

## Article

# The Use of Smartphone English Language Learning Apps in the Process of Learning English: Slovak EFL Students' Perspectives

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**Abstract:** In recent years, an accelerating trend in an undergoing shift from the use of traditional desktop computers towards the utilisation of smartphones for language learning purposes has been detected. In line with these trends, this study aims to investigate Slovak EFL learners' attitudes and perceptions of English language learning apps (ELLA) regarding practicing and learning English. Furthermore, the differences in the perception of ELLA between the male and female research participants are also analysed. The target population totalled 158 Slovak university EFL learners, 48 males and 110 females, who were required to display their level of agreement to statements by responding to a 5-point Likert scale questionnaire. The instrument consisted of 30 statements altogether, involving items on apps' usage and apps' perception. The calculated means indicate that the participants' attitudes and perceptions of ELLA range between being neutral and positive, and that EFL learners tend to practice language systems and skills to varying degrees. Moreover, 30 independent-sample *t*-tests, which were run in order to determine the differences between the male and female attitudes and perceptions, reveal that 50% of statements on apps' usage and apps' perception differ significantly, demonstrating considerable differences between the two sexes. The achieved results seem to contribute to the existing research on the use of smartphones and ELLA in the context of EFL learning by casting more light on mobile language learning, an area that merits further scientific exploration.

**Keywords:** smartphone English language learning; smartphone language learning apps; English language learning; male and female attitudes and perceptions of mobile learning; EFL learner



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## 1. Introduction

In this day and age, there is an increasing tendency towards utilizing mobile technology for the purposes of language learning [1]. Overall, there is a significant acceptance of mobile learning among language learners, especially in terms of usefulness, efficiency, interactivity, and convenience [2]. In particular, it is the smartphone that has become the focus of attention, and which has achieved popularity concerning m-learning (mobile learning) for a number of reasons.

First, smartphones provide their users with computer-like functionality, including internet access [3]. Second, smartphones have established overwhelming superiority over standard cellular phones; for instance, smartphone owners have the possibility of installing various apps (applications) into their devices from the app markets (e.g., the Android Market). Third, smartphone popularity and availability have increased markedly in recent years [4], which means that the number of smartphone owners is also rising. "The number of smartphone users worldwide today surpasses three billion and is forecast to further grow by several hundred million in the next few years" [5]. Thus, it seems reasonable to assume that smartphones will occupy a more prominent role in the process of teaching and learning foreign languages in the years to come.

In recent years, a substantial number of mobile apps came into existence, with many of them being developed for promoting EFL learners' proficiency. Unlike traditional

ways of teaching and learning L2 (second language), they seem to be convenient and aid students in accessing learning materials [6–8]. In a similar way, Mindog [9] explains that apps have become popular technological tools which demonstrate a lot of potential to support language learning. “They are easily accessible (free/cheap), highly portable for anytime-anywhere learning, customizable and can be accessed via smartphones that many students already own” [9] (p. 17). The utilisation of English language learning apps offer EFL learners several advantages [10]:

- Students can practice any language item anytime and anywhere;
- The smartphones and their apps are portable;
- The learners are freed from carrying books, pens, and paper;
- They can take tests on the different skills and systems of the L2;
- They can share their proficiency with their peers via the same device;
- They can practice language skills and the systems of L2 on the same device;
- They can have their lessons and tips on various language aspects on the apps;
- They can gain knowledge and, at the same time, have fun together;
- They can be technologically advanced and simultaneously benefit linguistically;
- They can get the apps free of charge;
- Apps can accompany them 24/7.

However, exploiting the smartphone for teaching and learning purposes poses a challenge for most language teachers, as they need to know how to implement smartphones into the process of teaching and learning L2 so that the process is improved and becomes more effective [11]. Another issue lies with the choice of language learning apps. The vast number of apps on the markets may generate confusion among EFL learners in terms which of them they ought to choose and why. Further, searching for an appropriate app requires time, and it should also be emphasized that app functionality could be sometimes be questionable, as some of them may contain bugs which need to be fixed by the developers [12]. Therefore, the effective design and proper utilization of ELLA need to be further studied so that the apps are used appropriately and the learning process is ultimately enhanced.

This article attempts to shed more light on this matter by examining the perceptions of Slovak EFL pre-service teachers (prospective EFL teachers) towards smartphone English language learning apps (ELLA), especially in the Slovak context, where such an investigation has yet to be conducted. For the purposes of this research, the following research questions have been formulated:

1. What are the Slovak EFL learners’ attitudes towards the use of smartphone English language learning apps for the purposes of learning and practicing English?
2. What are the Slovak EFL learners’ perceptions of smartphone English language learning apps in regard to learning English?
3. Are there any statistically significant differences between the male and female attitudes and perceptions of smartphone English learning apps?

In relation to RQ3, the following hypothesis has been set: there exists a statistically significant differences in the perceptions of smartphone English language learning apps between males and females.

## 2. Literature Review

Mobile-assisted language learning (MALL) offers convenient, real-time, contextual opportunities for learners, providing them with a unique time and place-dependent language learning experience [13]. Numerous researchers attempted to investigate the utilization of ELLA for the purpose of language learning. In their review, Gangaiamaran and Pasupathi [14] maintain that there are a considerable number of apps that can be used by EFL learners. They further assert that emphasis should be predominantly placed on the acquisition of language skills (listening, speaking, reading, and writing) with the help of

technology. Their findings reveal that the acquisition of listening skills is more effective through apps in comparison to other language skills.

