ONLINE TECHNOLOGY IN INFORMAL LEARNING AND FORMAL EDUCATION: A CASE STUDY AMONG FUTURE ENGLISH TEACHERS

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Abstract

This article aims to introduce the results of research conducted at the Faculty of Education, Palacký University in Olomouc among its master's students – future English teachers. It attempts to find out how often and how the students use online platforms, applications, websites and social networks in their informal learning and formal education. It describes the differences and similarities between the students' use of online technology for their own unsupervised and unguided learning and for the purposes of their formal studies. Comparisons in the use of online technology are made with regards to the students' gender and form of studies.

Keywords: *informal learning, formal education, online technology, future English teachers, master's degree students*

1. INTRODUCTION

This paper, unlike many recent studies, does not directly deal with the impact of the Covid-19 pandemic on formal education. It rather focuses on the migration of all forms of learning and education into the online space – a process which began long before the current pandemic, but which was significantly enhanced by it. The focal point of this paper is, primarily, a careful examination of the ways students use online space to enhance their knowledge and skills without any formal system overseeing their efforts.

As technology becomes more and more available to individuals, students more commonly find new ways of using it for their own education while institutions such as universities may find it difficult to keep up with all the options which modern online world offers to them. The survey presented in this paper shows what opportunities to learn students find online on their own.

In this study the term *informal learning* is understood as "learning from experience that takes place outside formally structured, institutionally sponsored, class-room based activities" [1] (Watkins & Marsick, 1992, p. 288). Informal learning can also be viewed in a broader sense as learning that is "other than formal" [2] (Sharma & Raghuvanshi, 2020, p. 2), or as learning that "occurs outside of the official education system" [3] (Riegel, Kindermann, 2015, p. 124).

For the purpose of this paper, we describe *formal learning/education* as any activity that enhances one's knowledge or skills within an organized system of learning (schools, universities), which is executed intentionally, aims to improve knowledge or skills and is usually supervised by a trained professional. In other words, it is any activity which consciously supports formal studies.

Our study compares the students' informal learning with online technology they are aware of with their use of technology to support their formal education. In this study, the term *online or digital technology/technologies* comprises any web pages, platforms, social networks and applications typically used online. This paper specifically focuses on the online technologies students use to support their studies at the Institute of Foreign Languages, Faculty of Education, Palacký University in Olomouc. It also discusses what benefits and drawbacks students see in using online tools to learn, either informally or formally.

The survey is partially a follow-up of a survey originally created by professor Czerkawski of University of Arizona, which was conducted among graduate students who use informal and formal networks in online courses [4] (2016). Czerkawski [4] (2016) concludes that using online tools allows

students to build international connections more effectively, helps them gain diverse points of view or gives them the opportunity to set correct expectations for their formal learning.

Our research also follows another survey by Czerkawski [5] (2012), which presents students' use of emerging technologies for their formal, non-formal and informal education and how it helps them with their education, distinguishing between Web 1.0, Web 2.0 and Web 3.0 technology qualities. It concludes that most learning was so far happening via Web 2.0 technologies, out of which the most commonly used are social networks, Wikis, Google Docs and Multimedia sharing sites.

A very recent study by Kross, Hargittai and Redmiles [6] (2021) gives an overview of how adults from the United States use online sources to learn. Over 2000 responders took part in the research, which allowed the researchers to gain a unique insight into the way people learn online. It focuses heavily on the respondents' learning activities but, similarly to our paper, it analyses what platforms and tools people use to learn, including both informal and formal online resources. The research identified YouTube as the most popular learning resource, arguing that YouTube in fact facilitates both formal and informal learning experience as some of the courses offered on this platform are highly structured and guided. The authors of this research also stress that learners choose more formal platforms for subjects that could be considered academic (law, mathematics, languages) while informal platforms are often used to learn about subject such as healthy lifestyle, fashion, arts and crafts and other [6] (Kross, Hargittai and Redmiles, 2021, p. 18).

Arnesen, Christophersen and Elstad [7] (2018) conducted similar research in Norway, Sweden and Finland. It analyzed students' attitudes towards learning online in relation to their attitudes towards standard formal schooling. Their findings show that young people (here represented by students who were between 15–17 years of age at the time of the research) typically prefer informal online learning to any form of formal learning, especially in regular schools, where it is obligatory to follow rules and structures created for them by someone else. The authors argue that this is often caused by the fact that students choose simpler, less academic subjects and avoid heavyweight disciplines like maths or sciences. The authors urge educators to consider students' wishes more while still providing structure and guidance to those who are unable to create a structure for themselves [7] (2018).

Violeta Jurkovič's research [8] (Jurkovič 2019) is also of value to our work as it studied the use of online tools for informal learning with the focus on acquiring a second language. Jurkovič surveyed students who use smart phones to uncover how their experience with using English in the digital world affects their communicative competence in English. As the study only covered tools that can be and are most commonly accessed via smartphones, Jurkovič [8] (2019) suggests a broader research into the use of digital technology for mastering English.

2. MATERIALS AND METHODS

2.1 Objectives

The main aims of this case study are to compare which forms of online technology (platforms, websites, applications and social networks) the target group of future English teachers uses when learning informally and when learning to support their formal education and how much time students spend with them. This is explored in more detail as for the variety of online technologies, gender of the respondents and their form of study. The aims are also to explore the most common advantages and disadvantages of using technologies for online learning from the respondents' perspective.

