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FOSTERING GROUP-WORK ACTIVITIES USING CSCL AT ELEMENTARY SCHOOL IN ROMANIAN-FINNISH SCHOOL

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Nowadays, when humans grow in a digitalised society, it can be seen how the technology being used in different ways. We can spot that technology heavily used in daily life, which means that has expanded and used anywhere. The current generation of people seem to be a great generation of using the most common devices: computers, mobile phones, so present/current generation is quite familiar with the technological devices. It seems that people use their devices mostly within the scope of social media, but it seems only few people use the devices with the scope of learning.

The previous studies demonstrated that the use of educational technology in classrooms has caused positive student attitudes, more student engagement and an increase in student achievement. Among this fact, the educational technology has allowed more opportunities for elementary students to work cooperatively in groups. The main impacts of teamwork helped students to gain self-esteem, encouragement, to become effective learners (active learners, the learners learn each other) and communication skills. The present study aimed to analyse the group-work experiences of learning using the educational technology as support in collaborative learning background.

The participants were elementary school students from Romanian-Finnish school located in Bucharest. The total number of subjects that were integrated in the present study was 90 elementary school students from K-5 to K-7. Educational technology, collaborative learning and group-work were used to analyse how the elementary school students behave in different settings. The data was gathered with semi-structured interviews to analyse the qualitative content analysis and quantitative data was used to analyse the answers given by participants.

The results of the present study give further evidence that collaborative learning helped the elementary school students to achieve higher performances in learning. In this matter, in-group learning activities there were challenges when the task was difficult and the limited time. Despite the fact of encountering challenges in group work activities, the elementary school students developed new academic skills: critical thinking, problem-solving and driven approach in using technological devices. From psychological point of view, including collaborative learning, the students gained the self-esteem, less anxiousness.

Keywords: collaborative learning; group-work; computer supported collaborative learning; experiences
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1. Introduction

Nowadays it can be seen how the world evolves with the speed of light. Here we talk about the new pedagogies and the new learning paths in modern era.

The topic suggested for this study aims to highlight two main theoretical approaches: group-work and computer supported collaborative learning. In the previous studies are clearly mentioned the strengths of group-work activities (Burke, 2011; Davis, 1993). The main strength of integrating group-work activity as a strategy is the effectiveness of learning where the students are active and involved.

This study will highlight the experiences of elementary school students involved in group-work activities in the light of computer supported collaborative learning. The topic is suggestive in Romanian context. The previous studies show that the frontal learning and individual learning are barely emphasized in classrooms than group-work (Sarivan, Leahu, & Singer, 2009). In the actual times, Romania needs to have a reformed curriculum where the group-work, collaborative learning and computer supported collaborative learning are introduced as a daily routine in Romanian pedagogy. This study aims to change the attitudes and to see what experiences elementary school students will encounter in the group-work activities in the light of integrating educational technology.

Schunk (2011) in his research study tells that over the years, the development of learning sciences has expended people’s understanding of pedagogy. It is well observed how the teaching and learning methods are being updated with new insights as collaborative learning and cooperative learning.

The research says that only a few people experienced the technological applications in the domain of learning. But currently, we are so intimately connected and reliant on technology that it is an increasing part of our cognitive processes and affects our very nature (Kellman et al., 2008, p. 216). The question that may rise about the situation of using educational technologies in elementary school is what kind of experiences of learning do the elementary school students have upon using technology?

Nowadays, when humans grow in a digitalised society, it can be observed how the technology is used in different ways. We can spot that technology is used in daily life, which means that it is being expanded and used anywhere. Jones and Shao (2011) affirms that the current
The new ways of teaching and learning seem to be continuously in progress. Throughout this, Informational Technology computers are also transforming pedagogy by providing new ways of engaging the learners. There is a combination described as Technological Pedagogical Content Knowledge (TPACK). The framework is described as a complex interaction among the bodies of knowledge: the content, pedagogy and technology. Koehler & Mishra (2009) states that the interactions between the main components which build up TPACK model, produce the types of flexible knowledge needed to successfully integrate educational technology in the didactical act of teaching.

We live in 21st century and there is a necessity of getting new skills that promote the learning community and collaboration. It is stated that students must learn and get familiar with the new 21st century skills for a great success in today’s world (The Partnership for 21st Century Learning, 2015).

**The impact of educational technology in Romanian school**

Technological education has a particular relevance for the Romanian society and education system after 1990; one year later after the collapse of communism. Between intellectual and technological education, there are close relationships: education and the progress of educational technology.

Using PCs in the learning process from Romania has led to better results for pupils. 63% of teachers who attended a study organised by Centre for Innovation and Education (TEHNE Romania) commissioned by the processor manufacturer Intel. Also, in the study, Efficiency of using new technologies in education” 61% of teachers say that the students are well skilled in problem-solving tasks and they improved group-work skills. The main causes of using less educational technologies in Romanian schools are the lack of contents or software applications for supporting lessons – 30,9% the resistance within school -25%; the lack of
internet connection – 23.5% and the lack of funds for purchasing new equipment’s. The study has been deployed in September-December period of TEHNE Romania, as part of deployed research at European level, Middle East and Africa (MediaFax.ro, 2010).

_Educational technology in elementary schools_

Motivating children to learn is a challenging task for many teachers. Many children are coming to school with very little enthusiasm to learn. In a recent article in Education World called _Technology as a Tool to Support Instruction_, Schrum (2005) presents her views on the ways that technology can enhance learning and motivate student learning. She also comments on many benefits of integrating technology in the classroom. The use of technology in the classroom can be a positive influence on student learning. Researchers have found that the use of technology in classrooms has caused positive student attitudes, more student engagement and an increase in student achievement (Butzin, 2001; Page, 2002).

Butzin (2001) found that when technology was integrated into the curriculum, students became highly engaged for longer periods of time. Lamade (2006) found that when students in a second grade class at Creswell Elementary School were working on their handheld computers, the students hardly talked and if they do it’s related to the lesson. Technology has also allowed more opportunities for students to work in cooperative groups. Working in cooperative groups when using technology encourages students to learn. In a study conducted by (Drijvers et.al. 2010), they found that working in groups, “encourages students to learn how to work effectively with one another” (p. 21). It also keeps students engaged. Teachers reported that students working in cooperative groups made it easier for students to work.

Student’s performance increases when teachers integrate an application that directly supports the standard(s) being addressed. Researchers have found that carefully selected technology uses and alignment between content-area learning standards can significantly increase test scores (Cradler, Freeman, & Burchett, 2002). In an eight-year longitudinal study of SAT-1 performance, the participants of a technology-integrated school reform in New Hampshire demonstrated an average increase of 94 points compared to those participating in a traditional school (as cited in Cradler, McNabb, Freeman, & Burchett, 2002). Those participating in the technology-integrated school reform both students and teachers, were given portable computers with campus network.
Page's (2002) research study also confirms the findings that technology– enriched environments can affect student achievement, self-esteem, and classroom interactions. This study observed 211 low socioeconomic children of various backgrounds and ability levels from 10 classrooms at five Louisiana elementary schools. Intact third or fifth classes from these schools were randomly assigned to either the treatment group or the control group. The treatment classrooms contained a variety of software and hardware, while the control classrooms did not. Some of the hardware made available in the treatment classroom was: one teacher computer, at least four student computers with Internet connections, a TV monitor, a presentation device and a videocassette recorder.

Based on previous studies mentioned above it can be clearly seen that the group learning experiences are not studied. The group learning experiences will be studied in the second part of our study to see how the elementary school students describe these experiences in group-work tasks. Also, in Romanian school context would be an advantage for society due to the fact that the present educational system will be better organised including group-work as a main learning strategy. Regarding our study’s aim we will analyse the following theoretical concepts: group-work, collaborative learning and computer supported collaborative learning. So, the whole research will emphasize on group learning experiences, the abilities or skills of elementary school students in using technological devices.

2. Theoretical framework

The theoretical framework of this research is based on two main broad concepts that put in the light the academic needs of an elementary school student. Nowadays the world changes tremendously and the students should be prepared and trained for the future. This study will emphasize on group work where will be analysed the experiences of learning in groups in the context of Romanian school and the efficient ways of using technology for learning purposes. The topic is very important in the context of Romanian education due to the fact that the actual pedagogy and curriculum contents need to be improved with what the primary and elementary school students should be skilled.

