

Social Networking in Czech Elementary Schools: A New Path for Cooperation

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Abstract:

Social networks have become a phenomenon of our time and they also have a place in learning environments. Universities already use social networks and they even build their own social networks, which are often inspired by enterprise level counterparts. However, social networks are rarely used at lower level schools. Our research aims at examining Social Media in Classroom Education and deals with implementation of social media in elementary schools. The results showed that schools are interested in the use of social media in instruction but they are also aware of potential risks. Safety of pupils on social networks is one of the main reasons why schools are cautious to implement social media into instruction. We intended to propose appropriate teaching methods and organizational forms of instruction supported by social media. The possibility to use some of the proven and secure tools, such as eTwinning, has been examined. Our approach differs from the existing studies as an effort was made to develop a flexible social network matching the needs of schools and other participants. In this paper we present practical guidelines for prospective users in developing and utilizing tailor-made social network.

Keywords: Information and Communication Technologies, Edmodo, Connectivism, Bring Your Own Device, Social Media in Education, Project-Based Learning, School Project, Enterprise Social Network

1. Introduction

The need for social interaction has accompanied mankind ever since its inception, when each individual was given a certain standing in a community. Our actions have always led and will always lead to building our own social network of friends, colleagues, contacts, clients and others. The number of social ties entered into by each individual is constantly increasing (Vališová et al., 2011). The dynamic development of the Internet, currently known as Web 2.0 (sometimes referred to as advancing to Web 3.0) fueled the creation of new online technologies. These technologies, specifically community platforms, have raised the opportunity of establishing and maintaining social ties to a whole new level. Social networks, as known today (as web based services), are changing the way we perceive ourselves, how we live and work (Fraser and Dutta, 2008). In this environment the user is no longer a mere recipient of information, but the co-creator of web content, which is developing dynamically depending on the activity of its users. It is because of this feature that social networks are enjoying considerable popularity, their scope is growing. Nowadays, social networks extend to a wide range of areas - marketing, social based, common interest based or professional. We can encounter concepts like corporate social networks, professional communities, research networks, educational networks, e-business platforms, client social networks, social networks of friends and others (Garrigos-Simon et al., 2012).

Social networks, as we know them today, cannot be clearly defined. When studying the issue is obvious ambiguity of the term (e.g. social network, social networking sites, social networking service, online networks, virtual social networks, etc.). As part of research is based on the definition of Boyd and Ellison (2007), who define Social Network Sites as web-based services that allow individuals to: (1) construct a public or semi-public profile within a bounded system; (2) articulate a list of other users with whom they share a connection; (3) view and traverse their list of connections and those made by others within the system.

In an environment of social networks, we distinguish between strong and weak ties. The strong ties represent our closest connections – family and close friends. The weak ties represent acquaintances around us with whom we do not have such a close social bond. Sociologist Mark Granovetter perceives society as a network composed of many “modules”, that is tightly interconnected clusters of nodes, where everyone knows everyone, while the modules are interconnected with a small number of remote weak ties (Granovetter, 1983). According to Granovetter, it is the weak ties that provide more opportunities for individual development as well as an effective process of dissemination of information among people from various groups (known as the theory “The strength of weak ties”).

Being part of the network brings a number of benefits to the members. Although the advent of social media caused a big boom worldwide it had no major impact on the field of education in the Czech Republic so far. In an environment of elementary school education the social networks (social media in general) are often associated with apprehension and criticism.

2. Current State

The research of Kapounová and Homanová (2014), in which more than 550 Czech elementary schools participated, showed that both principals and teachers want the Internet technologies to be implemented into instruction. However, their statements were often followed by the word “but”. The most frequent objections from the school management pointed to concerns about the safety of the pupil – abuse of open source media (35 %), the lack of information about how to use these technologies in instruction (19 %), insufficient training of teachers (17 %) or problems with the Internet connection (8 %). Based on the survey of *International Computer and Information Literacy Study 2013* (Basl et al., 2014), teachers raised the concern that the school management is not willing to change the current pedagogical practices. Moreover, there is a lack of a vision and school strategy in development of digital technologies in the school, insufficient technical support, inability to solve basic technical problems, lack of time (for training teachers, preparation for teaching), insecurity (fear of losing authority in front of pupils and teachers) or problems with organizing the instruction using those technologies.

