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MEDIA HABITS AND ATTITUDES OF STUDENTS ABOUT THE POSSIBILITIES OF APPLYING MOBILE LEARNING IN FOREIGN LANGUAGE TEACHING

***Abstract:** The paper analyses innovative learning and teaching through mobile learning on a sample of 96 adolescents. A 3-part questionnaire consisted of sociodemographic data, attitudes about mobile learning and media activities and the use of social networks. The research was done in 2019 with vocational school students. 15.1% of them use applications for learning English, while 92.5% use social networks in school work. Girls listen to music, take photos and use social networks significantly more often. Higher achievers are significantly more likely to read e-books, search for information in the media, and are generally more active on all media platforms except social networks. Girls use Snapchat and Instagram significantly more, while boys use Twitch. The use of mobile phones positively correlates with the attitude that it helps with learning, the belief that it can influence the improvement of language skills, and the desire for additional knowledge about mobile learning.*

***Keywords:** adolescents, foreign language, learning, mobile learning, teaching*

INTRODUCTION

The continuous advancement of technology also influences the inevitable changes in the ways and methods of teaching and learning. New generations characterized by mobility and availability of information expect new methodological approaches in the educational process. One of the new trends is mobile learning, which is available to teachers and students without restrictions at

any time. The history of mobile learning dates back to the 1970s when Alan Kay and his team at the Xerox Palo Alto Research Center proposed a cheap wireless device that came in handy, called the Dynabook (A Personal Computer for Children of All Ages), as a personal computer for children of all ages (Sharples & Pea, 2014).

When describing hybrid, mobile or blended learning, opinions vary significantly on the matter. Hybrid learning represents courses that integrate online with traditional face-to-face activities in a planned and pedagogically valuable aspect, using online experiences as a transformational mechanism in learning. Blended learning occurs when technology and teaching complement each other, as the course material becomes dynamic while engaging pupils of diverse learning styles. Therefore, blended learning represents a learning approach that combines face-to-face and online learning experiences. In that aspect, mobile learning represents a form of learning that connects formal practice (e.g. attending lectures, participating in workshops) with informal, i.e. situational learning practice (e.g. while a student is in public transport). There are different understandings of mobile learning (Bartelsen, 2011), and one of the most common is that mobile learning is a form of learning via any portable device such as a smartphone or tablet with Internet access (Behera, 2013). Given that the quality of the modern school is an important dimension of methodological approaches to teaching, student motivation, ability levels, and learning outcomes, the emergence of a new relationship between teachers and students in the digital age conditions the evolution of teaching and learning methods, and emphasizes the importance and usefulness of researching new technologies and teaching media.

Matijević (2017) describes the media as an object or person that can store, transmit and present some data and information. In addition, the same author states that the media and tools are used to perform certain work tasks (e.g. digital machines and related software, gadgets). Livazović (2010, p. 263) believes that “the permeation of media competence and protection can provide appropriate conditions for research, experimentation, and creativity necessary for the safe and free use of media,” with the basic goal of adopting media competence to provide individuals with developmental and socially acceptable experience that arose after the use of the medium.

In the modern world, children and young people grow up in a technological environment from an early age, so they learn to use mobile phones, tablets, or computers even before reading or writing. However, most teachers in the classroom and upper elementary or high school classes rarely use modern technology, while the use of mobile devices in schools is prohibited. Mark Prensky (2001), one of the pioneers of the educational application of mobile technology, points out that sometimes mobile phones are even more powerful than computers. Prensky (2001) recommends teachers should consider using mobile

technology and devising opportunities to use the potential of technology to improve educational outcomes. This is quite important, especially as young people today grow up and live in the information age in which they are expected and required to have completely different skills, values, and worldviews, or social competencies. Children and adolescents are born, raised, and eventually live as digital natives, growing up with the media as a day and intuitive experience (Livazović, 2009, 2010, 2012, 2015).

THEORETICAL BACKGROUND

There are many definitions of mobile learning, but most emphasize its key component of mobility and accessibility related to different teaching and learning activities and opportunities through access and interaction in different contexts (Kukulska-Hulme & Shield, 2008). Newhouse et al. (2006) highlight special mobile applications designed for teaching that include sensors, cameras, location services, maps, social sites, Internet search engines, and virtual reality for educational purposes, and represent the potential for learning in and out of the classroom. Precisely, such a form encourages student motivation, independence, as well as cooperation, i.e. collaborative and team learning. Motteram (2013) argues that Mobile Assisted Language Learning (MALL) is one of the most interesting types of educational technology. According to Heinz (2018), the technical mobility of the device enables individualized learning not only by allowing students to use a film or text for listening in class without the dominant role of the teacher but also by letting them to choose their pace of listening, watching, or learning. For example, in this way, while doing writing tasks when composing a text, the student can practice having digital feedback from the teacher, classmates, or people outside the classroom through mobile interaction.

Bartelsen (2011) emphasizes that the term mobile learning is not a novelty as it has existed since the mid-20th century when students carried a textbook on the road or learned while travelling by train. Back then, the mobile learning medium was a book while today mobile learning takes place with the help of tablets or smartphones. For teachers to realize the principles of appropriateness and curiosity, but also individuality, information, system, and vitality in teaching, they need a variety of teaching aids and media (illustrations, applications, technical aids, computer games, etc.). Namely, the more cognitive centers the student engages, the easier will be the sensory-cognitive perception and processing and, thus, better durability of memory and later utilization of knowledge. Of course, methodological approaches must be adapted to age developmental characteristics.

