



Social Media Acceptance Scheme

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Abstract. The longitudinal study on acceptance of social media in the university setting brings a decade experience on how students perceive, use and value selected social media for study purposes. Based on literature review on utilization of social media in education ‘Social media acceptance scheme’ was designed and repeatedly applied with slight relevant adaptations reflecting researchers targets of conducted national and international university projects within the discussed time span of ten years. Research targets vary, however awareness of social media platforms represents a kind of continuum being of key importance when considering and creating a digital strategy in the process of education at various levels of its system. Based on the findings gained from ‘Social media acceptance scheme’, the concept of blended learning has been adapted accordingly; study materials in e-courses were reorganized as well as innovative approaches in face2face classes have been made in teaching/learning Professional English language and Czech language for foreigners subjects at the University of Hradec Kralove. The latest data on utilization of social media by Czech and foreign students bring an international dimension where comparison of findings is visualized and discussed.

Highlight. 10 years’ experience on the local scene within the global frame with an intercultural overlap on acceptance, utilization and potential of social media in university setting.

Keywords: Social media · Research · Student engagement · Student satisfaction · Longitudinal study

1 Introduction

The worldwide accessibility to the Internet is one of the defining phenomena of the present times in reshaping the world. Clement (2020) calls Social media the lovechild of the World Wide Web. Social media with their wide range of forms like blogs, forums, and business networks, sharing platforms, social gaming, microblogs, chat applications or social networks develop, adapt to new requirements, stagnate or leave the scene. Due to their influential and defining role in the private and professional lives, social media have been in the centre of research interest since the birth of second generation of WWW so called Web 2.0. Selected relevant topics of social media research follow as an illustration of the issue scope and breadth:

- the challenges of social media use and research (Osch and Coursaris 2015; Weller 2015, 2016),
- intra-generational variance (Bolton et al. 2013),
- social media marketing (Tuten and Solomon 2017),
- social media engagement (Schivinski et al. 2016),
- and many other areas including the area of education, which is in focus of this paper (Greenhow and Lewin 2016; Selwyn 2017), see more in the Relevant studies subchapter.

The longitudinal study on the acceptance of social media in the university setting brings a decade experience on how students perceive, use and value selected social media for study purposes.

The structure of the paper follows the standard pattern: State of Art consisting of subchapters on social media statistics, categorization and relevant studies within the methodological frame of the research, Design of the Social Media Acceptance Scheme, Findings, and Conclusion.

2 State of Art

The chapter deals with the role of social media and literature sources. *Statistics on selected statistical websites is used as one of the approaches to the research on utilization of social media and forms the first opening part of the State of Art chapter.*

The direction goes from global to local; it is shifted from the wide global frame to the applied research on the local scene.

2.1 Social Media on the Global, European and Local Scene in the Statistical Numbers

This subchapter brings a brief statistical overview on social media users and most popular social networks. Proven relevant websites providing *global data* and their processing on the researched issue are: Pew Research Center (2020) with a research area Internet & Technology; Internet World Stats (2020), IWS for short, website for international Internet usage statistics, population Statistics, Social Media Stats and Internet Market Research Data, for nearly 250 countries; or Statista (2020) with its section Social media - Statistics & Facts.

As for the *local scene*, data were taken from two key sources: Eurostat (2016) and the Official Statistical Office of the Czech Republic (Czech Statistical Office 2020).

Statistical numbers show the enormous deal of social media users out of the total population. The role that social media play in their life can be seen in time people spend on the Internet from their waking time.

Kemp (2019) in the Global Digital 2019 report reveals that currently, the total population reaches 7.7 billion people; more than 5 billion are mobile users, 4.4 billion are internet users and 3.5 billion are social media users. Social media user spends astonishing 2 h and 15 min on social platforms daily, which represents about one-third of

their time on the Internet, and when look at that from another perspective this time represents one-seventh of their waking lives. However, *there are discrepancies in users' behaviour*. The numbers give the global view. In reality, what do they illustrate, what is the predictive value, to what extent can researchers built upon them?