Therefore, the key objectives of this study are:

1. to compare the **length of time** students, future English teachers of Palacký University (1 group of respondents), spend with online platforms, applications and social networks for **informal learning** and to support their **formal education**;
2. to identify any differences in the time spent with online technology and its use depending on the **gender** of future English teachers;

3. to identify any differences in the time spent with online technology and its use depending on the **form of studies** (full-time or part-time) of future English teachers;
4. to make a list of the **most significant benefits and challenges** of using online technologies as viewed by the respondents.

2.2 Methodology

The data was collected via a questionnaire survey created using Google Docs. The questionnaire was divided into three parts. The first, main part, consisted of the list of online platforms, applications and social networks split into 10 categories (see Table 2 below). In each category, there were also additional sub-categories OTHER 1 and OTHER 2, where the respondents could fill in the specific name of a platform not mentioned in the list. The participants were asked to estimate the approximate time (in minutes per day) they spend with these technologies on average in the context of formal and informal learning. Formal learning was defined as the time spent to support the students' current university studies while informal learning was specified as the time spent with digital technology outside of their study. The second part of the survey explored the respondents' views on the possible advantages and disadvantages of using these tools. The third part contained demographic questions.

To compare the time spent by students with the specified technologies across various subgroups, a Student's t-test was performed using the STATISTICA 12 statistics packet. Statistically significant results were ascertained at the 0.05 level of significance.

2.3 Participants

The target group consisted of students of a two-year master's programme for future English teachers at the Faculty of Education, Palacký University in Olomouc. This programme can be studied in two forms – full-time or part-time, where full-time students have their classes on a daily basis and part-time students only need to be present (online or face to face) in their classes approximately twice a month. The students were between 22-52 years of age. The basic group consisted of 126 students, out of which 67 were full-time students and 59 were part-time students. All 126 students were asked to participate in the study and fill in the questionnaire but only 49 of them actually answered – 15 men and 34 women, out of which 31 were full-time and 18 part-time students (see Table 1 below).

Gender	Form of studies	Total
Men	Full-time	12
	Part-time	3
Women	Full-time	19
	Part-time	15
Total		49

Table 1. Respondents – gender and form of studies

Source: Own research

3. RESULTS

3.1 Overall results

When asked about the length of time spent with the specified online technologies for **informal learning**, Google is the most commonly used web page. On average, the students spend approximately 89 minutes a day using it. Two other tools are used an hour or more per day on average - Messenger (approx. 65 minutes) and Facebook (60 minutes). Students also very frequently use YouTube, both for its music and video content (approx. 53 and 51 minutes a day respectively). Spotify is used with similar frequency (approx. 51 minutes a day on average). Netflix and HBO are followed for their

video content slightly less commonly (approx. 45 minutes a day on average). Although Google shows the highest average time per day, YouTube might actually be considered the most frequently used by the students, since they follow it both for its music and video content, which was listed separately in the questionnaire (see Table 2 below).

Since the respondents listed a wide range of various online platforms and applications in the OTHER categories, only the most significant ones are presented here. The most commonly mentioned other social network was Instagram (28 respondents), in four cases the students use it two or more hours a day. Other social networks listed were Discord, LinkedIn, Twitter, Pinterest, YouTube and Snapchat. WhatsApp seems to be a quite frequently used instant messaging platform (13 respondents). The students apparently use a variety of other such platforms as well, for example Discord, Viber, GoogleMeet or Skype. As for games and simulations, the students actually do not play Minecraft, which was listed in the questionnaire, but games such as World of Warcraft (one respondents spends approximately four hours a day with it), Valiant Hearts, or Assassin's Creed, among others. Other platforms for listening to music include iTunes, Apple Music or Bandzone (with 18 minutes a day on average each). The students also often use web pages specific for the Czech Republic, such as the browser Seznam, a webpage with explanations, comments and practical exercises on English called HelpforEnglish and platforms which help teachers to enhance and innovate their classes, for example Otevřeno, Učíme online (see also chapter 3.4).

Category		N	Minutes per day			
			Mean	Minimum	Maximum	Standard deviation
Search engines	**GOOGLE**	49	**89.10**	1	500	92.57
	OTHER Search engine 1	11	3.27	0	30	8.99
	OTHER Search engine 2		0.00	0	0	0.00
Online tools to create and manage documents	GOOGLE DISK	44	14.66	0	120	27.88
	OTHER Online tool to create and manage documents 1	19	13.42	0	40	14.15
	OTHER Online tool to create and manage documents 2	11	6.45	0	50	15.63
Social networks	**FACEBOOK**	47	**60.38**	0	300	67.05
	OTHER Social network 1	37	41.89	0	180	44.09
	OTHER Social network 2	15	15.33	0	60	21.00
	MESSENGER	48	**65.46**	0	300	62.64
	OTHER Instant messaging and calling platform 1	26	37.88	0	180	51.13
	OTHER Instant messaging and calling platform 2	13	33.08	0	240	69.21
Video content	**NETFLIX, HBO**	41	**44.63**	0	240	56.61
	YOUTUBE (video content)	47	**51.17**	0	400	67.50
Music content	Audio Content Podcasts	38	20.53	0	120	27.72
	OTHER Audio and video content 1	13	18.46	0	120	35.79
Games and simulations	MINECRAFT		0.00	0	0	0.00
	OTHER Games and simulations 1	21	34.52	0	240	58.39
	OTHER Games and simulations 2	15	8.67	0	60	18.85
Music content	**YOUTUBE (music)**	44	**52.95**	0	360	73.57
	SPOTIFY	37	**50.95**	0	360	86.94