According to Sahlberg (2012), teaching is an exceptional job because teachers at all levels of student education have professional autonomy, i.e. they can teach what they were educated for. Innovating teaching and improving its quality

is certainly part of their professional mission. Mobile technology offers the possibility of open education systems, engaging students in new ways to make educational experiences more meaningful. Smartphones provide the opportunity to present teaching content in a new and exciting way. Modern technology allows teachers a synergy of classical and new methodological approaches, as well as overcoming abandoned paradigms of education and learning. Mobile learning offers original models in connection, communication, and collaboration in the daily life and work of students and teachers in the school.

Matijević and Topolovčan (2017) believe that mobile learning enables constructivist learning. For example, they believe that computer games and applications allow students to participate much more actively, explore, solve problems, and design new materials. Furthermore, Rice (2011) argues that constructivism itself assumes that people learn best when they create educational content for each other. Thus, students discover the contents and methods of the teaching process that are adapted to construct new knowledge.

In contrast to constructivism, blended learning has emerged providing materials that are available at all times. Vereshchahina et al. (2018, p. 90) consider hybrid learning to be a modern paradigm that implements a new learning environment, instructional design, and a new teacher-student relationship. Such a form of teaching is a rather useful form of teaching because it allows students to take advantage of the physical and virtual learning environment (Vereshchahina et al., 2018, p. 91).

THE DIDACTIC-METHODOLOGICAL CHALLENGES OF MOBILE LEARNING

In addition to theoretical findings, there are many empirical studies related to mobile learning in the context of foreign language teaching and the use of mobile devices in their daily lives as it has been expected that smartphones and mobile devices would improve language learning (Kukulska-Hulme & Shield, 2008). Therefore, there is a need to analyze the results and evaluate the conclusions of empirical research to explain the research procedures on the use of mobile learning and its impact on knowledge and student achievement, as well as improving the teaching process. Since one of the key factors for the successful application of mobile learning in teaching is the teacher's perception of the justification and purpose of its use, it is justified to analyze studies on the attitudes of students and teachers on the application of mobile learning.

The research on mobile learning peaked during the last decade in which the greatest revolution in the massification of technology took place, especially in the use of smartphones in the daily lives of both students and teachers. For example, Uygun et al. (2018) studied research on mobile learning published between 2013 and 2017. Their findings show that, although the use of mobile

learning itself is an extremely important topic for education, there is no review of recent studies related to mobile English language learning. Significantly, 6 of 11 surveys were quantitative with a survey data collection methodology. Only 2 studies used a combined methodology and 3 studies were qualitative. Despite the enormous development of technology and the multitude of digitally literate children, there is not enough research on this topic in the world, especially in our educational context. The issue of research of all segments of the educational process in connection with the use of modern technology such as mobile learning in teaching English, but also other subjects, therefore proves to be very important.

In the Skupnjak survey (2014), conducted on a sample of 236 teachers from 5 urban and 5 rural primary schools in Varaždin County and focusing on the teacher's perception on the justification of the use of mobile phones in teaching, teachers' opinions on the use of mobile phones in teaching were examined. It was concluded that there are advantages to using mobile devices in the teaching process although attitudes towards mobile phones were negative. The results show that the majority of respondents (59.3%) believe that mobile phones in teaching do not contribute to the quality of teaching process and that teachers generally do not see the potential of using mobile phones in teaching but only their negative aspects. However, their ability to use mobile devices as a teaching aid in the teaching process was not assessed as good or bad, which could indicate the need for their methodological training. Furthermore, large generational differences were found among opinions on the purposefulness of the use of mobile learning in the teaching process in relation to the teachers' experience. Teachers with less than 12 years of experience consider mobile learning to be significantly more useful and do not consider it as negative for the quality of teaching as is the case with teachers who has worked longer than 12 years with more length of service. The results obtained by this research indicate the need for additional professional development that could contribute to teachers' understanding of the purpose and benefits of using mobile devices in teaching.

Gafni et. al. (2017) researched the use of mobile applications in teaching and their impact on students' attitudes toward the learning process. The research included people who attended a foreign language course and simultaneously used the Duolingo mobile app. It is a free application that was created in 2011 and has more than 30 million registered users, with a special version for PC and mobile devices. The app is used to improve various language skills, reading, writing, listening and comprehension, translation, and speaking. The control group in the study consisted of high school students who were required to use the application and fill out questionnaires before and after using the application. The experimental group consisted of people who attended classes "face to face" and chose to use the Duolingo application voluntarily, to aid learning. The results showed that the main disadvantages of mobile learning

were temptation and hindrance, inability to provide feedback, and possible dependence on the Internet. The advantages were the ease of portability of mobile devices, easy availability of teaching materials for students, the possibility of independent control of learning place and time, certain independence of use, and most importantly – the ability to independently test their knowledge. In this study, students' attitudes were examined while learning outcomes were not included. Statistically significant differences in satisfaction with the use of mobile learning were found as the experimental group, which voluntarily used the application, reported the ease and simplicity of use, expressed satisfaction and pleasure in using the application itself,

Biloš et al. (2017) conducted a quantitative study on the use of mobile devices and mobile learning in secondary vocational schools in Austria, the Czech Republic, and Germany. The results showed that 45% of participants used the Internet almost continuously throughout the day, and 45% only a few times a day. As many as 98% of respondents owned at least one type of mobile device (some type of smartphone, tablet, or laptop). One third (33.8%) had previous experience with some form of learning via mobile devices, although the results did not state which form of learning students used, so it was not confirmed which applications or tools they used. A total of 62.4% of respondents agreed that mobile learning would play an important role in education in the future. Most participants agreed on the benefits of using mobile learning such as easier access to teaching materials, better knowledge of the topic being taught, and more frequent communication with other students. Furthermore, the research confirmed that students were most attracted to mobile learning (although no specific forms of mobile learning were listed) as well as by learning applications such as self-learning video games. Forums and social networks were used by students as forms of information exchange and for communication during joint learning. At the same time, 67.8% of respondents reported that they were advanced users in the handling and use of technology (Biloš et al., 2017).

