, allowing communication among native and non-native speakers. This goal is also proposed for current EFL textbooks (Celce-Murcia et al., 1996). Flege et al. (1995) believe accent-free pronunciation is impossible to achieve after a certain age. They state the age ranges typically between 6 and 13 years of age. With increasing age, the number of pronunciation deviations grows. Flege et al. (1995) believe various changes in the neural system may cause this.

The term intelligibility is often related to the term *comprehensibility*, but the terms, although similar in meaning, have different implications. Both terms relate to the listeners’ activity during the communication process. Intelligibility refers to the ability to understand the meaning and comprehensibility to the perceived difficulty or ease to understand the spoken text (Sheppard, 2017). These concepts relate to both speaker and listener, as the speaker’s speaking rate or the listener’s experience contributes to the overall assessment of the spoken text. In addition, more experienced listeners have a higher ability to understand the speech of L2 speakers. However, meaningful utterances are understood better than meaningless utterances by both groups of listeners (Kennedy & Trofimovich, 2008). Isaacs and Trofimovich (2012) view the terms intelligibility and comprehensibility as congruent. In addition, the CEFR (2018) uses the terms intelligibility and comprehensibility synonymously. The third related term, *accentedness*, refers to the perceived difference in the speech of the speaker
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and the listener; however, Munro (2010) views it as an irrelevant term as the listener can easily adjust to a speaker’s speech during listening. Derwing et al. (2014) also point out that even heavily accented speakers can be perceived as highly intelligible. Accentedness is directly related to pronunciation, but comprehensibility also involves grammar, vocabulary and discourse (Saito et al., 2016).

To promote the intelligibility of EFL learners, Murphy (2014, p. 258) suggests using non-native speakers as pronunciation models as long as the speakers are comprehensible. Murphy views native models as “over-emphasised”, as most pronunciation models come from the inner circle nations (based in the Kachruvian model of Three Concentric Circles, where he distinguishes the Inner Circle of countries where English is a mother tongue, e.g. Britain, Australia, Canada; the Outer Circle where English is a second language, e.g. India, Singapore, South Africa; and the Expanding Circle where English is a foreign language, e.g. China, Korea, Russia; Xiaoqiong & Xianxing, 2011). Murphy (2014) further explores the idea that even if the speech of non-native speakers is accented, i.e. different from native speakers, it can be completely intelligible. In addition, intelligibility can be individually enhanced by speakers with difficulties to be understood, and other learners could concentrate on training different aspects of communication (Thomson & Derwing, 2014).

In the process of understanding the speech, the role of the listener is also critical. Kennedy and Trofimovich (2008) believe that exposure to a wide range of accented speech improves listeners’ ability to understand even unfamiliar L2 speakers of the same linguistic background but does not always improve the ability to understand speakers of other L2 speakers with other linguistic background (e.g. Mandarin and Slovak). The speaker can overcome the difference in the linguistic background by using different lexical items for words unrecognised by the listener. Additionally, the speaker’s difficulty to be understood increases in a noisy environment. Other important factors are the context and familiarity with the topic. On the other hand, a listener’s familiarity or even sharing L1 with the speaker in L2 can increase the speaker’s intelligibility (Munro, 2010; Sheppard, 2017).
The current investigation into intelligibility arose from the need to communicate between the increasing number of international students and their professors in the USA (Sheppard, 2017) as a possible consequence of students’ insufficient ability to communicate clearly. However, communication between native and non-native speakers inevitably occurs within different contexts. As Isaacs and Harding (2017) remind, English has been a Lingua Franca for many years, and the pronunciation teaching goals have shifted. The result of the pedagogical shift is, for instance, Jenkins’ Lingua Franca Core (2002), which includes pronunciation features foreign learners should master to be understood globally. The core contains a mixture of different accents, and one of the main requirements for the learners is relative consistency in the use of these features. However, this pronunciation core may need to be modified for particular learners because the influence of their mother tongue does not impede their intelligibility (Zoghbor, 2018).

Little is known about the particular features contributing to intelligibility (Munro & Derwing, 1995; Trofimovich & Isaacs, 2012). As a consequence, teachers reportedly do not know what or how to teach pronunciation towards intelligibility. “Most ESL/EFL teachers realise native-like phonological control is an unnecessary goal as long as learners continue to progress toward relevant levels of intelligibility/comprehensibility” (Murphy, 2014, p. 259). In addition, most speakers, as well as teachers of English, are non-native speakers.

Another factor mentioned in assessing intelligibility is phonological awareness. It is “a construct that is measured by how well learners can perceive the structure of the L2 system” (Yenkimaleki & Van Heuven, 2021). This construct helps foreign learners of English contrast between the mother tongue and the foreign language and apply the knowledge into their production. Venkatagiri and Levis (2007) argue that speakers benefiting from explicit pronunciation instruction are perceived as more intelligible. However, even if the research has shown the positive impact of explicit pronunciation instruction and raising the awareness of important pronunciation features, this does not need to be reflected in speakers’ actual performance outside the classroom setting (Kennedy & Trofimovich, 2010).
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Levis et al. (2016) have proven that foreign language learners can improve their pronunciation with a non-native equally as with a native speaking teacher of English because pronunciation is a skill developed primarily by applying appropriate teaching methods. However, teachers from different countries report little formal training and preparation to teach pronunciation (Macdonald, 2002; Datko, 2013; Murphy, 2014). Literature (Derwing & Munro, 2005; Munro, 2010) summarises the research on pronunciation features influencing intelligibility and concludes that listeners can compensate for erroneous pronunciation at the suprasegmental level. On the other hand, Murphy (2010) and Munro (2014) summarise research studies giving segmentals relatively high importance for intelligibility. However, both authors agree that segmentals can be divided into belonging into a low functional load contrasts in English (/θ/ – /f/, /ð/ – /d/) and high functional low contrast (/l/ – /n/ and /l/ – /ɹ/). Contrary to expectations, dental sounds that are difficult to pronounce might not impede the intelligibility of speech. While the errors based on the former group of sounds can be expected, the errors based on the latter group add to unintelligibility. Therefore, Murphy (2017) suggests giving relatively low importance to training dentals by learners of English. However, research has concentrated on the investigation of suprasegmentals. Yenkimaleki and van Heuven (2021) confirmed that teaching segmentals promoted speakers’ intelligibility while teaching suprasegmentals improved their comprehensibility. Hahn (2004) and Field (2005) found that listeners could better comprehend speech with correct stress placement in words and sentences.

Isaacs and Harding (2017) point out that intelligibility is typically assessed by transcription and comprehensibility tasks. Rating scales judge comprehensibility in the case of human raters. Human raters, however, can be biased, tired, non-attentive when rating a speaker (Munro, 2010; Murphy, 2014; Isaacs & Harding, 2017; Shepperd, 2017). On the other hand, automatic evaluation systems can be effective but have limitations, particularly regarding the genres of utterances (e.g. a read-aloud text).

Therefore, the perceived intelligibility of foreign language speakers has become the ultimate goal of pronunciation training. It was offici-
ally confirmed by including intelligibility into educational documents such as the CEFR. The document reflected on the previously formulated descriptors. It elaborated them into a more specific set of abilities the foreign language learners should be able to do when speaking in a foreign language. Identifying fundamental elements constituting intelligibility and the actual evaluation of intelligibility is a complex matter. It depends not only on the speaker’s performance but also on the external conditions outside the speaker – the listener’s ability to hear or the listener’s willingness to pay attention to the speaker. This goal shapes and drives forward all future endeavours into pronunciation training and must be considered in communication.
2 Technology in pronunciation learning

2.1 Promoting learner autonomy for pronunciation practice using technology

Learner autonomy is a concept arising from the idea that learners should take responsibility for the learning outcomes they want to achieve. “[T]here is a consensus that the practice of learner autonomy requires insight, a positive attitude, a capacity for reflection, and a readiness to be proactive in self-management and interact with others” (Little, 2002). Modern pedagogy promotes the teacher being moved to the role of the facilitator in the learning process rather than the main organiser of educational activity. It is inconsistent with the traditional view of learning, based on the duty of learners to learn what the teacher prepared for them (Healey, 2002). According to McCrocklin (2016), pronunciation, in particular, is challenging to learn autonomously because learners need to be explained articulation and distribution of phonemes, and the teacher must then supervise and evaluate learners’ production. The teacher’s involvement is important due to learners’ inability to assess the quality of the sounds they make, as they are influenced by the mother tongue.

The learner-centred approach to teaching has opened new opportunities to bring new techniques to teaching. However, the perception by teachers and learners of the usefulness of certain activities differs significantly. For pronunciation, it means that while teachers view it as a learning element of medium importance, learners rate it very highly (Nunan, 1988, cited in Peacock, 1998). The subsequent research by Peacock (1998) confirmed that students prefer error correction and exercises (grammar, pronunciation) more highly than pair work and group work, which teachers prefer. As a result, it requires a compromise between the preferences of the two participants of the learning process. Some researchers (Healey, 2002; Levis, 2007; Larsen-Freeman & Anderson, 2011) believe technology can promote learners’ autonomy. It brings new resources and experience to the teaching of all aspects of language, including pronunciation. Tergujeff (2012) believes pronunciation training should be naturally involved in pronunciation
teaching. Primarily computer-assisted training is seen as autonomous (Jo et al., 2021). The term technology does not only apply to communication technology used nowadays but in the broadest sense it also includes stationery and whiteboards, which only later were supplemented by more sophisticated technology (Lewis, 2009; Larsen-Freeman & Anderson, 2011). However, these days, it is the Internet that can bring educational and authentic materials to learners without the restriction of time and space. As a result, autonomous learning can also take place in informal settings outside schools. Cheng and Kim (2019) claim that a combination of informal and formal learning can lead to greater learner autonomy.

Nevertheless, Larsen-Freeman and Anderson (2011) maintain that even learners sitting in the classroom working with a computer are more autonomous than learners working with course books. However, Hişmanoğlu (2006) then labels the in-class computer-assisted training semi-autonomous because it is the teachers’ choice of materials the learner should cover. A fully autonomous learner should be able to solve a problem resourcefully in real life without the assistance of a teacher. For instance, a learner trained in phonetic transcription with software would be able to read the pronunciation of a word in a printed dictionary.

Healey (2002) lists the possible drawbacks of using technology and software in the classroom – on one hand, it often provides a limited and repetitive repertoire of tasks and material, or on the other hand, it can overload learners with the choices it provides. In these cases, it is the role of the teacher – facilitator, to guide learners through the process of learning and provide them with finding connections between what they should learn and what the software offers them. Some programs can be irrelevant for learners’ needs or cultural context, and one of the concerns Healey mentions is its lack of development of metacognitive skills.

Kruk (2012) suggests using online resources for autonomous pronunciation practice in such conditions when the individual approach to a student would not be possible (e.g. overcrowded classrooms, insufficient number of English classes, etc.). Similarly, Couper (2017) believes that one of the uses of technology and computers in the classroom is
to provide learners who have their individual pronunciation concerns with a personalised space for training. For instance, automatic speech recognition programs allow learners to pronounce target vocabulary by pronouncing words into a system and subsequently see the erroneous pronunciation (e.g. in the study by Wallace, 2016).

CALL (Computer-assisted Language Learning), as a broad term (discussed in 2.3), provides feedback and exercises to learners matching their proficiency. Teachers also expect the technology and software to test learners’ outcomes in learning pronunciation (Chapelle, 2018). Chiu (2012) suggests activities such as dubbing, providing voiceovers to muted videos can improve learners’ overall pronunciation, leading to learners’ increasing awareness of pronunciation. Furthermore, it is a good activity for them to practice intonation, fluency, as well as their awareness of native accents of English.

Although Larsen-Freeman and Anderson (2011) believe technology can open new doors to communication, the participants of online courses are often concerned about the lack of communication (Liaw, 2008; Abbasi et al., 2020). Another key factor in practising learner autonomy is self-regulation – based on independent training, the ability also to take steps to improve pronunciation. According to McGregor and Reed (2018), primarily, adult learners can benefit from these strategies in pronunciation learning. Cerezo et al. (2019, p. 27) conclude that “[o]nline resources and software are tools that can promote autonomy by enabling experimentation through self-access work outside of class while also providing immediate feedback to learners.”

Mehlhorn (2005) suggests a learner-autonomy based Individual pronunciation coaching for German learners; however, such coaching can also benefit learners of other languages. The coaching involves the following steps:

- diagnosis,
- introduction to the recommended tools by the coach,
- coach’s support in using the tools and achieving the goals,
- developing learning strategies and giving feedback.

Despite all these claims, not all teachers are promoting learner autonomy. For instance, Kruk (2012) believes that teachers do not promote
learner autonomy because of the fear of the benefits being smaller than the cost (loss of authority, classroom disorder, etc.). This observation should be taken into account when promoting learner autonomy among teachers, as the correct application of technology can address teachers’ concerns.

2.2 Using technology in e-learning, blended learning and flipped learning

Introducing technology into the teaching/learning process has brought a wide range of possibilities to its application. Course creators get to decide to what extent they want to use it. This part of the publication presents the most popular approaches to using technology in different organisational forms of education. The forms were created in contrast to traditional face-to-face learning. Johnson et al. (2000) view the main drawbacks of face-to-face learning as allowing learners to be passive, not respecting their individual needs and not developing higher cognitive skills.

Distance forms of education are not a new invention – on the contrary, they are one of the oldest forms of formal learning. Correspondence courses and self-study textbooks belong to the oldest forms of learning, and they still have not lost their popularity. Later, they were replaced by more modern forms using technology (Cimermanová, 2011).

The first organisational form of distance education is e-learning, also called online learning or remote learning. Arkoful and Abaidoo (2015) argue that defining e-learning is not easy, as the term can refer to distance coursework, campus-based education supported by virtual environments, and an online tool supporting and extending collaboration. For collaboration and the ability to communicate, synchronous and asynchronous elements of e-learning are combined with purely online learning (Wu et al., 2010, Pandu & Fajar, 2019). Synchronous parts of e-learning courses allow communication with the teacher and other learners not only for individual work but also provide learners with the ability to communicate in chat rooms or video calls. Asynchronous communication in e-learning makes use of online forums or emails. Ginns and Ellis (2007) distinguish four e-learning activity models:
- individualised self-paced e-learning offline,
- individualised self-paced e-learning online,
- group-based e-learning synchronously,
- group-based e-Learning asynchronously.

Srivastava (2018) summarises the following forms of e-learning – purely online/blended, synchronous/asynchronous, instructor-led, self-study, self-study with a subject matter expert, web-based, computer-based, video/audiotape.

E-learning is characteristic of the spatial and temporal distance between the teacher and learners. As a result, the traditional components of the teacher’s role (organising, bringing content, providing feedback and evaluation) must be supplemented by clear instructions given to learners. In addition, it is necessary for learners to be able to contact the teacher to resolve any concerns related to the course instructions, the curriculum and technical issues the learners may experience.

However, the Internet is the key component of implementing e-learning into pedagogical practices, although e-learning courses without the reliance on the Internet are also available (Garode Jurado et al., 2010). Authors consider the varying degree of complementing face-to-face learning with learning in the online sphere, as many e-learning courses are carried out as accessory to face-to-face learning. Arkoful and Abaidoo (2015) discuss whether online courses are independent or are a part of a blended course. They characterise e-learning in very broad terms as “the use of information and communication technologies to enable the access to online learning/teaching resources” (p. 30).

Arkoful and Abaidoo (2015) list the following advantages of an e-learning course – temporal and spatial flexibility, access to resources online, removing communication barriers for shy learners, cost-efficiency, respecting learners’ interests, allowing learners to study at their own pace. For teaching institutions, e-learning courses solve problems with staff and space at premises. In addition, e-learning is suitable for motivated learners who can work remotely and have good time management skills, who can work without contact with the teacher and other students. On the contrary, students need to be able to overcome the disadvantages of e-learning concerning the effectiveness of e-lear-
ning; not developing communication skills and socialisation, overuse of certain websites. Another important fact that the instructors must face is cheating during the examination and violating intellectual property rights of different kinds. Some concerns (e.g. the lack of stable Internet connection, Johnson et al., 2000) seem to be resolved now for most e-learning participants. Sristava (2018) also adds that while e-learning can be cost-effective in the long term, it may require a high initial outlay.

The concerns of many learners regarding the quality of teaching have not been confirmed, even if students evaluate lecturers’ performances better in face-to-face learning (Johnson et al., 2000). A well-planned e-learning course cannot compare to the quality of emergency e-learning (Widodo, 2020), which can be overcome by allowing teachers to attend courses for online learning management (Cimermanová, 2011). However, teachers are given the freedom to explore the possibilities that distance learning provides them with, as the form and learners’ learning styles do not significantly affect learners’ academic performance (Cimermanová, 2018). Furthermore, it allows them to develop a great level of autonomy (Liaw et al., 2007).

