Use of Social Networks and Mobile Technologies in Education

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Abstract—Social networks play an important role in the lives of children and young people. Along with the high penetration of mobile technologies such as smartphones and tablets among the younger generation, there is an increasing use of social networks already in elementary school. The paper presents the results of research, which was realized at schools in the Hradec Králové region. In this research, the authors focused on issues related to communications on social networks for children, teenagers and young people in the Czech Republic. This research was conducted at selected elementary, secondary and high schools using anonymous questionnaires. The results are evaluated and compared with the results of the research, which has been realized in 2008. The authors focused on the possibilities of using social networks in education. The paper presents the possibility of using the most popular social networks in education, with emphasis on increasing motivation for learning. The paper presents comparative analysis of social networks, with regard to the possibility of using in education as well.

Keywords—Social networks, motivation, e-learning, mobile technology.

I. INTRODUCTION

THE popularity of social networks and mobile technologies in the Czech Republic is growing constantly in all age groups of people. Mobile technologies and social networks play a significant role in the lives of young people and children, even from the first grade of elementary school [1]. The results of many studies in the world and in the Czech Republic show that a significant segment of users of social networks are children under 13 years of age. Schools should not ignore this alarming fact. Teachers ought to find ways for using social networks in education and to prepare children for all aspects of using social networks, including all potential risks and dangers. The main areas of presented research are focused on the use of social networks and mobile technologies in different age groups and the possibilities of using social networks in education.

II. CURRENT SITUATION IN USE OF SOCIAL NETWORKS IN THE CZECH REPUBLIC AND OTHER COUNTRIES

In 2011, the Consumer Reports magazine published a study "State of the Net", which was focused on Facebook users in the United States. According to this study, over 30% of US users were under age of 13 years [2]. The results of a survey by the company "Minor Monitor" shows that the amount of users under age of 13 increased to 38% in 2012 [3]. Facebook is the most popular social network with a significant amount

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of users under 13 worldwide. In Germany, Facebook had 56% of users in the age range of 10 – 18 years in 2014 [4].

Facebook is the most popular social network also in the Czech Republic. In 2015, the Centre for the Prevention of Risky Virtual Communication (Faculty of Education, University of Palacky in Olomouc) published the results of research "Czech children and Facebook 2015". The results show that more than 50% of children under age of 13 have a profile on Facebook [5]. In 2016, we carried out a pilot survey of 312 pupils attending elementary schools in Hradec Králové. The responses were collected with the use of an electronic questionnaire. The results of this survey correspond with the results of a nationwide survey "Czech children and Facebook 2015".

A. Aims of the Research

The main objective of the research was to find out which social networks are being used by pupils and young people, with an emphasis on the age group under the age of 13 years. The next objective was to map the use of social networks among current and future teachers (students of Faculty of Education). Another objective was to determine the differences in the use of social networks between age groups. We assumed that Facebook is the most popular social network among all age groups.

Another aim was to find out how and how often users use mobile technology in conjunction with social networks. We focused mainly on smartphones and tablets, but of course, we also explored the use of laptops and desktop computers at school and at home. For smartphones and tablets, we also looked at Internet connection. We assumed that most users will access social networks on some type of mobile device.

B. Methods

Data collection was conducted using non-standardized electronic questionnaire with closed answers. The questionnaire was created in Google Forms and contained terms of branching by age group of respondents. Another branch was based on the fact that the respondent uses or does not use social networks. If the user selected the option that he or she does not use social networks at all, only one additional question was displayed (the question was focused on reasons why he or she does not use social networks). All respondents had to fill in two questions focused on age and gender. If the respondent selected that he or she used at least one social network, an additional five questions focused on the details of use displayed. Thanks to branching, it was possible to distribute only one universal questionnaire among all age groups, and it was also possible radically reduce the time

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needed to complete the questionnaire. This also makes the return rate of the questionnaire was very high. The questionnaire was anonymous and available to the public; and therefore, it is not possible exactly determine the total return rate. In the case of the respondents were contacted directly, the return rate was 70%.