Semi-structured interviews, were conducted in five elementary schools and contributed to this research on the usability of social media. The following table describes the most important tools that elementary schools in the Czech Republic use as a means of communication.

Table 1: Current social communication tools in Czech schools

Used by/for	Tool
<i>School management / Teachers</i>	Email
<i>Management Schools / Institutions</i>	Email, data mailboxes
<i>School PR</i>	Public social networks (Facebook, Twitter), website
<i>Daily attendance</i>	Google Apps, Moodle, Pinterest, YouTube
<i>Project-based instruction</i>	Email, Skype, TwinSpace, Google Apps, Pinterest
<i>Parent/ legal representative</i>	Email, Facebook, electronic pupil's record book

The teachers lack of self-confidence when working with social networks (or social media in general). Moreover, the latter are not used in the entire school but only in individual cases. Nowadays, social networks (social media in general) are used rarely in primary schools in the Czech Republic and used only as an additional tool to supplement the traditional methods of instruction. Their potential is not fully exploited.

3. Aims of the study and research questions

The main focus of this research is on discovering the possibilities of an effective implementation of social networks into the primary education environment in order to strengthen students' team cooperation. Collaboration is perceived as one of the key competencies of the 21st century (Binkley et al., 2012). Therefore, it is important that it is to be developed in students through adequately designed educational activities.

This study was guided by the following questions (1) why should social networks (social media in general) in schools be supported; (2) how to motivate teachers to learn to work with other online tools and actively use them; (3) how to include activities with social networks into an already crowded schools' curriculum; (4) what the platform is more suitable for schools.

The aim of this study is to design, specify and implement school education network into basic schools with the use of the appropriate online community platforms. At the same time, appropriate teaching practices, methods and organizational form of teaching for the given environment are proposed. Educational social network will complement the school infrastructure as a solution that offers safe and easy communication, sharing and exchanging information across schools. In this study a social network was implemented into the elementary school's environment as part of the project activity of the participating schools.

4. Project-based learning

Project-based learning is sometimes referred to as project-based instruction (Dömischová, 2011). Through different forms of interdisciplinary integration, project-based learning provides enough space for the development of key competencies of pupils and offers deeper interconnection of the acquired knowledge with practical life. Project-based learning is named among modern instruction methods. Tomková et al. (2009: 7) perceive it as a complex method which enables pupils to *“touch reality, experience new roles, solve problems, interconnect and apply acquired knowledge from all areas in purposeful work. It gives pupils the opportunity of self-realization, motivates them to independent work, searching, discovering, team cooperation and communication. It teaches them to think in context and to systematically solve an assigned task. In so doing, it meets the requirements for modern and effective education”*.

The school environment provides many opportunities for building virtual communities in a school or a single subject, for pupil or other project activities, including projects financed from the state budget or by the European Structural Funds. Projects implemented within the school partnership provide an opportunity not only for cooperation of students and teachers, but also contribute to the development of the school, take for example the Comenius Partnerships (NAEP, 2016).

5. Choosing Social Network

When proposing a suitable technological solution, one needs to clarify in advance what the expectations of the tool are and then select the optimal strategy in terms of integrity and functionality. This study is focused on identifying online community platforms supporting the collaborative approach, intensive team cooperation and thus enabling the creation of a flexible social network. Flexible social network, also known as a dynamic social network, is a social network which changes according to the nature of the solved problem. One of the characteristics of such platform is the possibility of the creation of mutually interconnected groups stemming from the individual needs of the school. Virtual community is a group of people who share common interests, ideas and feelings through the Internet.

5.1. eTwinning Project Activity Social Network

The eTwinning (TwinSpace) is defined by The National Agency for European Educational Programs (NAEP, 2016) as an activity supporting international distance

cooperation of schools through information and communication technologies. In general, eTwinning can be perceived as a safe social network supporting teachers and pupils or other registered members of the pedagogical public who gather in communities in the TwinSpace virtual environment as a result of an invitation being received from one of the members. This makes new members as partners who set up online communities and remotely collaborate on a project through the use of ICT. The best of the realized projects are awarded the Quality Label certificate. The collaboration takes place in a safe environment where the pupils can try out some of the Web 2.0 tools such as the chat, the blog, the forum, the storage, etc. The eTwinning platform supports innovative teaching activities (Central Support Service for eTwinning 2016). Even though the idea behind is inspiring and it enables the implementation of a project with schools from the same country, it is not entirely optimal for the flexible needs of the school, e.g. for the effecting of school or pupil projects, or for the ongoing building of the school's social ties, e.g. support of the school partnership.