The study by Kim and Kwon [15] concludes that the ELLA appear to be effective because they offer a personal and learner-centred learning opportunity by employing ubiquitously flexible and accessible practices. “However, they need to be improved by realizing mobility as a more situated, field-dependent, and collaborative form of learning” [14] (p. 31). Steel [16] also investigated how language learning apps could benefit students’ learning. It was found out that 56% of the participants regarded their apps as supportive of their learning, and 23% of them ranked their apps in their top three technologies. The appeal of apps lies in having the opportunity to practice L2 anytime and anywhere, and it was further revealed that the apps were flexible, convenient, and easy to understand.

Another review conducted by Klímová [17] supports the notion that smartphones and their apps produce positive effects on EFL learning; in particular, in terms of developing one’s vocabulary and increasing their motivation for studying. Muhammed [18] also explored m-learning amongst EFL Sulaimani University students in Iraq. Carrying out a focus group discussion, the author found that a variety of smartphone apps related to language systems and skills, as well as international tests, were used by the research participants in order to be engaged with the English language. Almost all students regarded smartphones as effective mobile resources that could be used for enhancing the English language learning process.

Motivation, which is often regarded as one of the major factors in L2 learning, has also been subject to examination. It was found that those students who use their cell phones or smartphones with apps appear to exhibit a higher degree of motivation in regard to in-class and out-of-class learning [19–21].

Ekinci and Ekinci [22] examined preparation class students at a Turkish state university to reveal the advantages and disadvantages of using specific mobile applications as aides in their language learning. The participants thought that apps helped them acquire vocabulary items gradually, and enhanced their writing and reading skills. Further, the students felt motivated when utilizing the mobile apps for the purposes of learning English, and would even recommend them to other students. However, there were also some downsides identified by the learners, primarily concerning the technical features of apps. “The lagging problems of the software packages, the micropayment necessities for extra content and internet requirement were the most stated problems of the software” [22] (p. 188). Some participants regarded this as tedious and time-consuming.

Another study by Mindog [9] also tried to investigate the utilization of smartphone apps by Japanese university students in order to facilitate EFL learning. The students believed that the use of apps helped them develop language skills (listening, reading, writing, and speaking), grammar, lexis, and spelling. The use of applications (location, frequency, duration) appears to be determined by the personal preferences, desires, and opportunities to utilise them.

Ishaq [23] attempted to explore how effective the use of an electronic dictionary was regarding learning English. The majority of students were in favour of using the electronic dictionary on their smartphones, as a result of which their vocabulary increased. Another research paper [24], which concentrated on the utilisation of smartphones for language learning purposes in India, supports the notion that learners could manage their learning more independently.

Kacetl and Klímová [25] performed a review study in order to evaluate original, peer-reviewed studies from 2015 to April 2019, in order to investigate whether mobile apps within EFL learning are beneficial and/or effective. The findings imply that there is potential in the use of apps. Further, using these apps contributes towards the improvement of the cognitive capacity of learners, their motivation for studying in both formal and informal settings, their autonomy and confidence, and the facilitation of personalized learning. “However, to achieve the effectiveness of these apps, it is desirable to design, plan and implement them with caution, according to students’ needs, and to deliver multiple

language skills in authentic learning environments” [25]. Similarly, Abdullah, Tajuddin, and Soon [26] claim that smartphone applications show potential for language learning, but learners need guidance in ensuring the productiveness of apps within mobile learning.

Heil, Wu, and Lee [27] examined the 50 most popular commercially available apps for language learning. The authors concluded that three main trends were discovered. First, apps tend to “teach” vocabulary in isolation rather than in pertinent contexts. Second, apps minimally adapt to the skill sets of individual learners. Finally, they seldom provide learners with explanatory, corrective feedback. These findings seem to have identified serious flaws in the utilization of language learning apps for learning purposes, as all three of them contradict the principles of communicative language learning. This is something that definitely warrants the attention of teachers and academics.

Abugohar, Yunus, and Ab Rashid [28] also explored teachers’ perceptions along with the contemporary practices of utilizing a package of three categories of smartphone apps, aiming at improving the speaking skills of Saudi tertiary students. Although the acquired data suggest that most of the participants reported positive perceptions of using smartphone apps for the purposes of enhancing speaking, the actual classroom practices revealed weaknesses as well as insufficient experiences. “Pedagogically, the study recommends innovating, implementing, and integrating smartphone applications in teaching oral skills, along with drilling teachers and learners on how to effectively utilise them” [28] (p. 74).

To summarize, ELLA appear to be popular tools that are being used for the purposes of learning language skills and systems. Although a number of studies reveal that EFL learners report positive perceptions of mobile apps for language learning purposes, and that they provide language students with some major advantages (e.g., accessibility, portability, the opportunity to practice language anytime and anywhere, etc.), the use of apps suffers from certain drawbacks which deserve the attention of researchers and instructors. Implementing apps requires cautiousness, tailoring them to suit learners’ needs, and providing them with guidance so that the effectiveness of the learning process is ensured. Finally, the language teachers also need to undergo some training and acquire expertise on how they can appropriately and effectively utilise ELLA to enhance the teaching language process.