C. Research Sample

The research sample consisted of a total of 704 respondents, consisting of the pupils, students and staff from Hradec Králové and the surrounding area. The gender of the respondents was balanced. The research sample was 52.8% women and 47.2% men. Fig. 1 represents a detailed distribution of the respondents' age.
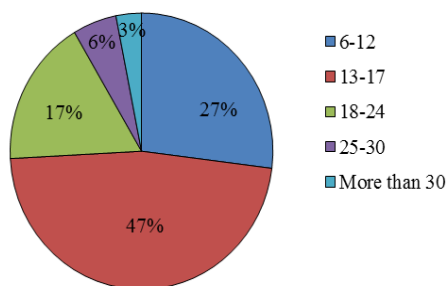

Fig. 1 Detailed age distribution of respondents

Due to the focus of the research and the fact that most social networks have a minimum age requirement of 13 years, the age of the respondents was divided into the following intervals: 6-12 years, 13-17 years and 18 years and over (this category is referred to as 18+). Therefore, following are the research results for the designated age categories.

D. Research Results

The use of social networks in all age groups is very high. More than 94% of users older than 13 years use at least one social network. According to the survey results, 76.3% of children from 6 years to 12 years use social networks. We assume that in reality, this number is even higher (when filling out the questionnaire, some children were afraid to confess that they use social networks).
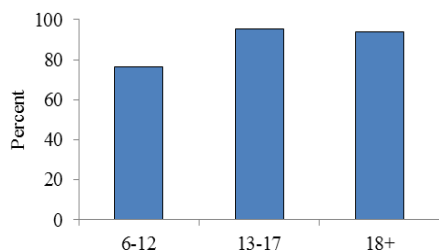

Fig. 2 Percentage of users of social networks in selected age groups

Most of the respondents spend more than one hour a day on social networks. Almost 10% of users in all age groups reported that they use social networks 5-6 hours a day.

More than 80% of respondents in all age groups use social networks on a smartphone. Tablets have the largest share
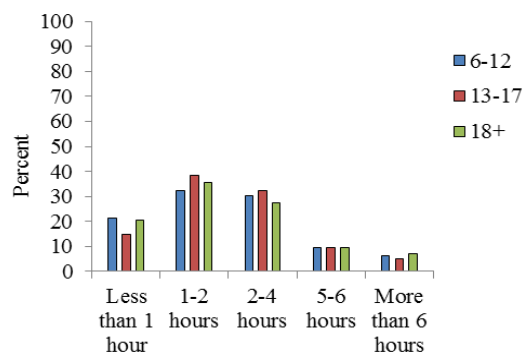
(44.1%) among children under-12 years of age.

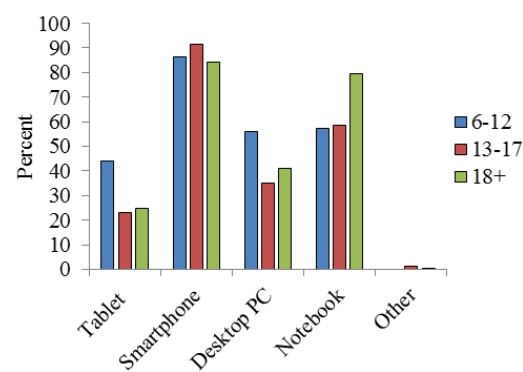Fig. 3 Daily use of social networks in selected age groups

Fig. 4 Devices used for accessing social networks in selected age groups

Most respondents use smartphones and computers in computer classroom for accessing social networks at school. Only small segment of children under-17 years use tablets at school for accessing social networks; it is naturally assumed that this is because they do not bring tablets to school at all. According to our research, children are afraid of damaging the tablet in school environment. Tablets have the largest share (14.5%) in the age group 18+ (see Fig. 5).
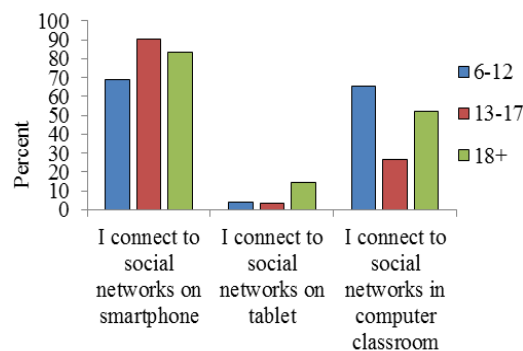