5.2. Enterprise Social Network (ESN)

Enterprise social network (ESN) is a commercial system that is commonly used for knowledge sharing and collaboration (Scott et al., 2016). The most well-known enterprise social network (ESN) in the Czech Republic is Microsoft's Yammer. Yammer supports the use of the Office 365 package, Outlook, Skype and other additional services integrated in this tool. As far as the business sector is concerned, cooperation is essential as success depends on the performance of the entire team. ESN is a tool which may improve performance. The main functionalities of enterprise social networks include the possibility of interconnecting project teams from different geographical environments (Pinto, 2014), more efficient communication with internal and external participants, providing space for the storing of knowledge (Scott et al., 2016), enabling the management of virtual teams and their supervision.

Turban et al. (2011) maintain that in the case of ESN only employees or members with affiliated business relations, who depend on quick access to information, have access to the network. The entire conversation during the course of the project is displayed in a transparent manner and in a hierarchical order on Posts (the "wall" with outputs), which eliminates the email communication and the troublesome and time-consuming backtracking. Efforts to introduce ESN are also seen in academia where a university is perceived as an institution with geographically dispersed workplaces, a number of employees, students, work teams and panels across the organizational structure (Scott et al., 2016). In his paper *The Use of Yammer in Higher Education* (Pinto, 2014) explores the possibility of the use of the Yammer enterprise social network as a means of communication and cooperation among the team members virtually. ESN enables an effective management of virtual teams. Despite ESNs are created primarily for commercial purposes, they are an inspiration to schools.

5.3 Social Network for Teachers and Pupils (and Parents)

For the purpose of this study the following tools have been identified as suitable: Edmodo, Schoology, Blackboard, Edu2.0, Twiducate and iClassroom. Social networks for teachers and pupils, sometimes referred to as educational social networks, are

services that offer teachers and pupils a place to interact and conduct instruction in an online environment. Pupils would have an opportunity to learn together and to make compromises, communicate, collaborate, listen, think about others' opinions, search for joint solutions and other skills which help form their personality. In the Czech Republic, the instruction system iTřída (*iClassroom* in English, we will use the English name in the following text) is being used widely. The iClassroom is linked up to digital study materials (www.dumy.cz/), which are the outputs of the national EU project funds to schools (Řezáčová, 2015). This environment has a number of useful functions one of which is the teacher's choice to decide whether the pupils can respond to a particular entry privately (not seen by other pupils), publicly (within the scope of a particular group) or not at all. A number of similar platforms do not have this function (only public reply can be posted). iClassroom is now a bounded system which is used for the needs of one school. At this moment, it cannot be connected to a partner institution.

The awareness about the possibilities in using social networks for educational purposes at schools in the Czech Republic is limited. Only few schools (teachers) have experience with those tools. Included among the most famous social platforms in the Czech Republic are Edmodo and Google Classroom. But there are many other very useful tools, for example Schoology. The following table summarizes the basic characteristics of the selected platforms.

Table 2: Overview of platforms under consideration

	TwinSpace	Yammer	Edmodo	Schoology
<i>Connection with external institution/ school/users</i>	Yes	Yes	Yes	Yes
<i>Creation of flexible groups/ virtual teams</i>	No/Yes	Yes	Yes	Yes
<i>Access</i>	Free	Fee	Free	Free/Fee
<i>Language environment</i>	Czech supported	Czech supported	English	English
<i>Cloud-based Service</i>	Yes	Yes	Yes	Yes

Note: The TwinSpace environment enables the creation of groups within the scope of cooperation in solving both national and international project activities. The Schoology system offers an extended paid version.