The concept of blended learning consists of the ability of learners to work partly in the traditional, face-to-face environment with all participants present in one place at the same time, supplemented by remote work, consisting of tasks carried out online. Yusoff et al. (2017) view blended learning as the opportunity for students who would feel socially isolated in a fully online course; however, in this approach, students can be a part of the community and enjoy the benefits of online learning. In addition, they call it a “must” (p. 6) because teachers lack tools suitable for learners’ improvement, so they can benefit from using technology.

Oliver and Trigwell (2005) discuss the term blended learning and its different interpretation. The term is perceived with a great amount of variance, and they compare forms of blended learning:

- mixing e-learning with traditional learning,
- mixing online learning with face-to-face,
- mixing media,
- mixed contexts,
- mixing theories of learning,
- mixed learning objectives,
- mixed pedagogics.

They challenge all these forms and explain why it is easy to challenge the concepts. In the end, they argue that the term “blended” only refers to instructors’ work, as learners learn in the same way. Therefore, blended teaching would be a more appropriate term.

“Blended learning is described as a learning approach that combines different delivery methods and styles of learning. The blend could be between any form of instructional technology (e.g. videotape, CD-ROM, CAI, web-based learning) with classroom teaching” (Wu et al., p. 156). The ratio of face-to-face and online learning can be anywhere on the continuum and online teaching can “enhance” face-to-face learning. However, Ginns and Ellis (2007) maintain that a blended course must be consistent in the face-to-face and online forms.

Blended e-learning systems make a flexible alternative with face-to-face sessions and synchronous/asynchronous online learning using the best of both types of learning, however, some of the issues mentioned above (technical problems, socialising problems, course outline, motivation) may also apply in blended learning (Kaur, 2013; Szadziewska & Kujawski, 2017).

A relatively newly used concept of organising e-learning/blended courses is flipped learning (Capone et al., 2017). In specific contexts, the terms blended learning, reverse instruction, an inverted classroom can be synonymous.

Vereş and Muntean (2021) maintain that the concept is not fully defined. It can be viewed as an event, a pedagogical or didactic approach, a method, an instructional model, an educational strategy, or a learning technique.

The flipped classroom employs asynchronous video lectures and practice problems as homework and active, group-based problem-solving activities in the classroom (Bishop & Verleger, 2013). According to Pańková and Hanč (2015), the use of video is not necessary to its successful implementation. Vereş and Muntean (2021) see this as a na-
tural consequence of the technological progress of society. Although online lectures appear to be more effective than face-to-face lectures and online homework does not display qualitative differences from the handwritten homework, teachers are reluctant to employ these new approaches to learning.

One of the most concerning issues teachers must resolve is time management. The face-to-face or synchronous time with students in online learning is limited, therefore, it should be utilised in the most efficient way, as previous research has shown that there is a direct relationship between the students’ academic performance and the quality of the time spent in the classroom (Kayode & Ayodele, 2015; Sahito et al., 2016). In spring 2007, Bergman and Sams started recording their lectures and uploading them online due to the high number of students’ absences and the subsequent necessity to cover the issues already discussed again. This step allowed the students who had been absent to catch up with their classmates and actively participate in the following teaching session. In addition, the students present in lectures who had needed to listen to the issues discussed repeatedly could go back and revise the lessons. The students’ task was to listen to the lecture and prepare a question related to the topic of the video. This approach allowed the teachers to spend face-to-face time addressing the learners’ issues after watching the videos instead of spending it on explanations. In addition, compared to the traditional classroom, which devotes twenty to thirty-five minutes of practice, students can practice up to 75 minutes in the flipped classroom. Although Bergman and Sams (2012) admit that they were not the first ones to use lecture videos (“we were early adopters and outspoken proponents of the tool”) or coined the term “flipped classroom”, their work seems to be seminal for this direction of learning.

The teaching is divided into two sections – the relatively easy tasks are done at home individually before coming to the face-to-face learning environment. In contrast, the more difficult tasks (practice, application of the knowledge, problem-solving, etc.) are carried out in the classroom. The students come to the classroom prepared to solve tasks given by the teacher. The tasks are mostly collaborative and exploratory; however, if the nature of the task allows it, the task can also be
individual. Coming to the classroom prepared requires overcoming the initial obstacles, e.g. independent and autonomous work in the online environment. If the student fails in these pre-requisites, the classroom performance of the student is not satisfactory.

Veres and Muntean (2021) claim that since the 1970s, when students were asked to read a paper before a lecture and then discuss it in class, it was one of the first instances of reversing the order of the learning sequences. Then, the term “peer instruction” was used for instances when students could discuss the lecture material before the actual lecture. Veres and Muntean (2021) suggest the following sequence of activities:

1. Learning activity 1 – watching a short video,
2. Knowledge evaluation – an online test,
3. Learning activity 2 – re-watching the video and answering questions in a study guide,
4. Learning activity 3 – synchronous online class with discussion and explanation, fixation of knowledge by a game,
5. Re-evaluation – an online test.

Among the main advantages are time-saving, students’ responsibility for learning outcomes, solving absences in classes, time management, active class participation – individual and group work and cooperation, developing autonomy and self-regulation, and the teacher as a facilitator. The disadvantages include the lack of students’ preparation, no Internet access, time-consuming preparation for the teacher.

Yilmaz (2017, p. 252) maintains that “learners need to have intra-personal skills such as self-efficacy, self-regulation skills, good communication skills, time management skills, teamwork, goal directed behaviours (to some extent) and the FC courses’ online requirements could be completed successfully”. If learners do not possess all of these qualities, their experience will be negative, and it will also negatively impact their future experience in e-learning.

Students are “digital natives” (Yilmaz, 2017, p. 253), but their actual experience and use of digital technology are relatively limited to the complex possibilities the digital tools can provide. Yilmaz also adds
that students are more experienced in using some elements of technology than other elements.

2.3 Computer-assisted pronunciation training, automatic speech recognition and artificial intelligence

Technology has impacted pronunciation training to such an extent that various tools and methods have been developed (Yoshida, 2018; Mahdi & Alkhateeb, 2019). They are based on the computer with or without Internet access to provide learners with an attractive learning environment. One of their features is based on their ability to be integrated into different systems, and finding the distinction between where one technology ends and another one starts is very difficult (Al-Kadi, 2018).

Computer-assisted language learning (CALL) is a very popular and growing educational research and development sphere. A newer branch is mobile-assisted language learning (MALL; Yaman & Ekmekçi, 2016). A particular branch, computer-assisted pronunciation training (CAPT), produces a wide range of tools for individualised and targeted instruction and feedback. Henrichsen (2021) sees the advantages of CAPT tools in their multi-layered pronunciation (segments as well as suprasegmentals), variety of models, realistic examples, flexibility and motivational character. Bogach et al. (2021) claim that predominantly attractive and user-friendly mobile interfaces allow a comfortable presentation of visual and acoustic stimuli for learners in settings in and out of the classroom.

Pokrivčáková (2015) divides CAPT tools into online software programs, accent reduction software, online games and activities and offline materials for CAPT. Rodgerson-Revell (2021) adds social media, educational websites and mobile apps to the list. The tools are available on computers as well as mobile devices. Therefore, the tools can be used in formal and informal learning.

Lee (2018) distinguishes two different types of CAPT models – the accuracy model and the fluency model. The accuracy model is based on precision and drilling discrete items, and the learners are expected to produce specific answers. In contrast, the fluency model is based on using the language in longer sequences (reading authentic texts, ques-
tion-answer dialogues), eliciting spontaneous responses with communicative value.

“Computer assisted pronunciation training (CAPT) offers a medium for increasing users’ access to their own and others’ pronunciation performance, for focusing their attention on phonology, and for acquiring new pronunciation patterns” (Liu & Hung, 2016, p. 1940). In more detail, Rogerson-Revell (2021, p. 190) elaborates: “CAPT resources have the potential to provide an individualised, stress-free, self-paced learning environment with limitless access to a wide range of multimodal material as well as opportunities for immediate, customised feedback.” However, she also discusses the meeting point of technology and pedagogy. Rogerson-Revell claims that the tools do not always meet pronunciation goals and can frustrate learners by not reflecting the multifaceted use of a trained aspect of pronunciation in real-life communication. A similar conclusion was reached by Henrichsen (2021), who claims that the feedback in these tools is binary (correct/incorrect) but should aim for providing targeted feedback. Bogach et al. (2021) add that the CAPT feedback is for the teacher and the students on the segmental and suprasegmental level to mark progress and identify the future direction of the learning, behavioural feedback and usability. Lee (2018) adds that no universal e-learning design exists currently, but its design should correspond with learner styles and reflect teaching pedagogy.

Pokrivčáková (2015) suggests using the following scheme in using CAPT: input – output – feedback. Input is designed to expose learners to pronunciation models; output is based on learners’ imitation of the model; feedback is given by the tool on the basis of automatic speech recognition in the form of a verbal comment, spectrogram analysis for segments or in the form of soundwaves visualising the target pronunciation and learner’s actual pronunciation. Visual feedback has proven to be an effective pronunciation training tool (Cerezo et al., 2019). Lee (2018) claims CAPT interfaces should cover three aspects:

1) presentation of the speaker’s face to facilitate understanding,
2) presentation of waveforms to compare the quality of sounds,
3) teaching spectrographic analysis to compare native and non-native speech.
Automatic speech recognition (ASR) tools cooperate between the speaker’s voice and a model speech put into the system. Bogach et al. (2021, p. 18) maintain that the transcription systems based on utterances of professionally trained actors speaking the standard British English may not accurately reflect colloquial speech. Since the non-native learners of English have not acquired aspects of connected speech, they are able to match their production to the speech of the model. As a consequence, the current CAPT tools must be able to analyse both features simultaneously. Saraclar et al. (2004) discuss the differences between the decontextualised, “canonical” word/phoneme pronunciation, the pronunciation of phonemes with the subsequent changes in long utterances and the eventual challenges the differences propose for ASR. They also discuss the challenges human phonologists may encounter when deciding which phoneme/phone was pronounced. Many of them lose some of their qualities in continuous speech, which needs to be reflected in the process of ASR pronunciation modelling.

The latest endeavour into using technology for pronunciation training is artificial intelligence (AI). As the name suggests, devices using highly sophisticated technology to imitate human behaviour in communication with people (Choi et al., p. 105). “This communication is only possible because of an in-depth analysis of different languages, not only on the literal level, but also including implications (Yu, 2021). Therefore, AI systems are based on natural language processing and speech recognition technology (Choi et al., 2018). The main advantages of their use in pronunciation training are their ability to provide learners with a personalised and deeper analysis of their performance and to provide them with immediate feedback based on the current abilities and future needs, which leads to increased learner autonomy (McCrocklin, 2016).

In this type of communication, an analogue human voice made by forming phonemes by articulators is digitalised to be processed by computers. Levis and Suvorov (2014, p. 1) describe ASR as “an independent, machine-based process of decoding and transcribing oral speech. A typical ASR system receives acoustic input from the speaker through a microphone, analyses it using some pattern, model or algorithm,
and produces an output, usually in the form of a text”. Simply put, the process of speech analysis consists of analysing speech into features, which are then classified according to patterns (lexicon, language model and acoustic model) until eventually words are recognised.

Endpoint detection, i.e. recognition of the beginnings and ends of words, is responsible for most mistakes (for details, see Zhang 2021).

One of the reasons AI tools are used in pedagogy is that “AI-powered tools are ahead of human teachers who simply do not have capacity to continually analyse each and every learner’s outputs, diagnose their individual learning needs, adapt the learning content accordingly and give learners well-grounded feedback in the span of several seconds – and all that in the class of twelve or more students,” (Pokrivčáková, 2019, p. 138).

AI-based pronunciation training tools provide a wide range of uses. For instance, Noviyanti (2020) used a spelling checker based on automatic speech recognition, or AS systems, to improve the particular feature of learners’ pronunciation, e.g. intonation patterns (Liu & Hung 2016). In addition, virtual assistants can be used for pronunciation training, where learners are given tasks and need to communicate with software. Learners’ incorrect pronunciation will not result in a successfully completed task. These tools are widely available in the real world in different spheres of life (search assistants, telephone assistants in helpdesks, dictation tools, etc.) with relatively high accuracy. Cerezo et al. (2019) discuss the use of different types of games in pronunciation and vocabulary learning and found out that primarily young learners can benefit from technology in learning pronunciation and vocabulary, as it allows them to copy target acoustic forms. Video games and multimedia allow them to acquire English pronunciation in an engaging manner, e.g. using hologram technology to present pronunciation in the form of a virtual teacher, which provides the connection between visual and acoustic stimuli. Bogach et al. (2021, p. 2) claim that “[a] dvancements in computer technology and human-computer interaction (HCI) applications have enabled digitally driven educational resources to go far beyond the mere digitisation of the learning process”, which can be observed every day.
The great variety of computer and online tools allows a wide range of the application of their use in the process of pronunciation training. The literature review suggests the electronic instruments are very flexible and allow learners to formulate pronunciation training goals, choose the appropriate tool for achieving the goal and use it autonomously at their own pace. The current situation calls for their use in distance learning and possibly using them in the future.
3 Online course of English phonetics and phonology as seen by students

Due to the global Covid-19 pandemic, most educational activities shifted to distant forms and online environment in 2020. Park (2009 stated that South Korea has been implementing e-learning since the 1990s. The degree of its implementation varied globally, but Alhabeeb and Rowley (2018 claim that even if the implementation of e-learning was low, the situation changed in 2020. Even the schools, universities, students and teachers, who had been reluctant to participate in online learning because they heavily relied on face-to-face interaction, had to move to online learning, which became an alternative or a supplementary activity to the in-class learning.

Online learning is a multifaceted process involving and requiring the cooperation of many aspects, discussed in Chapter 2 of this publication. Learners heavily rely on teachers during the whole process. The role of the teacher is viewed in terms of their organising of the course, creating the content that is technically and formally correct and attractive, advising and counselling students’ regarding the course content, or providing them with expert feedback, and motivating them in the process of learning. All these aspects might have been underestimated by teachers. In addition, collaborative learning and cooperation also play an important part for learners, as they cannot only share the information on the course but also provide emotional support to fellow learners. However, to a large extent, the overall success of the learner in an e-learning course depends on the prior knowledge of the subject matter (Paechter et al., 2010).

Not many teachers were prepared for designing e-learning courses (Paechter et al., 2010, which would allow them to balance the content, form, and technical design of the course and manage their presence in the learning process for students (counselling, advising and motivation. Therefore, newly created e-learning courses are being evaluated and analysed. This chapter will present participants’ views in an online course of English phonetics and phonology.
3.1 Reported experience with distance forms of learning

As already suggested, e-learning courses were relatively marginal compared to face-to-face learning before 2020, and now studies presenting the experience are an inspiration for other teachers.

As an example, Liaw et al. (2007) compared the attitudes of learners (N = 168) and instructors (N = 30) towards e-learning by collecting data in two sets of questionnaires. The data revealed that the instructors are highly inclined towards e-learning due to its self-efficacy, enjoyment, usefulness, and intention of use.

Learners are also positively inclined to use e-learning, as it allows them to build their autonomy, and e-learning presents them with varied material. However, the results also revealed that learners expect teachers’ technical support because they are more experienced using Internet browsers than word processing.

Park (2009) investigated learners’ attitudes in similar aspects as Liew (2007) in 628 participants of twelve e-learning courses at a Korean university. The results indicate that learners with high self-efficacy are more likely to be successful in attending an e-learning course. One of the learners’ motivations to participate in the course is to prepare for the work environment (the use of technology expected in the workplace or be equal with other students in the number of courses taken). Universities should develop and support students’ self-efficacy, provide a wide range of e-learning courses and accentuate their advantages, as well as develop user-oriented and friendly content of e-learning.

A number of studies on e-learning courses from many disciplines have been published since 2020. For instance, the study by Abbasi et al. (2020) aimed to investigate students’ attitudes to e-learning during the period of the pandemic. Students globally accept e-learning as a beneficial tool for learning. While students see the benefits in the comfortability of its use, they perceive social isolation and lack of interaction with teachers and fellow students as a negative aspect of e-learning.

Education institutions are taking measures to assure the quality of e-learning will not affect the learning process in a major way. The authors conducted research with a questionnaire using a convenient sample consisting of 377 participants from a Pakistani dentistry col-
The questionnaire contained items evaluated by a 5-point Likert scale evaluating positive and negative attitudes of the selected aspects of e-learning. The answers to questions were grouped into five categories (learners’ preferences, comparison of e-learning and traditional learning, the students’ satisfaction, the impact of e-learning, interaction) and revealed that the students view e-learning as generally less favourably in all aspects compared to traditional learning.

Kazi and Shidhore (2020) analysed the dental students’ experience (N = 84 with Google Classroom, a system launched in 2014 to promote communication between students and teachers that enables sharing information and files. The authors used a questionnaire with 22 items divided into three sections – general domain, student-specific domain, and overall experience domain. The data reveal that a well-chosen system for online learning contribute to students’ learning experience and consider it “productive and efficient” (p. 5).