	OTHER Platform for listening to music 1	14	17.86	0	120	34.23
	OTHER Platform for listening to music 2		0.00	0	0	0.00
Platforms and webpages to learn while having fun	LYRICS TRAINING	33	1.82	0	60	10.44
	AKINATOR		0.00	0	0	0.00
	ORORO.TV		0.00	0	0	0.00
	BRITISH COUNCIL	37	5.41	0	60	13.46
	OTHER Platforms and webpages to learn while having fun 1	16	9.06	0	60	17.15
Online courses	YOUTUBE TUTORIALS	37	5.81	0	50	11.87
	OTHER Online course 1	16	4.38	0	40	12.09
	Other Online course 2		0.00	0	0	0.00
Online tools for learning languages	DUOLINGO	38	5.39	0	30	10.09
	OTHER Online tool for learning languages 1	12	2.08	0	20	5.82
	OTHER Online tool for learning languages 2		0.00	0	0	0.00

Table 2. Time students spend with online technology for informal learning (outside the classroom)

Source: Own research

When asked about the length of time spent with online technologies for **formal learning**, the students mentioned Google with approximately 99 minutes a day on average, which is more than for informal learning (see Tables 2 and 3). Messenger is the second most frequently used platform with approximately 36 minutes a day on average (see Table 3. below), but the time the students spend with it for formal learning is quite shorter than when they learn informally. Overall, it is evident that the students generally use online technology more often for informal learning than to support their formal education, which is further discussed in the following subchapter.

Category		Minutes per day				
		N	Mean	Minimum	Maximum	Standard deviation
Search engine	**GOOGLE**	49	**99.24**	3	300	77.03
	OTHER Search engine 1	12	16.67	0	100	36.76
	OTHER Search engine 2		0.00	0	0	0.00
Online tools to create and manage documents	GOOGLE DISK	45	25.67	0	300	51.46
	OTHER Online tool to create and manage documents 1	21	34.38	0	240	54.40
	OTHER Online tool to create and manage documents 2	11	11.00	0	60	24.23
Social network	FACEBOOK	47	24.55	0	200	35.38
	OTHER Social network 1	35	5.71	0	40	9.17
	OTHER Social network 2	15	0.67	0	10	2.58
	MESSENGER	48	**35.88**	0	300	50.61
	OTHER Instant messaging and calling platform 1	26	11.96	0	180	36.98
	OTHER Instant messaging and calling platform 2	13	18.46	0	90	33.63
Video content	NETFLIX, HBO	41	14.51	0	150	32.17

	YOUTUBE (video content)	48	21.69	0	120	24.18
Music content	Audio Content Podcasts	38	8.68	0	60	14.92
	OTHER Audio and video content 1	13	3.46	0	30	8.51
Games and simulations	MINECRAFT		0.00	0	0	0.00
	OTHER Games and simulations 1	21	2.86	0	60	13.09
	OTHER Games and simulations 2		0.00	0	0	0.00
Music content	YOUTUBE (music)	43	10.93	0	90	20.04
	SPOTIFY	34	2.79	0	30	7.90
	OTHER Platform for listening to music 1	13	1.54	0	20	5.55
	OTHER Platform for listening to music 2		0.00	0	0	0.00
Platforms and webpages to learn while having fun	LYRICS TRAINING	33	0.61	0	10	2.42
	AKINATOR		0.00	0	0	0.00
	ORORO.TV		0.00	0	0	0.00
	BRITISH COUNCIL	37	7.51	0	30	11.11
	OTHER Platforms and webpages to learn while having fun 1	14	1.79	0	15	4.64
Online courses	YOUTUBE TUTORIALS	38	4.74	0	60	11.74
	OTHER Online course 1	17	2.06	0	20	5.88
	Other Online course 2		0.00	0	0	0.00
Online tools for learning languages	DUOLINGO	37	2.30	0	30	7.32
	OTHER Online tool for learning languages 1	12	0.42	0	5	1.44
	OTHER Online tool for learning languages 2	10	1.50	0	15	4.74

Table 3. Time students spend with online technology for formal learning (to support their studies)

Source: Own research

3.1.1 Online technology used for informal learning and formal education - comparison

As mentioned above, the respondents seem to use online technology more frequently outside of their studies than to support their formal education. Statistically significant differences were found concerning the use of Facebook, Messenger, video content on Netflix, HBO and YouTube, music content on YouTube and Spotify and audio podcasts. On average, the respondents spend significantly more time a day using these platforms for informal rather than formal learning (see Table 4). Partial statistically significant differences were also identified for the group of other social networks, other instant messaging platforms and games and simulations. In these cases the students also spend more time with them for informal learning, however, it is difficult to make valid comparisons here since various online platforms were mentioned by the students in this open-ended category.