The social network Schoology is seen more as a Learning Management System (LMS), which also contains features typical for social networks. To use the system in full with all its features, the purchase of a license is required. Moreover, the range of offered services goes hand in hand with the increased requirements for the level of knowledge of the user environment. Both Edmodo and Schoology systems are intended for the primary and higher education pupils. Moreover, they support all of the available operating systems – Windows, Android and iOS. Edmodo and Schoology can be used on all types of devices, by which they support the *Bring Your Own Device* (BYOD) concept (Song, 2014).

Based on the testimonies of the teachers in the survey it was decided to use the educational environment Edmodo.

6. Education network Edmodo

Edmodo is a popular social network, widespread especially abroad, created specifically for education (with elements of gamification). The important aspects of this tool are its gratuitousness, safety, intuitiveness and rich functionality. The element of supporting pupils' motivation, by assigning badges that can be created by the teacher personally, is also perceived as a positive (Song, 2014).

The teacher, or the founder of the group, oversees the group actions, can manage pupils' accounts and monitor their network activities. This can be an important source of knowledge and an effective evaluation tool. A number of authors deal with this issue (e.g. Holland and Muilenburg, 2011; Laur, 2013; Reese, 2014; Trust, 2015; Zain et al., 2016).

Another advantage of Edmodo is the possibility of creating so called small groups, which are utilized during team work, when the class is divided into smaller subgroups. Edmodo, just like most platforms, is constantly evolving and its functions are expanding. At present it offers the possibility of linking to a Google Account, One Drive or Office 365. Since Edmodo supports personalization, each teacher can customise the individual tools according to his preferences or approbation using the advanced applications menu (some of them are being charged for). After the inclusion of other members of the group they can use them too. One of the applications is Photos for Class, which offers a database of safe pictures which are at pupils' disposal (Song, 2014). An overview of the main Edmodo tools is given in the following table.

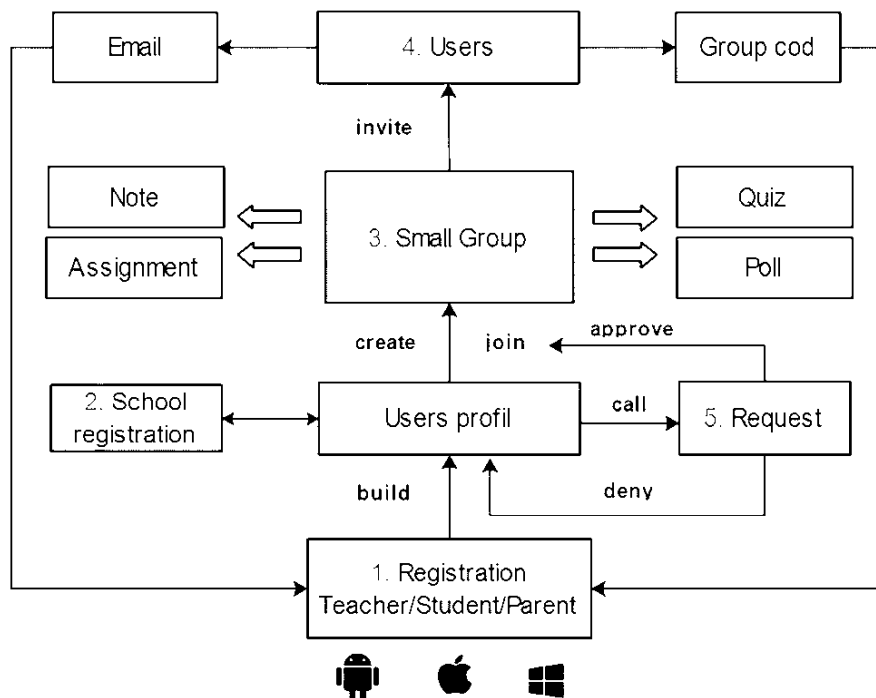
Table 3: Summary of Edmodo tools

Tool	Description
<i>Third-party applications</i>	Advanced applications menu
<i>Library</i>	Repository of files, quizzes
<i>Planner/Calendar</i>	Time management tool, Event reminder
<i>Office online</i>	Word, Power Point, Excel application tool
<i>Poll</i>	Tool for creating polls
<i>Quiz</i>	Tool for creating tests, quizzes
<i>Assignment</i>	Tool for managing tasks
<i>Progress</i>	Tool for monitoring pupil progress (according to grade/badge)

6.1 Creation of Communities and Interconnection in Edmodo Social Network

Edmodo is a convenient tool for connecting participants that are united by a common interest. As a result, pupils and teachers from different schools can participate in a common project. Figure 1 illustrates the basic steps of the creation of communities in this system.