According to Statista (2019), most popular social networks worldwide in October 2019 ranked by number of active users (in millions) follow: *Facebook* (2, 414), *Youtube* (2000), *WhatsApp* (1,600), Facebook Messenger (1,300), WeChat (1,133), *Instagram* (1,000), QQ (808), QZone (554), Douyin/Tik Tok (500), Sina Weibo (486), Reddit (330), *Twitter* (330), Douban (320), Snapchat (314), *LinkedIn* (310), Pinterest (300).

Photo-sharing is widely popular among students of our Faculty of Informatics and Management; *popularity of photo sharing is astonishing, to our surprise it is popular with foreign students in utilization of this tool even for study purposes, as will be discussed later in the chapter Findings*.

Another note also refers to intercultural dimension of social media. As for social networks, one of crucial characteristics is that they are in multiple languages, which enables its borderless spread; it is an enriching topic for raising discussion on comparison of these networks among students from various cultural backgrounds (Černá and Lin 2020). Another feature worth highlighting is the role of some social network in the local context. The great deal of social networks with more than 100 million users originated in the United States, but European services like VK (VKontakte, 'InContact') or Chinese social networks Qzone and Renren have also gained strong position on their local scene (Statista 2019). Behavior and habits of social media users in Europe look often similar as in other part of the world, which fosters the idea of global phenomenon. There are differences in social media preferences, e.g., Facebook is not so popular in Russia, VK holds its leading position with over 400 million users in Russia and parts of Europe.

Awareness of social media platforms is of key importance when considering and creating a digital strategy within various markets as well as in the educational sphere, which is in focus of this paper.

Lorenc (2018) in his report on utilization of social media channels in the Czech Republic gives statistics and demographic in brief. In the Czech Republic with 10.65 million inhabitants, following platforms dominate the social media scene. *Facebook Network* with its several platforms, e.g., Messenger with nearly 6 million users is the main player. It is followed by *YouTube* with 5 600 000 active users per month. Another big player is social media platform *Instagram* from Facebook family with 2.2 million users. Then *LinkedIn* comes with 1 600 000 career oriented users. Twitter's audience is even smaller consisting of 600 000 users.

The use of social networks in the countries of the European Union varies. On average, there are 55.8% social media users in the EU. The Czech Republic belongs to the 'precise' average with its 55.6% of users. The reached level of education gets reflected in the statistical overview: 75% university graduates use social media, 55% secondary school graduates is followed by 41% of people who accomplished the basic level of education (Czech Statistical Office 2020).

2.2 Categorization of Social Media

There have been many concepts of categorization of tools brought by Web 2.0, which have had to change and adapt, as the development of technology does not stagnate; individual tools gain new functionalities and get more and more interconnected. Social media are standardly divided into two main sections: social networks like Facebook, Twitter, LinkedIn and media sharing sites, e.g., YouTube or Instagram. *However, there is a current trend where the lines between media sharing networks and social networks are blurring.* Many multimedia services, e.g., adding live video or augmented reality, are functionalities that are used also on platforms of Facebook, Google + or LinkedIn. Grouping social networks according to subject matter or the functional capabilities has become old fashioned. This is finding which was also reached during the follow – up discussions with students at the qualitative stage of the presented research on social media. Foreman (2017) shifts categorizing networks from their division based on technology features to categorizing networks based on the aim of people use.

2.3 Relevant Studies Within the Methodological Frame of the Research

This longitudinal study monitors and investigates students' acceptance, utilization and potential of social media in the university setting.

Studies presented in this subchapter deal with key characteristics of Web2.0, which play a distinguished role in the process of education. The studies roughly cover the time span corresponding to the time span of the longitudinal study. There are studies from which researchers took inspiration for the design of their research, especially the survey as a main research tool e.g., Selwyn (2007b) and Usluel and Mazman (2009). Following literature sources help to illustrate the development and trends in the research of social media in education.