Category		Minutes per day				
		Mean (formal learning)	Mean (informal learning)	p	Valid N (formal learning)	Valid N (informal learning)
Search engine	GOOGLE	99.24	89.10	0.56	49	49
	OTHER Search engine 1	16.67	3.27	0.25	12	11
	OTHER Search engine 2	0.00	0.00			
Online tools to create and manage documents	GOOGLE DISK	25.67	14.66	0.21	45	44
	OTHER Online tool to create and manage documents 1	34.38	13.42	0.11	21	19
	OTHER Online tool to create and manage documents 2	11.00	6.45	0.61	11	11
Social network	**FACEBOOK**	**24.55**	**60.38**	**0.00**	**47**	**47**
	OTHER Social network 1	*5.71*	*41.89*	*0.00*	*35*	*37*
	OTHER Social network 2	*0.67*	*15.33*	*0.01*	*15*	*15*
	MESSENGER	**35.88**	**65.46**	**0.01**	**48**	**48**
	OTHER Instant messaging and calling platform 1	*11.96*	*37.88*	*0.04*	*26*	*26*
	OTHER Instant messaging and calling platform 2	18.46	33.08	0.50	13	13
Video content	**NETFLIX, HBO**	**14.51**	**44.63**	**0.00**	**41**	**41**
	YOUTUBE (video content)	**21.69**	**51.17**	**0.01**	**48**	**47**
Music content	**Audio Content Podcasts**	**8.68**	**20.53**	**0.02**	**38**	**38**
	OTHER Audio and video content 1	3.46	18.46	0.15	13	13
Games and simulations	MINECRAFT	0.00	0.00			
	OTHER Games and simulations 1	*2.86*	*34.52*	*0.02*	*21*	*21*
	OTHER Games and simulations 2	0.00	8.67	0.09	15	15
Music content	**YOUTUBE (music)**	**10.93**	**52.95**	**0.00**	**43**	**44**
	SPOTIFY	**2.79**	**50.95**	**0.00**	**34**	**37**
	OTHER Platform for listening to music 1	1.54	17.86	0.10	13	14
	OTHER Platform for listening to music 2	0.00	0.00			
Platforms and webpages to learn while having fun	LYRICS TRAINING	0.61	1.82	0.52	33	33
	AKINATOR	0.00	0.00			
	ORORO.TV	0.00	0.00			
	BRITISH COUNCIL	7.51	5.41	0.46	37	37
	OTHER Platforms and webpages to learn while having fun 1	1.79	9.06	0.14	14	16
Online courses	YOUTUBE TUTORIALS	4.74	5.81	0.69	38	37
	OTHER Online course 1	2.06	4.38	0.49	17	16
	Other Online course 2	0.00	0.00			
Online tools for learning languages	DUOLINGO	2.30	5.39	0.13	37	38
	OTHER Online tool for learning languages 1	0.42	2.08	0.35	12	12
	OTHER Online tool for learning languages 2	1.50	0.00	0.31	10	11

Table 4. A comparison of time spent by students with specified technologies for formal and informal learning

Source: Own research

As can be seen in Table 4 above and Figure 1 below, in most cases, the future English teachers tend to spend more time using online technology for informal rather than formal learning with several exceptions. Google, Google Disk and the British Council web page seem to be used more frequently for formal than for informal learning although these differences are not statistically significant. Similarly, the students appear to spend slightly more time using certain other search engines and tools for managing documents to support their studies than outside the classroom.

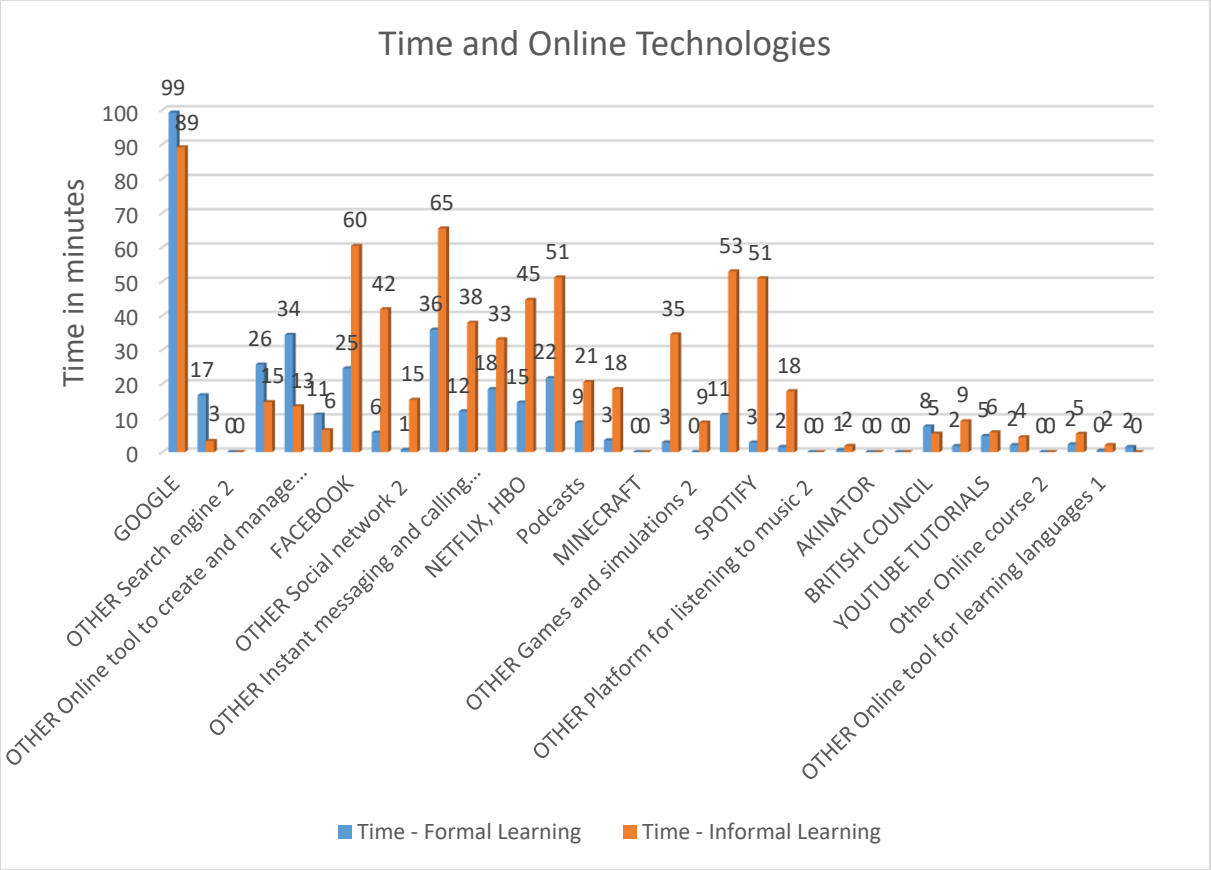


Fig. 1. Differences in time spent by students with specified technologies for formal and informal learning