#### *Gender Differences and Technology*

Generally speaking, males and females may hold different views in their level of acceptance towards technology [29]. According to Huang, Hood, and Yoo [30], males demonstrate more competence and less anxiety in comparison to females in terms of using technologies. Another study which supports this notion was performed by Baker, Lusk, and Neuhauser [31], who aimed to explore learners’ perceptions of using cell phones. It was found that the male students accepted the in-class use of technology to a higher degree than their female counterparts. Alternatively, the study by Liu and Guo [32] investigated how differences in gender influenced the acceptance of mobile computing devices among Asian college students. The results suggest that the males were considerably influenced by the perceived usefulness as well as the social benefits, while the females expressed a stronger preference for social and utilitarian orientations. Finally, Oz [33], whose research concentrated on investigating the pre-service EFL teachers’ perceptions on mobile-assisted language learning, found that the female students demonstrated higher perceptions of m-learning due to the availability, portability, and versatility of devices.

On the other hand, there are studies which did not reveal significant differences between the two sexes in regard to their perceptions of mobile learning. Serin [34] explored mobile learning opinions as perceived by the pre-service teachers (teacher trainees), which also involved prospective EFL teachers, in the Turkish Republic of Northern Cyprus. Based on the research results, the participants exhibited no significant differences in regard to their gender. In a similar way, the study conducted by Yaman, Şenel, and Yeşilel [35] (p. 7) focused on the extent to which 120 English language teaching students at Ondokuz Mayıs University in Turkey used smartphones for the purposes of language learning. “Both

males and females somehow utilise smartphones for language learning purposes to a similar degree”.

Uzunboylu and Ozdamli [36], who concentrated on teachers’ opinions on mobile learning, implied that there were no differences in the perceptions of m-learning between the male and female instructors. Fouh et al. [37] and Mac Callum, Jeffrey, and Kinshuk [38] also maintained that both sexes expressed the same opinion on the utilization of mobile devices in educational programs. As far as gender differences in the perception of language learning apps are concerned, Nami [39] examined how 381 university students, taking part in the general English courses at the Mirkabir University of Technology, perceived the effectiveness of smartphone apps. The results indicate that gender did not play a substantial role within the students’ perception.

The results on the perception of mobile learning in regard to gender appear to be inconclusive and inconsistent, especially in the area of foreign language teaching and learning. Moreover, scant research has been conducted to understand how much the male and female perceptions differ concerning smartphone language learning apps. Mindog [9] explains that besides their potential usefulness, apps have already achieved popularity among L2 learners, but they are still a relatively new phenomenon, which means that research on this matter has a lot of catching up to do. Therefore, further investigation is required to examine the potential differences in the perception of ELLA in regard to the EFL learners’ gender.

### 3. Materials and Methods

#### 3.1. Research Background

The primary objective of this study was to explore the attitudes of Slovak EFL students towards smartphone apps in regard to learning and practicing English. A questionnaire was distributed to participants, who were asked to provide information on smartphone apps by choosing one of the five options within two sets of statements: strongly agree, agree, neutral, disagree, or strongly disagree (a Likert scale of 1 (strongly disagree) to 5 (strongly agree) was employed). The acquired data, which were collected from September 2020 to October 2020, were further examined and interpreted. For the purposes of this study, the following research questions were considered throughout the investigation:

1. What are the Slovak EFL learners’ attitudes towards the use of smartphone English language learning apps for the purposes of learning and practicing English?
2. What are the Slovak EFL learners’ perceptions of smartphone English language learning apps?
3. Are there any statistically significant differences between the male and female attitudes and perceptions of smartphone English learning apps?

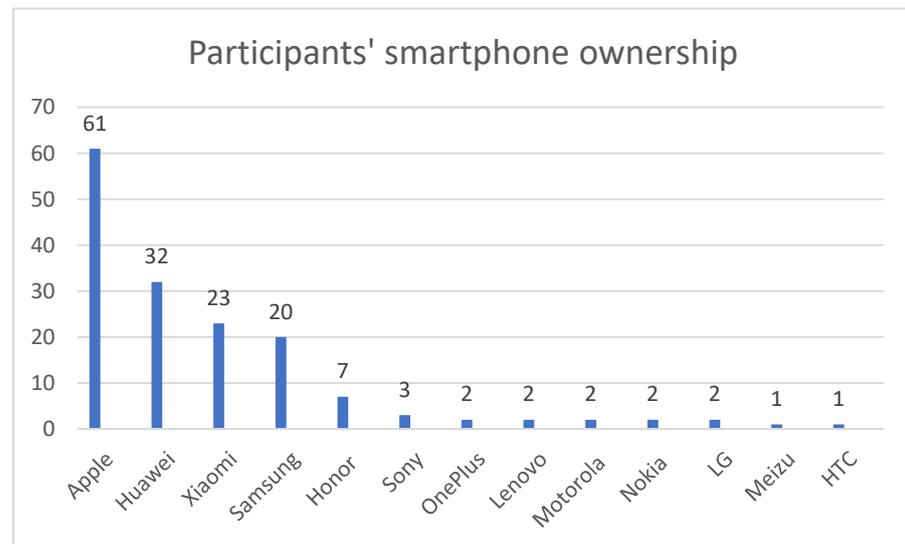
In relation to RQ3, the following hypothesis has been set: A statistically significant difference in the perceptions of smartphone English language learning apps between the males and females exists.

#### 3.2. Research Sample

Employing convenience sampling, the research participants comprised of the B.A. and M.A. university students-trainees in the Teacher Training of English Language and Literature study program at a university in Slovakia. In total, there were 158 students ( $n = 158$ ), 48 males and 110 females. On average, 70% of all teachers across the OECD countries are women [40], and in Slovakia, the number is even greater, as 82% of all teachers in the Slovak Republic are female [41]. Their average age in the study was 21.3 years, with all of them residing in Slovakia. Most of them had been studying English for more than 9 years.