To my understanding, the concepts that should be studied are formed of group work (experiences of learning in groups) and the computer supported collaborative learning using collaborative learning approach. In my perspective of what I could see, only the individual
work was the main body of learning. The collaborative learning where they learn in groups and develop new skills will have a big impact in students’ development.

This approaches have a big priority in Romanian school. A study shows that Romanian students don’t know how to use effectively the technology when they learn (Sarivan et al., 2009). A big percentage of students/pupils use the technology with the scope of being in social media (SoMe). We consider that showing other modalities as learning scope will lead students to adopt new attitudes toward learning.

2.1 Collaborative learning

Today’s learning style continues to evolve. An approach of learning is the collaborative learning defined as a situation in which two or more people learn or attempt to learn something together (Dillenbourg, 2007, p. 1). It is stated that collaborative learning became an important part of education where the research in collaborative is distributed separately in different areas, such as: educational psychology, instructional design, learning sciences and the computer supported-collaborative learning (Hmelo-Silver, ODonnell, & Chinn, 2013, p. 1). The researchers are coming up with the idea that the traditional teaching does not provide students with the opportunity to learn how to build argumentation and express their opinions on a high-educational level that is the essential criteria to master the learning area (Weinberger, 2011).

The collaborative learning is a very broad concept and this part will emphasize on the three basic definitions that are quite familiar in the learning science literature. The most popular and known definition was given by Roschelle and Teasley (1995) who define it as “coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shard conception of a problem” (1995, p. 70). The other definition is written by Gokhale (1995) stating the collaborative learning as an “instruction method in which students at various performance levels work together in a small groups toward a common goal”.

When the students work together toward a common goal, this type of learning has been called by various names such as cooperative learning, collaborative learning, collective learning, learning communities, peer learning or team learning (Dooly, 2008).

“Cooperative learning is a process meant to facilitate the accomplishment of a specific and product or goal through people working together in groups” (Dooly, 2008, p. 22). In other words, when the students work in-group, each of them performs a common goal sharing their
responsibilities and tasks. When they work in groups, they are responsible for each other because the whole structure of the assignment is equally divided.

The actual research states that the collaborative learning is more efficient in achieving higher learning results when working alone is less (Järvelä, Hurme, & Järvenoja, 2011). In order, to make the collaborative leaning more effective than individualistic learning, there are several methods to take into consideration according to (Dillenbourg, 2007): setup of conditions: the group size, same viewpoint vs. opposing view-point, gender; role-based scenario: problems that cannot be solved with only one type of knowledge and interaction rules: free communication and predefined communication patterns. Monitoring and regulation of interactions: need for specific tools for the teacher (British Columbia Institute of Technology, 2010; Li & Lam, 2013) identified 5 factors that should be included in collaborative learning: positive interdependence (the participants involve in highly structured activities in which each student is asked to take on one of a few specific roles); individual accountability (each member of team is responsible for achieving all of the learning outcomes associated with an assignment); face-to-face interaction (students in a learning group promote each other’s productivity and learning through the use of sharing, help and encouragement); appropriate use of social, interpersonal, collaborative and small-group skills (students are encouraged to develop and practice trust-building, leadership, decision-making, communication and conflict management skills) and group processing (the group members set the main goals and periodically they asses what they are proceeding well as a team or group).

The benefits of collaborative learning have long been studied and researched. (Laal & Ghodsi, 2012) split the major benefits of collaborative learning in four categories as follow: social, psychological, academic and assessment. These categories are subdivided to be more detailed: social benefits

(CL helps to develop the social support system for learners; leads to build diversity understanding among students and staff; establishes a positive atmosphere for modelling and practicing cooperation; develop learning communities); psychological benefits: cooperation reduces the fear or anxiety; cooperation may increase the students’ self-esteem and collaborative learning develops positive attitudes towards teachers; academic benefits are beneficial for elementary school students because they start to develop the argumentation skills (critical thinking) when they are required to solve a problem/task. It is approved that
collaborative learning engages the student to be more active in learning process and to use appropriate problem-solving techniques (Laal & Ghodsi, 2012, p. 487)

Collaborative learning is seen as a challenging approach that it is still possible to achieve. In the previous paragraphs, the collaborative learning was presented as a new approach that leads to deeper individual learning and understanding (Lipponen, 1999).

2.1.1. Teachers’ role in collaborative learning

As it has been mentioned previously, the pedagogy tends to evolve day by day. Today’s learning becomes more attractive due to new learning styles. One of them is the collaborative learning. This part of our paper emphasizes on teacher’s role in collaborative learning. In this setting, this type of learning is beneficial because the fact of new skills that are gained: the argumentation and critical thinking (Laal & Ghodsi, 2012).

Lal (2014) says that the collaborative learning is a useful due to the fact that improves the teaching and learning process in the classroom. We agree that collaborative learning is an effective method because in the collaborative learning the learning process is self-directed to students. They are involved in groups and the knowledge is shared. In this case, the role of teacher is to monitor the group activity. By this, the teacher plays the role as a facilitator.

The group work has good results if the students know how to cooperate in their teams. The tasks have to be equally divided. In psychological dimension perspective, the students have to trust each other and respect each other to avoid the possible difficulties that may impede their progress (Lal, 2014, p. 89).

It is said that the teacher should track the student’s work in groups to a specific subject to complete the assigned requirement. To avoid unexpected difficulties in collaborative learning, the teacher has to facilitate the group work by asking questions to guide the students to their work. There are students who do not understand well the requirement and they need more guidance. Sometimes it happens when student explains to his co-worker. In addition, teacher should provide the necessary information when students are struggling with the assignment or task. The research states that the main solution is to reinforce the student’s efforts for working in groups or collaboratively. By this, they develop the problem-solving skills (Lal, 2014, p. 92).

In the classroom, the teacher is the main mentor, the sole in-charge of his/her classroom. To ensure the collaborative learning being successful and effective, in the literature the roles
teachers should play are presented in collaborative setting as (D W Johnson, Johnson, & Johnson Holubek, 1998) states. The main purpose of a lesson needs to be specifically stated by the teacher to the group students. They have to supervise and lead the team interaction, which is followed by the teacher’s evaluation of teamwork and collaboration, so that the performance can be assessed.

2.1.2 Group work experiences in the literature research

Group work activity can be a method to come in the help of elementary school students to motivate, to encourage the active learning and develop the critical thinking skills, communication, decisions-making skills. Collaborative work in small groups is designed to develop different skills that will be split into 5 categories (D.W. Johnson, Johnson, & Smith, 2014) as it follow:

a. positive independence: pupils need to feel that their success depends on whether they work together or not
b. face-to-face supportive interaction: pupils need to be effective in helping one another learn and provide positive feedback
c. individual and group accountability: everyone has to feel that they contribute to achieving the group goals
d. interpersonal and small-group skills – communication, trust, leadership, decision making and conflict resolution
e. Group processing – the group reflecting on its performance and functioning and on how to improve.

The main elements of group work that are identified as crucial by literature research are:

1. Giving and receiving help: one of the main advantages of cooperative small-group work lies in the help students give one another. In his review, Webb (1995) reports a positive relationship between giving content-related help and achievement. Nattiv (1994) found that giving and receiving explanations was positively related to achievement, giving and receiving other help was slightly positively related to achievement, while receiving no help after requesting it was negatively related to achievement.

2. Social skills: Problem-based learning promotes social learning and skills as children practice and become proficient with the twenty-first-century skills of communication, negotiation and collaboration. As children, they should brainstorm ideas and act as a
good listeners to their group members (Bell, 2010). A number of studies have found that while small-group work is positively related to achievement when group interaction is respectful and inclusive, use of group work is actually negatively related to achievement if group interaction is disrespectful or unequal (Linn & Burbules, 1993; Battistich et al. 1993).

3. Organising small-group work: For small-group work to be effective, one needs to take a number of elements into account in the structuring of the task. Before commencing the task, the goals of the activity need to be clearly stated and the activity needs to be explained in such a way that no ambiguity can exist about the desired outcomes of the task. The teacher needs to make clear that cooperation between students in the group is desired. According to Slavin (2017) the goals need to be group goals, in order to facilitate cooperation, which need to be accompanied by individual accountability for work done in order to avoid free-rider effects. Giving both group and individual grades can help accomplish this, as can use of a shared manipulative or tool such as a computer.

It is important to acknowledge that there is a firm evidence that cooperative group work is effective in improving attainment compared with pupils working alone (David W Johnson & Johnson, 2001).