Terminology relating to the interactive Web 2.0 technologies that appeared after static Web 1.0 might seem confusing. In older studies, terms like Web 2.0 technologies, Web2.0 applications, Web2.0 social software applications, Web 2.0 services dominate. *Currently terms like social platforms or social media prevail.* Our research can be an example of this shift; we started with the term social software applications and moved to social media.

With the emergence of 'Web 2.0' technologies, there was a great deal of enthusiasm and expectations about new possibilities in enhancing learning among educationalists. Selwyn (2007b) with his critical review on research literature on Web2.0 applications was inspiring for our research with his sober approach to actual practical utilization of these applications in facilitating new forms of creation, collaboration and consumption in learning. *Some of his questions concluding the paper have been in the foci of researchers up to now, e.g. "to what extent do learners expect/desire to use 'informal' forms of ICT use in the formal educational settings such as the school? Which ICTs do learners see as being most motivating, engaging and personalisable? Conversely, which ICTs do learners see as unsuitable for the classroom and why? What unintended consequences and/or risks do learners see as arising from importing 'new' informal modes of ICT use into the classroom setting?"* (Selwyn 2007b). Ten years later Selwyn (2017) published

a comprehensive book on practices, processes and structures behind the rapidly increasing use of technologies in education, with an emphasis on the implications of digital technologies for individuals and institutions.

Usluel and Mazman (2009) discussed in their study new possibilities of *interaction*, which Web2.0 supports. They highlighted the *importance of individuals' acceptance and usage of technology* as the most effective ways of obtaining effective learning outcomes in distance education within the frames of various models and theories about diffusion, acceptance and adoption of an innovation. They suggested that Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003) would bring out more in depth and comprehensive approach.

Anderson presents his idea of Web 2.0 on the iceberg model with social web on the top of the iceberg. He provides readers with implications of computing, and he focuses on repeatedly mentioned key characteristics of Web 2.0, e.g., *user-generated content, ways of participation or openness* (Anderson 2012). What we call social software applications he calls Web 2.0 services; out of these services, he *discusses blogs, wikis, social networks, media sharing sites, social bookmarking and microblogging*. His selection slightly differs from ours, as will be shown in the core chapter 'Design of the Social Media Acceptance Scheme'. He looks at how each of selected services is used, how it was developed and what technology is involved finally he adds important research themes and findings from the literature (Anderson 2012).

We focus on the issue from students' perspective: what they know, what they use, how they are satisfied with the services and what potential students see in them for study purposes, which services they find appropriate for the use and management of study materials, possibilities of communication and testing knowledge for communication, revision, e.g., Černá and Poulová (2013).

Key characteristics of Web2.0 seem incredibly promising for teaching/learning purposes. However, there is also the other side of the coin. WWW web has become a place of user participation and user interaction, with enormously increasing amount of material. The amount of user-generated content on the web is rising and comes from various sources. Here arises the issue of handling the available information appropriately. To obtain the right content at the right time and to reduce information overload effects is becoming a greater challenge for Web users. Students are offered so much study material which in many cases leads to the Paradox of Choice or the Decision Paralysis (Schwartz and Johnson 2013). We solved this issue of necessity to sort out study material in the Learning Management System (LMS) Blackboard, which is one of the analysed social platforms in this paper, via creating a modified recommender system model (Černá and Borkovcová 2018; Černá and Lin 2020) solved this problem, as well. In their paper on users' acceptance of Web2.0 services in academia, they highlighted the concept of information literacy competency.