Source: Own research

3.2 Differences depending on the gender of future English teachers

Concerning the **male students** (see Table 5), it is possible to observe that the time spent with online technology for informal learning is generally longer than for formal learning. Similarly to overall results, statistically significant differences between the length of time spent with the specified technologies for formal and informal learning were identified for the use of Facebook, Messenger and YouTube. Statistically significant differences were also ascertained in case of other social networks and games but once again, valid comparison is difficult to make due to a range of different platforms listed by the students (most commonly WhatsApp, Instagram, Discord, Zoom, Skype or Game of

Thrones). Other, noticeable, but statistically insignificant differences can be seen in the use of Spotify, Netflix and HBO, where p is between 0.05 and 0.2. If p is between 0.05 and 0.2, there are relatively evident differences, but they are not statistically significant at the commonly used significance level of 0.05.

In contrast, although it was not proved as statistically significant, male students seem to use Google disk and other tools to manage documents and other search engines besides Google more often for their formal education rather than informal learning.

Category		Minutes per day				
		Mean (formal learning)	Mean (informal learning)	p	Valid N (formal learning)	Valid N (informal learning)
Search engines	GOOGLE	85.33	92.33	0.78	15	15
	OTHER Search engine 1	15.00	5.83	0.57	6	6
	OTHER Search engine 2	0.00	0.00			
Online tools to create and manage documents	GOOGLE DISK	23.33	7.08	0.26	12	12
	OTHER Online tool to create and manage documents 1	16.25	5.71	0.28	8	7
	OTHER Online tool to create and manage documents 2	0.00	0.00			
Social networks	**FACEBOOK**	**20.15**	**64.08**	**0.02**	**13**	**13**
	OTHER Social network 1	*2.00*	*58.64*	*0.01*	*10*	*11*
	OTHER Social network 2	*0.00*	*28.33*	*0.02*	*6*	*6*
	MESSENGER	**28.21**	**68.21**	**0.03**	**14**	**14**
	OTHER Instant messaging and calling platform 1	16.67	52.50	0.11	12	12
	OTHER Instant messaging and calling platform 2	16.67	113.33	0.24	3	3
Video content	NETFLIX, HBO	6.67	26.67	0.11	12	12
	YOUTUBE Video content	**21.67**	**64.08**	**0.02**	**15**	**13**
Music content	Audio Content Podcasts	5.83	13.75	0.29	12	12
	OTHER Audio and video content 1	0.00	10.00	0.37	3	3
Games and simulations	MINECRAFT	0.00	0.00			
	OTHER Games and simulations 1	8.57	22.86	0.43	7	7
	OTHER Games and simulations 2	*0.00*	*48.57*	*0.03*	*6*	*7*
Music content	**YOUTUBE (music)**	**13.93**	**84.64**	**0.02**	**14**	**14**
	SPOTIFY	2.73	65.00	0.05	11	13
	OTHER Platform for listening to music 1	0.00	0.00			
	OTHER Platform for listening to music 2	0.00	0.00			
Platforms and webpages to learn while having fun	LYRICS TRAINING	2.00	6.00	0.52	10	10
	AKINATOR	0.00	0.00			
	ORORO.TV	0.00	0.00			
	BRITISH COUNCIL	4.00	10.00	0.43	10	10

	OTHER Platforms and webpages to learn while having fun 1	0.00	0.00			
Online courses	YOUTUBE TUTORIALS	2.00	2.00	1.00	10	10
	OTHER Online course 1	4.00	8.00	0.67	5	5
	Other Online course 2	0.00	0.00		3	3
Online tools for learning languages	DUOLINGO	1.36	2.27	0.67	11	11
	OTHER Online tool for learning languages 1	0.00	4.00	0.35	5	5
	OTHER Online tool for learning languages 2	0.00	0.00			

Table 5. Time students spend with technologies for informal and formal learning – men

Source: Own research

As for the **female students** (see Table 6), the observed tendencies are comparable to the overall results and the use of technologies by the male students. The time they spend with online technology for informal learning is usually longer than for formal learning. Statistically significant differences were found for the use of Facebook, video content platforms (HBO, Netflix, YouTube), audio podcasts and music content platforms (YouTube, Spotify). In all these cases, the female students spend significantly more time with the given platforms when learning informally. This applies to other social networks as well, where several examples were mentioned (Instagram, YouTube, Twitter, LinkedIn, Pinterest), similarly to the data discussed above. Obvious, but statistically insignificant differences (p is between 0.05 and 0.2) relate to the time spent using Messenger and Duolingo and platforms mentioned among the games and web pages for learning English.

On the other hand, search engines (both Google and other search engines), online tools for managing documents (Google Disk and other tools) and the British Council web page seem to be used longer for formal learning by the female students although the differences are not statistically significance at the 0.05 significance level. This finding corresponds with the data on the use of technologies by male students with the exception of the British Council page (compare Table 5 and 6).