2.1.3. The difference between cooperative learning and collaborative learning

In this chapter, the collaborative learning has been presented as a synchronous activity in which the students are involved and active in learning process. The purpose of collaborative learning is to enhancing the students’ capability to arise new skills: social, academic and psychological.

Panitz (1999) clarifies the differences between cooperative learning and collaborative learning. In the collaboration, the students interact without having any responsibilities. The participation is active, and the interaction is present. In terms of cooperation, the concept is defined as a set of processes that help students to interact with the aim of accomplishing a specific goal or develop a product, which is usually a content. The main approach in cooperative learning is based on creativity, analysis and systematic application of structure. The biggest advantage is that in the classroom the students can organise the social interaction (Sharan, 2015).
The literature shows that in collaborative learning setting, the students are responsible with their tasks while in cooperative learning they are performing only social interaction. To my understanding, the collaborative learning is more crucial due to its benefits. The subjects perform new skills and at the same time, they learn how to cope when they face difficulties in learning.

2.2 Computer supported collaborative learning

Besides the collaborative learning discussed in the previous chapter, there is a new practice in education that assumes computer technology for promoting/fostering interactions between learners. While collaborative learning traditionally trains the students to discuss or defend their ideas, engage in the learning activities, take multiple perspectives without direct teacher involvement (Roschelle & Teasley, 1995).

According to (Stahl, Koschmann, & Suthers, 2006, p. 410) CSCL represents a field of study centrally concerned with the meaning and the practices of meaning-making in the context of joint activity and the ways in which the practices are mediated through designed artefacts. Many researches (Goodyear & Retalis, 2010; Stahl et al., 2006) have conducted researches on how the computers are used in classrooms and how the computers can support collaborative learning.

The most recent term used is technology enhanced-learning (TEL), computer assisted instruction (CAI), computer aided learning (CAL), logo as Latin Computer supported collaborative learning (CSCL) were used to describe the learning situation where technology is used to help the learners. In this context, we will analyse the elements of CSCL with the three main components as Kirschner and Erkens (2013) highlight in their theoretical framework. Secondly, should be considered the modalities of using computer supported collaborative learning in elementary school class.

2.2.1. Computer supported collaborative learning elements

In the teaching and learning process, the teacher may connect the collaboration and the technology to facilitate the activity. The computer supported collaborative learning is compounded by three basic elements that includes: pedagogical elements, social element and the technological element (P. A. Kirschner & Erkens, 2013). Based on these elements, the researcher will emphasize on the specific components to see how the students behave: pedagogical element, social element and technological component.
The first element that we find in this study is the pedagogical element that is an element of CSCL environment. The role of this pedagogical aspect is to facilitate the learning process when the elementary school pupils work together on a task. The specific tools are embedded to fulfil the students collaborative task: an interactive tool that requires them to come up with their contribution and explanations; the epistemic prompts will engage students to explain their own contribution and others team colleagues; the last tool for fulfilling the collaborative task which we find is the representations that comes in help to support the students through learning task (P. A. Kirschner & Erkens, 2013; P. Kirschner, Strijbos, Kreijns, & Beers, 2004). The instruments being used by the teacher contribute on supporting the metacognitive and cognitive aspects (scripts and computers).

According to (P. A. Kirschner & Erkens, 2013; Kreijns, Kirschner, & Jochems, 2003; Piet Van den, Wim H., Segers, & Kirschner, 2006) the social element is the collaborative part or component of CSCL. They state that this element is the main body that takes students to work together constructively on a learning task. In this process, there are included tools contributing: the group awareness and on the other side the tools that engage them to reflect upon their actions giving feedback (Fransen, Weinberger, & Kirschner, 2013; P. A. Kirschner & Erkens, 2013).

The technological element help students to socialise between them. The main advantage allowing them to communicate is the face-to-face communication or via network with each other during collaboration. This technological part emphasises on cognitive tool (text processor) where the students can organise their ideas and reflections in a written common product. A cognitive scripting tool can accomplish the students to pursue itemised problem-solving steps to figure out the collaborative assignment at hand (Slof, Erkens, Kirschner, Jaspers, & Janssen, 2010) whereas the social scripting instrument can assure or provide learners with scenarios for social interaction.

### 2.2.2. The pedagogical challenges for Computer Supported Collaborative Learning

The recent research demonstrated the computer supported collaborative learning has very good effect impact: among years, it has enhanced learning outcomes with regard to knowledge construction. In this study of Lipponen (1999), several studies showed that in order to successfully use of CSCL in different settings, the several challenges have to be met, which are divided into three main categories (Lipponen, 1999) as follow: technical challenges – teachers and students expertise in ICT (information and communication technology) and
access to ICT; organisational challenges refers at how to obtain whole school organisation support for empirical change with CSCL.

The main challenge of teachers in CSCL is how to establish a supportive environment that allows students to gradually assume responsibility for high-level practices of collaboration and building knowledge construction process (Lipponen, 1999).

3. Methods

The current study is a mixed method research. Mixed methods research is recognized as a third model of research in social and behavioural sciences. Its value for educational research just recently began to be discussed in the literature (Moscoso, 2017). A mixed methods research study means the use of quantitative and qualitative methods as components of a research design (Bliss, 2008; Caruth, 2013; Moscoso, 2017) or a research program (Walters, Lareau, & Ranis, 2008) Most of the literature on mixed methods research could be considered generic (Creswell & Garrett, 2008).

In order to proceed with the research process, the questionnaire and interview were used to gain more data information. The aim of this study is to seek further information’s about the elementary school pupil’s attitudes toward educational technology and the collaborative learning in the light of group-work activities.

Through interview, it is possible for the study subjects to express their opinions, feelings, thoughts and experiences (B. Johnson & Christensen, 2008) related to learning supported by informational technology computers in relation with collaborative learning. From the researchers’ point of view, it is possible to interpret the subjects’ perspective or phenomena (Kvale, 1996). The content analysis is a method described by the main approaches: conventional, directed and summative. These methods are used to analyse the data taken from text (interview transcript) in our case. In this way, the codes, categories and schemes were listed down from text then the third approach that I used was the summative content to count and compare the keywords and content (Hsieh & Shannon, 2005).

In this chapter, we mention the aim followed by research questions, describing the subjects/participants, study design and the data collection process followed by data analysis. Further, a detailed analysis is given to confirm/validate that elementary school pupils from
our study use the technological devices (mobile phones, laptops) for learning purposes. Secondly, we validate that there is a significance level between computers supported collaborative learning and group-work activities experiences.

3.1 Aim of the study

The aim of this study is to seek further information’s about the elementary school pupil’s attitudes toward educational technology and the collaborative learning in the light of group-work activities. The study will analyse the learning experiences in the group-work activities and the way of effectiveness/efficiency of integrating technological component (Microsoft Office tools).

3.2 Research questions

To gain more insight into the educational technology in relation with a set of activities to fostering the group-work, the following three research questions were set up for this study:

**RQ1:** How do elementary school pupils use the technology for learning purposes?

**RQ2:** What kind of technology users elementary school pupils are?

**RQ3:** How do elementary school pupils describe group work situations in school?

3.3 Context and participants

The participants in this study were elementary school pupils from Romanian-Finnish School, Bucharest, Romania. The elementary school pupils were working on different tasks related to collaborative learning and on a very trendy subject: careers. I chose this subject because it has an importance nowadays what to practice after they finish the study years. Based on this, they were divided in teams. Each team were given a task related to career. The age of participants vary between 10 years and 14 years (N=90; 43 boys and 47 girls and Mage = 11, 67). Most of the participants (N=61) are skilled in using their personal computers, laptops, smartphones
and the smart-board. When it comes to group-work activities and learning, they were less familiar (N=38). To ensure the anonymity of the participants, the names are not used, and no further information is given about their families or other information.

The participants chosen for the interview were expected to have a minimal experience in group-work and informational technology computer experiences. They were required to work in groups on a different tasks based on career paths. They had different roles: interviewer, employer and coordinator. As well, they had to cope with different problem-solving situations meanwhile they were expected to show positive attitudes towards learning new things and new situations when employer employs them. Further, as the study aims a better understanding on how the elementary school pupils use educational technology for learning purposes, the participants were expected to work in one or more teams.