When we return to the positive aspects of social media, it is evident that possibility of *content development* belongs to the best ways of engaging students into the process of education. Steyn et al. (2017) believe that students can better grasp the content and increase their learning via utilization of virtual platform and working out own material there. Researchers consider working in Blackboard to be natural, because their students are millennials, the generation growing up with the Internet. *The aspect of engagement*

into the learning in social media has been part of our research since its beginning. However, findings on active involvement (Černá and Borkovcová 2019) correspond to less enthusiastic findings of (Greenhow and Lewin 2016) in their study on bridging formal and informal learning where belief in social media *potential* is discussed. They proposed a model theorizing social media as a space for learning with varying attributes of formality and informality. They are also more sceptical about active engagement as *they claim that majority of young people act as consumers rather than full participants* (Greenhow and Lewin 2016). Our findings also revealed that active cooperation or even collaboration is closer to wish than reality (Černá 2017; Černá and Borkovcová 2018).

As for academic sphere, according to (Weller 2015) some social media platforms are more prominent in academic publications than others are. She has long been involved in interdisciplinary nature of social media research. She claims that Facebook, Twitter, Wikipedia or YouTube due to their popularity are more analysed, especially user motivation and usage scenarios, then, e.g., Instagram (Weller 2015). Except for Twitter, our findings prove that Facebook, Wikipedia and YouTube belong to most prominent by students in our research samples. Weller (2016) focuses on social media platforms from user' perspective and finds out that some features of popular social media platforms like hashtags are currently understudied. She discusses the role of social media key features in her research on understanding users' behaviour. Our research is also run from (users') students' perspective. Cheung (2016, 2017) utilizes features of Web 2.0 in teaching/learning process in his long-term research. Two of papers have been selected studies as they fit the concept of here presented longitudinal study. He was involved in the design and implementation of a complex project Open textbooks on on-line platforms (Cheung 2016). The other study deals with students' perspective; students' perception on usefulness of open educational resources is analysed (Cheung 2017).

3 Design of the Social Media Acceptance Scheme

The chapter is opened with the set of social media accompanied with a brief justification of their selection into the research. Then the individual stages of the design of the Social Media Acceptance Scheme are described. Examples of published outcomes of the research on utilization of social media, where readers can gain further information, conclude the chapter.

3.1 Categorization of Social Software Applications Applied in the Research

We have to admit, that Foreman's categorization (2017) only slightly differs from the categorization, which we designed 10 years ago. Selection of social software applications for our research purposes stemmed from studies discussing experience in utilization of these Web 2.0 tools especially in university setting. *The inspiring studies were chosen due to their balanced approach to the issue.* There could be seen not only pure optimism in technical innovations possessing motivating drive in young people to participate and cooperate in new channels in virtual space but also pitfalls and weakness, clarifying ways of implementing this phenomenon into the process of education were presented (Schroeder et al. 2010; Usluel and Mazman 2009; Weller et al. 2010). 9 kinds of social

applications with defined key missions were placed into the *questionnaire* and analysed in the first run of the survey (Černá et al. 2011a, b).

- First monitored social applications were *Social nets* like Facebook and Twitter as social utilities connecting people with main mission that is communication, three years later Google+ was added to these nets (Černá 2014).
- Then *YouTube* as an application enabling sharing predominantly music recordings as well as presentations and instructions from various areas was selected. With audio and visual characteristics, this social application was considered a strong player on the virtual educational scene from the very beginning. Its dominance is strong and firm.
- *Wikis*, which can serve as platforms for knowledge integration and cooperation developing common knowledge, still keep their positions among students and enthusiastic educationalists. The fact is that there is a great deal of academics who consider wikis not sufficient or appropriate for study purposes due to a considerable high amount of unverified data and frequent simplification of explained issues.
- *Skype* and *ICQ* were selected as exclusively social communication application for chatting. *ICQ* has already left the active social application scene, however we left it in the questionnaire as an old-fashioned app fitting discussions on development of media from archaic to new platforms like *ZOOM*.
- *Blog* as a form of online reflective diaries was placed into the questionnaire because this social application had been found quite promising for study purposes in related literature and fully fitting our research (Schroeder et al. 2010; Selwyn 2007a; Weller et al. 2010). However, findings from our research do not correspond to findings in related literature, see more, e.g., (Černá 2014).
- *Social-bookmarking* fitting for storing and sharing web-links was found by academics highly beneficial for study purposes but findings from our research were even worse than in case of Blogs.
- *Sharing photos* (on-line photo albums) applications have undergone crucial changes from wide utilization in 2010 to the shift to new applications which are often part of dominant social networks.
- In the first runs of the longitudinal study there was a relatively large space given to *on-line computer games*, namely to World of Warcraft and Second-life, then there was also an open question if students knew, used and seen potential for study purposes in any other computer games. As the findings were marginal, original three questions in the questionnaire were condensed into one under general name on-line computer games.
- The last questions in the questionnaire dealt with Learning management systems (LMS) like WebCT (now Blackboard) and Moodle and other potential LMS. The individual Institutions often host these robust systems where they form an integral part of the overall course management.