Liaw (2008) used the system Blackboard as a focus of his study on students’ satisfaction, intentions and effectiveness of the e-learning course. The study participants were Taiwanese university students (N = 423 who responded to a questionnaire with items divided into the following sections concerning e-learning: the perceived self-efficacy, satisfaction, usefulness, behavioural intention, e-learning system quality, interactive learning activities, e-learning effectiveness, multimedia instruction. The data revealed that even though the participants were experienced Internet users, their experience with e-learning was limited, leaving a wide path towards its application in the sphere of learning. However, the main obstacle the e-learning course creators must overcome is the moderately positive attitudes to the use of e-learning. This obstacle, however, can be removed by creating an engaging learning environment and content. In addition, the main concerns of the participants regarding e-learning focused on interactivity and system quality. The system quality also enhanced learners’ usefulness. Finally, the variety of learning content helped to enhance e-learning efficacy, learners’ efficacy, performance, and motivation.

In Slovakia, Tóboľová et al. (2021) analysed the attitudes of 211 pregraduate teacher trainees towards distance learning. The students used the MS Teams and LMS Moodle as official learning platforms. The re-
Results indicate that the students’ most preferred forms of distance learning were online lectures, assignments, and writing seminar work. Conversely, the least favourite were pre-recorded lectures, working in LMS Moodle and offline lectures and self-study. In addition, students suggested getting fewer tasks requiring the use of computers and would prefer working offline. Concerning teaching methods, students preferred online lectures and debates; other forms relying on individual work (e.g. didactic games, online tools or work in the LMS Moodle were the least preferred. Students also found distance learning more difficult, as they would need to carry out more tasks in comparison to face-to-face learning. This finding, however, does not indicate that it is more beneficial for students as conversation and direct interaction is more effective. The main advantages of distance learning were saving time and money, convenience, stress-free participation in learning and improved self-regulation and discipline. On the contrary, the main disadvantages concerned the lack of social contact, a higher number of tasks, the difficulty of boredom and concentration, technical problems, the lack of feedback and the physical toll of distance learning.

Hitková (2021) analysed the data from pre-service and in-service teachers teaching at Slovak universities. The main drawbacks of online learning were identified as the lack of social contact with students and teachers, the chaos in transferring to online learning, different types of difficulties during the exams and technical problems. However, students reported greater learner autonomy, clarity of information and convenience (no need to commute, and better personal relationships.

Kocianová (2021) compared the attitudes of learners towards literary courses. The respondent in the group of university students indicated that they appreciated the convenience of the online courses and the learner autonomy they could develop; however, the lowest number of respondents could see nothing positive about the online classes carried out using MS Teams. In addition, they did not perceive a major difference between the number of interactive activities carried out online and in face-to-face lessons.

The experience of learners and teachers in online learning is varied. The quality of online learning is dependent on many factors that are not always directly related to the course content but also the online en-
vironment the lecturer or the educational institution chooses. Equally important are learners’ expectations, their ability to work mostly independently in the online environment and motivation. In addition, teachers’ educational and technical support is perceived as instrumental to the success of the course. The most recent practices indicate that online tools can fully replace face-to-face learning in times of need but bring new challenges the teachers must overcome in online learning.

3.2 Research aim
This research aims to investigate the university EFL students’ experience and perception of an online course in English phonetics and phonology, the perceived advantages, disadvantages, and students’ opinions.

3.3 Research questions
Research questions were formulated as follows:

Q1: What advantages of online learning of English phonetics and phonology do the students identify?

Q2: What disadvantages of online learning of English phonetics and phonology do the students recognise?

Q3: How would the students like to utilise the experience with online learning in the future?

Q4: Which skills did the students improve during online learning of English phonetics and phonology?

3.4 Methodology

Research Instrument
The questionnaire method was used to collect the responses of the participants. The questionnaire consisted of six items of different types (5-point Likert scale items, multiple choice, a free-response section and aimed to answer the following research questions. The formulated questions were based on the literature review (Liaw, 2008; Park, 2009;
Pandu & Fajar, 2019; Abbasi et al., 2020 and modified to be applicable for this study. The questionnaire content was discussed with two other department members.

**Participants**

The questionnaire participants attended the online courses *Phonetics and Phonology of English* taught to double major pre-service teachers of English, and *Contemporary English I* course taught to full-time and part-time single major pre-service teachers, part-time in-service teachers of extension studies and full-time students of the programme English Language and Culture. The students present a purposive sample for this research, as the students had a unique opportunity to study the course in the form of the online course at the faculty in the academic year 2020/21. The total number of respondents was 88.

The respondents of the questionnaire were primarily the students of the first year (67.8% of the bachelor’s degree, followed by the in-service teacher group (23.7%) and finally the second-year students of bachelor’s degree (8.5%). English was their foreign (78.0%) or second language (22.0%). On average, they had studied English for 12.53 years, and most of them had completed the Maturita exam (81.4%), an international certificate (3.4%), the state exam (13.6%) or the state exam at a language school (3.4%). Most respondents had studied English only (55.9%), the second largest group had taught English privately (40.7%), and 15.3% were in-service teachers of English. Most respondents identified themselves as intermediate computer users (81.4%), followed by 10.2% elementary computer users, and 8.5% of respondents identified themselves as experts. From the past, 89.8 of respondents had no experience with distance learning, and 10.2% had experience with distance learning from the last year of their high school studies, from taking several courses in other universities abroad or from project learning.

**Procedure**

The course was taught as an e-learning course for the full-time students consisting of a two-hour long synchronous lecture, a 1-hour long synchronous seminar, and 1-hour long asynchronous activities carried
out through LMS Moodle. The synchronous elements of the course were carried out using MS Teams. Both systems are official platforms used for learning and interacting with faculty members approved by the university. Part-time students and in-service teachers attended two synchronous block lecture sessions.

Out of all participants, 59 completed the questionnaire over a six-week period, representing a 67.0% return rate of the questionnaire. The questionnaire was presented in the Slovak language to ensure the clarity of responses, and it was published on the website survio.sk. The participants in the courses received invitations by two emails.

### 3.5 The Results

The first research section investigated participants’ attitude to ten statements in a 5-point Likert scale item (1 = strongly agree; 2 = agree; 3 = neither agree nor disagree; 4 = disagree; 5 = strongly disagree theoretically divided into four sections:

1. the attractiveness and efficiency of the online course,
2. the learners’ approach to the learning process,
3. interaction with the lecturer and other students.
4. the online systems and their use.

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<td>15 25.4 %</td>
<td>13 22.0 %</td>
<td><strong>3.25</strong></td>
</tr>
<tr>
<td>4. I was actively participating in the online course of English phonetics and phonology.</td>
<td>23 39.0 %</td>
<td>18 30.5 %</td>
<td>7 11.9 %</td>
<td>9 15.3 %</td>
<td>2 3.4 %</td>
<td><strong>2.14</strong></td>
</tr>
<tr>
<td>5. I worked equally during the online course of English phonetics and phonology and face-to-face learning.</td>
<td>17 28.8 %</td>
<td>13 22.0 %</td>
<td>14 23.7 %</td>
<td>11 18.6 %</td>
<td>4 6.8 %</td>
<td><strong>2.53</strong></td>
</tr>
<tr>
<td>6. I could discuss my questions with the lecturer during the online course of English phonetics and phonology.</td>
<td>22 37.3 %</td>
<td>23 39.0 %</td>
<td>9 15.3 %</td>
<td>5 8.5 %</td>
<td>0</td>
<td><strong>1.59</strong></td>
</tr>
<tr>
<td>7. Organising the online course of English phonetics and phonology was more challenging than face-to-face learning.</td>
<td>9 15.3 %</td>
<td>7 11.9 %</td>
<td>11 18.6 %</td>
<td>17 28.8 %</td>
<td>15 25.4 %</td>
<td><strong>3.37</strong></td>
</tr>
<tr>
<td>8. The online course of English phonetics and phonology was demanding in technical aspects (the quality of the Internet, hardware.</td>
<td>9 15.3 %</td>
<td>13 22.0 %</td>
<td>7 11.9 %</td>
<td>19 32.2 %</td>
<td>11 18.6 %</td>
<td><strong>3.17</strong></td>
</tr>
<tr>
<td>9. Operating MS Teams was easy.</td>
<td>36 61.0 %</td>
<td>17 28.8 %</td>
<td>3 5.1 %</td>
<td>3 5.1 %</td>
<td>0</td>
<td><strong>1.59</strong></td>
</tr>
<tr>
<td>10. Operating LMS Moodle was easy.</td>
<td>35 59.3 %</td>
<td>17 28.8 %</td>
<td>4 6.8 %</td>
<td>3 5.1 %</td>
<td>0</td>
<td><strong>1.58</strong></td>
</tr>
</tbody>
</table>
Table 1 indicates that the students predominantly agreed with two statements (statements 9 and 10 concerning the use of online learning systems. The students generally found the academic and communication systems officially used by the university easy to use, and their personal devices used for learning were sufficient for the e-learning course. This conclusion is supported by the disagreement with statement 8, in which the students did not find the challenges with the technical equipment crucial. This claim, however, contradicts the statements from the free-response section:

“The only thing I suggest, and I wouldn’t want by any means, is that distance learning should become the standard. It is incredibly unpredictable in terms of technology, which can fail at any time, communication is poor and also dependent on technology [...]”

The third statement the students agreed with the most was statement 6, confirming the ability to discuss the issues with the lecturer.

The items the learners agreed with the least were items 6 and 7, dealing with the technical equipment and students’ time management abilities. They were able to follow the scheduled synchronous parts of the course and stay involved and participate in the synchronous parts of the course. One participant responded:

“Distance learning was surprisingly better than it seemed in many areas - especially in terms of travel. Scheduling was also better (simply put, it was impossible to complain about delays. All materials needed for the study were available. The only problem was sometimes with the Internet, as many cannot influence when the Internet will work and when not, so we cannot influence the possibility of participating in a lecture or seminar, for example.”

However, the most challenging aspects of the e-learning course were the transfer of the information and the ability to understand the course content in the online environment (item 3, although the learners agree in items 1 and 2 that the online course was interesting and effective. Students also agreed that they worked to the same extent as in the face-to-face learning, and they participated actively (items 4 and 5.
Table 2 The students’ evaluation of the quality of the course of English phonetics and phonology

<table>
<thead>
<tr>
<th>Answer</th>
<th>Answers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quality and extent of the information</td>
<td>7</td>
<td>11.9 %</td>
</tr>
<tr>
<td>The quality and extent of the feedback in learning</td>
<td>19</td>
<td>32.2 %</td>
</tr>
<tr>
<td>The direct contact with the lecturer and other students</td>
<td>44</td>
<td>74.6 %</td>
</tr>
<tr>
<td>Group work with other students</td>
<td>30</td>
<td>50.8 %</td>
</tr>
<tr>
<td>Informal social contact</td>
<td>31</td>
<td>52.5 %</td>
</tr>
<tr>
<td>The interactivity of the study</td>
<td>15</td>
<td>25.4 %</td>
</tr>
<tr>
<td>The attractiveness of the study</td>
<td>20</td>
<td>33.9 %</td>
</tr>
<tr>
<td>Other (please, specify)</td>
<td>2</td>
<td>3.4 %</td>
</tr>
</tbody>
</table>

Item 9 in the questionnaire investigated what aspects of the e-learning course were poorer or of lower quality. The column “respondents” states the total number of answers and the column “percentage” expresses the information as a percent. The previous research had confirmed that the learners were mostly afraid of the quality of communication and information received in an e-learning course. The students were asked to choose all items that applied to them.

The responses reveal that the participants universally chose all items related to communication with the lecturer, other course participants, and informal social contact facilitating information exchange among students and providing them with emotional support. On the other hand, approximately a third of the students found the quality and range of feedback poorer than in face-to-face learning. The students claimed they did not receive sufficient feedback even though they received personalised weekly feedback on the asynchronous tasks they were carrying out individually.
In the free-response section, the students gave 16 completely positive comments on the course, e.g.

“Thank you for everything. I really enjoyed your classes.”

“My overall assessment is positive. Both the lectures and seminars were well organised, the information was concise and linked to visual demonstrations. The professor did a great job, and I am very grateful for her effort, willingness and curriculum. Thank you!”

However, there were also seven critical comments, e.g.

“For me, as a student of the 1st year of bachelor’s study, the most difficult thing was to get acquainted with the system (both technical and functioning of the subject in the first weeks of study. Also, since I am a visual type of student, it would help me personally in lectures if the presentations also contained more visual content, not just textual content.”

“Slower pace at lectures, more time during seminar assignments, more developed feedback for Moodle assignments, clearer instructions for submitting assignments in Moodle.”

Conversely, only seven students claimed that the quality and range of information was poorer, which was the least frequently chosen item. In terms of course interactivity and attractiveness, the quality was lower in 33.9% and 25.4%, respectively. Two students claimed none of the aspects of the e-learning course were lower in quality compared to face-to-face learning.

Part-time students in the free-response item also compared this course with another course taught by the same lecturer as phonetics and phonology. They evaluated the other course more positively, as it gave them more opportunities for group work. However, it must be noted that the other course taught by the lecturer was a seminar; therefore, the session aimed to practice theoretical issues, while the session of phonetics and phonology was a lecture. The students suggested what literature labels flipped the approach discussed in chapter 1 of this publication – learning theoretical introduction individually and in the synchronous meeting work in groups on problem-solving tasks.
Another critical comment was related to the students’ ability to respond to lecturers’ questions during the online oral exam. The student did not feel prepared by the course to follow and react to the questions asked. This claim may be explained by the fact that face-to-face lectures are very interactive, and the lecturer asks questions to provoke students’ responses. However, students seem to be less willing to participate in discussions during online lectures. Another student believes phonetics and phonology is difficult to study in an e-learning course.

Table 3: The Students’ evaluation of the suitability of distance learning for different forms and types of work

<table>
<thead>
<tr>
<th>Answer</th>
<th>Answers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>53</td>
<td>89.8 %</td>
</tr>
<tr>
<td>Seminars</td>
<td>18</td>
<td>30.5 %</td>
</tr>
<tr>
<td>Group work</td>
<td>9</td>
<td>15.3 %</td>
</tr>
<tr>
<td>Individual work</td>
<td>33</td>
<td>55.9 %</td>
</tr>
<tr>
<td>Self-study</td>
<td>52</td>
<td>88.1 %</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>1</td>
<td>1.7 %</td>
</tr>
</tbody>
</table>

The following questionnaire item investigated the students’ perception of the suitability of e-learning in two aspects (1 different organisation forms and (2 types of tasks. The column “respondents” states the total number of answers and the column “percentage” expresses the information as a percent.

In the first category, almost all students preferred the e-learning form for lectures rather than seminars. In terms of the forms, e-learning is perceived to be suitable for individual studying rather than group work. One student in the category “other” claimed that distance learning is good for parents on parental leave who would not be able to manage otherwise.
Table 4 The aspects of learners’ improvement during the online course of English phonetics and phonology

<table>
<thead>
<tr>
<th>Answer</th>
<th>Answers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining knowledge on the acoustic aspect of language</td>
<td>44</td>
<td>74.6 %</td>
</tr>
<tr>
<td>Improving pronunciation</td>
<td>41</td>
<td>69.5 %</td>
</tr>
<tr>
<td>Improving communication in English</td>
<td>30</td>
<td>50.8 %</td>
</tr>
<tr>
<td>Improving communication with lecturers</td>
<td>14</td>
<td>23.7 %</td>
</tr>
<tr>
<td>Improving communication with other students</td>
<td>11</td>
<td>18.6 %</td>
</tr>
<tr>
<td>Improving working with online sources</td>
<td>34</td>
<td>57.6 %</td>
</tr>
<tr>
<td>Improving the work with computer and tools of online course</td>
<td>38</td>
<td>64.4 %</td>
</tr>
<tr>
<td>Improving time management and planning</td>
<td>20</td>
<td>33.9 %</td>
</tr>
<tr>
<td>Improving the system of learning</td>
<td>22</td>
<td>37.3 %</td>
</tr>
<tr>
<td>Other (please, specify)</td>
<td>0</td>
<td>0 %</td>
</tr>
</tbody>
</table>

Item number 11 in the questionnaire investigated the areas of the students’ greatest improvement. The column “respondents” states the total number of answers and the column “percentage” expresses the information as a percent. The students almost universally claimed that their major improvement was in the knowledge of the acoustic layer of language (74.6% and their pronunciation (69.5%), which corresponds with the major goals of the course and its curriculum. The second largest sphere of students’ improvement was the work with the computer and learning tools, followed by time management and finding their own approach to learning. As the previous questionnaire item suggests, the sphere of interpersonal communication was the least developed during the e-learning course.
Online course of English phonetics and phonology

Table 5 The sources of information for students during the online course of English phonetics and phonology

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Average score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online study materials published at faculty website</td>
<td>31</td>
<td>19</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1.75</td>
</tr>
<tr>
<td>Online study materials from other websites</td>
<td>14</td>
<td>15</td>
<td>14</td>
<td>10</td>
<td>6</td>
<td>2.64</td>
</tr>
<tr>
<td>Lecture videos and instructions from other sources</td>
<td>20</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>2.51</td>
</tr>
<tr>
<td>Supplementary material provided by the lecturer</td>
<td>35</td>
<td>12</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>1.68</td>
</tr>
<tr>
<td>Visual aids</td>
<td>18</td>
<td>15</td>
<td>17</td>
<td>5</td>
<td>4</td>
<td>2.36</td>
</tr>
</tbody>
</table>

Item 12 in the questionnaire investigated students’ most helpful sources of learning. The column “respondents” states the total number of answers and the column “percentage” expresses the information as a percent. Most students relied on the additional materials sent to learners by the lecturer (IPA alphabet, classification tables, drawings and schemata, followed by the online teaching materials published at the faculty website (two phonetics and phonology textbooks with exercises. A minority of students (23.7%) looked up text materials from other websites.