The possible elementary school pupils were asked to be interviewed for researchers’ study. When the researcher contacted to headmaster of Romanian-Finnish school, the researcher mentioned that the elementary school pupils should have at least 12 years with experience of learning in different context: group-work, experiences of using technological tools (laptops, mobile phones and tablets). By accepting the request to be interviewed, the interviewees accepted to be interviewed. The first set of questions from my interview were related to their group-work experiences: (positive and negative aspects); the purposes of using technological devices.

3.4 Study design and data collection procedure

The data for the study was collected using semi-structured interview where six elementary school pupils from 7th grade participated in interview (Sherman & Webb, 1988). Duration of interview was in average 30 minutes. Interview was audio recorded on a smartphone with the permission of interviewees.

The digital audio recording is a well-known method nowadays that offers significant advantages related to audio quality, recording capabilities and the storage where the recording being stored (Byrne, 2001). The participants were Romanians; we decided that interview questions would be asked in English because their language level was very good. Even the interview was taken in other language than their native language, they were able to express their opinions, thoughts and feelings easily. The aim of qualitative research is to understand better their opinions about educational technology (how do they use, for what purposes, their
experiences) in relation with the group work activities (advantages; positive and negative description that are found in quantitative research). Whiting (2008) explains that in the qualitative research, the participant has the freedom to explain freely his/her thoughts, knowledge and feelings. However, in the quantitative research, the participant has a limitation when expressing himself.

To gaining more information from the elementary school pupils, the researcher divided the questions into three main categories as follow:

a. the impact of using technological devices for learning purposes
b. the effect/impact of group work activities among learning styles
c. difficulties and strengths encountered in group-work activities

The other method in collecting data was the questionnaire (Creswell & Garrett, 2008) that has been divided in three parts including questions about what kind of technology users; experiences of using technological tools elementary school pupils for learning purposes, the pupil’s attitudes towards learning and educational technology and the last part including their attitudes toward group-work or collaborative learning.

The total number of hours allocated for data collection was 6 hours. The other days, we had different kind of activities related to career paths. I included the collaborative learning and the elementary school pupils were scaffolding with the school’s laptops. The number of participants were N=90. They were 5th, 6th and 7th grade. The total number of participants were divided based on the total number of pupils included in class. The average team number was four participants in a group. In the first session, we have to know each other. During the first meeting, they were delightful to practice learning in groups based on collaborative learning task (they were asked to think about advantages and disadvantages when they work or learn in groups); we used Padlet, an online virtual board where students and teachers can collaborate, reflect and share knowledge, links, pictures, etc. The participants were self-determined and self-motivated to discover a new learning path. Using Padlet, the elementary school students were able to interact and learn from each other.

The other online learning platform was Microsoft Educator Community. The purpose of using this platform was to connect virtually the students and to show how the learning can become effective and efficient through computer supported collaborative learning. We mention that the school’s laptops featured with the sample version of Microsoft instruments: Word, PowerPoint, Excel and OneNote. Before starting the research, on behalf of school, the
researcher contacted Microsoft Enterprise to ask them for testing their products. Now, the school has the benefit of using the Microsoft Office tools. Each student was given a username and password. The fifth graders encountered difficulties in using the computers. Using the computers daily, they have become more confident in using computers.

The topics and questions were formed in the light of researcher’s previous knowledge about learning, educational technology and collaboration. The first topic was based upon the importance of using ICT tools in their school, online learning platforms that included three questions. The second theme was based on four questions related to group work to give certain answers to the three research questions in this study (see Appendix 1).

3.5 Data analysis

This voluntary study used NVivo a software to support the researchers to do the qualitative data easier and more efficiently. The software can manage the data, manage ideas, query data, visualise data and report from the data. NVivo continue to be used by the researchers and to get feedback from the users, which will guarantee more data that are powerful software (Bazerley & Jackson, 2013). NVivo has been used to analyse audio data to finding what kind of experiences do the elementary schools encountered in-group work situations and to analyse the different types of emotions.

This study analysed data in two rounds. In the first round, the researcher analysed the experiences of the elementary school pupils in the group work situations from the audio recording data and the questionnaire where they were able to express their experiences and opinions about the group work activities. In this part, it has been analysed the experiences of learning with the support of educational technology.

For the purpose of research, the researcher has transcribed the aspects of collaborative learning in different group work situations. The use of transcription helped the researcher to find out the positive aspects of collaborative learning (Laal & Ghodsi, 2012) and negative aspects of group work in different situations that taken from audio recording.

In this manner, the researcher coded the influence of educational technology towards learning in eight sub-categories: creativity (f=3); practical skills in-group (f=13); efficient learning (f=8); seeking help (f=5); interaction (f=8); positive reactions (f=8); positive behaviour toward educational technology (f=4).
The second round was finding out what kind of emotions they expressed in the group work activities in the classroom, which focused on whether the students expressed verbal or nonverbal communication: happiness \( (f=1) \); excitement \( (f=2) \) and the enthusiasm \( (f=6) \).

---

### Table 1- Positive aspects of group work situation and data example

<table>
<thead>
<tr>
<th>Category</th>
<th>Coding rule</th>
<th>Data example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking</td>
<td></td>
<td>„we can think in different ways”</td>
</tr>
<tr>
<td>Sharing knowledge</td>
<td></td>
<td>„the fact that we share our ideas and knowledge”</td>
</tr>
<tr>
<td>Problem-solving</td>
<td></td>
<td>„build an unique idea”</td>
</tr>
<tr>
<td><strong>Cognitive benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental thinking</td>
<td></td>
<td>„ I can understand better what I have to do”</td>
</tr>
<tr>
<td>Behaviour</td>
<td></td>
<td>„ … can work slower”</td>
</tr>
<tr>
<td><strong>Influence of integrating educational technology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity</td>
<td></td>
<td>„ ICT made me to think freely and creative”</td>
</tr>
<tr>
<td>Skills in group</td>
<td></td>
<td>„ I think creativity has no barriers because I think it’s better to stay out of the box, not in the box, because if you stay in the box but you must be different of all”</td>
</tr>
<tr>
<td>Efficient learning</td>
<td></td>
<td>„ we talked while working on laptops”</td>
</tr>
<tr>
<td>Seeking help</td>
<td></td>
<td>„ have learnt how to use the laptop better and Office”</td>
</tr>
<tr>
<td><strong>Psychological benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excitement</td>
<td></td>
<td>„ You can feel happy because you work with your friend”</td>
</tr>
<tr>
<td>Joyfulness</td>
<td></td>
<td>“I am just happy”;”…we all”</td>
</tr>
</tbody>
</table>
Enthusiasm

have fun in learning”
“when we work in teams there is a whole mixture of good feelings like happiness”
“, I like very much to work in groups”
“, I feel wow when you show us interesting things that we can use”

On the other side, the elementary school students faced with negative experiences in the group work activities. Using Nvivo, the different codes were sub-categorised as follow in the listed Table 2.

Table 2 - The table of negative particularities encountered in group-work activities

<table>
<thead>
<tr>
<th>Category</th>
<th>Coding rule</th>
<th>Data example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour</td>
<td>Blame</td>
<td>„ you can blame on your mate”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>„ when I don’t want to work you just blame your mate”</td>
</tr>
<tr>
<td></td>
<td>Bullying</td>
<td>“I think it’s cool when you work in group because you can blame each other – laughing”</td>
</tr>
<tr>
<td></td>
<td>Defiance</td>
<td>„ I can offend my mate”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I hate the idea when my mate makes me stupid just because I don’t agree with him”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>„ … when we are in group and don’t appreciate the work of our mate we discourage him”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>„ we just offend and put our burden on our mate”</td>
</tr>
<tr>
<td>Emotions</td>
<td>Frustration</td>
<td>„ … sometimes my mates made us feel stressed and couldn’t concentrate on our task”</td>
</tr>
<tr>
<td></td>
<td>Weariness</td>
<td>„ … we can’t have any fun and then we have something like: see, we lose”</td>
</tr>
<tr>
<td>Lack of coherence</td>
<td>Involvement</td>
<td>„ my mate looks at me how I work and he doesn’t work at all”</td>
</tr>
<tr>
<td></td>
<td>Conflicts</td>
<td>„ we were hhhhhh when we got angry…”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>„ when there are mates in”</td>
</tr>
</tbody>
</table>
Apart of strengths that were analysed previously, we can see that the elementary school pupils faced with the weaknesses. The researcher has used the transcript of the interview and based on observations, he could observe the worst parts in group-work situation.