3.2 Design of the Social Media Acceptance Scheme

The set of applications that form the core of the research has been introduced. Now a detailed description of individual sections of the Social Media Acceptance Scheme follows. This scheme was elaborated chronologically within the frame construct: *Awareness – Utilization – Satisfaction – Potential*.

Quantitative data are gained from the Questionnaire filled by students where defined areas are examined. Firstly, there is *Awareness* – students mark whether they know the application. If students know the application, it doesn’t guarantee that they use it. So the next step is *Utilization* – when students mark that they use the app, they mark *Frequency* - how often they use it. The following step is *Purpose* of the usage of the app. Our research is designed for tertiary education that is why students are asked to mark if they use the individual apps for the purposes of *further education*, for the *university study purposes* or for study purposes in both areas. In case they mark University study purposes, a following important stage opens which deals with the appropriateness of the apps for specific parts of the learning process: *Reservoir of study materials, Communication and Revision*. Students select the level of *Satisfaction* with the apps from the 1–5 scale. Based on the level of satisfaction the *Potential* of individual applications for study purposes perceived by students might be identified. The interest in the potential of social media discussed in the follow-up discussions led the researchers to adding *Potential* as a separate category into the questionnaire.

Visualisation of the Social Media Acceptance Scheme can be seen in Fig. 1.

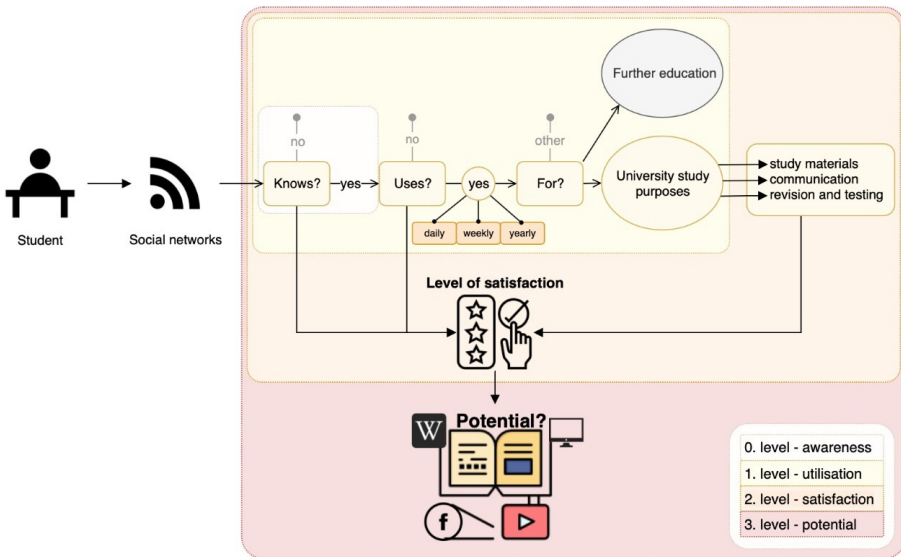


Fig. 1. Social media acceptance scheme

The *follow-up discussion* with respondents is beneficial in collecting data and opinions; it enriches investigation into qualitative space. The topic is so natural to students

that they easily enter the discussion and are ready to share their experience even if there is a slight language barrier. Showing them findings from other cultural backgrounds rises their involvement. Comparison works as a proved motivating factor for engagement into a talk (Černá and Lin 2020).