In order to acquire a deeper understanding in regard to their smartphone use, the participants were asked to reveal their smartphone ownership. Apple, Huawei, Xiaomi, and Samsung, respectively, were the most prevalent. The remaining brands (Honor, Sony,

OnePlus, Lenovo, Motorola, Nokia, LG, Meizu, and HTC) received fewer mentions, as shown in Figure 1.



**Figure 1.** Smartphone ownership.

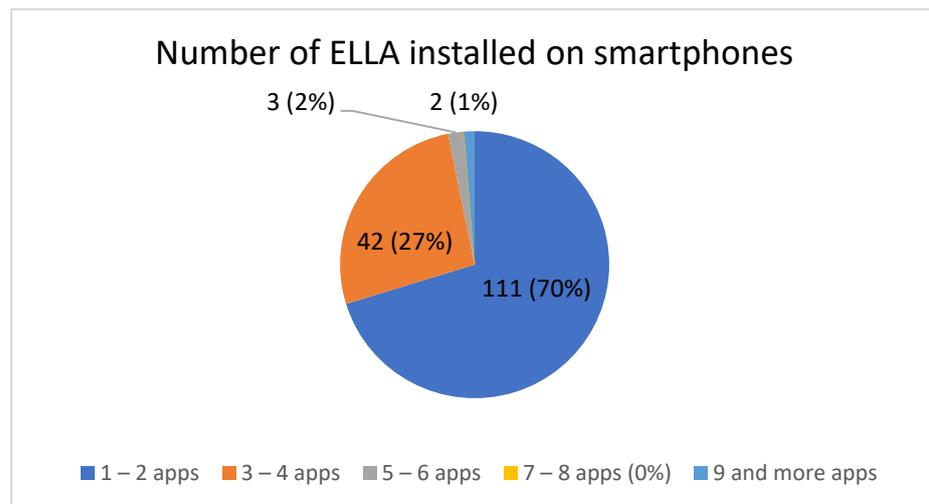
### 3.3. Instruments and Procedures

The research method of a questionnaire, being one of the most common [42] and popular [43] data collection methods and frequently used to measure attitudes through responses [44], was employed to gather the students' data regarding their attitudes and perceptions of smartphone ELLA. The questionnaire that concentrated on the development of individual language systems and skills, along with collecting data on what role apps play within language practice and acquisition, was developed by the author. Based on the feedback and suggestions of the author's peers, the questionnaire was revised two times. Its final version was comprised of three parts: demographic information, apps' usage statements, and apps' perception statements. The quantitative data were acquired through a Likert scale (a set of statements where participants are asked to show their level of agreement [45]) of 1 to 5, where 1 corresponds to a strong disagreement and 5 corresponds to a strong agreement. Prior to completing the questionnaire, the participants were informed in writing, using a separate document in which they also gave their consent, that their names would remain confidential to guarantee anonymity.

The reliability of this instrument was ensured by employing the Cronbach's alpha formula. The internal consistency of items was calculated at 0.95, which means that the questionnaire can be deemed reliable for the purposes of this research. After the data were collected, the descriptive statistics of the Likert-based statements were provided, and the data were further statistically analysed by conducting *t*-tests (two-sample, assuming unequal variances). The *t*-test is a type of inferential statistic that is employed to investigate whether a significant difference exists between the means of two groups [46].

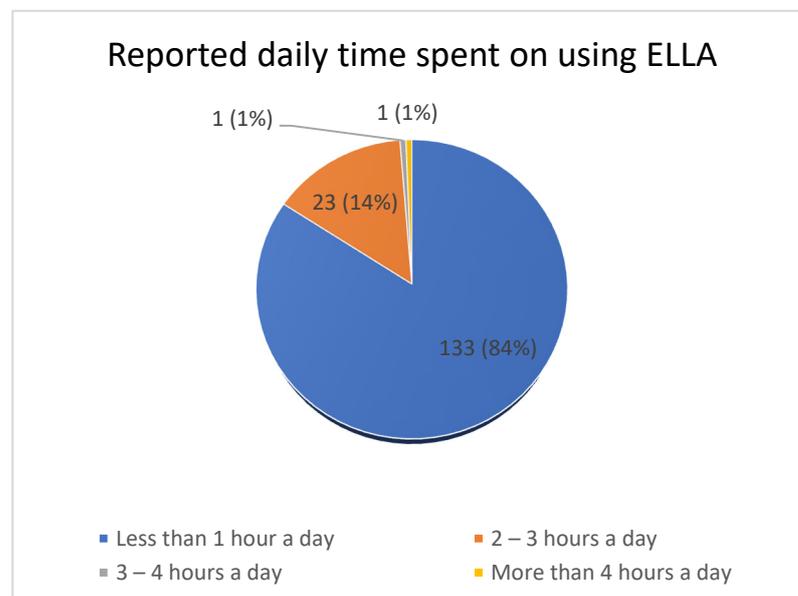
## 4. Results and Discussions

Before the participants were asked to provide information on the two sets of statements regarding the attitudes and perceptions of smartphones ELLA by Slovak EFL learners, they were questioned about the number of apps they had on their smartphones. Figure 2 reveals that the majority of respondents (70%) had between 1 and 2 ELLA installed on their smartphones, followed by 3–4 apps (27%), 5–6 apps (2%), and more than 9 apps (1%). Therefore, each of the 158 respondents had at least one ELLA installed on their smartphone.