The other way of analysing the data was the survey that consisted 23 questions (see Appendix 1). They were categorised in four main categories: experiences of using technological devices (7 questions); the purposes of using the technological tools in learning (5 questions); the attitudes toward educational technology in relation with learning of the elementary school students (3 questions) and the last category was the group work experiences (8 questions). The questions were analysed using SPSS version 24. The frequencies were determined so that the reliability and validity tested with One-Way ANOVA and Nvivo 11 software.

### 4. Results

The aim of this study was to find the attitudes of elementary school students towards educational technology and learning in-group work situations. The results are reported in 3 phases or aspects: the experiences (skills) of using technological devices; the attitudes toward educational technology in school and home and the experiences of elementary school students’ in-group work situations. The phases are reported to the research questions of this study: *(RQ1)* – *How do elementary school pupils use the technology for learning purposes?* *(RQ2)* – *What kind of technology users elementary school pupils are?* Last research question was *how elementary school pupils describe the group work situations in school.*

4.1 What kind of technology users elementary school pupils are?

The data analysis indicate the skills of elementary school pupils in the 21st century. From the data, the researcher has observed how skilled are the pupils from Romanian-Finnish school at
the elementary school level. Below, the skills are listed down in the Table 3 that analysed the percentages and the number of elementary school pupils.

Table 3 - The skills in using the technological devices

<table>
<thead>
<tr>
<th></th>
<th>PC %</th>
<th>laptop %</th>
<th>smartphone %</th>
<th>smartboard %</th>
</tr>
</thead>
<tbody>
<tr>
<td>very poor</td>
<td>3.3</td>
<td>1.1 %</td>
<td>2.2 %</td>
<td>6.7 %</td>
</tr>
<tr>
<td>poor</td>
<td>8.9</td>
<td>4.4 %</td>
<td>5.6 %</td>
<td>27.8 %</td>
</tr>
<tr>
<td>acceptable</td>
<td>26.7</td>
<td>24.4 %</td>
<td>22.2 %</td>
<td>21.7 %</td>
</tr>
<tr>
<td>good</td>
<td>30.0</td>
<td>35.6 %</td>
<td>67.8 %</td>
<td>27.8 %</td>
</tr>
<tr>
<td>very good</td>
<td>21.1</td>
<td>34.4 %</td>
<td>61.1 %</td>
<td>71.2 %</td>
</tr>
<tr>
<td>don't know</td>
<td>10.0</td>
<td>2.2 %</td>
<td>2.2 %</td>
<td>20.0 %</td>
</tr>
</tbody>
</table>

*f* means the number of elementary school pupils.

Table 4 - The mean and standard deviation of skills in using technological devices

<table>
<thead>
<tr>
<th>Device</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std.Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC skill</td>
<td>90</td>
<td>0</td>
<td>5</td>
<td>3.27</td>
<td>1,490</td>
</tr>
<tr>
<td>laptop skill</td>
<td>90</td>
<td>0</td>
<td>5</td>
<td>3.98</td>
<td>0,936</td>
</tr>
<tr>
<td>smartphone skill</td>
<td>90</td>
<td>0</td>
<td>5</td>
<td>4.47</td>
<td>1,041</td>
</tr>
<tr>
<td>smartboard skill</td>
<td>90</td>
<td>0</td>
<td>5</td>
<td>2.47</td>
<td>1,637</td>
</tr>
<tr>
<td>Valid N (list wise)</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the obtained results, the researcher observes that most of elementary school pupils are very well skilled in the using smartphones (N=61; *M*=4.47 and *SD*=1.04). The smartphones are used frequently nowadays. The elementary school pupils use the smartphones with the scope of talking with their friends and family. Secondly, they communicate easily in a WhatsApp group with their mentor:

"I have only WhatsApp so I think WhatsApp is the best idea because it’s very useful to get information from our coordinator ... I think, Instagram is good too... we have to upload and tag our school weekly and describe our experiences”

They say it is the most efficient way to get the notifications from teachers. When they have individual work at home or in classroom, they keep talking and seek help from other classmates when they encounter misunderstandings in solving homework tasks. In one of the researcher’s activity, one pupil felt determined to learn. He started to use different forums for seeking different types of career. Their task was related to find in-group a well-known career and describe the skills. The researcher used an online board Padlet to facilitate the collaboration in groups. Out of using the smartphones, 35, 6% of elementary school pupils are
good users in using their own laptops (N=32; \(M=3, 98\) and \(SD= 0,936\)). There is a strong correlation between the smartphone and the smartboard skills. The skills of level good covers 23.3\% (smartboard, N=21; \(M=2,47\) and \(SD=1,637\)) where in smartphone’s case, the percentage of elementary school pupils raises up to 22.2\% (N=20; \(M=4,47\) and \(SD=1,04\)). The smartboard is not used often. Despite the fact of not using in often manner, the students feel motivated to learn how to use the smartboard. They confused the smartboard with the video-projector. Apart of them expressed, the smartboard is a video-projector but after several activities, they changed their impression. They concluded it is a smartboard where they can learn and interact virtually.

It is well observed that most of elementary school pupils are good users of technological devices. Table 3 shows there are low achievers in using technological devices: laptop (1.1\%); smartphone (2.2\%); PC (3.3\%) and smartboard (6.7\%). The students were asked by the researcher how confident do they feel in using technological devices and one of them told he is not allowed to use the laptop and personal computer at home. He explained the cause: his parents are afraid, and they do not trust the internet. It is stated that technological devices may cause health illnesses: the apps may change the human behaviour (National Institute of Health, 2017). A related example is Pokémon Go application: the users are warned. The Washington Post related the number of injuries that raised up to 55 in 2017.

The elementary school pupils from Romanian-Finnish schools are considered good users of technological devices. Below, the Table 5 will project a better sight of spending time in the front of smartphones, laptops, personal computers and tablets.

<table>
<thead>
<tr>
<th>Duration</th>
<th>PC/f</th>
<th>laptop/f</th>
<th>tablet/f</th>
<th>smartphone/f</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30 minutes</td>
<td>31.1%/28</td>
<td>27.8%/25</td>
<td>40.0%/36</td>
<td>6.7%/6</td>
</tr>
<tr>
<td>30-60 minutes</td>
<td>8.9%/8</td>
<td>34.4%/31</td>
<td>20.0%/18</td>
<td>23.3%/21</td>
</tr>
<tr>
<td>60-120 minutes</td>
<td>6.7%/6</td>
<td>13.3%/12</td>
<td>6.7%/6</td>
<td>25.6%/23</td>
</tr>
<tr>
<td>more than 120 minutes</td>
<td>20.0%/18</td>
<td>13.3%/12</td>
<td>10.0%/9</td>
<td>36.7%/33</td>
</tr>
<tr>
<td>never</td>
<td>1.1%/1</td>
<td>1.1%/1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>33.3%/30</td>
<td>11.1%/10</td>
<td>22.2%/20</td>
<td>6.7%/6</td>
</tr>
</tbody>
</table>

\(f\) means the frequency number of pupils

It is well demonstrated that 36.7 \% (\(M = 22.44; SD = 6.119\)) of the elementary school pupils use the smartphones more than 120 minutes a day. The smartphones are used minute by
minutes for messaging, getting news, etc. On the second top, the tablets are used by the 36 elementary school pupils between 0-30 minutes a day (40.0 %; \( M = 17.80; SD = 9.62 \)). Statistically, there is a strong evidence and strong correlation between personal computer and tablet (\( N = 90; r = 0.371; p = 0.01 \)) where the number of elementary school students that spend between 60-120 minutes in front of PC corresponds to the same time duration of students using the tablet. A number of 24 elementary school pupils confirmed they spend between 60-120 minutes and more than 120 minutes using their laptops.

4.2 How do elementary school pupils use technological devices for learning purposes?

The next paragraph in this study will analyse the experiences of using the technological devices by the elementary school pupils for learning purposes. Nowadays, the teachers find new ways on how to attract and motivate the pupils to be engaged in learning. In researchers’ activity, the pupils started to collaborate with each other as they being grouped in four teams. Each group was assigned to solve different tasks: the first group was assigned to find a trendy career; the second group have had to find the particularities for the name of career that first group gave the name. The third group had to prepare curriculum vitae for the interview. The last group had to organise a web meeting with the three groups. After all, they told:

…we haven’t had this kind of activity till today…. this is what we need, and we are sure it’s useful when you want to find a job… practically we used the devices and tested them to see how the employer recruits someone for the selected job” and they were asked if it was difficult to synchronise the strategy of collaboration with technological devices (smartphones or laptops).