Examples of published outcomes of the research on utilization of social media, where readers can gain further information follow. Social media scheme has been *applied repeatedly*, it has been adapted to fit the goals of researchers. One of the first outputs discussing the *whole scene of researched media* was ‘Role of social media in academic setting awareness, utilization and willingness’ (Černá and Poullová 2013). Examples with specified focus follow: *Awareness and Potential* (Černá et al. 2011), (Černá and Svobodová 2018), *Trends in utilization of social media in further education and in university setting* (Černá 2014; Černá 2017), *Focus on one application*, e.g., Facebook (Černá et al. 2017), *Cooperation and Involvement* (Černá 2015), (Černá and Borkovcová 2019), *International overlap* – comparison of findings between research samples consisting of students from the Faculty of Informatics and Management, University of Hradec Králové and Polish students from Wrocław School of Banking (Černá and Poullová 2013), students from Karaganda State Technical University, Kazakhstan (Černá et al. 2014) or students from National Taiwan University of Science and Technology (Černá and Lin 2020).

4 Findings

Findings in this chapter are opened with a general overview of utilization of social media in a time line of one decade. Data were taken from two studies (Černá 2014; Černá et al. 2011a, b) and a survey conducted this year with research samples consisting of full-time students from the Faculty of Informatics and Management.

Findings visualizing the one decade time-line refer to two areas, which are general one and a specialised one. A general view can be seen in Fig. 2 showing Awareness of social media. The special focus deals with four social media fitting study purposes most, which is Fig. 3 Frequency of used media.

The other part of findings is devoted to latest survey conducted at the end of winter semester 2019/2020 with Czech and Foreign students attending classes Professional English language and Czech language for foreigners subjects at the University of Hradec Kralove. The latest data on utilization of social media by Czech and foreign students bring an international dimension where findings on Awareness, Satisfaction and Potential are compared, see Fig. 4, 5 and 6. It is necessary to keep in mind that there are *limitations* in this study connected with the decreasing number of respondents in research samples (257 (2010) 71 (2014) 38 (2020)) which means that no generalization of findings can be made. However, *findings are authentic and represent actual state on a local scene*.

Dominance of Facebook, YouTube, Skype and Games can be seen at first glance in the Fig. 2. Interesting thing is that Bookmarking as a highly promoted social media application by academics in their studies hasn't been found by our students. Similarly, Blog is also ‘prominent’ social media used in education, but not so much by respondents in our research samples. According to the findings from the follow-up discussions, students travelling abroad within Erasmus study program appreciate Blogs as authentic sources