Table 6 The students’ preferences to the use of online learning in the future

<table>
<thead>
<tr>
<th>Answer</th>
<th>Answers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>7</td>
<td>11.9 %</td>
</tr>
<tr>
<td>Completely</td>
<td>11</td>
<td>18.6 %</td>
</tr>
</tbody>
</table>
Chapter 3

<table>
<thead>
<tr>
<th>A combination of online lectures and face-to-face seminars</th>
<th>36</th>
<th>61.0 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A combination of face-to-face lectures and online seminars</td>
<td>5</td>
<td>8.5 %</td>
</tr>
<tr>
<td>Other (please, specify)</td>
<td>0</td>
<td>0 %</td>
</tr>
</tbody>
</table>

The final item investigated the future preferences of students regarding online learning. Only seven respondents would prefer having face-to-face learning, and only eleven participants would prefer attending school online exclusively. The majority of learners would prefer having online lectures with face-to-face seminars (61.0%, and only 8.5% of students the opposite combination. This finding suggests the students can see the benefits of e-learning, leaving space for universities to create interesting content for online learning courses.

“Distance education saves a lot of time and money, especially for students coming from more distant cities, students with small children, working. Lectures given through MS Teams would be appropriate also outside of pandemic measures.”

“I don’t think distance learning was so difficult and restrictive in general, and I can still imagine such study.”

“I am extremely satisfied with the distance education, and I hope that we will continue to do so, as it saved me a lot of time (I did not have to go to Trnava and financially (there were no travel costs.”

In the final, free-response section, students also formulated suggestions unrelated to the online form of the course, for instance, suggestions for redesigning the faculty website, a different organisation for part-time students, the organisation of examination period, course curriculum, etc.
3.6 Conclusions

After reviewing all the data, the research questions can be answered.

Q1: What advantages of online learning of English phonetics and phonology do the students identify?

Generally speaking, part-time students appreciated the time and money-saving aspect of distance learning, as they are working people. The online course allowed them to manage their time better than the face-to-face learning at the faculty premises.

In terms of the structure of the organisational form of the online course, the participants were generally able to operate the systems and claimed no significant technical difficulties, except for the Internet problems.

Q2: What disadvantages of online learning of English phonetics and phonology do the students recognise?

The main concerns of students expressed regarding the online course were related to the social aspect of distance learning, in particular the lack of formal and informal social contact with other students and the lecturer. While the physical distance between the students can explain the lack of contact with other students, the lack of contact by the teacher was probably a more subjective experience of individuals because students could contact the lecturer through email and arrange an online meeting. Students also used the opportunity to use the chat function of MS Teams, and none of these channels were ignored by the lecturer. However, these comments conclude that the lecturers’ subjective perception of contact sufficiency must shift towards the needs of students. The lecturer should open as many channels as possible to learners (e.g. official chat in Moodle, questionnaires during the semester, synchronous and asynchronous teamwork and group work, etc.) to avoid the feelings of exclusion of some students.

Q3: How would the students like to utilise the experience with online learning in the future?

As suggested in the previous research questions, part-time students would like to use online learning more extensively than full-time stu-
dents. Most of them appreciated the convenience of this form of studying. However, since their synchronous learning is limited, they were more sensitive to the disadvantages of online learning. Full-time students would like to keep a certain amount of online learning in the future – most students would prefer having online lectures and face-to-face seminars. The second most frequently preferred form would be attending online seminars and face-to-face lectures. The two extreme options – fully online learning or no face-to-face learning - were the least frequently preferred forms of learning in the future.

Q4: Which skills did the students improve during the online learning of English phonetics and phonology?

The concerns of the lowered quality of the course itself, which is a frequently cited reason why learners do not prefer online learning, were not justified; on the contrary, the knowledge of the course curriculum was the most frequently improved by the learners. In addition, students mostly improved their communication in English.

3.7 Discussion

The conclusive remarks could refer to the way that this study relates to the previous research. The collected answers by the questionnaire confirm older findings of Liaw (2008, who claimed students are experienced with the Internet but lack experience with online learning. In addition, the questionnaire study revealed that during online learning, students are more likely to feel isolated and lack social contact, which confirms the findings of Abbasi et al. (2020 and Hitková (2021. The teachers should create as many opportunities to communicate as possible – with lecturers in the form of consultation, or with other students, for instance, in team or pair work, which they can also carry out online (Kocianová, 2021. In this way, students would find the teacher’s support, mostly technical, more accessible (Liaw et al., 2007.

The study did not fully confirm other findings of Abbasi et al. (2020, primarily in the impact of online learning – in the sphere of the quality of the content. The students viewed the course rather favourably. However, only about a third of the participants improved self-efficiency, which does not confirm the findings of Park (2009. Another conclusion
of the data can be that the systems for online learning, LMS Moodle and MS Teams, were selected appropriately, which contributed to the overall positive experience of students, who found the course efficient and brought results, similar to Kazi and Shidhore (2020).

As far as the forms of distance learning students prefer, they confirm the findings of Tóblová et al. (2021) that the most preferred form of learning for students is synchronous lectures. Part-time students also agreed that distance learning saves time and money for students, which is a plus for them, as they are working and can carry out parts of their tasks from their homes.

Distance learning can be considered an interesting experience, and teachers and learners have to adapt quickly to new conditions. Students and teachers strive for a positive outcome of this experience.

The implications from the questionnaire answers can be summarised as follows:

- It is necessary to re-evaluate the structure and forms used in online learning. It is important to evaluate whether using traditional, face-to-face learning methods will promote students’ experience from the online course. Before the pandemic, training pronunciation with computer-assisted exercises was seen as a rather novel approach to teaching it. However, when students are overloaded with computer-based tasks in the pandemic period, they may view additional computer-based tasks as excessive.

- It is advisable to use group and pair work in the course of phonetics and phonology. While in face-to-face seminars, students would participate in discussions, in the online environment, students seem to appear less confident in the online interaction. Splitting students into groups would help students establish space for communication.

- Finally, opening as many communication channels as possible may help teachers appear more present, even if teachers may think the existing communication is sufficient for all students.
4 Using online tools to practice English pronunciation

Action research report

4.1 Introduction

This chapter aims to present action research into the use of technology in pronunciation training within the context of an integrated language course. The students’ work records, field notes, and a questionnaire will be evaluated to document the three-week action research period.

This action research investigated how online tools can be used for pronunciation training within an integrated general English course and how the students will respond to these tools while completing tasks in the course book, primarily designed to be carried out in a face-to-face classroom setting. Since this form of learning was not possible at the point of carrying out this action research, new techniques and tools had to be introduced into the learning process, and tasks had to be modified to meet the set goals. The primary motivation to carry out the action research was to investigate whether it would be possible to translate the learning goals from one setting to another (face-to-face and online) and find suitable technological advancements. The secondary motivation was related to the researchers’ relationship with the study participants. The participants had attended the course of English phonetics and phonology taught by the researcher, a discipline dealing with the language layer that is reportedly often neglected in the integrated language classroom at lower levels of education (Celce-Murcia, Brinton & Goodwin, 1996; Macdonald, 2002; Metruk, 2020). Students often claim to have little to no experience with learning pronunciation and are interested in its impact on communication. Therefore, it was necessary to show the students – pre-service teachers of English that teaching pronunciation is an integral part of teaching English, and the temporary situation is not an excuse to ignore it.
4.2 Current Practices in Teaching Pronunciation

Wells (1996) highlights that phonetic transcription points out the peculiarity of pronunciation, especially in languages with a high mismatch between the orthographic and acoustic forms. He also adds that exposure to authentic speech may not be sufficient for advanced command of a foreign language. Delrue (2010) investigated whether listening can help learners improve their skills in phonetic transcription. Nine participants all took part in a pronunciation course and transcribed words and short sentences on paper the previous academic year before using computer tools. This explicit approach to pronunciation expanded learners’ phonological competence and overall ability to make a connection to sounds through visualisation of the acoustic input. Ghorbani (2019) used phonetic transcription to improve learners’ awareness of lexical stress in English. Thirty-four participants in the experiment (experimental and control group) improved their listening skills by using an intermediate to advanced listening material and then looked up the dictionary pronunciation of highlighted words. Then they practised pronunciation of the words in various exercises. The achievement post-test revealed significant differences in the placement of word stress in participants of the experimental group benefiting from the phonetic transcription use. Vančová (2021) asked 101 pre-service teachers taking part in a phonetics and phonology course to transcribe a set of words, then self-assess the transcription and write self-evaluation on the pre-service teachers’ mistakes. The comparison of the actual mistakes and the self-reports revealed a generally good ability to self-assess their performance. The learners’ typical mistakes were incorrect pronunciation of the words, using incorrect symbols for transcribing sounds coming from other transcription systems, and the lack of indicating word stress in transcription.

Tucha et al. (2004) concluded that writing to dictation connects lexical and phonological systems. In the research, they gave the time limit of 3-4 seconds to participants who used a digital tablet and a pen to write down words they could hear with and without priming. According to Kazazoglu (2013), dictation as an EFL educational tool peaked in the grammar-translation method. From that point onwards, it has been rejected due to its non-communicative nature. However, as Kazazoglu
Chapter 4

points out, writing down a spoken text combines the activation of several communicative skills (listening, writing) and grammatical structures. However, there seems to be a growing interest in finding evidence of an existing link between using dictation to raise phonological awareness (Robinson-Kooi & Hammond, 2020). Kazazoğlu (2013) analysed two different types of dictation conditions: pre–recorded and teacher-led dictation in Turkish eleventh-grade students. The participants in both groups were supposed to fill in a blank with a word in a cloze-based task. This task is based on comprehension of the dictated text. Before dictation, the participants engaged in various communicative activities to prepare for dictation. The comparison of results between groups suggests the teacher-led dictation group scored higher results, which may result from a lower speed of dictation and students’ familiarity with the speaker’s (teachers’ accent. Factors influencing dictation are text difficulty, speed of dictation, the length of text chunk, background noise, the number of text presentations, the accent and dialect of the speaker.

Sawyer and Silver (1972, in Kazazoğlu, 2013, p. 1339) identified the following types of dictation 1) phonemic item dictation, involving the presentation of individual sounds, 2) phonemic text dictation, whereby learners phonetically transcribe a short text, 3) orthographic item dictation, the dictating of individual words used for testing spelling, and 4) orthographic text dictation, using short texts rather than individual words. The second type of dictation was selected for this action research.

McCrocklin (2016) carried out a three-week pronunciation workshop concentrating on selected segmental issues, including vowels and consonants, to determine whether the participants will improve their views on learner autonomy. While the control group attended traditional in-class sessions, two control groups attended “conventional classes with minimal strategy training and hybrid sessions with minimal strategy training and technology/online day” (p. 28). The experimental groups practised with ASR (Windows Speech Recognition or voice search in smartphones). The results revealed that both experimental groups improved their beliefs on their autonomy. In participants’ responses, several types of responses were revealed – from the frustra-
tion of the participants whose words were not recognised correctly to careful pronunciation to achieve the correct word. Using a more convenient ASR software for learners (e.g. mobile phones) could solve this problem. ASR creates a “safe space” (p. 35) even for learners in an environment with native speakers.

Saraclar and Khudanpur (2004) discuss the differences between the decontextualised, “canonical” word/phoneme pronunciation, the pronunciation of phonemes with the subsequent changes in long utterances and the eventual challenges the differences propose for ASR. They also discuss the challenges the human phonologists may encounter when deciding which phoneme/phone was pronounced. Many of them lose some of their qualities in continuous speech, which needs to be reflected in the process of ASR pronunciation modelling.

Neri et al. (2006) investigated the impact of computer-assisted automatic feedback provided to Dutch speakers. The research participants in the experiment group received feedback on segments. The results of the post-test revealed that the training had a positive influence on the participants’ speech. Precoda et al. (2000) investigated automatic speech recognition in improving speaking skills. As far as pronunciation is concerned, the tool applied in the study did not particularly improve pronunciation; however, the participants expressed enthusiasm to use the tool. On the contrary, Elimat and AbuSeileek (2013) used an automatic speech recognition tool that significantly improved learners’ production in experimental groups, particularly those who worked on individual assignments.

The literature review confirms that there are different approaches to improving pronunciation, ranging from traditional dictation and phonetic transcription techniques to using automatic speech recognition systems. Training pronunciation by electronic tools requires a careful inspection of the training goals, and traditional techniques need to be adjusted to the work in the online learning environment. Among the main benefits of electronic tools is making learners work autonomously and receive feedback instantly.
4.3 Research aim
This action research aimed to investigate how pre-service teachers of English can be introduced to electronic tools for pronunciation training. The action research also presents how the tools allow students to practise pronunciation and transcription. Finally, the action research investigated how to use the electronic tools in communication-based pronunciation tasks provided in a regular EFL course book with exercises integrated into a general language course outside the context of a/the phonetics and phonology course.

4.4 Research questions
Based on the literature review, the following research questions were formulated:

1. How can electronic pronunciation learning tools be incorporated into integrated pronunciation teaching?
2. Are the learners open to practising pronunciation using electronic pronunciation learning tools?

4.5 Research Method: Action Research
Teachers who complete their formal education further need to develop their professional skills. There are teachers who participate in courses organised by other teaching professionals; however, there are teachers who like to create and improve their own pedagogical practices by observing and reflecting upon their own teaching. Therefore, these ways of testing new materials and strategies help teachers develop professionally (O’Connor et al., 2006). Such creations and improvements typically start at the very moment the teacher notices an unsatisfactory situation in the classroom and the teacher instantly becomes a researcher (Janík, 2004). These types of development of teaching practices may be called action research, and it results in practice rather than theory (Mackey & Gass, 2005).

Similarly, Janík (2004) views action research as a tool for improving a certain part of teaching practice that is applied due to the needs of a particular teacher rather than the needs defined by the theory. Accor-
According to O’Connor et al. (2006), action research is relevant to a particular teacher because it concentrates on their own problem and often is carried out by teacher-researchers because they cannot find relevant answers in the academic literature written by non-practising teachers. Hong and Lawrence (2011) point out that teachers reveal much of themselves in action research.

Jonker and Pennink (2010, p. 86) claim “[t]he researcher develops insight into an organisational ‘reality’ by cooperating in that reality and, where necessary or relevant, sympathising with those involved. By participating in the world of the people involved and supporting the introduction of changes, the researcher will be able to develop his own observations of the problem along the way”. They label action research a subjective research method that will reflect the researcher’s attitude. While this subjectivity may be perceived as a shortcoming of the action research, Janík (2004), on the contrary, maintains that context-related action research can provide teachers with answers and solutions for a particular problem. He also compares traditional research methods with action research. Janík suggests that action research is very flexible to the needs and interests of teacher-researcher. He or she can constantly formulate and reformulate research questions, choose and change different research participants, modify and add new data collection methods. On the other hand, traditional research methods have all these parameters pre-defined, and a researcher must adhere to them through all stages of the research. The word action has two meanings in this process – (1) a situation that needs to be addressed, as well as (2) the teachers’ activity in which the teacher improves the identified problem of learners (Janík, 2004; Rychnavská & Bačová, 2015). The first stage is called the research phase, and the second stage is called an action.

According to Mackey and Gass (2005), typical steps in action research include, for instance, formulating assumptions or hypotheses of possible learners’ challenges, creating and implementing a technique helping learners overcome the challenge or alternatively bringing the challenge to the attention of learners and then evaluating the effect of such technique on learners’ performances.
The stages of action research are defined as follows (Rychnavská & Bačová, 2015):

1. Defining a problem
2. Initial observing, data collecting and analysing
3. Searching for a theoretical solution
4. Selecting the optimum solution and implementation of the solution
5. Data analysing and feedback
6. Formulating of experience

The following structure will be adhered to, and steps 2 to 5 will be periodically repeated.