One of the elementary school students, very extrovert told he has had not experienced this activity pattern. The student felt very important that he could express and contribute with his ideas (see Table 1). Most of the students started to use different learning applications after the session finished. The following table will present a big understanding about how they are using technological tools.

The Table 5 analyses and compares the percentages to find a relation between experiences of learning and skills in using devices.
Table 6 – Purpose of using technological devices

<table>
<thead>
<tr>
<th>Purpose</th>
<th>PC</th>
<th>laptop</th>
<th>smartphone</th>
<th>tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td>school assignments</td>
<td>44.40 %</td>
<td>53.30 %</td>
<td>34.40 %</td>
<td>22.20 %</td>
</tr>
<tr>
<td>listening music</td>
<td>7.80 %</td>
<td>11.10 %</td>
<td>16.70 %</td>
<td>16.70 %</td>
</tr>
<tr>
<td>gaming</td>
<td>2.20 %</td>
<td>1.10 %</td>
<td>1.10 %</td>
<td>2.20 %</td>
</tr>
<tr>
<td>video games</td>
<td>2.20 %</td>
<td>1.10 %</td>
<td>1.10 %</td>
<td>2.20 %</td>
</tr>
<tr>
<td>explore Windows features</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>downloading media</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roblox and Minecraft</td>
<td></td>
<td>2.20 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>instant messaging</td>
<td>2.20 %</td>
<td>11.10 %</td>
<td>26.70 %</td>
<td>3.30 %</td>
</tr>
<tr>
<td>digital art</td>
<td>1.10 %</td>
<td>1.10 %</td>
<td>14.40 %</td>
<td></td>
</tr>
<tr>
<td>programming</td>
<td>2.20 %</td>
<td>1.10 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>learning apps</td>
<td></td>
<td></td>
<td>35.89 %</td>
<td>24.60 %</td>
</tr>
</tbody>
</table>

The upper percentages demonstrate that the personal computers are used in proportion of 44.40 % (40 elementary school students) for school assignments purpose. Secondly the laptops are highly used in proportion of 53.30 % (48 elementary school students) in solving the tasks from school at their home or in class. The teacher encourage the elementary school pupils to use them only when needed. The researcher has tried to find a way to show elementary school students how the educational technology come in support of learning or how the technology enhances learning according to (Goodyear & Retalis, 2010). The way that was found was the cooperation in computer supported collaborative learning. An outstanding purpose in using the smartphones is given of using the different learning applications. Most of the subjects (35.89%) are learning the English language. They say is, the easiest manner to learn a new language and at the same time they practice with a virtual teacher being a robot'. There are also high achievers in using the computers. Two students use their PC’s for programming. They started to do programming when they were 6th graders. Programming helped them to achieve new skills in mathematics and geometry. An example related to achieving new skills in geometry and arithmetic’s is the Minecraft game played by two elementary school students on their laptops. Minecraft is a game where the users create and build. In teaching perspective, Minecraft determine users to calculate the perimeter, area, volume, etc. It also helps students to understand practically the algebraic patterns (concepts). In other way, Minecraft is considered as a good teaching and
learning game instrument (Beth Bos, Lucy Wilder, Marcelina Cook, & Ryan O’Donnell, 2014)

In addition to the previous purposes mentioned previously, the elementary school pupils were asked to reflect the learning experiences in a blog. One of the 7th graders told the researcher:

”... I started to do this thing when I have been 10 years. It helps me to look backwards and now I can see how my learning experiences are.”

4.3 How do elementary school pupils describe group work situations in school?

Group work involves the students and pupils working collaboratively on set tasks, in or out of the classroom. It includes: any learning and teaching tasks or activities that require the subjects to work in groups and secondly includes formal assessment tasks that require students to work in groups. When working in groups, the teacher sets aims for successful results. The aims are divided into 4 categories: mental skills (intellectual understanding, abilities and skills); communication skills, teamwork skills such as leadership, peer support and group work contribute in professional growth development, etc.

In researcher’s study, the elementary school pupils were well behaving in-group work. They demonstrated a big interest in-group work situations. As mentioned previously, they were assigned with different tasks to perform (an activity lasted 45 minutes).

When working in groups, the elementary school pupils enjoyed the group work. The researcher analysed the student’s work modality. In the beginning, they started talking to each other (consulting). In different situations, they were confused with the task. The task was difficult to see their abilities of seeking more information about the task related.

The researcher used the Linkert scale: 1-negative; 2-undecided; 3-positive; 4-very positive. They told it was challenging but despite the fact, they could face with the situation and solve the problem. Two students’ in-group wanted to give up. They were frustrated and started to blame their group mates. A number of 38 elementary school students had positive opinion about the group work activities in different situations as it can be seen in the following table that represents the satisfaction of working in groups, while 26,70 % representing 24 elementary students had a very positive thought (see Table 6).
Table 7 – The satisfaction of elementary pupils in group work

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid negative</td>
<td>8</td>
<td>8,9</td>
<td>8,9</td>
<td>8,9</td>
</tr>
<tr>
<td>undecided</td>
<td>20</td>
<td>22,2</td>
<td>22,2</td>
<td>31,1</td>
</tr>
<tr>
<td>positive</td>
<td>38</td>
<td>42,2</td>
<td>42,2</td>
<td>73,3</td>
</tr>
<tr>
<td>very positive</td>
<td>24</td>
<td>26,7</td>
<td>26,7</td>
<td>100,0</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>100,0</td>
<td>100,0</td>
<td></td>
</tr>
</tbody>
</table>

It is well observed that 63, 30 % of 90 elementary school students enjoyed working in teams. They strongly agreed working in groups helped them to develop new skills that were mentioned previously: communication skills, cognitive skills, teamwork skills. The informational retrieval from Internet helped them to understand better the content of lesson or activity (55, 60% counting 50 participants). Using the technological devices, they started surfing on web. One of the groups used Popplet, an online platform of creating graphics.

In a group work activity, the amount of work is split. Usually the leader takes in charge this action. The elementary school students have had a leader. The mission of leader was to keep in control the actions, to share the work amount and to supervise the members (track their work). Generally, all pupils worked well and cooperated well with the leader. The leader of each team gave chance of being leader to other team members. 77, 80 % a number of 70 elementary school pupils said they prefer to have a leader when working in groups. The group work has helped the participant to learn effectively. They were as active participant. When they are active participants it means they are in the centered learning. They said „when we worked in group we were given a task to find a trendy career and get some info about… and it was easy to shape a common idea in group”. The whole class affirmed they prefer to have a component of group work in class, otherwise the lessons would be boring and our interest will totally drop. A number of 60 students out of 90 agreed the group work was a solution for them to learn easier and effectively. In the group work, the participants showed interest in
using educational technology. They had the freedom to use devices and get the information. They also collaborated and discussed about the common information gathered from Internet.

From the qualitative data perspective, we can observe that there is a bigger amount of advantages in group-work which elementary school students perceived new skills. The following table will show the coding rules frequencies based on Table 1 and Table 2.

Based on the positive learning experiences in group-work, we can see below that elementary school students gained new skills regarding learning in groups: (sharing knowledge, \( f=35 \); cooperation skills including creativity, \( f=16 \)).

Table 8 – *Coding scheme and frequencies for positive aspects in group-work*

<table>
<thead>
<tr>
<th>Positive aspects in group work experience</th>
<th>( f )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic benefits</strong></td>
<td>47</td>
</tr>
<tr>
<td>critical thinking</td>
<td>3</td>
</tr>
<tr>
<td>sharing knowledge</td>
<td>35</td>
</tr>
<tr>
<td>problem solving</td>
<td>5</td>
</tr>
<tr>
<td><strong>Cognitive benefits</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Influence of educational technology</strong></td>
<td>56</td>
</tr>
<tr>
<td>creativity</td>
<td>3</td>
</tr>
<tr>
<td>practical skills in group</td>
<td>13</td>
</tr>
<tr>
<td>efficient learning</td>
<td>8</td>
</tr>
<tr>
<td>seeking help</td>
<td>5</td>
</tr>
<tr>
<td>interaction</td>
<td>6</td>
</tr>
<tr>
<td>positive reactions</td>
<td>8</td>
</tr>
<tr>
<td>positive behaviour toward educational technology</td>
<td>4</td>
</tr>
</tbody>
</table>
| emotional feelings | 1  
| happiness          | 1      |
| excitement         | 2      |
| enthusiasm          | 6      |

\( f \) means the frequency of positive aspects observed in verbal and non-verbal group work

In contrast with positive effects of integration group-work in classroom, the number of frequencies are lower than in positive effects. We can conclude that group work situations helped students to
behave freely with no anxiety.