**Figure 2.** Amount of ELLA on participants' smartphones.

Next, the students were asked about how much time they devoted to the use of ELLA for the purposes of learning English. Figure 3 displays the amount of time the research participants spent daily on using English language learning apps. The vast majority (84%) of them spent less than an hour a day on using ELLA, 14% of students spent 2–3 h a day, one student spent 3–4 h a day, and one student spent more than four hours a day.



**Figure 3.** Daily time spent on using ELLA.

Finally, the respondents were asked to indicate if they tend to check every now and then whether there are some new English language learning apps on the market (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The average mean for this item was calculated at 2.64, which means that they seem to be neutral about this statement. However, it should be noted that although their degree of agreement falls within the neutral range (the neutral range being between 2.61 and 3.40), they agree with this statement to a lesser degree, as the value 2.64 is rather close to the disagreement range values (1.81–2.60).

#### 4.1. Instruments and Procedures

The second part of the questionnaire concentrated on the apps' usage. This section contained 11 items altogether, and the students were required to choose one of the five options to demonstrate their level of agreement: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, or 5 = strongly agree. The interpretation of respondents' answers arose out of the study performed by Sarigöz [47] (p. 213):

$$RO = \frac{HV - LV}{NO} = \frac{5 - 1}{5} = 0.80 \quad (1)$$

RO: range of options,

HV: highest value

LF: lowest value

NO: number of options

For the purposes of this research, the scores will be interpreted as illustrated in Table 1.

**Table 1.** Mean score interpretation.

Mean Score	Score Interpretation	Level of Agreement
1.00–1.80	Strongly disagree	Very low
1.81–2.60	Disagree	Low
2.61–3.40	Undecided	Neutral
3.41–4.20	Agree	High
4.21–5.00	Strongly agree	Very high

The participants' attitudes towards the use of ELLA are reflected in Table 2. Their degree of agreement ranges between neutral (items 6–11) and high (items 1–5). Statements with the high level of agreement reveal that the students use ELLA on a regular basis, primarily for the purposes of practicing vocabulary, grammar, and reading skills, respectively. Moreover, their dictionary app was also use regularly, which enables them to become more autonomous learners.

**Table 2.** ELLA attitudes.

Item No.	Statement	Mean
1	I use English language learning app(s) installed on my smartphone for practicing vocabulary.	4.16
2	I use my English Language learning app(s) for practicing English when I am at home.	3.84
3	I use my dictionary app(s) on my smartphone on a regular basis.	3.67
4	I use English language learning app(s) installed on my smartphone for practicing grammar.	3.65
5	I use English language learning app(s) installed on my smartphone for practicing reading skills.	3.56
6	I use my English Language learning app(s) for practicing English while I commute/travel to school/work, etc.	3.37
7	I use English language learning app(s) installed on my smartphone for practicing pronunciation.	3.35
8	I use English language learning app(s) installed on my smartphone for practicing writing skills.	3.30
9	I use English language learning app(s) installed on my smartphone for practicing listening skills.	3.11
10	I use my English Language learning app(s) for practicing English when I am at school.	2.98
11	I use English language learning app(s) installed on my smartphone for practicing speaking skills.	2.84

On the other hand, the items with a neutral level of agreement suggest that they use (to a certain extent) their ELLA for practicing pronunciation, writing skills, listening skills, and speaking skills, respectively. The participants agree that they use ELLA for practicing English at their homes. Other places where they use the apps are in the neutral range; they tend to use their apps while they commute to school or work to a higher degree (3.37) than utilizing their apps when at school (2.98).

The results show that individual language systems and skills are developed and practiced to varying degrees. Practicing vocabulary earned the highest level of agreement, and this finding does not seem to be surprising. The subject of enhancing vocabulary through smartphones and smartphone apps has been investigated in numerous scientific papers, many of them indicating promising results (e.g., [48] or [49]).

The grammatical system and reading skills also received a relatively high level of agreement, while pronunciation, writing, listening, and speaking did not. The findings are in line with those of Hsu [50] and Nami [39], as their research results also indicate that not all language systems and skills are equally addressed and practiced when it comes to the use of smartphone apps for language learning purposes.

While the responses were neutral to practicing pronunciation, writing, and listening, the lowest score within the neutral range in regard to the systems and skills was assigned to speaking, which is in line with Metruk's study [12]. EFL learners need to be aware of the fact that ELLA help them improve all the language systems and skills, including speaking.

#### 4.2. Apps' Perception

The third part of the questionnaire focused on the apps' perception. The students were obliged to indicate their degree of agreement to 19 statements. Their perceptions of ELLA are reflected in Table 3. The degree of agreement ranges between neutral (items 13–19) and high (items 1–12).

As far as the development of language systems and skills is concerned, a high level of agreement was assigned to statement 1 (ELLA help develop lexical system), statement 6 (ELLA help develop grammar), statement 8 (ELLA help develop reading skills), and statement 10 (ELLA help develop pronunciation), respectively. The skills of writing, listening, and speaking achieved a neutral level of agreement.

Further, the participants agree that ELLA allow them to practice English anytime and anywhere, and it is easy as well as flexible, convenient, effective, and enjoyable. Moreover, the apps help them to find solutions on their own, motivate them to study English, and make them more autonomous learners. However, statements 15 (ELLA make me more creative), 16 (ELLA make me more confident), 17 (learning English through ELLA is an important part of my language learning process), and 19 (preferring ELLA to traditional English language learning methods) only reached a neutral level of agreement.