An example of qualitative action research in two cycles (with a combined methodology) is the research of Petrova (2011), which confirms the importance of mobile learning, especially for learning English as a foreign language. The combined research methodology is one of the most suitable procedures for research into the implementation of mobile learning in the educational process. Namely, according to Bogner and Matijević (1993), action research is “a specific type of empirical research that is conducted with direct pedagogical action. It is a scientifically based change in the pedagogical process in which the main organizers and creators of the process appear at the same time as researchers,” therefore teachers should take an active role in the research process in the modern school, and not just act as “passive” users of other people's research.

Petrova (2011) has implemented the use of mobile devices, more specifically SMS messages, in her higher education teaching practice as support in

learning English vocabulary. Students would learn new words in class, and then practice them outside of regular classes by responding to text messages, i.e. assignments that the teacher would deliver to them. At the end of the day, they would receive feedback from the teacher with correct answers via email. Such practice contributed to the flexibility of the course itself, and motivated students to academic progress. Based on the changes in knowledge, Petrova states that services offered by mobile devices can improve students' learning, and meet their learning expectations and requirements.

In conclusion, all the above-mentioned research shares a different perspective analysis of advantages and disadvantages of mobile learning. As with other technological tools, some challenges and obstacles must be overcome before understanding the real potential of mobile learning. The implementation of mobile learning in teaching aims to prove a positive impact on student achievement and competencies, so technology in the hands of young people can – now and soon – be used as a powerful tool in learning and teaching (Knežević, 2011). The paper's research aim is focused on analyzing students' attitudes about the possibilities of applying mobile learning in foreign language teaching. The research problem is focused on the study of media habits and experiences of adolescents as a prerequisite for increasing the quality of educational and social outcomes of foreign language teaching through the application of mobile learning.

Based on the set goal and research problems, the following hypotheses were formulated:

- H1** there are significant differences in media use in relation to the sociodemographic characteristics of the respondents
- H2** there are significant differences in attitudes towards mobile learning and technology in foreign language teaching about the socio-demographic characteristics of the respondents
- H3** there is a positive correlation between the use of mobile technology and attitudes about the impact on language skills development

METHODOLOGY

SAMPLE

The research was conducted on sample with a total of 96 high school students, 75 girls (78.2%) and 21 boys (21.8%). Respondents were 16 (N = 38), 17 (N = 39) and 18 (N = 16) years old, with 35 (37.6%) living in rural areas and a total of 58 (62.4%) in town. Regarding school achievement, 8 respondents (8.6%) achieve excellent, 55 (59.1%) very good, 28 (30.1%) good, and 2

respondents (2.15%) sufficient school results. As many as 92 students (95.8%) own a mobile phone.

INSTRUMENT

For the purpose of this research, a survey questionnaire was prepared, which contained three parts: 1) socio-demographic data, 2) opinions and attitudes of students about mobile learning, and 3) questions about media activities and the use of social networks. The questions were open-ended and closed-ended, using questions on a 5-point Likert scale.

PROCEDURE

The research was conducted at the end of the 2018/2019 school year with students of the secondary vocational school in Osijek during the English language class. At the beginning of the lesson, the participants were read instructions in which the purpose and type of research were explained, and the anonymity and confidentiality of data were guaranteed. Students had previously submitted statements of consent to the survey. Before conducting the survey, the consent of the principal was requested by e-mail and of the school's professional associates orally.

RESULTS

In the analysis of the results of the research on the use and attitudes towards mobile learning, descriptive and inferential analysis procedures were performed, with the analysis of t-tests for independent samples in relation to the gender and school results of the respondents. Correlation analysis dealt with students' attitudes about the importance and role of the application of mobile learning for school achievement of respondents.

Table 1 Descriptive analysis of mobile phone use in teaching and learning

VARIABLE		GENDER			
			M	F	
Do you use a mobile phone for teaching purposes?	Yes	N	16	65	81
		%	17.2	69.9	87.1
	No	N	2	10	12
		%	2.2	10.8	13
Σ	N	18	75	93	
	%	19.4	80.6	100	
Do you use any app on your mobile device that helps you learn English?	Yes	N	2	12	14
		%	2.2	12.9	15.1
	No	N	17	62	79
		%	18.3	66.7	84.9
Σ	N	19	74	93	
	%	20.5	79.6	100	
Do you use any mobile app that helps you learn any other subject in school?	Yes	N	3	16	19
		%	3.2	17.2	20.4
	No	N	16	58	74
		%	17.2	62.4	79.6
Σ	N	19	74	93	
	%	20.4	79.6	100	
Do you use social media for school purposes?	Yes	N	17	69	86
		%	18.3	74.2	92.5
	No	N	2	5	7
		%	2.2	5.4	7.5
Σ	N	19	74	93	
	%	20.5	79.6	100	
Do you like the use of mobile phones or computers in the teaching process?	Yes	N	18	66	84
		%	20.0	73.3	93.3
	No	N	0	6	6
		%	0.0	6.7	6.7
Σ	N	18	72	90	
	%	20.0	80.0	100	

Considering the use of mobile learning in teaching and learning, the results show that only 13% (N = 12) of students do not use mobile phones as a learning and teaching aid while towards the use of computers in teaching they generally

express positive attitudes because 93.3% (N = 66) reports that they like the use of computers in teaching (Table 1). However, in general, only 20.4% (N = 19) use certain applications in school work and independent learning. At the same time, applications for learning English are used by only 15.1% (N = 14) of students, and social networks in schoolwork are used by as many as 92.5% (N = 69) of students.