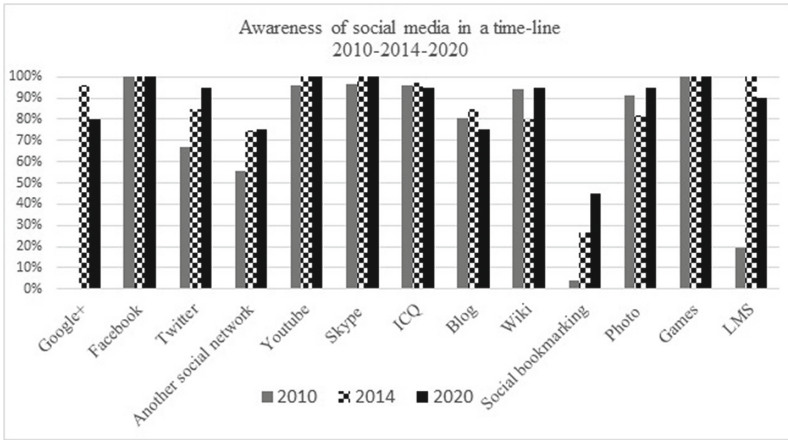


Fig. 2. Awareness of social media in a time line

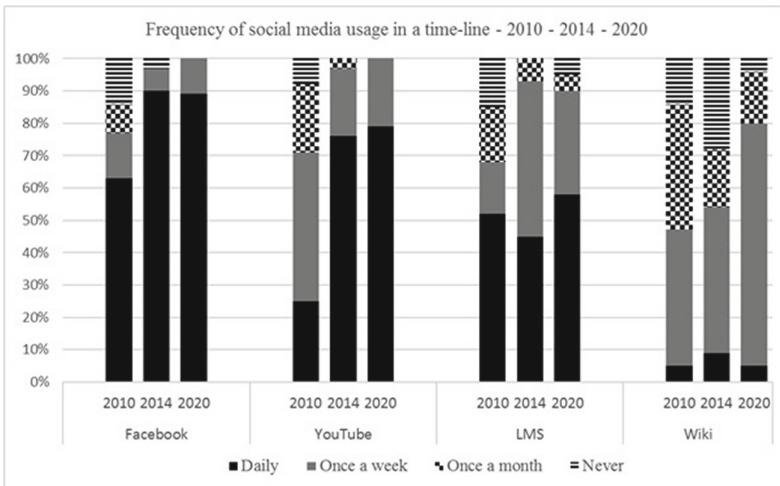


Fig. 3. Frequency of social media use in a time line

with authentic practical information. Skype is used for teaching/learning purposes in case of a student’s absence due to a long-term illness and especially in communication with students who are abroad.

This year, due to a coronavirus pandemic, we switched to the school promoted Microsoft Teams platform. All Czech students know the almost extinct *ICQ* application, but no one from this year’s group uses it anymore. In spite of the fact that *Learning Management System* was in 2010 widely used, only one fifth of students marked that they knew it, in 2014 all students marked that they knew LMS.

Figure 3 visualizes *Frequency* of use of researched social media as an important category for potential implementation into the process of education both either formal or

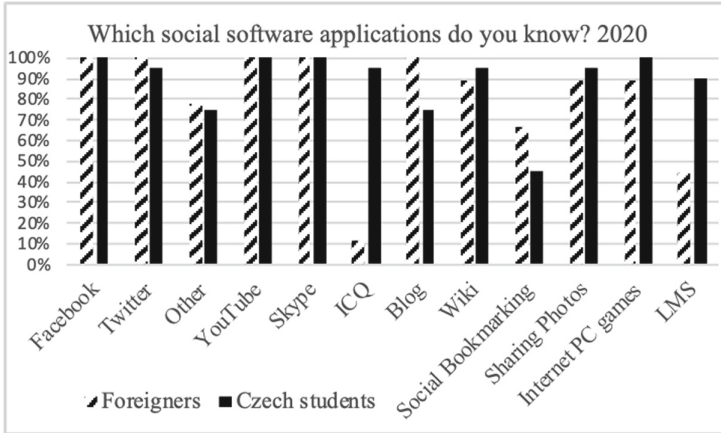


Fig. 4. Awareness of social media – comparison Czech a Foreign students

	G+	FB	Twitter	Instagr	Other	YouTube	Skype	ICQ	Blog	WA	Viber	Wiki	Bmark	Photos	Games	LMS
Czech		2,6	2,5	2,3		1,5	1,8	2,8	3,3	2,3		2,4	2,7	2,4	2,1	2,6
Foreign		2,7	2,6	1,8		1,1	2,8	5	3,7	1,4	5	1,9	2,6	1,6	2,8	3,5