Table 9 – *The results for coding rules and categories regarding negative experiences of group-work*

<table>
<thead>
<tr>
<th>Negative aspects in group work</th>
<th>$f$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bad behaviour (19)</strong></td>
<td></td>
</tr>
<tr>
<td>blaming</td>
<td>4</td>
</tr>
<tr>
<td>Bullying</td>
<td>3</td>
</tr>
<tr>
<td>competitiveness</td>
<td>8</td>
</tr>
<tr>
<td>disconsideration</td>
<td>4</td>
</tr>
<tr>
<td><strong>Emotional feelings (13)</strong></td>
<td></td>
</tr>
<tr>
<td>discouragement</td>
<td>2</td>
</tr>
<tr>
<td>frustration</td>
<td>8</td>
</tr>
<tr>
<td>apprehensively</td>
<td>3</td>
</tr>
<tr>
<td><strong>Lack of cooperation (9)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Lack of coherence (11)</strong></td>
<td></td>
</tr>
<tr>
<td>time limitation</td>
<td>3</td>
</tr>
<tr>
<td>procrastination</td>
<td>8</td>
</tr>
<tr>
<td><strong>Work environment (2)</strong></td>
<td></td>
</tr>
<tr>
<td>Friendship</td>
<td>1</td>
</tr>
<tr>
<td>noise</td>
<td>1</td>
</tr>
</tbody>
</table>

$f$ means the frequency of negative factors observed in group work

The researcher has evidenced that was a very big competitiveness with a coverage of 3, 33% in 6 references taken from interview. Blaming and bullying are concepts that are seen as threat. The pupils were tensioned when the faced with complex situations (they had to look for an information regarding how to be hired by a company, when the time was limited). Based on Nvivo – qualitative research data software, bullying has bigger coverage – 1, 67%

*(Student no.3: “I hate the idea when my mate makes me stupid just because I don’t agree with him”) while blaming has a bigger coverage of 1, 86% (Student no.6: “I think it’s cool when you work in group because you can blame each other – laughing”).*

In the Table 2, we can observe that is the same number of references for competitiveness ($f$=8, coverage: 3, 33%), frustration ($f$=8, coverage: 2, 57%) and procrastination ($f$=8, coverage: 4, 44%).

The following table will describe the impact of learning during the group work sessions. The elementary school pupils have filled the questionnaire after all activities were completed. The main aim was to get more information about what is the effect of learning in groups through
Table 10 - The impact of lesson activities during group work

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can share my thoughts and the work is not done individually</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>1,1</td>
</tr>
<tr>
<td>We can learn many things from each other</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>4,4</td>
</tr>
<tr>
<td>We share ideas.</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>7,8</td>
</tr>
<tr>
<td>We can develop our skills</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>8,9</td>
</tr>
<tr>
<td>We can finish the assignments faster when we work in group</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>10,0</td>
</tr>
<tr>
<td>I love to collaborate and to have different friends</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>12,2</td>
</tr>
<tr>
<td>I can talk more.</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>15,6</td>
</tr>
<tr>
<td>When I can actually can get on my point across</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>17,8</td>
</tr>
<tr>
<td>I like to working on team because I like to know what they like or dislike</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>21,1</td>
</tr>
<tr>
<td>That I don't have to do it alone and I can share my thoughts</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>24,4</td>
</tr>
<tr>
<td>We are in a group</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>26,7</td>
</tr>
<tr>
<td>I get to know the members better</td>
<td>8</td>
<td>8,9</td>
<td>8,9</td>
<td>35,6</td>
</tr>
<tr>
<td>That you don't need to do all work alone</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>37,8</td>
</tr>
<tr>
<td>the interaction and learning with others</td>
<td>4</td>
<td>4,4</td>
<td>4,4</td>
<td>42,2</td>
</tr>
<tr>
<td>We help out skills in IT classes/ to communicate with team members and have new friends</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>45,6</td>
</tr>
<tr>
<td>we share the knowledge together</td>
<td>3</td>
<td>3,3</td>
<td>3,3</td>
<td>48,9</td>
</tr>
<tr>
<td>collaboration</td>
<td>9</td>
<td>10,0</td>
<td>10,0</td>
<td>58,9</td>
</tr>
<tr>
<td>working in groups is easier when we have to work on a project and we learn many new things from each other</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>60,0</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>we share knowledge and learn faster</td>
<td>4</td>
<td>4,4</td>
<td>4,4</td>
<td>64,4</td>
</tr>
<tr>
<td>to have fun</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>66,7</td>
</tr>
<tr>
<td>team work is the most efficient</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>68,9</td>
</tr>
<tr>
<td>different ideas</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>71,1</td>
</tr>
<tr>
<td>I can share the ideas</td>
<td>5</td>
<td>5,6</td>
<td>5,6</td>
<td>76,7</td>
</tr>
<tr>
<td>learning on Computer</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>77,8</td>
</tr>
<tr>
<td>the fact that we share ideas, we combine and build a common idea</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>78,9</td>
</tr>
<tr>
<td>the group and learners are interactive</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>80,0</td>
</tr>
<tr>
<td>you can find out new ideas from your members</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>81,1</td>
</tr>
<tr>
<td>when we work in group and we express our opinion</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>83,3</td>
</tr>
<tr>
<td>we collaborate and everyone has an idea</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>84,4</td>
</tr>
<tr>
<td>you don't need to do all work</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>85,6</td>
</tr>
<tr>
<td>I can understand better what I have to do</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>86,7</td>
</tr>
<tr>
<td>We share different ideas.</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>87,8</td>
</tr>
<tr>
<td>when we listen to each other</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>88,9</td>
</tr>
<tr>
<td>I can ask for help</td>
<td>2</td>
<td>2,2</td>
<td>2,2</td>
<td>91,1</td>
</tr>
<tr>
<td>Communication</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>92,2</td>
</tr>
<tr>
<td>to help my team</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>93,3</td>
</tr>
<tr>
<td>I can work slowly but efficiently and at the same time to interact with my co-workers</td>
<td>1</td>
<td>1,1</td>
<td>1,1</td>
<td>94,4</td>
</tr>
<tr>
<td>I like very much to learn in groups</td>
<td>1</td>
<td>1.1</td>
<td>1.1</td>
<td>95.6</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>to get more information from Internet and that the information is discussed with my members</td>
<td>4</td>
<td>4.4</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

From the Table 8, we can observe that elementary school pupils liked the idea of working in teams and at the same time, they were connected in OneNote platform. Among of research process, the participants were able to express their opinions about the subject in matter. 77.8% of participants expressed in survey that learning through ICT has helped them to collaborate easily while 78.9% affirmed that it was not hard to build knowledge together in teams. When the students work in team, automatically the peer learning becomes efficient. They were seeking help when they have faced with difficulties. One of the students told that this type of activities was a new experience for him: "it was easy to ask my mate when I did not get the exactly the idea of what we have to do". The cumulative percentage in seeking help was 91.1% which means that they were willing to work and solve the task. In this case we say that academic seeking help is a strategy of self-regulated learning (Du, Xu, & Fan, 2015), while the collaboration and building knowledge are well connected according to Stahl (2000) in the social knowledge building.

4.4 Summary of the Results

The results presented above, show clearly that there is an evidence between group-work activities that were deployed in the Romanian-Finnish school and education through technology.

As presented in our study, the elementary school students were motivated to learn about a new subject. As strategies, the researcher emphasized on collaborative learning and self-regulated learning in some aspects: an example related to seeking information from internet then discussing with the peer about the concept.

The elementary school pupils demonstrated a big performance in learning in groups. In the beginning of our research, they were less familiar with the concept of group work and learning in teams. To gain more information about their learning attitudes, the
researcher has used the Likert scale to evaluate how satisfied are with educational technology and learning in groups. For example, for the group work attitudes, we used the values from “totally disagree” to “strongly agree” meanwhile for educational technology we used different scale levels: “very poor” to “very good” and timing scales that can be found in the questionnaire.