4.6 Research subjects and tools

Research subjects
For this study, action research was carried out on 33 participants. The action research took place within the fourth semester of the communicative language skills course of the study programme teaching English language and literature. The participants were in the second year of their studies and were chosen as a purposive sample for two main reasons. Firstly, they attended a phonetics and phonology course in the academic year 2019/2020, i.e. academic year with the possibility to attend traditional face-to-face classes without the restrictions and the necessity to use electronic tools to learn about the features of English pronunciation. The English phonetics and phonology course was carried out as a blended course – the face-to-face theoretical lectures and 45-minutes seminars were supplemented by e-learning activities in LMS Moodle, the official e-learning environment used by the faculty. The face-to-face seminars and e-learning part of the course in the previous academic year concentrated on the following objectives:
Using online tools to practice English pronunciation

- learning about the contrastive features of the English pronunciation using phonetic transcription,
- demonstrating the practical impact of incorrect pronunciation on communication,
- providing individual students with feedback on the features of their own pronunciation that require further attention by the lecturer each week.

While the first two course objectives were carried out in weekly in-class sessions, the last objective of the course presented above was carried out in class and remotely – the students listened to model recordings, recorded the drilling exercises, and submitted them to the system of LMS Moodle. Therefore, the research participants were familiar with pronunciation issues and could eventually compare and evaluate the benefits and drawbacks of the electronic tools used in the action research. For several years, the researcher also organised an annual workshop to present online pronunciation training tools, and many action research participants attended it in 2019.

An investigation into available tools was made to find suitable electronic alternatives to face-to-face techniques in the action research. The search was not limited to computer systems; smartphones were also viewed as a suitable device to practice pronunciation for communication in real life. During the research, many popular tools and online services were not available or accessible during the action research period. The websites often showed error messages or were not working in the capacity as in the years prior. The second issue was the cost of the online tools – while some electronic tools were available, they required a subscription fee, the students were not expected to pay for the purpose of this action research. Another problem that occurred related to hardware or software compatibility – some tools were not working on particular devices (e.g. a device microphone was not compatible with the tool/program), or some programs or apps were not compatible with all operating systems (some available only for Android, some only for iOS), and only a group of students would be able to use them. After selecting three available tools, they were matched to the course book tasks (English File Advanced, units six to ten).
For the action research, the elements of flipped classroom discussed in chapter 2 were used. The concept comes from the idea that students come to the class prepared by completing a task before the actual synchronous session, and the synchronous part of the course is then spent in a meaningful way, without the necessity to explain the basics the students can explore on their own. Learning comes in reverse order – the homework precedes the group classroom session. The synchronous session was limited to 90 minutes.

**Digital tools observed**

Three tools were used:

1. the online IPA keyboard (ipa.typeit.org)
2. automatic speech recognition in dictation function (MS Windows or Google)
3. automatic pronunciation feedback (speechace.com)

Each tool (except the last one) was used three times in a similar sequence:

- Tool introduction and familiarisation – this phase aimed to make students familiar with the tools and their function and interface and adjust their devices for the work with them at their own pace. The students were given a simple task to complete, and the results of students’ work should have been submitted as a part of their weekly assignment. The assignments were then checked before the class, and findings (possible issues) were reflected in the necessary adjustments of the lesson plan.

- Tool use in the synchronous session – completing course book exercises using the electronic tool. The instructions reflected the findings from the weekly assignments analysis, and the students benefited from the familiarity with the tool’ interface. They were expected to have their devices set to the maximum usability with the instrument.

- Post-session tasks – another set of exercises the students completed allowing them to consolidate the knowledge.
4.7  Research data analysis

4.7.1  Online IPA keyboard

**Procedure**
In week 8, the students received the first task related to the action research – they were asked to transcribe a selection of ten words in the online IPA alphabet keyboard (ipa.typeit.org). The selected words allowed students to practice a wide range of English phonemes. This task was chosen as the first to review the English phonetics and phonology course content and help them revise the basic issues related to pronunciation training. The students in action research were instructed that the keyboard contained special transcription symbols, and the symbols corresponding with the letters of the alphabet can be transcribed with the keyboard of the device they used. After submitting and checking the completed exercises, the following observations were made.

**Comments**
After reviewing some students did not use all symbols of the keyboard (e.g. symbol for primary word stress, e.g. ’feɪvər, ’mju:zɪkl/), they did not use the correct symbols for sounds as suggested by pronunciation dictionaries for the BBC English (e.g. overlook – ɒvəlʊk or /ˌoʊvəˈlʊk/; wage – əʊdʒ or [weɪdʒ]; motorcycle – ˌmɒdəsɑɪkəl or mʊdəsɑɪkəl) and the students incorrectly transcribed the sounds they imagined they would hear from how they actually sound.

During the following synchronous session, students were introduced to the list of homophones in the course book. They were explained that incorrect pronunciation of a word sharing its written form with another word could cause a misunderstanding. Therefore, they were played ten sentences related to the exercise as a dictation task and asked to transcribe the target word they heard using the keyboard. The recording was stopped after each sentence for 10 seconds to give them time for transcription.

After the task, the students reported the time limit of 10 seconds was not sufficient. The relative novelty of the keyboard can explain it to them and the difference between the speed of handwriting and typing.
on two keyboards – the virtual one and the physical one. In the future, I would need to give students more time to complete the task. The limit was chosen according to Tucha et al.’s (2004) research, where the participants manually wrote down words. Giving more than double the time for using the keyboard seemed sufficient, but it would need to be extended in the future.

Students’ feedback

The students’ response is best characterised by the statement:

“Disadvantages – the habit of arranging them - from the beginning, it was necessary to get used to where a symbol is located and finding it took a bit of time. Advantages – The characters were right in front of me, and it was not necessary to “dig them out of memory” - especially those that I did not use for a long time, the symbols used a year ago quickly appeared to me.”

This statement, along with other similar statements, compares the time aspect in the traditional pen and paper transcription with using keyboards – on the one hand, all symbols are in front of the students. On the other hand, it takes longer than using pen and paper. Other comments referred to “the lack of the teacher”, “not direct contact with curriculum”, or “more complicated”.

4.7.2 Dictation tool

Procedure

The second tool selected had an automatic speech recognition-based dictation function to provide the students with implicit feedback on their pronunciation. As in the previous step, the students were asked to familiarise themselves with the dictation function in MS Word, the official software provided by the university. Alternatively, the students could use the Google Translate dictation function if the software was incompatible with their device. The automatic dictation function in MS Word or Google Translate based on automatic speech recognition was used. This function in both systems has proven to be relatively accurate (McCrocklin et al., 2019). The students were asked to dictate a short extract from guardian.com. The students had the opportunity
to see whether the software recognises the words they pronounce, or they would need to re-take the dictation. Since this function may not have been familiar to the students, they were also sent an instructional video.

**Comment**

Looking at the completed asynchronous task, several students reported that they had to re-take it to get sufficient results. Some students only sent the correct version, some students sent both versions, and others sent only the one containing mistakes.

Examples of the mistakes:

- *the passion* – *the Bastion* departments or executive - department are executive
- *gawping at* – go pink, go being, going, gawping add
- *get-out clauses* – get out closing
- *gawping at that hallowed stretch of turf* – he’ll out stretch of door, gulping at that hello stretch, Halloween
- *the passion* - depression
- *pride* – bride, deep right
- *clambering up* - climbing app, Columbia, I’m pulling up
- *turf beneath* – of Banette

In the synchronous online meeting, the students were introduced to the topic of homographs. After completing the course book exercise, they were asked to dictate the words in sentences to the program. This time, only one student reported a problem with the MS Word dictation function, so he completed the task with the Google Translate dictation function.

Based on the sample of completed tasks collected by several students, the conclusion was made that the transcription contained a wide-ranging number of mistakes, and the students would benefit from explicit feedback in future sessions. It was evident that several students struggled with the correct pronunciation of individual words.
Chapter 4

The students’ feedback
Most students’ responses could be summarised in the following statement:

“The advantages are that it is fast, practical and relatively simple. I really enjoyed it. It was also very motivating because when I discovered that I had said something wrong, I could repeat it until I said it correctly.”

It was also interesting to follow the students who had difficulties with the software, as they found the software inaccurate, e.g. “sometimes the dictation doesn’t quite capture what it should”, “the software often hears the wrong word”, “Sometimes it guesses the words” or “On several occasions, the system wrote incorrect words when dictating, even with good pronunciation”.

These two groups of statements indicate the difference in students’ perception of the quality of their pronunciation – while students with good pronunciation found the tool useful, students with pronunciation unrecognised by the system tended to be more critical towards the tool. More investigation into the topic would help identify the issues the students experienced.

4.7.3 Pronunciation and Fluency Assessment via Speech Recognition

Procedure
The final tool used for pronunciation training was a website speechace.com, which provided learners with explicit feedback. After the speaker reads a word, the system evaluates the percentage of correct sounds and even identifies the incorrect sounds. There are three main drawbacks to the programme: (1) the word list is limited to the items on the website, (2) the items do not target above intermediate level, (3) the website does not provide exercises on suprasegmental features. However, the positives of the website far exceed the drawbacks and are successfully used when working with students.

The students were asked to familiarise themselves with it by practising a lesson of their choice on the website speechace.com. The stu-
dents were free to choose a lesson based on their individual pronunciation training needs and promote their autonomy and responsibility for their achievements. This system would not consider the differences between the speakers preferring rhotic and non-rhotic varieties of pronunciation.

**Comment**

The number of submitted feedback (screenshots) the students received was limited and concentrated only at the final mark without a detailed analysis; however, the students who did submit their feedback scored relatively high (more than 90%).

This task aligned itself with the practice of individual sounds in the course book. Since the website does not allow adding new items, the tool was not used at this stage, but students practised target sounds of the unit by following the task instructions in the course book. As a part of their post-synchronous task, the students were asked to read a continuous text from the website.

**Students’ feedback**

The feedback of most students is summarised in these two statements:

> “I only see the benefits in it, it helps me improve my pronunciation, and I know exactly where I made a mistake” and made “relatively rapid progress and response”.

However, the more critical students claimed: “It can’t advise effectively on what the mistake was but quickly evaluates how we are really understood. But I still think that a live teacher is a much more preferred way” or “sometimes even though the pronunciation was according to a dictionary, the pronunciation was evaluated as inaccurate”.

It can be concluded that although the automatic feedback was evaluated positively, it cannot replace a human teacher for some students.

**4.7.4 Final questionnaire**

A questionnaire was used to collect the students’ opinions on the electronic pronunciation used. The students were asked to fill out a questionnaire after completing the action research. The first item was a
5-point Likert scale (item 1 = strongly agree; 2 = agree; 3 = neither agree nor disagree; 4 = disagree; 5 = strongly disagree) asking the students for their overall evaluation of the electronic tools used in the study by expressing their level of agreement with the statements in Table 7. The column “respondents” states the total number of answers and the column “percentage” expresses the information as a percent. The students benefited from comparing the dictation of these electronic tools with the traditional in-class techniques, their convenience in use and relevance for learning the pronunciation aspect within a larger framework of a communication skill development course. The questionnaire content was discussed with another department member.

Table 7 The students’ attitudes to electronic pronunciation training tools

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Average score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic tools are suitable for practising pronunciation and transcription.</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>2.22</td>
</tr>
<tr>
<td></td>
<td>37.5 %</td>
<td>25 %</td>
<td>18.8 %</td>
<td>15.6 %</td>
<td>3.1 %</td>
<td></td>
</tr>
<tr>
<td>Electronic tools make pronunciation and transcription interesting.</td>
<td>11</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>1.94</td>
</tr>
<tr>
<td></td>
<td>34.4 %</td>
<td>25 %</td>
<td>18.8 %</td>
<td>12.5 %</td>
<td>9.4 %</td>
<td></td>
</tr>
<tr>
<td>Electronic tools are easy to use.</td>
<td>16</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>2.34</td>
</tr>
<tr>
<td></td>
<td>50 %</td>
<td>9.4 %</td>
<td>9.4 %</td>
<td>18.8 %</td>
<td>12.5 %</td>
<td></td>
</tr>
<tr>
<td>Electronic tools are time-saving.</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>2.656</td>
</tr>
<tr>
<td></td>
<td>21.9 %</td>
<td>25 %</td>
<td>18.8 %</td>
<td>18.8 %</td>
<td>15.6 %</td>
<td></td>
</tr>
<tr>
<td>Electronic tools are convenient to use.</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>2.59</td>
</tr>
<tr>
<td></td>
<td>31.3 %</td>
<td>18.8 %</td>
<td>18.8 %</td>
<td>21.9 %</td>
<td>9.4 %</td>
<td></td>
</tr>
<tr>
<td>Electronic tools can fully substitute the teacher in the classroom.</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>3.56</td>
</tr>
<tr>
<td></td>
<td>9.4 %</td>
<td>9.4 %</td>
<td>25 %</td>
<td>28.1 %</td>
<td>28.1 %</td>
<td></td>
</tr>
</tbody>
</table>
Using online tools to practice English pronunciation

<table>
<thead>
<tr>
<th>Electronic tools can partially substitute the teacher in the classroom.</th>
<th>3 9.4%</th>
<th>11 34.4%</th>
<th>12 37.5%</th>
<th>2 6.3%</th>
<th>4 12.5%</th>
<th>2.78</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would like to use electronic tools for pronunciation and transcription practice also in the future.</td>
<td>10 31.3%</td>
<td>8 25%</td>
<td>5 15.6%</td>
<td>5 15.6%</td>
<td>4 12.5%</td>
<td>2.53</td>
</tr>
<tr>
<td>The use of electronic tools motivates me to practice pronunciation and transcription.</td>
<td>7 21.9%</td>
<td>7 21.9%</td>
<td>9 28.1%</td>
<td>5 15.6%</td>
<td>4 12.5%</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Table 7 indicates that students shared overall mildly positive attitudes towards the electronic tools, as most of their statements ranged between partially agree and neutral. The only statement they disagreed with was the one referring to replacing a teacher with the tools – the overall score ranges between neutral and partially disagree. On the contrary, the only item leaning towards positive was that the tools are interesting to use. However, the statements applied to all tools – I collected the students’ attitudes towards individual tools in a free-response section, and the main points of each tool are presented below.

The final questionnaire section concluded students’ other remarks students made, and they were mostly positive, corresponding to the following topics:

1. a pedagogical innovation, e.g., “I like it, and I recommend using it in phonetics, it’s innovative”, an addition to traditional teaching techniques, e.g. “Although the software is not perfect, it can be a great teaching aid/diversification”; “this form of pronunciation practice was very interesting and also beneficial.”

2. an addition to traditional teaching techniques, e.g. “I consider pronunciation to be important, and I think that more attention should be paid to it outside the subject of phonetics and phonology.”
3. a possible source of pronunciation teaching activities for formal and informal learning, e.g. “it is very beneficial that, thanks to online teaching, we were able to learn to use interesting tools that we did not know about before and we can use them in various areas in the future :); “I think that such electronic conveniences should also be included in full-time teaching at school.”

4. a temporary solution in the current situation, e.g. “I look forward to the day when the distance teaching ends - higher concentration in the lessons, less disturbing elements.”

All in all, the students expressed positive attitudes towards working with the tools and could see the benefits in them, even if they were not accurate and were not convenient for all students.

4.8 Conclusions
The research questions can be answered as follows:

Q1: How can electronic pronunciation learning tools be incorporated into integrated pronunciation teaching?

Although there are a number of online tools available, their use is often limited to the technical requirements for the correct use of these tools, the availability of the tools to the general public, or the devices the students use for learning or the suitability of the tools to achieve the learning goal. If these conditions are not met, achieving the learning goal is more challenging. In this action research, three types of online tools were used: (1) an online IPA keyboard, primarily designed as a database of symbols to be used in typed texts and used in the research as a tool of transcribing spoken text used for transcribing homophones; (2) a dictation function based on the automatic speech recognition designed for the convenience of the writers in English used to dictate homographs, and (3) a pronunciation training website designed and used for providing foreign learners of English with explicit pronunciation feedback to train sounds of students’ choice. Applying the former two tools required an alternative view on their use than the one originally intended. The sequence of their application reflected the needs of the learners – when the implicit feedback seemed to be unsatisfac-
A tool providing explicit feedback was used. The overall experience of the action research participants was positive, as suggested by their feedback. The more critical responses will be helpful in the future use of these tools in the teaching integrated communicative language courses.

**Q2: Are the learners open to practising pronunciation using electronic pronunciation learning tools?**

The asynchronous tasks the students submitted proved that students were using the tools according to the instructions and could find benefits in all of them. Some students, like many teachers, prefer face-to-face learning but can adapt to different conditions to progress in pronunciation training. The students’ responses in the free sections proved that they could see beyond immediate course requirements and are open to using them in the future and would recommend incorporating them with face-to-face learning.