Fig. 5 Devices used for accessing social networks at school in selected age groups

More than 90% of respondents in all age group use WiFi connection on their mobile device. The older the user, the more they use mobile Internet (data tariff) in their mobile

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device. Some 59.5% of respondents in the age of 13-17 years and 63% of 18+ users have a data tariff for their mobile device.
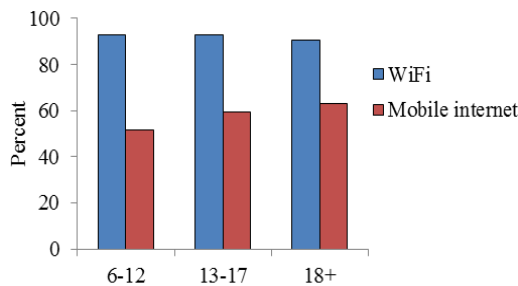

Fig. 6 Types of internet connection that respondents use for accessing social networks on mobile devices

The most popular social network is Facebook in all age groups. One of the most important findings is that 80% of children in the age of 6-12 years use this social network. The second most popular network is Instagram, with 61.4% of children in the age of 6-12 years claiming to be users.
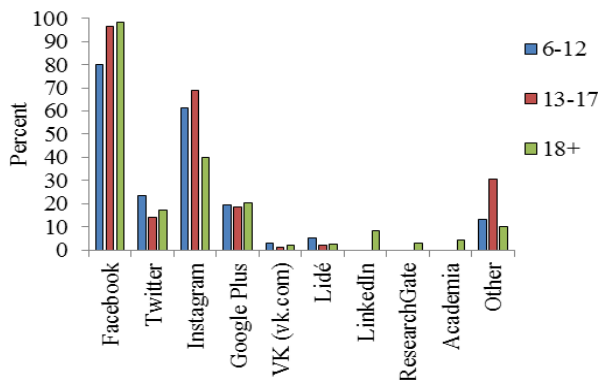

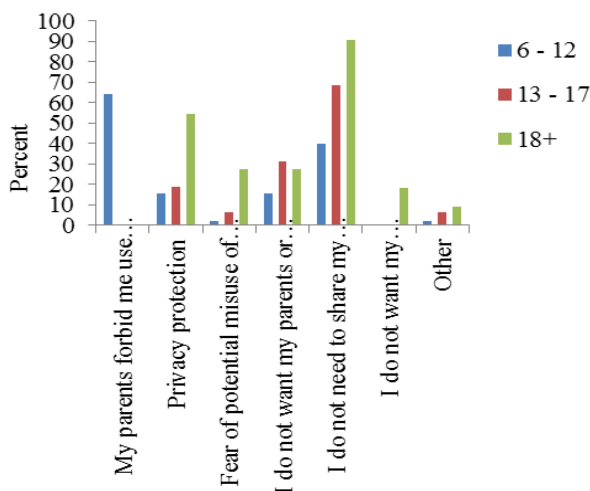Fig. 7 Use of social networks in selected age groups

Fig. 8 Reasons for not using social networks in selected age groups

Why respondents do not use social networks? Some of the reasons naturally vary according to the age group. Only 23.7% of children in the age group of 16-12 years say they do not use social networks. With 64.4% of these respondents saying that their parents forbid them to use it. The most popular reason in all age groups was "I do not need to share my personal life on social networks." The protection of privacy is the most significant reason in the age group 18+ (54.5%). Of the adult users, 18.2% who do not have a social network account say that the reason was that they do not want their colleagues or employer to be able to see their profile.

III. COMPARATIVE ANALYSIS OF SELECTED SOCIAL NETWORKS

On the basis of the research results, we selected the most popular social networks for comparative analysis. The criteria for comparison were based on the capabilities of social networks. The results are summarized in Table I. The social network Google+ is also included for another reason: it is the only social network that allows (under certain conditions) users under-13 years of age. Instagram does not fully support voting and polls, but users can at least add likes to posted pictures and videos.