Category		Minutes per day				
		Mean (formal learning)	Mean (informal learning)	p	Valid N (formal learning)	Valid N (informal learning)
Search engine	GOOGLE	105.38	87.68	0.43	34	34
	OTHER Search engine 1	18.33	0.20	0.34	6	5
	OTHER Search engine 2	0.00	0.00			
Online tools to create and manage documents	GOOGLE DISK	26.52	17.50	0.41	33	32
	OTHER Online tool to create and manage documents 1	45.54	17.92	0.17	13	12
	OTHER Online tool to create and manage documents 2	15.13	8.88	0.60	8	8
Social network	**FACEBOOK**	**26.24**	**58.97**	**0.02**	**34**	**34**
	OTHER Social network 1	7.20	34.81	0.00	25	26
	OTHER Social network 2	1.11	6.67	0.24	9	9

	MESSENGER	39.03	64.32	0.09	34	34
	OTHER Instant messaging and calling platform 1	7.93	25.36	0.21	14	14
	OTHER Instant messaging and calling platform 2	19.00	9.00	0.46	10	10
Video content	**NETFLIX, HBO**	**17.76**	**52.07**	**0.01**	**29**	**29**
	YOUTUBE (video content)	**21.70**	**58.97**	**0.01**	**33**	**34**
Music content	**Audio Content Podcasts**	**10.00**	**23.65**	**0.04**	**26**	**26**
	OTHER Audio and video content 1	4.50	21.00	0.22	10	10
Games and simulations	MINECRAFT	0.00	0.00			
	OTHER Games and simulations 1	0.00	9.23	0.07	14	13
	OTHER Games and simulations 2	0.00	27.50	0.21	9	14
Music content	**YOUTUBE (music)**	**9.48**	**38.17**	**0.00**	**29**	**30**
	SPOTIFY	**2.83**	**43.33**	**0.02**	**23**	**24**
	OTHER Platform for listening to music 1	1.82	1.82	1.00	11	11
	OTHER Platform for listening to music 2	0.00	0.00			
Platforms and webpages to learn while having fun	LYRICS TRAINING	0.00	0.00			
	AKINATOR	0.00	0.00			
	ORORO.TV	0.00	0.00			
	BRITISH COUNCIL	8.81	3.70	0.07	27	27
	OTHER Platforms and webpages to learn while having fun 1	2.27	11.15	0.14	11	13
Online courses	YOUTUBE TUTORIALS	5.71	7.22	0.68	28	27
	OTHER Online course 1	1.25	2.73	0.62	12	11
	Other Online course 2	0.00	0.00			
Online tools for learning languages	DUOLINGO	2.69	6.67	0.15	26	27
	OTHER Online tool for learning languages 1	0.71	0.71	1.00	7	7
	OTHER Online tool for learning languages 2	2.14	0.00	0.30	7	8

Table 6. Time spent with technologies for informal and formal learning – women

Source: Own research

3.3 Differences depending on the form of study of future English teachers

The results indicate that the **full-time students** tend to use online technology more commonly for informal rather than formal learning, which is consistent with the data discussed in the previous sub-chapters. Statistically significant differences can be observed for the use of Facebook, Messenger and other social networks (most commonly Instagram), video content platforms (Netflix, HBO, YouTube) and music content platforms (YouTube, Spotify), which full-time students use for a significantly longer time each day on average outside of their studies than to support their formal education. The technologies that the full-time students tend to use more frequently to support their studies include Google and other search engines, Google Disk and other tools for managing documents (e.g. One Drive, Canva, Mentimeter) and other messaging platforms (e.g. MS Teams, Zoom or Skype), but similarly to the results above, these differences are not statistically significant (see Table 7).

Category		Minutes per day				
		Mean (formal learning)	Mean (informal learning)	p	Valid N (formal learning)	Valid N (informal learning)
Search engine	GOOGLE	122.90	101.94	0.38	31	31
	OTHER Search engine 1	31.67	7.00	0.31	6	5
	OTHER Search engine 2	0.00	0.00			
Online tools to create and manage documents	GOOGLE DISK	31.79	10.37	0.10	28	27
	OTHER Online tool to create and manage documents 1	45.17	14.00	0.18	12	10
	OTHER Online tool to create and manage documents 2	30.00	5.00	0.21	4	4
Social network	**FACEBOOK**	**28.57**	**82.93**	**0.00**	**30**	**30**
	OTHER Social network 1	**5.00**	**55.42**	**0.00**	**22**	**24**
	OTHER Social network 2	**1.43**	**32.86**	**0.00**	**7**	**7**
	MESSENGER	**42.00**	**79.10**	**0.02**	**31**	**31**
	OTHER Instant messaging and calling platform 1	14.29	34.64	0.25	14	14
	OTHER Instant messaging and calling platform 2	55.00	25.00	0.40	4	4
Video content	**NETFLIX, HBO**	**18.85**	**50.77**	**0.01**	**26**	**26**
	YOUTUBE (video content)	**19.17**	**82.93**	**0.00**	**30**	**30**
Music content	Audio Content Podcasts	10.43	21.30	0.11	23	23
	OTHER Audio and video content 1	2.50	45.00	0.15	4	4
Games and simulations	MINECRAFT	0.00	0.00			
	OTHER Games and simulations 1	6.00	18.00	0.24	10	10
	OTHER Games and simulations 2	0.00	56.82	0.13	4	11
Music content	**YOUTUBE (music)**	**13.52**	**64.11**	**0.00**	**27**	**28**
	SPOTIFY	**3.00**	**72.83**	**0.00**	**20**	**23**
	OTHER Platform for listening to music 1	0.00	5.00	0.36	4	4
	OTHER Platform for listening to music 2	0.00	0.00			
Platforms and webpages to learn while having fun	LYRICS TRAINING	1.00	3.00	0.52	20	20
	AKINATOR	0.00	0.00			
	ORORO.TV	0.00	0.00			
	BRITISH COUNCIL	5.71	2.86	0.36	21	21
	OTHER Platforms and webpages to learn while having fun 1	0.00	15.00	0.14	3	5
Online courses	YOUTUBE TUTORIALS	2.39	7.39	0.14	23	23
	OTHER Online course 1	2.50	10.00	0.28	8	7
	Other Online course 2	0.00	0.00			
Online tools for learning languages	DUOLINGO	2.50	6.25	0.19	24	24
	OTHER Online tool for learning languages 1	0.00	5.00	0.36	4	4
	OTHER Online tool for learning languages 2	0.00	0.00			