In a similar way to the apps' usage statements, the participants perceived that ELLA played a role in developing their language systems and skills to varying degrees, with it having the greatest perceived impact on enhancing vocabulary, and the least perceived impact on speaking. As has been already mentioned, all of these language systems and skills can be practiced through the ELLA, including speaking. EFL learners do not seem to be fully aware of the fact that there are a great number of apps for all language systems and skills. Therefore, increasing the awareness of the ability to practice speaking (and other skills) through ELLA would perhaps generate greater interest.

The findings further indicate that students neither agree nor disagree that the use of ELLA makes them more creative and confident. Conducting research on this matter could be beneficial and would definitely contribute towards the existing knowledge in this field.

Finally, although the participants agree that ELLA allow them to practice English anytime and anywhere, and that it is easy as well as flexible, convenient, effective, and enjoyable, their level of agreement with statement 19 (I prefer using ELLA to traditional learning methods) is neutral (although the mean 2.68 is quite close to the disagreement range values: 1.81–2.60). This means that the traditional ways of learning still seem

to be somewhat popular among EFL students, which can be regarded as an interesting finding as communicative language teaching has been present for almost five decades now. Participants are also neutral to statement 17 (practicing English through ELLA represents an important part of my language learning process), which also indicates that ELLA do not seem to have assumed considerable importance in regard to learning English among EFL learners.

**Table 3.** Apps' perceptions.

Item No.	Statement	Mean
1	English language learning apps in my smartphone help me develop and enhance my lexical system (vocabulary).	4.06
2	English language learning apps in my smartphone allow me to practice my English anywhere and anytime.	4.03
3	Practicing English by using English language learning apps is easy and flexible.	3.94
4	Practicing English by using English language learning apps is convenient.	3.80
5	Practicing English by using English language learning apps is effective.	3.78
6	English language learning apps in my smartphone help me develop and enhance my grammatical system (grammar).	3.71
7	Practicing English by using English language learning apps is enjoyable.	3.67
8	English language learning apps in my smartphone help me develop and enhance my reading skills.	3.66
9	English language learning apps help me find solutions on my own.	3.56
10	English language learning apps in my smartphone help me develop and enhance my phonological system (pronunciation).	3.44
11	Practicing English by using English language learning apps motivates me to study English.	3.41
12	Practicing English by using English language learning apps makes me more autonomous.	3.41
13	English language learning apps in my smartphone help me develop and enhance my writing skills.	3.39
14	English language learning apps in my smartphone help me develop and enhance my listening skills.	3.32
15	Practicing English by using English language learning apps makes me more creative.	3.26
16	Practicing English by using English language learning apps makes me more confident.	3.22
17	Practicing English by using English Language learning apps represents an important part of my English language learning process.	3.21
18	English language learning apps in my smartphone help me develop and enhance my speaking skills.	3.01
19	I prefer using English language learning apps for practicing English in comparison to traditional English language learning method.	2.68

#### 4.3. Gender Differences

The third research question attempted to explore whether statistically significant differences between the male and female students exist. To address this issue, 30 independent-sample *t*-tests were run (11 within the second part of the questionnaire and 19 within the third part of the questionnaire). Auerbach and Zeitlin [51] explain that the so-called *p* value is usually set at 0.05 in social sciences, which means that those items whose *p* value is lower than 0.05 are regarded as statistically significant.

#### 4.3.1. Gender Differences and Apps' Usage

The means and standard deviations for the 11 statements in the apps' usage section are displayed in Figure 4, and all the items along with the calculated  $p$  value are shown in Table 4.

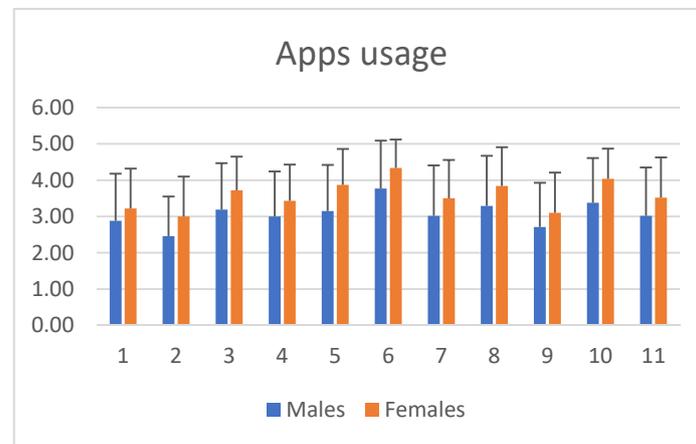


Figure 4. Apps' usage means and standard deviations.

Table 4. Statistically significant items for apps' usage.

No.	Statement	Males		Females		$p$ Value
		Mean	SD	Mean	SD	
1	I use English language learning app(s) installed on my smartphone for practicing listening skills.	2.88	1.30	3.22	1.10	0.11
2	I use English language learning app(s) installed on my smartphone for practicing speaking skills.	2.46	1.09	3.00	1.10	0.01
3	I use English language learning app(s) installed on my smartphone for practicing reading skills.	3.19	1.28	3.72	0.93	0.01
4	I use English language learning app(s) installed on my smartphone for practicing writing skills.	3.00	1.24	3.43	1.00	0.04
5	I use English language learning app(s) installed on my smartphone for practicing grammar.	3.15	1.27	3.87	0.99	0.00
6	I use English language learning app(s) installed on my smartphone for practicing vocabulary.	3.77	1.32	4.34	0.78	0.01
7	I use English language learning app(s) installed on my smartphone for practicing pronunciation.	3.02	1.39	3.50	1.06	0.04
8	I use my dictionary app(s) on my smartphone on a regular basis.	3.29	1.38	3.84	1.07	0.02
9	I use my English Language learning app(s) for practicing English when I am at school.	2.71	1.22	3.10	1.11	0.06
10	I use my English Language learning app(s) for practicing English when I am at home.	3.38	1.23	4.04	0.83	0.00
11	I use my English Language learning app(s) for practicing English while I commute/travel to school/work, etc.	3.02	1.33	3.52	1.11	0.03