Table 2 T-test for media activities of respondents by gender

Variable	Gender	N	M	SD	t
Access to learning applications	M	19	3.84	1.12	,69
	F	75	3.61	1.34	
Searching the Internet	M	19	4.53	,69	-1.06
	F	75	4.71	,65	
Downloading or listening to music	M	19	4.53	,91	-3.27 **
	F	75	4.92	,27	
Reading e-books	M	19	3.26	1.33	,43
	F	75	3.09	1.59	
Reading learning content	M	19	3.47	1.12	,17
	F	75	3.41	1.42	
Watching live / streaming content	M	19	4.00	1.11	,75
	F	74	3.73	1.46	
Watching movies or videos	M	19	4.74	,45	,73
	F	75	4.57	,95	
Searching for information	M	19	4.32	,67	-,20
	F	74	4.36	1.01	
Receiving or sending an email	M	19	4.05	1.03	-,54
	F	75	4.21	1.18	
Using the camera to take photos / recordings	M	19	3.68	1.34	-4.87 ***
	F	75	4.73	,66	
Shopping	M	19	3.42	1.35	-,79
	F	75	3.69	1.34	
Social networking	M	19	4.58	,77	-2.59 *
	F	75	4.92	,43	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The results of the t-test for media activities of respondents by gender show that a significant difference was found in the variables “Downloading or listening to music” ($p < .01$), “Using a camera for photography or recording” ($p <$,

001) and engagement in “Social networks ”($p < .05$), with girls reporting significantly more frequent engagement in these activities (Table 2).

Table 3 T-test for media activities of respondents according to school achievement

Variable	School achievement	N	M	SD	t
Access to learning applications	Lower	35	3.54	1.36	-, 69
	Higher	60	3.73	1.25	
Searching the Internet	Lower	35	4.63	, 69	, 70
	Higher	60	4.68	, 65	
Downloading or listening to music	Lower	35	4.80	, 58	-, 47
	Higher	60	4.85	, 44	
Reading e-books	Lower	35	2.69	1.49	-2.19 *
	Higher	60	3.38	1.49	
Reading learning content	Lower	35	3.09	1.44	-1.94
	Higher	60	3.63	1.26	
Watching live / streaming content	Lower	35	3.66	1.39	-, 70
	Higher	59	3.86	1.38	
Watching movies or videos	Lower	35	4.54	1.04	-.39
	Higher	60	4.62	, 78	
Searching for information	Lower	35	4.09	1.12	-2.16 *
	Higher	59	4.51	, 77	
Receiving or sending an email	Lower	35	3.97	1.18	-1.29
	Higher	60	4.28	1.12	
Using the camera to take photos / recordings	Lower	35	4.46	, 89	-, 47
	Higher	60	4.55	, 96	
Shopping	Lower	35	3.63	1.39	-, 08
	Higher	60	3.65	1.30	
Social networking	Lower	35	4.94	, 24	1.42
	Higher	60	4.78	, 64	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The variable “School achievement” was recoded into 2 groups where “lower achievement” included insufficient, sufficient, and good students ($N = 35$), and “higher achievement” included very good and excellent students ($N = 60$). The results of the t-test for media activities of respondents according to

school achievement show that a significant difference was found in the variables “Reading e-books” ($p < .05$) and “Searching for information” ($p < .05$) where respondents with higher school results report on significantly more frequent engagement in these activities (Table 3). In general, students with higher school achievement report on average more frequent activities with the media on all variables except the use of social networks while students with lower achievement are more active in this activity ($M = 4.94$).

Table 4 T-test on the use of social networks in relation to gender

Variable	Gender	N	M	SD	t
<i>Snapchat</i>	M	19	2.53	1.78	-2.48 *
	F	75	3.61	1.69	
<i>Instagram</i>	M	19	4.00	1.37	-3.52 **
	F	75	4.80	,72	
<i>Facebook</i>	M	19	3.74	1.37	1.02
	F	75	3.36	1.46	
<i>YouTube</i>	M	19	4.63	,68	-,48
	F	75	4.71	,59	
<i>WhatsApp</i>	M	19	3.32	1.49	-1.46
	F	75	3.87	1.46	
<i>Viber</i>	M	18	2.39	1.29	-,54
	F	74	2.59	1.49	
<i>Tinder</i>	M	18	1.22	,65	,37
	F	74	1.16	,62	
<i>Pinterest</i>	M	17	1.18	,53	-1.51
	F	74	1.57	1.04	
<i>Tumblr</i>	M	17	1.18	,73	-1.62
	F	75	1.68	1.23	
<i>Twitch</i>	M	17	2.06	1.29	3.04 **
	F	74	1.28	,85	
<i>Ask.fm</i>	M	17	1.06	,24	-,73
	F	74	1.18	,65	
<i>Twitter</i>	M	17	1.47	,72	-,06
	F	74	1.49	1.11	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The results of the t-test on the use of different social networks of respondents according to gender show that a significant difference was found on the

variables “Snapchat” ($p < .05$) and “Instagram” ($p < .01$), which are significantly more often used by girls, and the platform “Twitch” ($p < .01$), which is significantly more often used by young men ($p < .01$). In general, apart from the Facebook platform, social networks are used more often by girls on average (Table 4).