Table 7. Time spent with technologies for informal and formal learning – full-time students

Source: Own research

As for the **part-time students**, the only statistically significant difference was identified for following music content on YouTube, which students do significantly more often to learn informally. Although other differences are not statistically significant at the 0.05 significance level, the part-time students seem to use most of the online technologies outside the class (some differences, where p is between 0.05 and 0.2, are more evident), with the exception of other tools for managing documents, video content on YouTube and YouTube tutorials, which seem to be used to support the students' studies more frequently (see Table 8).

Category		Minutes per day				
		Mean (formal learning) – Group 1	Mean (informal learning) – Group 2	p	Valid N (Group 1)	Valid N (Group 2)
Search engine	GOOGLE	58.50	67.00	0.67	18	18
	OTHER Search engine 1	1.67	0.17	0.39	6	6
	OTHER Search engine 2	0.00	0.00			
Online tools to create and manage documents	GOOGLE DISK	15.59	21.47	0.58	17	17
	OTHER Online tool to create and manage documents 1	20.00	12.78	0.37	9	9
	OTHER Online tool to create and manage documents 2	0.14	7.29	0.34	7	7
Social network	FACEBOOK	17.47	20.59	0.73	17	17
	OTHER Social network 1	6.92	16.92	0.17	13	13
	OTHER Social network 2	0.00	0.00			
	MESSENGER	24.71	40.59	0.29	17	17
	OTHER Instant messaging and calling platform 1	9.25	41.67	0.09	12	12
	OTHER Instant messaging and calling platform 2	2.22	36.67	0.21	9	9
Video content	NETFLIX, HBO	7.00	34.00	0.14	15	15
	YOUTUBE	25.89	20.59	0.57	18	17
Music content	Audio Content Podcasts	6.00	19.33	0.11	15	15
	OTHER Audio and video content 1	3.89	6.67	0.71	9	9
Games and simulations	MINECRAFT	0.00	0.00			
	OTHER Games and simulations 1	0.00	10.00	0.31	11	10
	OTHER Games and simulations 2	0.00	10.00	0.31	11	10
Music content	**YOUTUBE (music)**	**6.56**	**33.44**	**0.02**	**16**	**16**
	SPOTIFY	2.50	15.00	0.20	14	14
	OTHER Platform for listening to music 1	2.22	0.00	0.33	9	9
	OTHER Platform for listening to music 2	0.00	0.00			
Platforms and	LYRICS TRAINING	0.00	0.00			

webpages to learn while having fun	AKINATOR	0.00	0.00			
	ORORO.TV	0.00	0.00			
	BRITISH COUNCIL	9.88	8.75	0.83	16	16
	OTHER Platforms and webpages to learn while having fun 1	2.27	6.36	0.48	11	11
Online courses	YOUTUBE TUTORIALS	8.33	3.21	0.28	15	14
	OTHER Online course 1	1.67	0.00	0.33	9	9
	Other Online course 2	0.00	0.00			
Online tools for learning languages	DUOLINGO	1.92	3.93	0.47	13	14
	OTHER Online tool for learning languages 1	0.63	0.63	1.00	8	8
	OTHER Online tool for learning languages 2	1.88	0.00	0.30	8	9

Table 8. Time spent with technologies for informal and formal learning – part-time students

Source: Own research

3.4 Other online platforms, applications and social networks

Besides the options given in the questionnaire, the respondents could add other platforms, applications and social networks they use.

Among other search engines, the students mentioned mostly Seznam, which is a browser used specifically in the Czech Republic. In the group of other online tools to create and manage documents OneDrive was mentioned most frequently (7 respondents), other tools the students make use of include Microsoft Office, Dropbox, Google Disk, Canva for making posters and infographics, Youtube, hard discs or external discs as well as Mentimeter, MS Word, PowerPoint and GooglePlay, which cannot all be considered as fully online tools. The most commonly listed social network was Instagram (28 respondents), followed by YouTube, Discord, LinkedIn, Twitter, Pinterest and Snapchat. Whatsapp seems to be a common instant messaging and calling platform (13 respondents), others listed were Skype, Discord, Instagram, e-mail, Microsoft Teams, Zoom, BBB, Messenger, Google meet, Viber and Skype. Approximately 35 different games and simulations were mentioned, for example League of Legends, World of Warcraft, Among Us, Warhammer: Vermintide II, Assassin's Creed: Valhalla, The Witcher 3, Valiant Hearts, Candy Crush, Ori, Call of Duty and Game of Thrones: Winter is Coming. To listen to music, the students use iTunes, Spotify, Apple Music, radios online and Bandzone. The most frequently mentioned platforms and webpages to learn English for fun were Duolingo, Liveworksheets, Wordwall, JeopardyLabs, YouTube, Netflix, HelpforEnglish and Kahoot. The future teachers of English also spend time with online courses such as Učíme online, Otevřeno, Udemy or webinars. Other online tools for learning languages listed were Quizlet, Kahoot, videos from YouTube, Wordwall and English Series. Some students follow HelpforEnglish, an online web page for learning English which is very popular in the Czech Republic.

From the above mentioned it is possible to conclude that as for the range and variety, the students tend to use more than 50 different online technologies, out of which the most frequently used appears to be Instagram as it was mentioned by more than 50% of the respondents. Another rather interesting fact is that students mentioned YouTube as a tool to create and manage documents and among the platforms and webpages to learn while having fun.