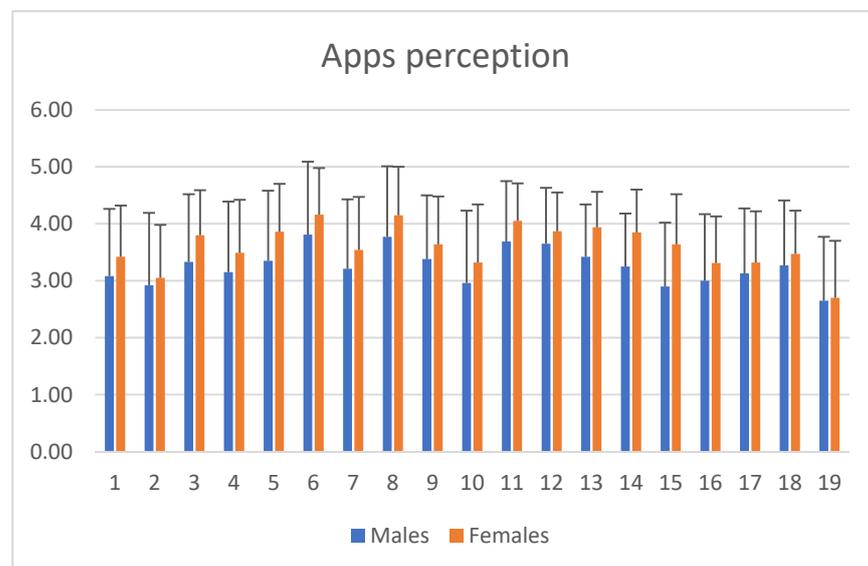
The research findings reveal that the statistically significant differences were observed in 9 out of the 11 statements (82%). The females reported a higher score on all of the statistically significant items, which means that they demonstrated a considerably higher level of agreement. Based on the acquired data and the calculated  $p$  value, it can be concluded that the female participants display different attitudes towards the apps' usage when compared to their male counterparts.

A substantially higher level of agreement from females was obtained for practicing speaking, reading, and writing skills, as well as grammar, lexis, and pronunciation. Moreover, the females assigned higher scores to using dictionary apps on a regular basis, practicing English while they are at home, and while they commute to school or work.

It can be concluded that overall, the female participants express a more positive attitude towards practicing nearly all language skills (apart from listening skills) and systems. It should be noted that their level of agreement is also higher regarding the use of their apps on a regular basis, whether at home or while travelling.

#### 4.3.2. Gender Differences and Apps' Perception

Means and standard deviations for the 19 statements are displayed in Figure 5, and all of the items along with the calculated  $p$  values are shown in Table 5.



**Figure 5.** Apps' perceptions means and standard deviations.

The gathered data illustrate that the statistically significant differences were observed in 6 out of the 19 statements (32%). The females obtained a higher score on all of the statistically significant items, which means that they demonstrated a considerably higher level of agreement. Based on these findings and the calculated  $p$  values, it can be observed that the female participants display different attitudes towards the apps' usage when compared to their male counterparts, though to a relatively low degree, as only approximately one third of responses differed considerably.

As far as the language skills and systems are concerned, the females obtained a statistically higher level of agreement to practicing reading skills and grammar through the ELLA. Further, they agree to a greater extent with statements 11 (practicing English through ELLA is easy and flexible), 13 (practicing English through ELLA is effective), 14 (practicing English through ELLA is enjoyable), and 15 (practicing English through ELLA is more motivational).

Overall, it can be concluded that the differences in the perception of ELLA between the two sexes are not broad, as within most of the statement (13 out of 19), statistically significant differences were not detected.

**Table 5.** Statistically significant items for apps' perception.

No.	Statement	Males		Females		<i>p</i> Value
		Mean	SD	Mean	SD	
1	English language learning apps in my smartphone help me develop and enhance my listening skills.	3.08	1.18	3.42	0.90	0.08
2	English language learning apps in my smartphone help me develop and enhance my speaking skills.	2.92	1.27	3.05	0.93	0.50
3	English language learning apps in my smartphone help me develop and enhance my reading skills.	3.33	1.19	3.80	0.79	0.02
4	English language learning apps in my smartphone help me develop and enhance my writing skills.	3.15	1.24	3.49	0.93	0.09
5	English language learning apps in my smartphone help me develop and enhance my grammatical system (grammar).	3.35	1.23	3.86	0.84	0.01
6	English language learning apps in my smartphone help me develop and enhance my lexical system (vocabulary).	3.81	1.28	4.16	0.82	0.09
7	English language learning apps in my smartphone help me develop and enhance my phonological system (pronunciation).	3.21	1.22	3.54	0.93	0.10
8	English language learning apps in my smartphone allow me to practice my English anywhere and anytime.	3.77	1.24	4.15	0.85	0.06
9	English language learning apps help me find solutions on my own.	3.38	1.12	3.64	0.84	0.15
10	Practicing English by using English Language learning apps represents an important part of my English language learning process.	2.96	1.27	3.32	1.02	0.09
11	Practicing English by using English language learning apps is easy and flexible.	3.69	1.06	4.05	0.66	0.03
12	Practicing English by using English language learning apps is convenient.	3.65	0.98	3.87	0.68	0.15
13	Practicing English by using English language learning apps is effective.	3.42	0.92	3.94	0.62	0.00
14	Practicing English by using English language learning apps is enjoyable.	3.25	0.93	3.85	0.75	0.00
15	Practicing English by using English language learning apps motivates me to study English.	2.90	1.12	3.64	0.88	0.00
16	Practicing English by using English language learning apps makes me more confident.	3.00	1.17	3.31	0.82	0.10
17	Practicing English by using English language learning apps makes me more creative.	3.13	1.14	3.32	0.90	0.30
18	Practicing English by using English language learning apps makes me more autonomous.	3.27	1.14	3.47	0.76	0.27
19	I prefer using English language learning apps for practicing English in comparison to traditional English language learning method.	2.65	1.12	2.70	1.00	0.77