Figure 1: Creation of communities (own schematics)



Step 1: Registration Teacher/Student/Parent

To be able to enter the Edmodo environment, one needs to register first – as a teacher, pupil or parent. When integrating technology into the school environment it can be assumed that the initial steps will be taken by a teacher, the school management or an ICT instructor (hereafter “the teacher”). When editing a profile, the teacher can set the subject area, the level of classrooms in which they teach or their representative role (Administrator, Principal, Teacher, Librarian, Tech Coordinator, Counselor, Coach, Tutor) and communicate it via email.

Step 2: School registration

In the next step one can begin the process of school registration.

Step 3: Small Group

After successful integration, the teacher/administrator has the right to set up a group/project team (the user with the pupil status does not have this possibility, thereby the security of the pupil in such an environment is enhanced).

Step 4: Users

Following the invitation of other participants into virtual groups via email or group code.

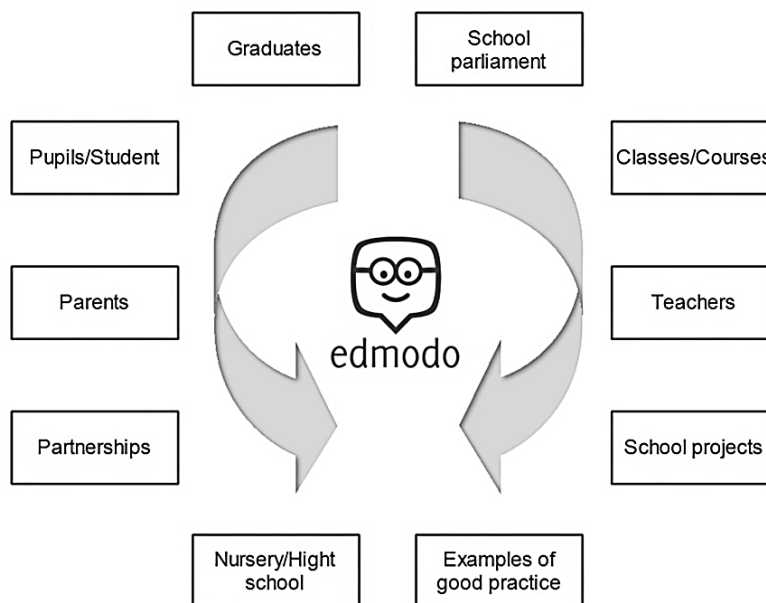
Step 5: Request

The participant, who received an invitation by e-mail, must register, edit his profile, and then confirm the request in the notification bar. In the case of an access code, the user must register and insert the access code via “Join a Group” button. The acceptance to the group means that the user can use all the available tools, e.g. Poll, Quiz, Note, Assignment, Word, Excel, PowerPoint, etc.

6.2 School Social Network Vision

The potential of community platforms encourages the creation of many theme-based groups, not only for teaching, but also to promote communication with teachers, colleagues, parents and former pupils. Social networks can also be a good solution when email communication has become ineffective, e.g. mass communication with teachers, planning of school activities, communication and cooperation with kindergartens, high schools, libraries, etc. The following diagram shows the possibilities of the building of a number of communities in the Edmodo environment (see Fig. 2). Another example of the community can be “virtual staffroom” for teachers, which can speed up access to information.

Figure 2: School communities (own schematics)



7. Social network development

The following are the important features of a functioning social network: distribution of roles, nomination of the administrator, setting the rules for group supervision, solving possible disputes. Every network member should have a clear understanding of their position and responsibilities in the group. In order for the proposed social network to have a chance to be accepted into a school environment, it is essential that as many people as possible are involved in the process of change, especially the school management which is the control element of the network. A similar idea is proposed by Broß et al., (2007) in the paper *Elevating Participation in Virtual Communities*. Other factors determining the success and the level of participation in virtual groups are trust, anonymity, a sense of belonging, increased social status (recognition, financial award) and others.