Table 5 T-test on the use of social networks in relation to school achievement

Variable	School Achievement	N	M	SD	t
<i>Snapchat</i>	Lower	35	3.43	1.77	,31
	Higher	61	3.31	1.77	
<i>Instagram</i>	Lower	35	4.83	,59	1.55
	Higher	61	4.52	1.07	
<i>Facebook</i>	Lower	35	3.51	1.36	,45
	Higher	61	3.38	1.49	
<i>YouTube</i>	Lower	35	4.74	,56	,68
	Higher	61	4.66	,63	
<i>WhatsApp</i>	Lower	35	3.63	1.44	-,39
	Higher	61	3.75	1.55	
<i>Viber</i>	Lower	35	2.37	1.42	-1.19
	Higher	59	2.75	1.50	
<i>Tinder</i>	Lower	35	1.06	,34	-1.38
	Higher	59	1.24	,73	
<i>Pinterest</i>	Lower	35	1.37	,91	-,87
	Higher	58	1.55	,99	
<i>Tumblr</i>	Lower	35	1.46	1.09	-,75
	Higher	59	1.64	1.20	
<i>Twitch</i>	Lower	35	1.46	1.04	,12
	Higher	58	1.43	,98	
<i>Ask.fm</i>	Lower	35	1.03	,17	-1.56
	Higher	58	1.22	,73	
<i>Twitter</i>	Lower	35	1.29	,79	-1.36
	Higher	58	1.59	1.16	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The results of the t-test on the use of different social networks of respondents in relation to school achievement show that no significant differences were

found (Table 5), with respondents using Instagram, Facebook, and YouTube the most.

Table 6 T-test on respondents' attitudes towards mobile learning in relation to gender

Variable	Gender	N	M	SD	t
I use a mobile phone in English classes.	M	19	2.95	1.52	-, 56
	F	74	3.15	1.38	
I avoid using mobile phones whenever I can.	M	19	3.37	1.21	-, 73
	F	75	3.64	1.50	
I think using mobile phones in class takes too much time.	M	19	3.58	1.35	-2.19 *
	F	73	4.25	1.14	
I know that using a mobile phone can help me learn.	M	19	4.37	, 89	, 01
	F	74	4.36	1.04	
The use of technology scares me.	M	19	4.53	, 77	-, 75
	F	74	4.69	, 86	
Students should know how to use mobile phones to learn.	M	19	4.16	1.17	-, 36
	F	74	4.26	1.06	
I would better learn to know how to use a mobile phone properly for mobile learning purposes.	M	19	3.26	1.37	, 67
	F	74	2.99	1.66	
I feel independent when I use apps on my mobile phone both at school and at home.	M	19	3.95	1.27	-, 36
	F	75	4.07	1.29	
I want to know more about the ways of mobile learning.	M	19	3.63	1.42	, 68
	F	75	3.36	1.57	
I believe I can improve my language skills using mobile apps.	M	19	4.11	1.19	, 11
	F	75	4.07	1.35	
The use of technology in learning is nothing new.	M	19	3.63	1.17	-, 41
	F	75	3.77	1.39	
We use smartphones too much to use them for learning.	M	19	3.58	1.43	1.26
	F	74	3.07	1.62	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The results of the t-test on respondents' attitudes towards mobile learning as related to gender show that a significant difference was found only in the variable "I think that using mobile phones in class takes too much time" ($p < .05$), with girls significantly more often reporting that their use of mobile phones takes up too much time (Table 6). In general, students with higher

school achievement report on average more frequent activities with the media on all variables except the use of social networks where students with lower achievement are more active ($M = 4.94$).

Table 7 T-test on respondents' attitudes towards mobile learning in relation to school achievement

Variable	School achievement	N	M	SD	t
I use a mobile phone in English classes.	Lower	34	3.35	1.43	1.12
	Higher	61	3.02	1.38	
I avoid using mobile phones whenever I can.	Lower	35	3.83	1.34	1.21
	Higher	61	3.46	1.49	
I think using mobile phones in class takes too much time.	Lower	33	4.24	1.28	.74
	Higher	61	4.05	1.16	
I know that using a mobile phone can help me learn.	Lower	34	4.50	.83	.88
	Higher	61	4.31	1.09	
The use of technology scares me.	Lower	34	4.65	.77	-.14
	Higher	61	4.67	.87	
Students should know how to use mobile phones to learn.	Lower	34	4.09	1.33	-1.12
	Higher	61	4.34	.89	
I would better learn to know how to use a mobile phone properly for mobile learning purposes.	Lower	34	2.79	1.68	-1.32
	Higher	61	3.25	1.56	
I feel independent when I use apps on my mobile phone both at school and at home.	Lower	35	4.00	1.46	-.36
	Higher	61	4.10	1.18	
I want to know more about the ways of mobile learning.	Lower	35	3.43	1.63	-.09
	Higher	61	3.46	1.50	
I believe I can improve my language skills using mobile apps.	Lower	35	4.09	1.42	-.05
	Higher	61	4.10	1.25	
The use of technology in learning is nothing new.	Lower	35	3.66	1.39	-.52
	Higher	61	3.80	1.31	
We use smartphones too much to use them for learning.	Lower	35	3.69	1.47	2.28 *
	Higher	60	2.93	1.60	

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

The results of the t-test on the attitudes of respondents towards mobile learning in relation to school achievement show that a significant difference was found only in the variable “We use mobile phones too much to use them for learning” ($p < .05$), with lower school achievement students reporting significantly more often that there are too many mobile phones in students’ daily lives (Table 7). In general, students of higher school achievement report a more positive attitude towards the importance of using mobile learning in teaching and improving their knowledge.

Table 8 Correlation matrix on attitudes about mobile learning

Variable	1	2	3	4	5	6	7	8	
1	<i>R</i>	/							
	<i>N</i>	94							
2	<i>R</i>	,11	/						
	<i>N</i>	94	96						
3	<i>R</i>	,06	-,08	/					
	<i>N</i>	93	95	95					
4	<i>R</i>	-,01	-,11	,36 ***	/				
	<i>N</i>	93	95	95	95				
5	<i>R</i>	-,07	,13	,13	,16	/			
	<i>N</i>	93	95	95	95	95			
6	<i>R</i>	-,01	,01	,25 *	,38 ***	,42 ***	/		
	<i>N</i>	94	96	95	95	95	96		
7	<i>R</i>	-,07	,01	,23 *	,38 ***	,54 ***	,57 ***	/	
	<i>N</i>	94	96	95	95	95	96	96	
8	<i>R</i>	,04	,08	,18	,25 *	,32 **	,33 **	,41 ***	/
	<i>N</i>	93	95	95	95	95	95	95	95

Note: $p < .05$ *; $p < .01$ **; $p < .001$ ***

Legend: 1 - gender; 2 - school achievement; 3 - I use a mobile phone in teaching English; 4 - I know that using a mobile phone can help me learn; 5 - I would better learn to know how to use a mobile phone properly for mobile learning; 6 - I believe I can improve my language skills using mobile apps; 7 - I want to know more about ways of mobile learning; 8 - Students should know how to use mobile phones for learning.