TABLE I
FEATURES OF SELECTED SOCIAL NETWORKS

Feature	Facebook	Instagram	Twitter	Google+
Hashtag	yes	yes	yes	yes
Geotag	yes	yes	yes	yes
Group chat or discussion	yes	yes	yes	yes
Post image	yes	yes	yes	yes
Post video	yes	yes	yes	yes
Voting/polls	yes	no	yes	yes
Mobile application. Android	yes	yes	yes	yes
Mobile application iOS	yes	yes	yes	yes

There are many ways to use social networks in education; especially if it is combined with mobile technologies. Our future research will focus on activities that will allow to increase pupils' motivation for learning. Social networks can be used in education in many ways.

- Documentation of excursions, trips and projects. Photographs can be labeled by pupils and tagged with hashtags prepared by the teacher.
- Photographic or video record of an experiment in a school laboratory or classroom. Authors focus mainly on labor practices in workshops and laboratories, but it can be used in other subjects as well.
- Project learning outside – pupils will be tasked e.g. to take photographs of buildings in their location of a certain architecture style. For labeling, the hashtags style and a school project will be used.
- Preparing the project and communication within the project using the group discussion or chat.

Meanwhile, we introduced activities that can increase pupils' motivation and engagement in learning. But we must also deal with alarming fact that at least 80% of children in the age of 6-12 years use social networks. These children are very vulnerable in social networks, and therefore, teachers play an

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important role in preparing those children for life in this dangerous environment. To achieve this goal, teachers need some kind of social network "training", which they can use for children under-13 years. This kind of network must be easy to implement, even for nontechnical oriented teachers. According to our findings, the only real option is currently Google+, which is a part of Google Suite (formerly Google Apps) for education. The Google Suite is free for all types of schools. If the school runs a Google Suite on its own domain, the administrator can set limited access for users' under-13 years of age. Pupils and teachers can then use own social network, which is limited to the school's domain.

IV. Conclusion

Our research clearly shows that an alarming number of children under the age of 13 years use social networks. Therefore, it is important to deal with it and implement basic social networking skills in education at an early age. On the other side, social networks can increase pupils' engagement and motivation. For pupils' over-13 years, teachers can use Facebook, Instagram and Twitter. The main advantage of these networks is that all age groups are familiar with them. The situation is more complicated for children under the age of 13 years. Our analysis shows that the only real option for this age group is represented by Google+, which would run on the school's domain as a part of Google Suite for Education. Schools would still have the option to run their own training network on their own server, but that would be very demanding on the technical equipment of a school, and thus, it represents major complications that are virtually impossible for most schools.

References

[1] V. Maněna, K. Rybenská, R. Špilka, "Research of mobile technologies used by students in primary school as a basis for the creation of teaching materials." in *International Conference on AdvancedEducational Technology and InformationEngineering (AETIE 2015).* Beijiing, PRC, pp. 330-335. ISBN 978-1-60595-245-1, (2015).
[2] CR Survey: 7.5 Million Facebook Users are Under the Age of 13, Violating the Site's Terms. in *Consumer Report* (online), 05/10/2011. Available at: http://www.consumerreports.org/media-room/press-releases/2011/05/cr-survey-75-million-facebook-users-are-under-the-age-of-13-violating-the-sites-terms-/ Accessed on 08/11/2016.
[3] C. Matyszczyk, *"Thirty-eight percent of kids on Facebook under 13?"* (online), April 13, 2012. Available at: https://www.cnet.com/news/thirty-eight-percent-of-kids-on-facebook-under-13/ Accessed on 08/11/2016.
[4] Statista: The Statistics Portal. *"Share of children and teenagers who actively used the following social networks in Germany in 2014"* (online), April 2014. Available at: https://www.statista.com/statistics/422297/children-and-teenagers-social-network-usage-germany/ Accessed on 09/11/2016.
[5] Centrum prevence rizikové virtuální komunikace, Pedagogická fakulta Univerzity Palackého v Olomouci, *"České děti a Facebook 2015"* (online). Available at: http://www.e-bezpeci.cz/facebook2015 Accessed on 01/11/2016.