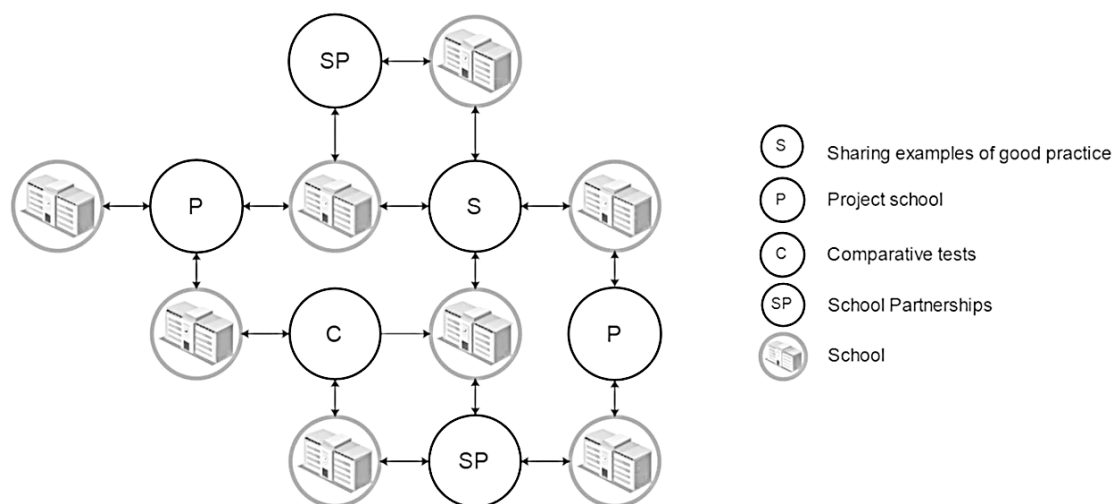
The rules for stability and development of a functioning educational social network can be found in the connectivism approach. According to connectivism, learning begins when a learner is connected to and engaging in a learning community (Gerard and Goldie, 2016; Reese, 2014; Thota, 2015).

The theory of connectivism -- learning in the network environment -- tries to reflect certain specifics of the modern information society. The main idea is a notion that learning is based on the knowledge network (Thota, 2015). Learning is perceived as a process during which individual knowledge nodes are being interconnected (Gerard and Goldie, 2016). In a graph, this situation can be described through nodes, which represent information, and edges, which represent knowledge.

A suitable system should fulfill the principles autonomy, diversity, openness and Interactivity (Downes, 2010). The principle of autonomy means that every participant in the network should be able to carry out his own goals and share them with his community, which in turn influences him. Diversity points to a network with a number of different elements, each of which has its own contacts and differently conceived inputs. Openness means the necessity of building a network without restricting its inputs and outputs. Entities -- the nodes of the network -- must have the freedom of interconnection, so called dynamic contact creation. The last principle, interactivity, encourages a mutual reaction of the network participants. Only interactive networks are useful for learning, since the process that takes place with the participation of the community, means discovering something new.

Mutual interconnection of the individual community entities (teachers, schools, project teams, etc.) leads to the inception of dynamically variable interconnections according to the particular requirements of the school (not only in the context of project activities) and its members, see Figure 3.

Figure 3: Social network of participating schools (own processing)



8. Practical Application in School

Deployment of the social network into elementary schools is to be conducted in three phases. Before the initial implementation of the project activity (within school partnership), the Edmodo application should be first introduced to the teachers, who need to learn to trust such media. To better navigate in the given environment, a methodology with video tutorials was created which will be available to the teachers within some of the communities (the possibility of sharing these materials is being discussed). These materials should be prepared in advance and updated regularly.

In the second phase the project activities should be implemented at the school level, focusing on developing cooperation between pupils (for example single subject or pupil projects). The realized activities will contribute to the collection of examples of good practice.

In the third phase, the designed network should be implemented into the environment of elementary education within the interscholastic project activity, attended by partner elementary schools (three – in this study).