The correlation matrix showed a significant correlation between the range of attitudes and activities of the respondents, with gender and school achievement not being statistically significant. Personal use of mobile phones in foreign language teaching is significantly positively correlated with the attitude that it helps in learning ($p < .001$), the belief that it can influence the improvement of

language skills ($p < .05$), and the desire for additional knowledge about mobile learning. It is necessary to point out a moderate positive correlation between the attitude of students that they want to know more about ways of mobile learning with the use of mobile phones in teaching ($p < .05$), the awareness that mobile learning helps to learn ($p < .001$), the attitude that language skills can improve mobile learning ($p < .001$) and the attitudes about the importance of knowing the proper application of mobile learning ($p < .001$). In general, positive students' feedback is confirmed towards the mobile learning and their awareness that they can improve their language skills with the help of mobile learning (*Table 8*).

DISCUSSION

This research presents a descriptive and inferential analysis of research results by gender and school achievement on the issues of media activities, use of social networks, and attitudes about mobile learning. Also, unlike previous research on similar topics, this study aimed to check the representation of certain orientations in students, depending on their use of mobile learning in English teaching. The research problem was focused on the study of media habits and experiences of students as a prerequisite for increasing the quality of educational and social learning outcomes through the application of mobile learning. It was expected that there would be a significant difference in attitudes towards mobile learning and technology in foreign language teaching in relation to the socio-demographic characteristics of the respondents.

A descriptive analysis of the use of mobile phones in teaching and learning (*Table 1*) showed that most respondents used mobile phones as an aid in learning and teaching while they generally expressed positive attitudes towards the use of computers in teaching. However, most respondents did not use applications in school work and independent learning as well as applications for learning English, so it is not surprising that the results of research show that students most often use social networks in school work. Heflin et. al. (2017) have explored learning in different collaborative learning environments with and without mobile technology to assess student engagement, critical thinking, and attitudes toward collaborative learning. The results indicate the association of mobile technology with a positive perception of students regarding collaborative learning. Furthermore, the degree of positive critical thinking is closely related to the tools used to produce written responses as part of mobile learning. Therefore, the use of mobile learning in the teaching process can be linked to students' positive attitudes, and as an aid to strengthening the importance of independent learning. In contrast, students do not independently use helpful tools like learning a foreign language. Although several studies emphasize the importance of technology in a media-enriched world through the motto "learn

anytime, anywhere,” classroom dynamics are becoming increasingly at risk of the dimensions of addiction brought by the presence of digital devices and social media in students’ lives. It is thus commonly believed that a disadvantage of & mobile devices in the classroom is the possibility of multitasking or “multitasking” behavior “with the device,” but also within the listed devices. The American Psychological Association (APA) defined multitasking as a phenomenon “when someone tries to perform two tasks at the same time, switch from one task to another, or perform two or more tasks quickly or quickly” (Pedro et. al., 2018). Such student behavior, however, may not always be related to educational content, learning, and a particular task in the classroom, so it can potentially be disruptive. For example, the results of our research on respondents’ media habits showed that most respondents access social networks via smartphone.

We found differences in media activities based on gender, with girls downloading or listening to music more often, using camera to take photos or recordings, and spending more time on social media (Table 2). Social networks and camera smartphones are used by young people for selective self-presentation while selecting, editing, and publishing photos on social media pages for an imaginary audience. Our results are consistent with the results of a nationally representative survey of a sample of 1,686 American adolescents (Fox & Vendemia, 2016). The authors examined women’s and men’s behavior toward photos, including posting photos, editing photos, and the accompanying emotional implications after participating in social comparison with photos of other people on social media. They found gender differences, with women editing photos significantly more often and then feeling worse than male respondents (Fox & Vendemia, 2016).

When it comes to the importance of social networks for young people, Kuss and Griffiths (2017) believe that social networks are particularly focused on connecting people, which is not the case for many other prominent social media applications. Engagement on social networks encompasses a certain type of use of social media that is most often related to inclusion in social flows, popularity, and information exchange (Smith et al., 2018). The most popular social networks are Instagram, Snapchat, and Facebook, which confirms the importance of maintaining communication, belonging to a peer group, and building your own identity in the virtual world. Also, the results of this study suggest that girls are more likely to use Snapchat and Instagram while boys are more likely to use the Twitch video game tracking platform. According to the data, it can be concluded that girls use social networks more often on average (Table 4), which is an indicator of the importance of the quality of the virtual social sphere in their everyday life and peer relationships. A survey by Botou and Marsellos (2018) found that self-esteem is related to the frequency with which students use Facebook or the level of acceptance and popularity of users. For example,

teens with multiple “likes” on profile pictures developed better relationships with the opposite sex. Slightly more than half of the participants, 51.6%, expressed the need for greater acceptance and social recognition of peers, and used various “tags” to get more “likes.” Interestingly, the majority (87.1%) used different social networks daily for this purpose (Botou & Marsellos, 2018), which is an indicator of the importance of the quality of the virtual social sphere in their everyday life and peer relationships.