**4.9 Discussion and recommendations**

One of the main concerns of e-learning courses is to reach teaching goals. Traditional classroom techniques are not always easily transferred to the online space, and teachers must approach teaching from a different perspective. This transfer shifts teachers’ focus into the sphere of online tools created directly for educational purposes or designed to carry out other functions but utilisable in education.

The study has shown that the areas selected for pronunciation practice are currently being investigated and relevant. The investigation into the use of the IPA keyboard revealed that compared to Tucha et al. (2004), who used a digital tablet and a pen to transcribe a text, the 10-second interval was not sufficient for transcribing words. For the task, a phonemic text dictation of short text transcription from Sawyer and Silver’s classification of dictations was used. This procedure followed the pre-recorded dictation (Kazazoglu, 2013). The analysis of students’ transcription examples confirms the findings of the previous research of Vančová (2021) regarding the typical mistakes of learners in transcription.
Concerning the automatic speech recognition based on dictation, Saraclar and Khudanpur (2004) findings seem to be justified in this action research, as students’ texts revealed a mismatch between the dictated and transcribed text. The students reported that they had to experiment with their pronunciation for the system to recognise their utterances. Therefore, students displayed a certain amount of learner autonomy when training pronunciation. In addition, students also reported frustration with the function. Both findings agree with McCrocklin (2016) findings regarding frustration automatic speech recognition can cause to its users.

Finally, the automatic feedback function allowed students to analyse their performance and train pronunciation until they achieved satisfactory results. The limited number of screenshot students submitted, indicate an overall good performance, which does not conform to the findings of Neri et al. (2006).

Implications for future practice:

- Teachers should include pronunciation training in integrated communication skill classes. The students participating in the action research expressed their wishes to train pronunciation also outside the course of phonetics and phonology.

- It is not easy to find suitable pronunciation training tools online; however, the number of available tools allows using tools creating for other than educational purposes to train pronunciation.

- Finally, the sequence of tasks and activities could be used in reverse order, i.e. starting with explicit feedback first, following with implicit feedback and finally, practice phonetic transcription for accuracy.

The design, progress and the choice of digital tools used in the action research corresponded with the researcher’s needs and teaching style. The results are limited to the study group participating in it; the exercises are predetermined by the course book and would require more authentic materials and possibly pair/group work. The tools used in
the action research were selected on the basis of the previous positive experience and familiarity of the researcher with them; however, there are other online tools suitable for online training of pronunciation.
Course book analysis of the pronunciation targets with relation to the CEFR

5.1 Introduction

Previous research into pronunciation teaching has shown that teachers often have overlooked or neglected this aspect (Celce-Murcia, Brinton & Goodwin, 1996; Macdonald, 2002; Metruk, 2020). Grammar and vocabulary take precedence in classrooms. However, due to the increasing interest in the acoustic aspect of speech, pronunciation teaching practices have also become an object of investigation. The research (Bodorík, 2017) has shown that most teachers usually rely on course books for their primary source of pronunciation activities, should they decide to teach it. In Slovakia, extensive research into the actual pronunciation teaching practices in classrooms is not available. Therefore, course book analysis can bring an insight into how pronunciation teaching might look.

A short insight into the official pedagogical documentation in Slovakia (Vančová, 2020a) suggests that teachers are given relative freedom in teaching pronunciation. The most complex document listing specific pronunciation features the B1 and B2 learners should master is The Target Requirements for the knowledge and skills of secondary schools graduates/Level B1 and 2 (Cielové požiadavky na vedomosti a zručnosti maturantov z anglického jazyka/úrovne B1 a B2; ŠPÚ, 2016); however, the national curriculum remains relatively vague in learners’ requirements and the communicative contexts in which learners should benefit from them. For pronunciation, the overall goals are defined within the limits of clear pronunciation with occasional mistakes acceptable; however, the features of desirable pronunciation are not defined. These requirements are following The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR, 2018) published by the Council of Europe, a document the Slovak curriculum for language learning aligns with. A closer inspection of the pronunciation section document is presented in chapter 1 of this publication. However, the sections on grammar and vocabulary contain detailed and well-structured goals with specific vocabulary items and morpho-
logical and syntactic structures listed in the tables for each level of learning. Therefore, this chapter aims to present an investigation into assigning pronunciation targets to the CEFR levels in integrated English course books used in Slovakia.

5.2 The current knowledge on pronunciation teaching in course books

Analysis of general English teaching course books with integrated teaching of communicative skills, grammar, vocabulary, and pronunciation is a popular research method that has already allowed researchers to answer many questions that concern teachers regarding pronunciation teaching. The previous research has primarily focused on the forms (free or controlled, communicative or drilling, etc.) and pronunciation level (segmental or suprasegmental) presented in course books, as each publishing house and each course book series approaches presenting them differently.

For instance, Henderson and Jarosz (2014) compared EFL course books used in France and Poland in higher secondary education. They found that the total number of pronunciation exercises is higher in the French course books compared to the Polish ones. The ratio between segmental and suprasegmental features was approximately the same in both groups of course books (only about a quarter of exercises aimed at segmental level). In addition, neither of the course books provided a sufficient number of communicative tasks. However, the differences were found in the particular focus of pronunciation exercises. While the French textbooks showed a greater variety in practising suprasegmentals (e.g. lexical stress), the Polish course books were richer in the types of phonemes they aimed to focus on (e.g. dentals, lax/tense vowels, past tense verb endings).

Sugimoto and Uchida (2018) analysed course books explicitly designed for Japanese learners. They found that in terms of the content, the teaching materials focused on the practice of segments that are considered to be challenging for Japanese speakers (e.g. phonemes /r/ and /l/) and in suprasegmentals. For instance, intonation was presented in correspondence with the grammatical structures. In addition, the cour-
se books lacked a theoretical explanation of the pronunciation issue, which made the teacher central in pronunciation practice.

Watts and Huensch (2014) analysed 11 course books. They concluded that integrated skills course books are insufficient for pronunciation learning because the analysed books provided a little systematic presentation of pronunciation issues, leaving teachers, who often view themselves as underprepared for pronunciation teaching, with little support. The authors suggest inviting leading phoneticians and phonologists into the team of authors to prepare course books and thus create high-quality teaching materials. In particular, the course books should point at the interconnectedness of the acoustic system of language and how one feature in the context of the whole utterance influences other features (often leading to better fluency). However, they believe that course books should provide learners with opportunities to analyse a spoken text in listening tasks (e.g., for stress pattern or intonation contours), which has already been implemented in some course book series. Another component, which Watts and Huensch did not find in the course books analysed by them, but is present in course books currently used, is a short explicit theoretical introduction, which helps learners participate more actively in pronunciation tasks.

In Slovakia, there is no official national course book for English teaching, but the ministry of education approves a list of course books published in English-speaking countries for schools and teachers to choose from (Zoznam schválených učebníc, schválených učebných textov, schválených pracovných zošitov a odporúčaných učebníc, na zakúpenie ktorých ministerstvo školstva poskytne školám finančné prostriedky, edicy-nportal.sk, 2021). The approved course books are published by reputable publishing houses in the UK and are used globally. Although the national pedagogical documentation is not and should not be based on any particular course book, specific standards are required to assure that learners of a particular level achieve similar learning outcomes.

Kralova and Kucerka (2019) analysed three sets of course books for primary education. Their analysis revealed that drilling and whole-class techniques are dominant in the course book. Contrary to teachers’ comments from previous research, course books contain a sufficient number of pronunciation tasks. Based on the results and literature re-
view, the authors suggest that learners over the age of six should concentrate on higher levels of pronunciation, i.e. suprasegmentals and connected speech.

Metruk (2020) investigated the ratio of exercises of segmental and suprasegmental features in four course book series ranging from intermediate to upper-intermediate level and found that (B1 to B2 alternatively). The quantitative analysis concluded that the ratio of segmentals and suprasegmentals is different in each analysed set. There are course book series focusing on suprasegmental level, course book series focusing on segmentals, and course book series that provide a balanced presentation of segmental and suprasegmental aspects of pronunciation.

Pavliuk (2020) analysed four course book series from five perspectives and concluded that the number of pronunciation exercises is not equally represented in them. The practice of suprasegmental features is preferred to the practice of segmentals. Controlled techniques, mainly “listen and repeat”, are dominant in the course books analysed. Finally, she concludes none of the four series of course books addresses all issues of concern as defined by the Slovak pedagogical documentation (specifically The Target Requirements for the knowledge and skills of secondary schools graduates/Level B1 and 2). Still, all of them address them to a certain extent.

Finally, Vančová (2021) analysed the occurrence of homonymy in course books. She found that this type of vocabulary is relatively rarely presented to learners, typically in a decontextualised word list. The only exception was one exercise that grouped words belonging to the semantic fields of animals.

A quick overview of specialised pronunciation course books reveals that the sequence of presenting individual pronunciation items typically starts with introducing segmentals first, followed by suprasegmentals. Furthermore, vowels tend to precede diphthongs, which are then followed by consonants. The presentation of a phoneme accompanies an explanation of its articulation, distribution across words and correspondence with letters.

Looking at two well-known course books and course book series – Ship or Sheep (Baker, 2008) and the three-levels Pronunciation in
Use series, both by Cambridge University Press (team of authors), differences can be found. While the latter series follows the bottom-up model exclusively, briefly reviewing segmentals at the intermediate level, the former course book is structured around presenting a single phoneme and its minimal pairs, which is then supplemented by presenting and practising a matching suprasegmental feature. For instance, in Unit 2, the contrast between /i/ and /iː/ (as in ship and sheep) is presented. The second part of the unit points at the difference in stress placement in words fifty and fifteen (on the first and second syllable respectively). Each word contains one of the target sounds in the final syllable, and the distribution of word stress differs when pronouncing isolated words and words in higher text units. Word stress can move to the first syllable in the word fifteen, followed by another stressed syllable (Fifteen Mill Street) to avoid a stress clash.

Therefore, it can be concluded that research into course books for foreign learners of English is fruitful. Still, the systematic review of pronunciation features according to learners’ proficiency would bring new insight into assigning pronunciation features to the CEFR levels could fill in the existing blank in the current state of knowledge (a selection of existing studies relating course book content to the CEFR is mentioned in Chapter 2).

5.3 Research aim

This content analysis aims to investigate which pronunciation targets are included in the course books used in Slovakia and at what CEFR level they are presented to learners. This study aims to compare three complete course books approved by the ministry of education and identify to what level of the CEFR they correspond, as no official matching is available. Quantitative analyses (e.g. the ratio of segmental and suprasegmental features, Metruk, 2020; the types and frequency of types of tasks, Pavliuk, 2020) comparing similar course book series have been carried out; therefore, these parameters will not be the primary aim of the research.
5.4 Research questions

The course books will be analysed from two perspectives and will answer two research questions:

1. **At what CEFR level are the pronunciation features defined in the national pedagogical documentation presented in course books? Do they assign them to the same level?**

2. **Which other features not defined by national pedagogical documentation are presented in course books? At what CERF level?**

5.5 Method

To answer the research question, a content analysis was carried out. According to Kothari (2004), the content analysis used to be mostly a quantitative method with countable and identifiable units, but since the 1950s, it has shifted into the domain of qualitative research dealing with messages of documents.

Bodorík (2018, p. 11; based on Cohen et al., 2011) presents these steps of content analysis to follow:

1) “define the research questions addressed by the CA
2) define the population from which units of text are to be sampled
3) define the sample to be included
4) define the context of the generation of the document
5) define the units of analysis
6) decide the codes to be used in the analysis
7) construct the categories for analysis
8) conduct the coding and categorising of the data
9) conduct the data analysis
10) summarising
11) making speculative inferences.”

At first, the list of approved course books was inspected. From the list, three series from three different publishing houses were selected, and students’ books were collected. The workbooks and other materials were excluded from the analysis as they typically do not present new material but are supplementary to the students’ book. In addition, in
the current situation, when students study remotely, they can only rely on the course books and the information in teachers’ books may not be available to them.

The codes will correspond to the national documentation (ŠPÚ, 2016; the left column, Table 8) and other pronunciation targets (the right column, Table 8) defined by the course books (the English File series, the Face2Face series, the Focus series).

Table 8 Codes (descriptors)

<table>
<thead>
<tr>
<th>The Articulation/Use of... (ŠPÚ, 2016)</th>
<th>Additional pronunciation targets in course books (the English File series, the Face2Face series, the Focus series)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 level requirements</td>
<td>reading the suffix -s and -ed at the end of words (plurals, verbs)</td>
</tr>
<tr>
<td>aspirated /p/, /t/, /k/</td>
<td>difference between lax and tense vowels</td>
</tr>
<tr>
<td>bilabial /w/ and labiodental /v/</td>
<td>silent letter e</td>
</tr>
<tr>
<td>velar /ŋ/</td>
<td>schwa</td>
</tr>
<tr>
<td>open /æ/</td>
<td>homophones, homographs</td>
</tr>
<tr>
<td>dental /ð/ and /θ/</td>
<td>special vocabulary</td>
</tr>
<tr>
<td>diphthongs</td>
<td>pronunciation of articles</td>
</tr>
<tr>
<td>triphthongs</td>
<td>strong forms/weak forms</td>
</tr>
<tr>
<td>silent letters</td>
<td>distinctive function of s and z</td>
</tr>
<tr>
<td>linking</td>
<td>words of Greek, Italian and French origin</td>
</tr>
<tr>
<td>primary and secondary word stress</td>
<td>the use of dictionaries</td>
</tr>
<tr>
<td>word class pairs</td>
<td>preparing speech</td>
</tr>
<tr>
<td>sentence stress and rhythm</td>
<td>speech units</td>
</tr>
</tbody>
</table>
### Course book analysis of the pronunciation targets

<table>
<thead>
<tr>
<th>intonation (rising, falling, their combination)</th>
<th>sound-spelling relations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B2 level requirements</strong></td>
<td>orthography – reading the letter c words</td>
</tr>
<tr>
<td>intonation in question tags</td>
<td></td>
</tr>
<tr>
<td>variants and accents</td>
<td></td>
</tr>
<tr>
<td>passive knowledge of the IPA</td>
<td></td>
</tr>
</tbody>
</table>

#### 5.6 Sample

Based on the defined criteria (with approval of the ministry of education, covering most CEFR levels – A1 to C2, three different publishing houses), the following three course book series were selected:

*English file (4th edition)* is a seven-level course book (beginner, A1 to advanced, C1) published by the Oxford University Press. Each unit contains clearly labelled sections of grammar, vocabulary, and pronunciation. From the first level, learners are exposed to British and American accents; however, the course books present pronunciation features typical for British English in pronunciation sections. Learners can study from students› book, workbook and they can also benefit from an online website allowing them to do listening and grammar exercises.

The series *Focus* is published by Pearson, and it is a five-level course book series labelled Focus 1 (A2) to Focus 5 (C1) and consists of students› book, workbook, and online sources for learners. Teachers can also use teachers› package with additional materials. It presents pronunciation exercises within the section listening only in the first four books in the series.

*Face2Face* is published by the Cambridge University Press. It is a six-level course book covering the CEFR levels A1 to C1. The pronunciation tasks are presented in two sections. One of them is «help with listening», which contains exercises focusing on different grammatical and lexical aspects of language. At the same time, it brings their acoustic form to learners› attention. The grammatical and lexical features are often transcribed into the phonetic alphabet symbols, and students are asked to notice the pronunciation peculiarities of English (e.g. word and sentence stress, rhythmical patterns, linking sounds, pronunciation of special expressions). However,
the number of such exercises is inconsistent across units throughout the course book. The most consistent is a pronunciation section at the end of each unit, introducing the learners to new pronunciation aspects or reviewing the aspects dealt with in the listening section in previous parts of the unit.

After reviewing the course book series, the referenced the CEFR levels were put into a comprehensible table below. The table indicates publishers have assigned the course books to more than one CEFR level. In total, 18 course books were analysed.