3.5 Other platforms and comments

When asked about any other platforms, the future English teachers listed six specific and two general online applications only: Educandy, Kahoot, Nearpod, Elevate, applications to practice English, Wordwall, Quizlet and online books and audio books, e.g. LibriVox. This indicates that most of the frequently used online technologies were included in the previous questions in the questionnaire,

Only several of the respondents chose to add further comments. These concerned somebody's negative attitude to technology in general, a mention of a study group using Messenger for activities at, for or outside school or a comment on the time scale in the questionnaire.

One respondent expressed their opinion on the game Minecraft in connection to teaching:

"I just want to comment on Minecraft – it's an amazing platform where you can meet elementary school students, get closer to them, find out their interests and gain trust. I definitely plan to get acquainted with Minecraft's world or be trained by children. Even from this you can benefit when forming relationships with students."

4. BENEFITS AND DRAWBACKS OF TECHNOLOGY IN ONLINE LEARNING

In terms of the greatest advantages and disadvantages of online learning, the respondents had a choice of nine categories and could add one of their own.

When it comes to the benefits (see Table 9), the majority of the students find online technology motivating and interesting (30 respondents) and appreciate the fact it is cheap or for free (25 respondents). Slightly fewer students think online tools facilitate communication (22 respondents) and cooperation (18 respondents). On the other end of the scale, only seven students believe online technology helps them remember information. Among other benefits, the students claim that online tools develop their creativity (18 respondents), two students value their easy availability and one student chose to comment that "you won't find such quality and diverse information elsewhere".

What do you consider to be the greatest BENEFIT / S of using online platforms, applications and social networks FOR ONLINE LEARNING?	**N**
They are motivating and interesting	30
They are cheap or free	25
They facilitate communication	22
Another advantage	20
They facilitate cooperation	18
They make me more active and more involved	13
They help me improve my ability to find solutions to problems	9
They help me remember information	7

Table 9. Benefits of using online platforms, applications and social networks for online learning

Source: Own research

The majority of the respondents find cheating in tests as one of the most significant disadvantages of using technology for online learning (24 respondents). Most of the students also see possible problems with the organization of teaching (22 respondents), the necessity to own a device (20 respondents) or they consider online learning time-consuming and demanding as for technical skills (17 respondents each). For the results, see Table 10 below.

Among other disadvantages, the majority of the future English teachers stated 'loss of attention' (33 respondents), in some cases associated with greater fatigue after six to eight hours of online teaching, loss of motivation or health problems – eye strain, backache, insomnia and loss of social contacts.

What do you consider to be the greatest drawback / s of using online platforms, applications and social networks FOR ONLINE LEARNING?	**N**
Another disadvantage	34
Test cheating	24
Problems with the organization of teaching	22
The need to own electronic devices and software	20
Time consuming	17
Greater need for technical skills	17
Greater need for technical support	14
The rise of plagiarism	11
It is not possible to sufficiently explain the subject matter	10

Table 10. Drawbacks of using online platforms, applications and social networks for online learning

Source: Own research

5. DISCUSSION

The results from our survey correspond with those from Czerkawski's [5] (2016) research. Both studies confirm that students use similar learning networks.

Similarly to the study by Kross, Hargittai and Redmiles [6] (2021), YouTube seems to be a very popular resource for informal learning among future English teachers. In our study the time spent on YouTube appears in three subcategories YouTube – video content, music and tutorials (in the frame of both formal and informal learning).

Generally as well as specifically to support their formal learning, future English teachers spend a considerable time using Google.

As mentioned above, some results cannot be considered as statistically significant. Nevertheless, where p is between 0.05 and 0.2, there are relatively large differences, but they are not significant at the commonly used significance level of 0.05. For these technologies, we assume that if the research sample was enlarged, the differences could already be statistically significant. However, there are not more students in the academic year and the given study field.

6. CONCLUSIONS

The survey has shown that, for **informal learning**, future English teachers spend the greatest amount of time a day with the following online technologies: Google, Messenger, Facebook, YouTube for music and video content and Spotify (all with over 50 minutes a day on average). For **formal learning**, future English teachers use mostly Google (99 minutes a day on average). Tools to create and manage documents tend to be more typically used for formal learning. The length of time using online technology is generally longer when students learn informally.

Both **male and female** future English teachers spend a significant amount of informal learning time especially on Facebook. The tendencies observed among male and female students concerning formal and informal learning are relatively similar. This applies for the tendencies among **full-time and part-time** students as well, however, full-time students seem to spend more time online, overall, and they generally spend more time using social networks than part-time students. In contrast, part-time students, unlike full-time students, tend to spend more time using YouTube and YouTube tutorials for

formal learning than for informal learning. It should also be noted that female students seem to use Netflix, HBO and audio podcasts slightly more frequently for informal learning than male students.

The main **benefit** of online technologies as expressed by future teachers of English seems to be the fact that they are motivating and interesting and the greatest **drawback** appears to be the possible loss of attention.

The findings provide a useful overview of how future English teachers use online technology, which could be further exploited for example by teacher trainers in their university courses. Course projects and tasks can be modified to make use of students' informal learning habits and networking. Future English teachers should be encouraged to become more active participants of the teaching and learning process, using their rich experience with online technology. Nevertheless, finding the right balance between online and offline activities in and outside classes to minimize students' attention loss and tiredness is crucial. Therefore, teacher trainers should attempt to guide their students towards a more comprehensive, holistic approach to learning, which would allow for a more efficient and enjoyable use of online technologies.

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