When it comes to dominant social platforms, Anderson and Jiang (2018) have found that Facebook is no longer the dominant online network among adolescents, given that in their sample 71% of young people reported parallel use of multiple networks, such as Facebook (71%), Instagram (52%), and Snapchat (41%). Social networks are extremely important for building their own “virtual” identity, and the way they present themselves to their peers depending on “likes” after the posts. Furthermore, our results show that there is no difference among respondents in the use of different social networks according to school achievement, with Instagram, Facebook, and YouTube being used the most (Table 5). In line with trends and social changes, due to parental involvement or increasingly demanding security settings, students are changing social networks according to popularity.

THE IMPORTANCE OF SOCIODEMOGRAPHIC CHARACTERISTICS IN MOBILE LEARNING

The first hypothesis (H1) assumed that there were significant differences in the use of the media in relation to the socio-demographic characteristics of the respondents, i.e. gender and school achievement. Our results showed significant differences only in some gender-specific activities with the media, such as taking photos, using social networks, and listening to music, which is significantly more common among girls, or using the gaming platform “Twitch” among boys. Previous research has shown that girls and boys perform different functions with the help of the media, for example, girls use the media to promote their appearance. The mass media have been identified as an influential cause of body dissatisfaction in women. In recent years, social networking sites (SNS) such as Facebook, Instagram, Twitter, Tumblr and MySpace have been the subject of numerous studies to determine their positive or negative impact on bodily self-perception (Alberga et. al., 2018). In published posts, girls took up 65.3% of all posts, of which 24.0% depicted sexually suggestive poses, 29.4% depicted women in suggestive clothing, and 33.8% partially clothed. While girls on social networks were mostly preoccupied with relationships, such as maintaining close relationships and establishing relationships or access to social information on near and far networks, boys visited social media to acquire information of general nature.

However, no significant differences were found between girls and boys in most media activities. Our research also showed significant differences among respondents in relation to school performance, with respondents with higher school achievement reading e-books more often and seeking information compared to students with lower school performance. In general, high school students report on average more frequent media activities, except in social networking activities where low-achieving students are more active (Table 3), showing selectivity in media use and searching for information used by more successful students to meet educational needs. In lower school achievement students, the selectivity of use is lower, and media activity is generally significantly higher. Furthermore, our results show that students with better school performance show greater satisfaction with teaching with mobile learning, but also use them less, while students with lower school performance use mobile applications more. Our study shows that more successful students differ significantly from less successful ones precisely in the use of e-books and searching for information, which they use in their educational work. It is possible to conclude that students of higher school achievement, given the assumed media competence, plan to use mobile applications more selectively and systematically, and use them purposefully within their learning and education. Research shows that addiction to social networks can affect students and their ability to do their homework. Namely, a study by a group of authors (Ndukwu et. al., 2020) showed that 95,2% of respondents agreed that a social media add-on can make a student forget to read their books or educational materials, with 98,4% confirming that they browse the Internet more often than they read their textbooks. It is particularly interesting that in their sample as many as 99% (N = 311) of respondents confirmed that social media negatively affects their academic achievement (Ndukwu et. al., 2020). Furthermore, Wakefield and Frawley (2020) argue that the use of social networks puts at risk students who are generally of lower academic achievement — their performance at the most difficult levels of learning is significantly lower the more often they use Facebook. In contrast, such significance was not shown in respondents of higher academic achievement. A study by O'Bannon and Thomas (2015) examined the perceptions of 245 preservice teachers in Kentucky and Tennessee to determine their support for the use of mobile phones in the classroom, as well as their perceptions of the mobile phone features that they view as beneficial for school-related work, and the instructional benefits and barriers to mobile phone use in the classroom. The results indicated that almost half (45%) of preservice teachers supported the use of mobile phones in the classroom while one-fourth (25%) did not support their use and approximately one third (30%) reported uncertainty. The teachers perceived many features/functions of mobile phones as useful in the classroom, but they identified access to the Internet, clicker capabilities, use of educational apps, and use as a reader as the most valuable. They perceived

cheating, disruptions, cyberbullying, and accessing inappropriate content as major barriers to the use of mobile phones in the classroom.

The second hypothesis (H2) assumed that there were significant differences in attitudes towards mobile learning and technology in foreign language teaching in relation to the socio-demographic characteristics of the respondents, i.e. gender and school achievement. The results of the research indicate that there is a difference in attitudes towards mobile learning, with girls more often reporting that using a mobile phone takes up too much of their time. Furthermore, students with higher school achievement report on average more frequent activities with the media, except for the use of social networks, where students with lower achievement are more active. Also, the results suggest that respondents of lower school achievement are significantly more likely to report excessive use of mobile phones in students' daily lives. In general, students of higher school achievement report an averagely more positive attitude towards the importance of using mobile learning in teaching and improving their knowledge, which is also confirmed by Al-Ismail et al. (2019), who argue that mobile devices extend learning to any place and time, by which students develop different preferences for effective and efficient learning through mobile devices.

THE RELATION BETWEEN MOBILE LEARNING AND LANGUAGE SKILLS

The third hypothesis (H3) assumed that there was a positive correlation between the use of mobile technology and attitudes about the impact on the development of language skills. The correlation analysis showed multiple positive relations between the examined variables. The personal use of mobile phones in foreign language teaching correlates significantly positively with the attitude that it helps students to learn, which means that students use and feel the benefits of structured use of modern tools in education. Furthermore, the personal use of mobile phones in foreign language teaching is positively associated with the belief that it can influence the improvement of language skills and increase the desire for additional knowledge about mobile learning. For example, Kacetl and Klímová (2019) explain such findings by the fact that nowadays few young people can imagine life without mobile technologies. Young people use technology daily, especially during language learning. Such learning is likely to be supported by the unique features of the mobile application system, such as interactivity, ubiquity, accessibility, portability, and the ability to receive feedback on learning outcomes and self-achievement, which motivates and empowers students in their work. Our study also found a significant correlation with students' attitudes about their wish to know more about ways of mobile learning with cell phone use in the classroom. Specifically, students who use cell phones more often in class will also have a greater desire to acquire new knowledge