Table 9 Correspondence of course books to the CEFR level

<table>
<thead>
<tr>
<th>The CEFR level</th>
<th>the English File series</th>
<th>the Face2Face series</th>
<th>the Focus series</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Beginner Elementary</td>
<td>Starter Elementary</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>Elementary Pre-intermediate</td>
<td>Elementary</td>
<td>1</td>
</tr>
<tr>
<td>B1</td>
<td>Pre-intermediate Intermediate</td>
<td>Pre-intermediate Intermediate</td>
<td>2</td>
</tr>
<tr>
<td>B2</td>
<td>Intermediate Intermediate plus</td>
<td>Upper-intermediate (B2)</td>
<td>3</td>
</tr>
<tr>
<td>C1</td>
<td>Advanced</td>
<td>Advanced</td>
<td>5</td>
</tr>
<tr>
<td>C2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.7 Research data analysis

After the inspection of the course books for the requirements, the following table was compiled (with the corresponding CEFR level in brackets). The leftmost column presents the target pronunciation requirements defined by the national pedagogical documentation.
Table 10 The pronunciation targets presented in English course books

<table>
<thead>
<tr>
<th>The Articulation/Use of... (ŠPÚ, 2016)</th>
<th>English File series</th>
<th>Face2face series</th>
<th>Focus series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B1 level requirements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aspirated /p/, /t/, /k/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bilabial /w/ and labiodental /v/</td>
<td>Beginner (A1)</td>
<td>Starter (A1)</td>
<td></td>
</tr>
<tr>
<td>velar /ŋ/</td>
<td>Beginner (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>open /æ/</td>
<td>Beginner (A1)</td>
<td>Starter (A1)</td>
<td></td>
</tr>
<tr>
<td>dental /ð/ and /θ/</td>
<td>Beginner (A1)</td>
<td>Starter (A1)</td>
<td>1 (A2)</td>
</tr>
<tr>
<td>diphthongs</td>
<td>Beginner (A1)</td>
<td>Elementary (A1-A2)</td>
<td>2 (A2-B1)</td>
</tr>
<tr>
<td>triphthongs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>silent letters</td>
<td>Beginner (A1)</td>
<td>Elementary (A1-A2)</td>
<td>1 (A2)</td>
</tr>
<tr>
<td>linking</td>
<td>Beginner (A1) – final consonant + initial vowel)</td>
<td>Pre-intermediate – final consonant – initial vowel; linking w; linking r and j; Intermediate (B1) – linking in phrasal verbs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elementary (A1-A2) – linking a sentence</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-intermediate (A2-B1) – words with the same consonant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermediate – linking r, w,</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Chapter 5

| primary and secondary word stress | Beginner (A1) – numbers -teen and -ty)  
Elementary (A1-A2) – stress in words with multiple syllables; stress in modal verbs – statement and answer; unstressed vowel schwa in suffixes -er; primary and secondary word stress | Starter (A1)  
Elementary (A1-A2; 2-3 syllable words) schwa in words | 2 (A2-B1) |
|----------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------|
|                                  | Pre-intermediate (A2-B1) stress in particular words (names of animals in English and other languages)  
Intermediate (B1-B2) stress in words with 5-syllables; | Pre-intermediate (B1) – 2 syllable nouns  
3- and 4-syllable words patterns; stress in adjectives  
Upper-intermediate – word stress in words with suffixes word stress – 4-syllable compound adjectives; same stress – different sound; 4-word compounds; stress in word families |
<table>
<thead>
<tr>
<th>Word Class Pairs</th>
<th>Course Book Analysis of the Pronunciation Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>stress in compounds; <em>Intermediate plus</em> (B1-B2) stress in derived words; stress in word families <em>Upper-intermediate</em> (B2) – stress on prefixes and suffixes <em>Advanced</em> (C1) – secondary stress in compound adjectives</td>
<td></td>
</tr>
<tr>
<td><strong>word class pairs</strong></td>
<td><strong>Upper-Intermediate</strong> (B2)</td>
</tr>
</tbody>
</table>
### Chapter 5

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intermediate (B1-B2)</strong></td>
<td>Stress on content words</td>
</tr>
<tr>
<td><strong>Upper-intermediate (B2)</strong></td>
<td>Light stress on verbs; giving speech</td>
</tr>
<tr>
<td><strong>Advanced (C1)</strong></td>
<td>Primary and secondary sentence stress</td>
</tr>
<tr>
<td><strong>Upper-intermediate (B2)</strong></td>
<td>Stress on the main information; stress, rhythm, conditionals; stress and rhythm, auxiliaries</td>
</tr>
<tr>
<td><strong>Stress for emphasis</strong></td>
<td>Stress in speech units; stress in speech</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginner (A1)</strong></td>
<td>Polite intonation</td>
</tr>
<tr>
<td><strong>Elementary (A1-A2)</strong></td>
<td>Giving opinion</td>
</tr>
<tr>
<td><strong>Upper-intermediate (B2)</strong></td>
<td>Showing interest</td>
</tr>
<tr>
<td><strong>Advanced (C1)</strong></td>
<td>Exclamation and answering questions; cleft sentences; identifying sarcasm</td>
</tr>
<tr>
<td><strong>Pre-intermediate (B1)</strong></td>
<td>Politeness, showing interest</td>
</tr>
<tr>
<td><strong>Intermediate (B1)</strong></td>
<td>Sounding concerned; asking for permission</td>
</tr>
<tr>
<td><strong>Advanced (C1)</strong></td>
<td>In attitude words; in talks</td>
</tr>
</tbody>
</table>

#### B2 level requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intonation in question tags</td>
<td><strong>Intermediate (B1-B2)</strong></td>
</tr>
<tr>
<td>Variants and accents</td>
<td><strong>Intermediate (B1)</strong></td>
</tr>
<tr>
<td>Passive knowledge of the IPA</td>
<td><strong>Beginner (A1)</strong>, <strong>Starter (A1)</strong>, <strong>1 (A2)</strong></td>
</tr>
</tbody>
</table>
As far as the segmentals are concerned, the Table 10 indicates the explicit information on the articulation of the target vowel and consonant sounds starts at the lowest level in all course books (A1 for the English File series and the Face2Face) or A2 (the Focus series). However, it must be noted that not all segmentals required by the national documentation are viewed as pronunciation learning targets across all course books (e.g., aspiration of fortis plosives, velar nasal found only in the English File series). The presentation of sounds also differs across course books – for instance the Face2Face series presents two phonemes in relation (lax – tense vowel /i/ - /i:/, fortis – lenis consonant /θ/-/ð/) EF presents the contrast of sounds across different types of sounds (consonant – diphthong – vowel, e.g. /h/-/ai/-/i:/; /ʃ/-/əʊ/-/ɪ/).

**Linking** is introduced first at the A1-A2 level in EF and at the B1 level in Face2Face in the form of linking two words together – the first word ends with a consonant, and the following word starts with a vowel (e.g. *a big umbrella*, EF; *a book is a collection of articles about people*, Face2Face). The example at the B1 is more complex than the example at A1. Two words ending and beginning with the same syllable is unique to English File at the A2 level (*I want to come*, English File). Linking /r/ and /w/ sounds are presented in both course books at the B1 level, although the verbal description of the level differs (English File Intermediate and Pre-intermediate Face2Face).

**Word stress** is first presented at levels A1 in English File and Face2Face, but at A2 level in the Focus series. This introduction is based on noticing the relative prominence of one syllable in comparison to another in two-syllable words (e.g. numerals ending in *-ty* and *-teen*, English File; 3-4 syllable adjectives describing personality, Focus). Both course books present the concept of the vowel schwa, which is central to prominence in English at A1 – A2 level levels (in contrast to other vowels, English File; stressed syllables in words, Face2Face). Stress in compounds is presented differently in two course book series – at B1 level in English File (e.g. *phone box, book writer*) and B2 level in Face2Face (e.g. *time-consuming*). Stress on derived words is presented differently in course books – the English File series presents it at B1-B2
level (Intermediate Plus, e.g. photo+suffixes), the Face2Face series presents it at Upper-intermediate, B2 level (e.g. Japan – Japanese, mountain – mountaineer). Stress in word families is first introduced to users of all three course books at the B2 level (English File Upper-intermediate, e.g. science, scientist, scientific; Face2Face Upper-intermediate, e.g. universe, universal, universally; Focus 3, e.g. adapt – adaptation).

Secondary stress is explicitly presented in the English File series at the C1 level (Advanced, in compound adjectives, e.g. second-hand). Face2Face presents it at A1-A2 levels (Elementary).

**Sentence stress and rhythm** are introduced in all course books. English File and Face2Face present these two concepts at the A1 level (Beginner, e.g. Where do you work?; and Starter respectively, e.g. What’s your surname, please?; A1). The Focus series presents sentence stress at the B2 level (completing and repeating chants). However, the active work with sentence stress on content and function words starts at A1 in English File (e.g. Were you in bed? Yes, I was.) and B1 in Face2Face (e.g. How many people do you know...?). Face2Face presents at the B1 level (Intermediate) also contrastive stress for checking information, emphasising the active work and function of sentence stress (e.g. No, not at eleven fifty, eleven fifteen.). Stress for emphasis is presented to B2 users of Face2Face (Upper-intermediate, e.g. – I THOUGHT you would come / I thought you would COME). Strong and weak forms are also presented differently across course books – at A2 level in English File (Pre-intermediate, e.g. Would you like to go to Australia?) and B1-B2 of Face2Face (Intermediate, e.g. Which company do you work for? [...] I work for the owner.). Using sentence stress in speeches is also introduced differently – while English File encourages the B2 learners (Upper-intermediate), Face2Face presents it at C1 level (Advanced, e.g. Have you heard of // impostor syndrome).

**Word class pairs** are presented to English File and Focus users at the B2 level (English File Upper-intermediate and Focus 4, e.g. import, export in both course books).
Intonation is presented in both course books with relation to its function, rather than in terms of their contour name (rising, falling, etc.). Both course books point at the importance of intonation to sound polite in English; however, they introduce it at different stages – while English File at A1 level (Beginner, e.g. *Excuse me, is there a ... near here?*), Face2Face presents it at B1 level (Pre-intermediate, e.g. *I'm sorry, but I've got a bit of a problem.*). At the B1 level, intonation is presented for showing interest in Face2Face, while English File presents it at the B2 level (Upper-intermediate). No other function overlaps both course books; however, it can be concluded that English File focuses on different functions (identifying sarcasm, showing interest, answering questions). Face2Face also encourages the learners to work actively in speech.

Intonation in question tags is only presented in English File Intermediate (B1-B2 level) and only in the primary form of asking for information (e.g. *Your surname's Jones,...?*). The second function of question tags – confirming the information already known with falling intonation is not presented in any of the analysed course books (Roach, 2009).

As far as variants and accents are concerned, the only course book systematically presenting the differences between the American and British accents is the Face2Face Intermediate course book (B1 level, a comparison of letter pronunciation). However, the American accent is implicitly presented in the English File course book from the A1 level in the listening section. This implicit presentation is not a part of this analysis, which is why it is not presented in the table and is not considered for the purpose of this analysis.

Passive knowledge of the IPA symbols is actively supported by all course book series, as the pronunciation section always contains the phonetic transcription of all target sounds.

After reviewing the target requirements, the additional pronunciation features from course books are presented in Table 11.
Table 11 Other pronunciation targets presented in course books

<table>
<thead>
<tr>
<th></th>
<th>The English File series</th>
<th>The Face2face series</th>
<th>The Focus series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginner/Starter</strong></td>
<td>orthography – reading the letter “c”; reading the suffix “-s” and “-ed” at the end of words (plurals, verbs); the difference between lax and tense vowels</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Elementary (A1-A2)</strong></td>
<td></td>
<td>schwa; past simple of verbs</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-intermediate</strong></td>
<td>silent letter “e”; homophones; “used to” – special vocabulary</td>
<td>weak forms; final “-e”</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>pronunciation of articles</td>
<td>pronunciation of suffixes</td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate plus</strong></td>
<td>homographs; word pairs with “and”, strong forms</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Upper intermediate</strong></td>
<td>the distinctive function of “s” and “z”; words of Greek, Italian and French origin</td>
<td>homophones</td>
<td></td>
</tr>
</tbody>
</table>
The reputation of English being difficult due to the discrepancy between its spelling and orthography is, according to Kelly (2000), unjustified, as approximately 80% of English vocabulary is pronounced relatively regularly. Course books seem to deal with this prejudice by presenting the pronunciation of letters rather than sounds. Course books also aim for presenting homonymy, directly related to pronunciation-orthography relation. They also present the influence of the final letter “-e” on the pronunciation of words. On the word level, pronunciation of words of foreign origin is also brought to learners’ attention, especially those who may know the words from their mother tongue and prepare students to look up the pronunciation of words in dictionaries (C1).

As far as the phonemes are concerned, the English File series presents the contrast between various groups of sounds (e.g. vowel, diphthong, consonant, etc.), rather than the traditional lax/tense; fortis/lenis distinction.

Consistently, all course books present and practice the difference between alveolar and post-alveolar consonants (in suffixes, for instance). There were at least eight instances in the course books when these sounds were presented as a separate pronunciation target. On the suprasegmental level, the course books aim to prepare students to speak at the B2-C1 level by using the full range of suprasegmental features.

### 5.8 Conclusions and recommendations

After reviewing the data, the research questions can be answered as follows:

1. At what CEFR level are the pronunciation features defined in the national pedagogical documentation presented in course books? Do they assign them to the same level?
Chapter 5

An overview of the pronunciation targets in the course book series is presented in table 10. It indicates that most pronunciation features are presented cyclically at more than one CERF level, as the pronunciation profile suggests (online).

Table 10 also shows that the course book series analysed does not meet all requirements. For instance, no course book series contained an explicit section on articulating particular sounds in terms of tongue position, lip rounding, aspiration of voiceless plosives, etc. However, individual sounds tend to be introduced at the earliest stages of learning English (A1). The most frequently practised consonants are alveolar and post-alveolar fricatives, often found in suffixes. All remaining segments are presented at the lowest proficiency level (A1) across two different course book series except for diphthongs, which are presented to users of Focus in book 2.

Suprasegmental features also tend to be presented to learners concurrently with segmentals (A1). Typically, the concept of word stress and rhythm is brought to learners’ attention in the first course book of each series, except for the series Focus. The familiarisation with the naturally changing prominence starts with noticing strongly and weakly syllables, later theoretical explanations are presented, and basic rules are explained to learners (suffixes, prefixes, compounds, word families for word stress, weak forms for sentence stress and rhythm).

Intonation as a suprasegmental feature is chronologically presented as the last one. Typically, it is assigned a function in both series (Face2Face and English File). The first function of intonation across all course books is politeness. The course books point out that undetectable intonation (also referred to as “level” by Roach, 2009) is considered rude by native speakers of English. However, with increasing proficiency, learners learn how to use intonation to express interest, sarcasm, ask for permission, and finally work with it actively in speech. The series Focus does not present intonation at any level.

2. Which other features not defined by national pedagogical documentation are presented in course books? At what CEFR level?

One of the main differences between the requirements defined in the national pedagogical documentation and the course books (Table 11) is
the emphasis of the course books on reinforcement of learners’ awareness of the systematic relationship between pronunciation and orthography, as presented in the various types of targets:

- reading, letters by different sounds (from A1)
- homonymy (from A2)
- the silent letter e (from A2)

Orthography-pronunciation relations are also reflected in practising final sounds in nouns (“-s” for plurals) or verbs (suffix “-ed” for regular verbs, “-s” for the verbs in the third person singular) as early as at the A1 and A2 levels. In addition, course books tend to emphasise the distinction between lax and tense vowels (from A1).

Course books also focus on the pronunciation of specialised vocabulary (words of foreign origin, but also present vocabulary in semantic fields, e.g. weather, adjectives describing personality, etc.). Another issue presented to learners is weak forms (from A2), often related to rhythm. The C1 level requires the learners of English to use intonation to divide speech into higher meaningful units.

These findings, however, relate mainly to the series English File and Face2Face. The series Focus does not present any other pronunciation feature that would be not defined by the pedagogical documentation; however, it systematically presents pronunciation issues in semantically related groups of words.

This course book analysis focused on learner materials (i.e. excludes teacher’s guides and teachers’ books) because, according to the situation in Slovakia and other countries, students currently who cannot participate in online learning could only rely on students’ books and workbooks. Workbooks were not included in the analysis because they typically cover and extend the same targets as the students’ books.

The overview of the course book analysis confirms the preliminary reports published on the website of the pronunciation planner that each pronunciation feature can occur at all CEFR and course book levels. For instance, the concept of word stress is introduced as early as elementary/starter level (A1-A2); however, the concept is constantly revisited, and its application (in multi-syllable words, in compounds,
across word families based on affixation) is systematically introduced to learners through to the advanced levels.

The comparison of three different course book series reveals that the approach to presenting the pronunciation features to learners varies across course book series. All three sets present both segmental and suprasegmental features throughout the whole course from the lowest level. Therefore, it can be concluded that the current educational materials try to find the balance between the two leading schools of thought regarding the precedence of one level of pronunciation over the other (segmental vs suprasegmental). Even the learners at the elementary/starter/1 (A1-A2) level become aware of word stress and the rhythmicity of spoken English, gradually increasing in complexity of the matter with the increasing the CEFR level. Intonation typically is the last presented suprasegmental feature.

The course book series 'Focus' concentrates on improving the overall comprehensibility and raises the awareness of the different sounds of English, which may be explained by the inclusion of the pronunciation tasks into the listening section. This presentation of pronunciation features can be supplemented by additional materials if necessary. The overview revealed that using supplementary materials would be advisable for all course book series to reach all target requirements.