The project contains topics from the regional history of Cieszyn Silesia, particularly a specific dialect called “*Po naszymu*” with elements of both Polish and German languages. The target group consists of the 7th and 8th grade elementary school pupils (i.e. 13 and 14 years old). Within the scope of project instruction pupils will become familiarized with the Edmodo environment, and will try out a number of online tools, particularly the blog, Wiki, and the platform of augmented reality – Aurasma. The pupils will cooperate in creating a video glossary and other digital materials in an entertaining way. These produced materials can be shared among pupils across schools. In case of a successful implementation and positive reaction of all the participants, the schools can continue in building the social network even after the completion of the project activity.

9. Discussion

The aim of the study was to show the possibilities of effective use of social networks in the environment of elementary education and finding a suitable platform that takes into account the safety of pupils in an online environment.

It was found that the elementary school teachers are not sufficiently informed about this issue and often do not have the necessary competence to work with ICT, which causes a number of concerns, sometimes even prejudices. Teachers are the key agents of implementing digital technology into elementary education (Ministry of Education, Youth and Sports, 2014). Due to the continuous development of new technologies and their significant variability, the teachers cannot be expected to continuously monitor these developments (Zounek, 2012) and learn to work with all of the new technologies.

The selection of online technology is currently dependent on the decision of individual teacher. This may lead to a certain chaos, inconsistency and ambivalence of used services. Since the plethora of available technologies, the aim was in identifying the most versatile tool that would combine several functionalities of Web 2.0

simultaneously. Also the safety aspects of this tool must not be overlooked, since they are important for education.

Social networks appear to be a suitable solution (in this case Edmodo), since they facilitate communication as well as information sharing across workgroups, even across the entire school. They foster cooperation and allow interconnection of teachers' and students' work in the school as well as outside of it.

The use of social networks is also found in areas where e-mail communication seems to be inefficient (for example in mass communication among teachers). Deploying an educational social network into the school environment appears to be a suitable solution for separating the private and professional identity of a teacher in an online environment. Unlike in the case of the "public" social networks, both the pupil and the teacher are not in danger of losing their privacy. Apart from a username and a password the pupil does not provide any personal information. Educational platforms do not interfere with the privacy of its users more than is absolutely necessary. Again, problems may be caused by the network's environment in a foreign language or the instability of an Internet connection, which some schools still struggled with.

The successful adoption of a new technology depends primarily on the interactivity of the participants and their willingness to share. It is necessary to involve the widest possible number of participants, especially the school management. The active participation in the network would warrant its usefulness.

10. Conclusion

Social networks, or social media, have significantly influenced a number of areas of human activity, including education. In primary education, the use of social media is limited by the traditional approach to instruction, which results in its potential not being fully utilized.

For today's generation, the environment of social networks is quite familiar and attractive. To them it represents not only an important communication tool, but also a space for shaping their own identity. The question arises: why not use this potential for educational purposes?

Support tools reflecting the safety of pupils in the online environment were analyzed, including the community network eTwinning, enterprise social networks and social networks for teachers and pupils.

Social networks seem to be a suitable tool for safe entry of new technologies into elementary education. Based on the study carried out (using quantitative and qualitative methods) a network for teachers, pupils and even parents, called Edmodo, was analyzed. Edmodo allows for the interconnection of project teams from different schools, communication with users and the building of professional ties. It provides a suitable environment for safe and flexible communication and a space for cooperation, including the deepening of social ties of all participants. The potential of community educational platforms can be utilized not only in the classroom, but also in the process of school management (social networks as a supplement to the school information

system). The contribution of social networks can be evaluated from the point of view of the pupil, the parent/legal representative, the teacher or the entire school.

The aim was to design, specify and implement school education network into basic schools. Virtual social network, as a supplement to the school infrastructure, was implemented into the schools within the project activity of the participating schools, namely the project “*Po našem*”. The theme of the project was a remembrance of the disappearing dialect typical for the area of Těšín Silesia. In case of successful implementation of the project through social networks gives the school a valuable example of good practice that can inspire other schools and educational institutions to implement internal social networks.

In order for the proposed social network to have a chance to be accepted into a school environment, it is essential that as many people as possible are involved in the process of change, especially the school management which is the control element of the network. It is necessary to gain the trust in these technologies and support their interactivity, i.e. a mutual reaction of the network participants. From view of the theory connectivism are only interactive networks useful for learning. This study offers a possible insight into the use of theory connectivism in school practice within project activities of schools.

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