about ways of mobile learning. Also, a positive connection was shown between the desire to learn more about ways of mobile learning with the awareness that mobile learning helps in learning, the view that language skills can be improved by mobile learning, and the view of the importance of knowing the proper application of mobile learning. It can be concluded that students who have a desire to acquire new knowledge about cell phone use also have positive attitudes about the impact of cell phones on their skills and achievements. Kukulska-Hulme and Viberg (2018) analyzed available studies on mobile collaborative language learning published between 2012 and 2016 with the aim of better understanding the mobile technology used to support collaborative learning among foreign language learners. The results showed that the key elements of application success were related to the flexibility of tool use, continuity, and duration of use, timely feedback, personalization, socialization, self-evaluation, active participation, peer teaching, but also cultural authenticity. Collaboration in language learning can create opportunities to practice language skills and build new knowledge and relationships inside and outside the classroom, as in virtual environments where there are no classrooms, but there may be other spaces for meetings or joint activities. However, methodically this is a very challenging task because the teacher is required to adapt, additionally engage and professionally develop due to the constant changes in the learning context (e.g. formal / informal / non-formal; in and out of class), the expectations and needs of students as well as the evolution of technology itself.

In conceptualizing our research, it was expected that there would be a significant correlation between the attitudes toward technology, media use, and expectations about the quality of mobile learning in foreign language teaching. Namely, a total of 84 respondents found the use of mobile phones or computers in class interesting and they liked it, while only 19 respondents used one of the applications on their mobile device that helped to learn any other subject in school. A part of the respondents' answers showed a positive opinion about mobile learning ("I would like to have classes using mobile learning in other subjects because I could learn more" / "I liked the Kahoot! application and I would like to continue revising teaching content in this way" / "I would like to learn English with the help of mobile applications, because it is suitable for learning and teaching with a game of combined types of questions and problem-solving tasks, adapted to each lesson, and at the same time following student needs. There is then the Actionbound application, with examples based on a virtual walk through the city while solving set tasks at certain stations (bounds), which was researched by Parsons et al. (2019) who have concluded that the mentioned application can be used by new students for better spatial orientation in school or another environment as well as a rich source for cultural discussion. Hartman et al. (2019) emphasize that with the Actionbound app, almost all students enjoyed every moment, especially outdoor classes outside the classroom.

In conclusion, Sanosi (2018) considers Quizlet an ideal application in which one can learn in the classroom but also outside the classroom. In the classroom, students share and exchange information while creating a collaborative spirit of exchanging ideas with other groups, thus influencing the cooperative character of the lesson.

CONCLUSION

Despite constant social changes and great advances in science and technology, school teaching is still largely frontal and focused on the traditional style of teaching and learning, even in the recent pandemic circumstances of distance learning. It is, therefore, necessary to implement modern student-oriented teaching and to promote modern methods of learning and teaching. Mobile learning shows great advantages in terms of motivation, engagement, and better educational achievements of students, and provides an opportunity for teachers to modernize their usual teaching practice in a very simple way. The results of this research can serve as an orientation in counseling work and professional development of teachers on the possibilities of applying mobile learning as a modern tool for teaching and learning. The results of this research, although conducted on a relatively modest sample with limited representativeness, indicate media habits and positive attitudes of adolescents about the application of technology in the teaching process and foreign language teaching. There is a great interest of students in the use of mobile learning in teaching, with the necessary prerequisites for appropriate use and prior methodological training for both teachers and students for its application. Given the fact that most students have some kind of smartphone, as well as proven diversity and the possibility of personalization, socialization, self-evaluation, active participation, and timely feedback, mobile learning is imposed as an optimal methodological approach in educational work with students of general education and foreign language. indicate the media habits and positive attitudes of adolescents about the application of technology in the teaching process and foreign language teaching. There is a great interest of students in the use of mobile learning in teaching, with the necessary prerequisites for appropriate use and prior methodological training, both teachers and students for its application. Given the fact that most students have some kind of smartphone, as well as proven diversity and the possibility of personalization, socialization, self-evaluation, active participation, and timely feedback, mobile learning is seen as an optimal methodological approach in educational work with students of general education and foreign language.

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MEDIJSKE NAVIKE I STAVOVI STUDENATA O MOGUĆNOSTIMA PRIMJENE MOBILNOG UČENJA U NASTAVI STRANIH JEZIKA

Sažetak: U radu se analiziraju inovativno učenje i poučavanje putem mobilnog učenja na uzorku od 96 adolescenata. Trodijelni upitnik sastojao se od sociodemografskih podataka, stavova o mobilnom učenju i medijskim aktivnostima te korištenju društvenih mreža. Istraživanje je provedeno 2019. godine s učenicima strukovnih škola. 15,1% njih koristi aplikacije za učenje engleskog jezika, dok 92,5% koristi društvene mreže u školskom radu. Djevojke znatno češće slušaju glazbu, fotografiraju se i koriste društvene mreže. Uspješniji učenici značajno češće čitaju e-knjige, traže informacije u medijima i općenito su aktivniji na svim medijskim platformama, osim na društvenim mrežama. Djevojčice znatno više koriste Snapchat i Instagram, a dječaci Twitch. Korištenje mobilnih telefona pozitivno korelira sa stavom da pomaže u učenju, s uvjerenjem da može utjecati na poboljšanje jezičnih vještina i sa željom za dodatnim znanjem o mobilnom učenju.

Ključne riječi: adolescenti, mobilno učenje, nastava, strani jezik, učenje