## 5. Conclusions and Recommendations

Mobile technologies, particularly smartphones, demonstrate potential for the purposes of language learning. This study attempted to explore the Slovak EFL learners' attitudes and perceptions of ELLA, since such research is scarce in the context of Slovak EFL settings and much remains to be explored in this field.

The attitudes and perceptions of ELLA range between being neutral and being positive. The study revealed that EFL learners develop and practise language skills and systems through ELLA to various degrees. While questions about vocabulary practice received the highest level of agreement, questions about the speaking skill, which is regarded by many practitioners and students as the primary language skill, received the lowest level of agreement. It appears that heightening EFL learners' awareness of the ability to develop all the language systems and skills (including speaking) through ELLA may increase their

interest in practicing English via smartphones. Thus, the findings of this study somehow contradict the results of Mindog's study [9], in which the research participants believed that using apps helped them with the four language skills. It is apparent that more studies ought to concentrate on the development of speaking skills, as much remains to be explored and revealed in this area.

Further, the participants seem to use their ELLA at their homes to a greater degree when compared to using the apps at school or while commuting. While they believe that practicing English through apps is enjoyable, motivational, that it helps them find solutions on their own, and that it makes them more autonomous (which is in line with Kim and Kwon's study [15]), the participants are rather neutral about ELLA in relation to making them more creative, confident, and whether they consider it a better overall learning method than the traditional ways of learning. Finally, practicing English through apps does not seem to have secured a prominent place in their language learning process as their attitudes towards this statement was also neutral.

It should be noted that it is also EFL teachers who ought to increase awareness of smartphones and smartphone apps, and show their students how apps can be effectively used both inside and outside the classroom. The teachers are the ones who hold the key to developing future generations [52], and who can guide their learners and help them develop their language skills and systems. This study supports the notion of Abugohar, Yunus, and Ab Rashid [28], who maintain that both teachers and learners ought to be drilled on how smartphone apps can be effectively utilised. In relation to this, Kukulka-Hulme [53] suggests that what is best learned inside the classroom and which things are best learned outside of the classroom should be identified. "With the help of their teachers, the learners ought to find a way how to manage and plan their language learning effectively, possibly seeking some harmony between learning inside the classroom and outside the classroom" [12] (p. 543). Further, Abdullah, Tajuddin, and Soon's [26] concept is also supported—the applications demonstrate the potential for language learning, but learners need guidance in ensuring the productiveness of these apps. This is also supported by Luef, Ghebru, and Ilon [54], who maintain that independent learning does not seem to be equally pursued by every learner. Finally, it can also be highlighted that learners ought to seek ELLA which are tailored to their needs. Apps that are inappropriate in this regard may not prove effective, and may even hamper the learning process.

Differences in perception based on gender were also examined. Even though the research sample could be deemed slightly imbalanced, the statistical calculations take this difference in quantity into consideration so that the reliability of research findings is ensured. It was established that, taking both sets of statements (apps' usage and apps' perception) into consideration, half of the statements reflected statistically significant differences between the two sexes. It can, therefore, be concluded that there exist considerable differences in the attitudes and perceptions of ELLA for the purposes of English learning between male and female EFL students. In each of the statistically significant items, the females attached a higher level of agreement to the statements, displaying a more positive attitudes towards ELLA. This finding is not in line with, for example, that of Nami [37], and more investigation in this area is needed due to the fact that research on the perception of mobile learning appears to be inconsistent and inconclusive, offering ample opportunity for further exploration.

This study is by no means comprehensive and has its limitation. More questionnaire statements along with a wider variety of options could be employed, preceding the in-depth interviews with the selected research participants. Further, in line with Klímová [17] (p. 1098) who maintains that "more longitudinal randomized controlled research studies are needed to confirm the efficacy of the use of mobile phone and smartphone apps on specific language skills and knowledge", the research sample in future studies could be larger, possibly employing research participants from more universities and other countries. This paper can also be regarded as a pilot study which could provide the impetus for further exploration in this field. Finally, adopting additional research methods, such as testing,

observation, or interviews, might also prove useful and help validate the collected data and research results.

English apps seem to have achieved popularity among EFL learners worldwide, but they can still be considered a relatively new phenomenon which deserves the attention of researchers and practitioners. Conducting further exploration in this field is, therefore, of vital importance, as research on mobile learning (and smartphone apps in particular) has a lot of catching up to do, and new insight and findings will shed more light on this matter.

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