Fig. 5. Satisfaction – comparison Czech a Foreign students view

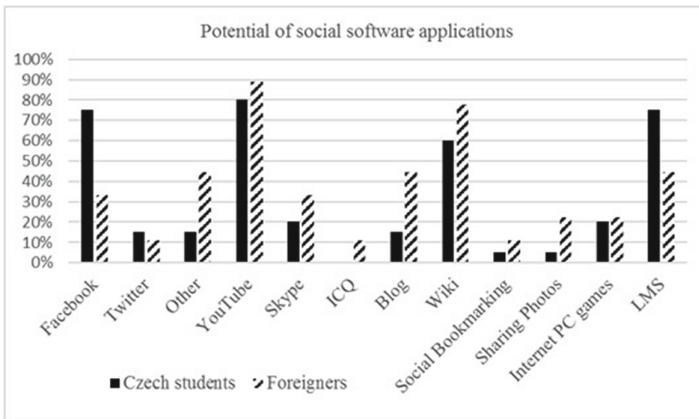


Fig. 6. Potential of social media – comparison Czech a Foreign students view

informal. The strongest media are Facebook and YouTube, which are used daily by 90% of students in case of Facebook and by nearly 80% in case of YouTube, the rest of respondents use them on weekly basis. The question is, if they are used for study purposes. The answer can be found in the responses in the category *Satisfaction* with individual social media for the defined areas of the process of learning (Communication, Study material repository and Revision with Testing). Facebook fits communication perfectly

as it is its main mission, anyway. However, students found Facebook dissatisfactory for study material storing and for testing. YouTube has gained incredibly strong position in formal and informal learning. As for LMS, number of students using Blackboard on daily basis has increased which reflects university policy to guarantee support via e-course. Utilization of Wiki has significantly increased, there are 80% users on weekly basis despite the fact that a great deal of teachers are not fans of this platform.

Figure 4 illustrates findings from the latest survey on *Awareness* of social media. The graph is constructed on comparison of Czech and Foreign students' responses. YouTube and Skype reach 100% in both groups. Utilization of Blogs reaches 100% in foreign students and utilization of Social Bookmarking is quite high, both findings support the importance of Blog and Social Bookmarking highlighted in foreign studies. In this case we can see the difference between our scene and scene abroad. Another difference can be seen in ICQ, for foreign students it is 'big unknown', all Czech students know this app. Last comment relates to utilization of LMS; we have to admit a kind of discrepancy in gained responses. Less than half of foreign students marked that they knew LMS, however worked in the e-courses during semester.

As for *Satisfaction*, Twitter, Instagram, WhatsApp (WA), we included in the latest survey see Fig. 5. The 1–5 point scale was applied, Findings bring a colourful picture where level of satisfaction with individual applications differs between Czech and foreign students quite a lot. Czech respondents are quite moderate. As for foreign students, they use the whole scale from 1 to 5. Czech and foreign students are satisfied with YouTube most. Findings relating to Facebook and Twitter social nets are comparable in both groups, surprisingly level of satisfaction is moderate not high, as one might expect and the same refers to Skype. Czech students do not use Blogs as much as foreign students but they are much more satisfied with them than foreign students. Foreign students value pictorial media like Instagram and various kinds of sharing photos.

Students' view of the *Potential* of social media for study purposes shows valuable findings. The highest positions reach YouTube, Wiki in both Czech and foreign students. 90% of foreign students and 80% of Czech students can see potential in the YouTube platform. Three quarters of Czech students can see potential in Facebook in comparison to only 30% of foreign students. Another discrepancy is also perceived in potential of a teaching/learning tool LMS. Three quarters of Czech students can see potential in this social media in comparison to 45% of foreign students. No other application reaches the threshold of 50%.

5 Conclusion

Development of social media and their functionalities never stagnate which imposes challenge to practitioners and researchers. Study climate is changing. To keep the pace with the development of new media and at the same time not to lose unifying view of the social media scene a Social media Acceptance Scheme was designed. This scheme is adaptable; it can be easily modified to fit the purposes of social media research especially in university setting. Students' perspective creates the red thread going through the long-term research: how students perceive, use and value social media. Research targets vary, however awareness of social media platforms represents a kind of continuum being

of key importance when considering and creating a digital strategy in the process of education at various levels of its system.

Further development of the research we see in utilization of Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003).

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