Contrary to the findings of Sugimoto and Uchida (2018), the teaching intonation in the analysed course book series did not correspond to sentence types, but intonation was presented through individual functions that it has in communication. For phonemes, they identified two main tendencies – highlighting correspondence between the sound and the letters and presenting minimal pairs challenging for the Japanese learners. It must be noted that the course books analysed are not explicitly written for Slovak learners but address pronunciation issues and needs of learners with different language backgrounds interfering with their pronunciation of English. Sugimoto and Uchida also maintain that a teacher must be the source of knowledge if the explicit instruction is absent, as in Japanese course books. However, the lack of explicit instruction was not confirmed in the course books used in Slovakia, as two different series present theoretical explanations to learners and even encouraged them to construct their own based on observation of
the presented material. The results of the studies by Metruk (2020) and Pavliuk (2020) can also be implicitly confirmed, as the range and focus of pronunciation targets is richer for suprasegmental features rather than segmentals. Thus, Kralova and Kucerka’s (2019) suggestions regarding concentrating on suprasegmental features seem to be reflected in the content of the course books analysed.

As a conclusion, it can be said that the course book series generally meet requirements as specified by the national pedagogical documentation; however, the following presented pronunciation features should be considered for including them into the requirements:

- the emphasis on the relation between orthography and pronunciation,
- the emphasis on articulation of all sounds, not only the sounds not included in the phonemic inventory of the Slovak language,
- the emphasis on the meaning on the contrastive function of phonemes (e.g. word endings pronounced with fortis/lenis consonants),
- the role of intonation across different communicative functions (e.g. polite intonation, intonation for emphasis, etc.).

Since the course books were not written predominantly for Slovak learners of English and were not tailored to address their needs, the fact that the Slovak pronunciation teaching goals were not fully met is not viewed as a flaw of the course books. They highlight the critical aspects of pronunciation as seen by native speakers of English and emphasise the variety of pronunciation deviations impeding communication the foreign learners of English display in their speech.
6 Conclusions and implications

Teaching pronunciation should be an integral part of all language courses. The year 2020 allowed the introduction of technology to pronunciation teaching on a global scale. Teachers worldwide had to look for different solutions and reflect on the needs of their learners.

This publication aims to present the research results into introducing technology into learning pronunciation by presenting the overview of the current trends in teaching pronunciation with technology and provide data of three research studies.

The first chapter introduced the CEFR, the document providing a framework for teaching and assessment of foreign languages. The document claims the main objective in pronunciation teaching is intelligibility. This concept is then elaborated in the second subchapter.

The second chapter presents three aspects of using technology in classrooms – the degree to which technology is balanced with face-to-face learning (e-learning, blended learning, flipped classroom), the tools used for pronunciation training (computer-assisted pronunciation training, automatic speech recognition, artificial intelligence) and the development of learner autonomy with technology.

Chapters three to five present the results of a questionnaire investigating the experience of participants of a phonetics and phonology course, action research of using online tools for pronunciation practice within an integrated language skills course and an analysis of course books investigating the current goals of pronunciation teaching concerning the CEFR proficiency levels.

The questionnaire respondents revealed that even if the course’s overall quality was comparable in comparison to face-to-face learning, they did not feel a sufficient connection to other students and teachers. They would appreciate a broader range of communication channels, more visual materials and less computer-based activities. However, the participants would prefer attending online lectures, primarily because they save time and money for respondents. The action research investigated the possibilities to adapt existing online tools designed for teaching and using in other spheres of life to be adapted into pronunciation training in an online course of communication language skills.
Conclusions and implications

by adapting them to teaching course book exercises. The participants in the action research showed a great level of cooperation and expressed their general motivation to use them in the future too. Students received explicit and implicit feedback during the action research by the tools, and the students’ responses revealed a wide range of responses to the feedback. The course book analysis assigned pronunciation features to different CEFR levels depending on their introduction to learners on different course book levels. The analysis confirmed that teaching segmentals and suprasegmentals can take place concurrently from the earliest levels of proficiency. In addition, the course book analysis allowed exploring the learner requirements defined by the official documentation and the pronunciation targets presented by course books. The additional pronunciation targets in the course books could be included in the official pedagogical documentation as a requirement for English language learners.

The main conclusions can be summarised as follows:

- Creating an e-learning course requires a detailed assessment of the technological advancements available for the teaching/learning process, course curriculum objectives, and students’ needs and learning preferences. Transferring face-to-face courses to an online environment without adjustments can compromise the quality of students’ experience. However, students adapt to new conditions easily and generally meet the course requirements.

- During online learning, students need space for communication with teachers and other students. It is necessary to open as many communication channels as possible to express themselves according to their preferences.

- There are pronunciation training tools available, and their use in an integrated language course is possible, even if the repertoire of free tools is limited. Students generally appreciate these tools, find them helpful for pronunciation training, and use them in real life outside the school context and are open to using them outside e-learning courses.
Chapter 6

- Course books of English approach teaching pronunciation differently and place emphasis on varying pronunciation goals. They present segmental and suprasegmental features concurrently from the lowest proficiency levels, even if they present finer aspects of pronunciation in their way. Generally speaking, they meet pronunciation targets and also suggest other elements for pronunciation practice.

Based on the findings, the following recommendations can be formulated:

- Teachers should carefully adapt their courses into an online form, as online teaching requires new approaches to teaching. Teachers should be trained in how to design attractive online courses and make them efficient for all learners.

- Integrated language courses should benefit from the use of technology for pronunciation training. New tools should be implemented to pronunciation teaching by making them accessible to teachers (e.g. buying licences of existing programs, developing new tools reflecting the needs of Slovak learners of English).

- Requirements for pronunciation targets should consider adding new items into the list of already existing requirements.

After implementing all these recommendations, pronunciation training in Slovakia with technology can become accessible to everyone, have realistic goals and be attractive for students. The results of the three research chapters have brought answers to the questions participants of online learning can be concerned with. Firstly, it described the recent experience with an online course of the English phonetics and phonology taught at the university and the changes the participants would like to implement in the future in other online courses. It complements the research findings from online courses in other disciplines. Secondly, the publication suggested the possible use of online tools for training pronunciation by adapting exercises from a general language course book to work in a fully online environment. Finally, the publication complemented the existing research into the analysis of course book content with relation to the CEFR levels. While the course books had been analysed for vocabulary, grammar or interculture, the pro-
nunciation features had not been assigned to the CEFR levels. However, this publication has also opened new questions worth researching in the future. It would be worth investigating the evaluation criteria used by teachers for pronunciation training, the current state of teaching pronunciation with and without technology in the Slovak classrooms at a lower level of education, and researching the efficiency of online courses of English phonetics and phonology.
7 References


References


References


References


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8 Appendices

Appendix 1 – Questionnaire (chapter 3)
Appendix 2 – Questionnaire (chapter 4)
Príloha: dotazník

Čo si myslíte o dištančnej výučbe fonetiky a fonológie?

Milí respondenti, 
dovoluji sa Vás oslovovať ako svojich budúcich kolegov, učiteľov angličtiny,
a chcem Vás požiadať o zodpovedanie stručného dotazníka, ktorý zistuje 
Vaše názory na dištančnú výučbu anglickej fonetiky a fonológie. Dotazník 
je anonymný, preto sa, prosím, nepodpisujte a v komentároch neuvádzajte 
žiadne informácie, na základe ktorých by ste mohli byť identifikovaná/-ý. 
Vaše odpovede budú zaručene anonymné. Údaje získané dotazníkom budú 
slúžiť na výskumné účely. S Vašimi prípadnými otázkami ma neváhajte 
kontaktovať.

Za spoluprácu a Váš čas Vám vopred děkujem, 
Hana Vančová

1. **Váš vzťah ku KAJaL PdF TU:** 
   Nápoveda k otázke: Vyberte jednu odpoveď

   ○ študent/-ka 1. ročníka Bc. štúdia
   ○ študent/-ka 2. ročníka Bc. štúdia
   ○ študent/-ka 3. ročníka Bc. štúdia
   ○ študent/-ka rozšírujúceho štúdia
   ○ ný (špecifikujte)...
2. **Angličtina je pre mňa ...**  
   **Nápoveda k otázke:** Vyberte jednu odpoveď  
   ○ materinský jazyk  
   ○ druhý jazyk  
   ○ cudzí jazyk

3. **Angličtine sa venujem (po anglicky sa učím) .......... rokov.**  
   **Nápoveda k otázke:** Napíšte počet rokov.

_______________________________________________________________________
_______________________________________________________________________

4. **Moje najvyššie vzdelanie v angičtine:**  
   **Nápoveda k otázke:** Vyberte jednu alebo viac odpovedí  
   □ maturitná skúška  
   □ medzinárodný certifikát  
   □ štátna skúška  
   □ iné (špecifikujte)...

5. **Moje skúsenosti s vyučovaním angličtiny:**  
   **Nápoveda k otázke:** Vyberte jednu alebo viac odpovedí  
   □ žiadne - zatiaľ angličtinu len študujem  
   □ angličtinu vyučujem  
   □ angličtinu doučujem v súkromí

6. **Označte úroveň svojich počítačových zručností:**  
   **Nápoveda k otázke:** Vyberte jednu odpoveď  
   ○ začiatočník  
   ○ pokročilý  
   ○ expert
7. Máte skúsenosť s dištančným vzdelávaním z minulosti?
   **Nápoveda k otázke:** Vyberte jednu odpoveď
   ○ nie
   ○ áno (špecifikujte)

8. Označte svoj postoj k uvedeným výrokom:
   **Nápoveda k otázke:** Nápoveda k otázke: 1= úplne súhlasím; 2 = skôr súhlasím; 3 = neviem posúdiť; 4 = skôr nesúhlasím; 5 = úplne nesúhlasím

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<td>Dištančné vyučovanie fonetiky a fonológie bolo zaujímavé.</td>
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<td>Dištančné vyučovanie fonetiky a fonológie bolo efektívne.</td>
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<td>Počas dištančného vyučovania fonetiky a fonológie som mal problémy porozumieť učívi.</td>
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<td>Počas dištančného vyučovania fonetiky a fonológie som aktívne participoval na hodine.</td>
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<td>Počas dištančného vyučovania fonetiky a fonológie som pracoval/-a rovnako ako počas prezenčného vzdelávania.</td>
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<td>Počas dištančného vyučovania fonetiky a fonológie som mohol/mohla diskutovať o otázkach s pedagógom.</td>
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Dištančné vyučovanie je pre mňa organizačne náročnejšie v porovnaní s prezenčným vzdelávaním.

Dištančné vyučovanie fonetiky a fonológie bolo náročné na technické zabezpečenie (kvalita internetu, hardvérové vybavenie)

Ovládanie MS Teams bolo jednoduché.

Ovládanie Moodle bolo jednoduché.

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<th>9. Počas online výučby bol v porovnaní s prezenčnou výučbou nižšie:</th>
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<tr>
<td>□ kvalita a rozsah poskytnutých informácií</td>
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<td>□ priamy kontakt s pedagógom a spolužiakmi pri vyučovaní</td>
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<td>□ skupinová spolupráca so spolužiakmi</td>
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<tr>
<th>10. Dištančné vzdelávanie je vhodné na vyučovanie Nápoveda k otázke: Vyberte jednu alebo viac odpovedí</th>
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<td>□ prednášok</td>
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11. Vyberte si, v ktorých oblastiach ste sa zlepšili počas dištančného vzdelávania fonetiky a fonoógie.

Nápoveda k otázke: Vyberte jednu alebo viac odpovedí

☐ rozšírenie vedomostí o zvukovej stránke jazyka
☐ zlepšenie sa vo výslovnosti
☐ zlepšenie sa v komunikácii v anglickom jazyku
☐ zlepšenie sa v komunikácii s pedágoľmi
☐ zlepšenie sa v komunikácii so spolužiakmi
☐ zlepšenie sa v práci s online zdrojmi
☐ zlepšenie sa v práci s počítačom a nástrojmi dištančného vzdelávania
☐ zlepšenie sa v časovom manažmente a plánovaní
☐ zlepšenie sa v systéme učenia sa
☐ inak (špecifikujte)...

12. Vyjadrite svoj postoj k nasledujúcim výrokom: Počas dištančného vzdelávania fonetiky a fonológie boli pre mňa najvhodnejšie...

Nápoveda k otázke: Nápoveda k otázke: 1= úplne súhlasím; 2 = skôr súhlasím; 3 = neviem posúdiť; 4 = skôr nesúhlasím; 5 = úplne nesúhlasím

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13. **Ako by ste v budúcnosti chceli využívať dištančné vzdelávanie počas Vášho štúdia?**
   **Nápoveda k otázke:** Vyberte jednu odpoveď
   ○ vôbec
   ○ úplne
   ○ kombináciou dištančných prednášok a prezenčných seminárov
   ○ kombináciou prezečných prednášok a dištančných seminárov a týždenných zadaní
   ○ inak (prosím špecifikujte)

14. **Priestor na Vaše pripomienky a návrhy**

   __________________________________________________________________________
   __________________________________________________________________________

   Veľmi pekne Vám ďakujem za Vaše odpovede a čas!
Príloha: dotazník

Čo si myslíte o elektronických nástrojoch výučby výslovnosti a fonetickej transkripcie?

Milí respondenti,
dovolujem si Vás požiadať o zodpovedanie stručného dotazníka, ktorý zistuje Vaše názory na využitie elektronických nástrojov na vyučovanie výslovnosti a fonetickej transkripcie. Dotazník je anonymný, preto sa, prosím, nepodpisujte a v komentároch neuvádzajte žiadne informácie, na základe ktorých by ste mohli byť identifikovaná/-ý. Vaše odpovede budú zaručene anonymné. Údaje získané dotazníkom budú slúžiť na výskumné účely. S Vašimi prípadnými otázkami ma neváhajte kontaktovať. Za spoluprácu a Váš čas Vám vopred ďakujem,

Hana Vančová

1. Študijná skupina

Nápoveda k otázke: Vyberte jednu odpoveď

○ Utorok 9.30
○ Utorok 11.10

2. Úroveň počítačových zručností

Nápoveda k otázke: Vyberte jednu odpoveď

○ Začiatočník
○ Pokročilý
○ Expert
3. Máte už predchádzajúce skúsenosti s využívaním elektronických nástrojov na nácvik výslovnosti a fonetickej transkripcie?

Nápoveda k otázke: Vyberte jednu odpoveď

○ Nie
○ Áno (prosím, konkretizujte)

4. Označte svoj postoj k nasledujúcim výrokom.

Nápoveda k otázke: Nápoveda k otázke: 1 = úplne súhlasím; 2 = skôr súhlasím; 3 = neviem posúdiť; 4 = skôr nesúhlasím; 5 = úplne nesúhlasím

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<td>Elektronické nástroje robia nácvik výslovnosti a transkripcie zaujímavými.</td>
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<tr>
<td>Ovládanie elektronických nástrojov bolo pre mňa jednoduché.</td>
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<td>Elektronické nástroje sú z časového hľadiska úsporné.</td>
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<td>Elektronické nástroje sú pohodlné na ovládanie.</td>
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<td>Elektronické nástroje dokážu úplne nahraditi priamu výučbu učiteľa v triede.</td>
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### Appendices

| Elektronické nástroje dokážu čiastočne nahradit priamú výučbu učiteľa v triede | ○ ○ ○ ○ ○ ○ |
| Elektronické nástroje nácviku výslovnosti a transkripcie by som chcel/-a využívať aj v budúcnosti. | ○ ○ ○ ○ ○ ○ |
| Využívanie elektronických nástrojov ma motivuje v nácviku výslovnosti a transkripcie. | ○ ○ ○ ○ ○ ○ |

5. **Aké vidíte výhody a nevýhody používania virtuálnej klávesnice na nácvik fonetickej transkripcie?**

_________________________________________________________________________
_________________________________________________________________________
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6. **Aké vidíte výhody a nevýhody softvéru na diktovanie pri nácviku výslovnosti?**

_________________________________________________________________________
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7. **Aké vidíte výhody a nevýhody automatickej spätnej väzby a hodnotenia vidíte pri nácviku výslovnosti?**

_________________________________________________________________________
8. Priestor pre Vaše ďalšie pripomienky a názory.

Ďakujem za Vaše odpovede a čas!
About the author

Hana Vančová is a lecturer at the Department of the English language and literature at the Faculty of Education of Trnava University in Trnava. She teaches English phonetics and phonology. Her research focuses on pronunciation issues of foreign learners of English, current approaches to pronunciation teaching and learners’ perception of homonymy. She has published two university course books on phonetics and phonology for EFL learners and a monograph on pronunciation teaching practices.
Monika Hornáček Banášová, Daniela Drinková, (Eds.)

Aktuelle Fragen und Trends der Doktorandenforschung in der slowakischen Germanistik II


Monika Hornáček Banášová, Simona Fraštíková (Eds.)

Aktuelle Fragen und Trends der Doktorandenforschung in der slowakischen Germanistik III