The results shown a very big performance in gaining new knowledge about career paths. In this matter, the students demonstrated that they can learn in groups and the collaborative learning brought a better understanding of different facts.

Connecting the group work with the use of education through technology, they were self-regulating with each other. The results shown that in the collaborative learning, the elementary school students seek for help, learn interactively, build the knowledge together and at the same time the subjects get the information from 2 different sources: internet (Padlet and OneNote) and teacher who is the main coordinator of learning process. The relation between the elementary students and researcher who was a teacher qualified for primary, elementary school level was very appropriate, and it gave higher results in the end.

In some cases, the researcher could see that in the collaborative learning can be met difficulties such as procrastination, frustration of time limit, or if the team members do not agree with his or her peer idea then the blaming and bullying will occur.

5. Discussion

Informational and communication technology become un accessible stimulus in the past 15 years when in Romanian schools the new ways of learning and teaching started to be slowly promoted. The research demonstrates or highlight the fact that most of the students and pupils use their own computers or technological devices out of learning purposes (Serban & Barroso, 2011).

The Framework for 21st century skills highlights the idea of having necessary skills that belong this era of 21st century. In this matter, the present study emphasized on group-work activities (Dillenbourg, 2002; Roschelle & Teasley, 1995; Sawyer, R.K; Nathan, n.d.; Smith & MacGregor, 2003) to foster the educational technology in Romanian schools at elementary school level. Collaborative learning and the group-work in the previous studies had big effect
impact in learning processes as Dillenbourg (2002) and (Smith & MacGregor, 2003) in their studies: collaborative learning activities helped the students to overcome the fear and in the same time the participants acquired more autonomy. Related to our study, the researcher analysed the psychological benefits of using collaborative learning as strategy and group work in different situations (Laal & Ghodsi, 2012, p. 12): the elementary school pupils raised their self-esteem. On the other hand, beside group-work, the individual work is useful for the participants so that the researcher follows the cognitive area of participants (Vygotsky, 1980).

The world of tomorrow expects to see the young generation to acquire new life skills that will contribute to society. Most of skills or competencies acquired in scholastic years from early ages when the pupils get in contact with the adults.

The Romanian curriculum does not provide the work in groups. The importance of having group work activities will help the elementary school pupils to enhance their capacities to interact and develop practical skills and cognitive areas.

When they are connected in a virtually platform, they automatically are self-directed and more autonomous to interact with each other. In the researcher’s study, the elementary school pupils acted better when working collaboratively in a connected network. Rienties et al., (2012) states in his research paper that computer supported collaborative learning environments provide a powerful learning environment where the students construct the knowledge together, so that all participants (elementary scholars) contributed actively to the cognitive discourse in OneNote and Padlet platforms.

The aim of this study was to seek further information’s about the elementary school pupil’s attitudes toward educational technology and the collaborative learning in the light of group-work activities. The results of the current study opened new gates in Romanian school on how the elementary school pupils work collaboratively face-to-face and virtually. The present results are only indicators on how the learning contexts are fruitful to students. The results are mean to know about what could teachers do to support student’s their well-being and how to construct an effective knowledge in different learning situations. Therefore, the following findings could guide the teachers’ in the future in designing learning activities with the support of educational technology using the collaborative learning as an effective way of learning (Anne & Spada, 2004; Guthrie, Vallée-Tourangeau, Vallée-Tourangeau, & Howard, 2015).

The first finding was that students work better when they are connected virtually than face-to-face contact. During learning activities that were ongoing, the students were self-directed and
self-determined to learn new things through computers. When they were connected to a specific platform, they started to discuss about the subject in matter. At the same time, they had great ideas based on the problem that was given. In the matter, they developed higher level of knowledge construction (Rienties et al., 2012)

The second important finding of this study was that besides developing higher level of knowledge construction, the participants developed creativity and critical thinking when working on a related task in groups. It is proven in the previous studies (Loveless, Burton, & Turvey, 2006) that ICT can be part of interaction between three elements of creativity: interactivity, capacity, automatic functions, etc.

6. Evaluation
In this chapter, the critical assessment of this study is presented. The reliability, validity and ethicality of this study are discussed from different aspects and limitations of this research study are taken into consideration. Attached to these aspects mentioned, the future research and suggestions are offered.

6.4. Reliability and Validity
To analyse the reliability and validity of the current study, the concepts of internal validity, construct validity, external validity and reliability are discussed. Internal validity is the fourth type in qualitative research of interest to us. In other words, this concept of internal validity refers to the degree to which a researcher is justified in concluding that an observed relationship is causal (R. B. Johnson, 1997). In the context of the current study, internal validity refers to the evidence of two social contexts (group work and individual work). Our study demonstrated that elementary school students achieved high performance in collaborative work and collaborative learning. Including ICT components, the educational technology helped the students to adapt a newer way of learning. The efficiency of learning is demonstrated in the previous chapters. Analysing the qualitative data content, the researcher could set up relationships between the way of learning and the role of ICT in pedagogy.

As the main aim of this study was to gain more information about group learning experiences in relation with computer supported collaborative learning, the quantitative content analysis was taken into account to analyse the affordances of it.

On the other hand, the quantitative contents analysis allows the researcher to analyse how
the elementary school students interacted in groups with educational technology and how they connected the social context (group work) with technology. It is well observed that the students could synchronise at the same time the interaction, learning including educational technology. Also, as the teamwork context in ICT domain plays an important part in this study, QCA was suitable as it requires that the researcher takes all the context into account that is needed to know about in order to understand what the material means (Schreier, 2014).

6.5. Ethical issues

In order to find the research subjects, the school head teacher was contacted. The head teacher found a volunteer teacher who was willing to co-create and oversee the research process. The volunteer teacher also found other subject teachers who were willing to let students attend in the research during their lesson time. Before the data collection date, consent forms were sent to the parents of all the students and by the day of the data collection, all signed consent forms were gathered by the researcher. The parents of all of the students agreed to let their children participate in the research. Before the data collection process, the researcher confirmed with all the students whether they are willing to participate in the research and for those, who would not have liked to participate.

Confidentiality and anonymity were assured by not making public the names of the students at any point during the research. The students were identified by numbers in order to connect the worksheets with questionnaire, but the persons remained anonymous throughout the data analysis and presentation process.

6.6. Limitations of this study

This study comprised one optional question (the 21\textsuperscript{st} question) which inquired about the participant’s opinion regarding the group learning experiences satisfaction based. Analysing these answers, I found that many respondents needed more details regarding the practice described and other descriptive factors to make the right decision regarding the ethicality of the scenario.

A final limitation of this study is the lack of Cohen’s Kappa test. It has been impossible to find the second user to determine the inter-reliability between agreements. The number of the interviewee was too few and I couldn’t categorise the respondents.
7. Conclusion and Future research

The aim of this research was to find out what kind of experiences of learning in group work do the elementary school students have during group-work session in parallel with the use of educational technology were was integrated online learning platform for collaboration (British Columbia Institute of Technology, 2010). The present study mentioned the psychological benefits upon group-work activities (Ahmad & Nisa, 2016). It can be built in the future research to see how the Romanian teachers will adapt with this new type of instruction at their classrooms, so that both and elementary school students will automatically be active at the same time.

The research looked at experiences of learning in group-work activities. By using the digital worksheets, they had chance to see what the group-work is and at the same time to understand better the benefits of working in teams. The teachers could follow the same model as researcher shown to the students, so that the learning will have greater effects and students will be more active and involved in their stages. The previous research suggest that there is a big necessity to learning the actual and future generation of students to be in trend with the 21st skills so that they will become involved in society (Starkey, 2011).

As a picture of main results that were explained in the previous chapters, we can observe that the quality of learning has increased and they have become more interested. The group-work helped them to build new skills: critical thinking, ability to work in groups, to accomplish skills in using computers, etc.

References


Dillenbourg, P. (2007). What do you mean by “collaborative learning”?


Lipponen, L. (1999). The challenges for computer supported collaborative learning in elementary and secondary level: Finnish perspectives. ... on Computer Support for Collaborative Learning, 368–375.


**APPENDIX**

APPENDIX 1 - Questionnaire

Hello,

You are invited to participate in my survey Designing Technology-Enhanced Learning Activities to Foster the Collaborative learning. In this survey, approximately 50 people will be asked to complete a survey that asks questions about educational technology and the group work. It will take approximately 30 minutes to complete the questionnaire. As a researcher,
I'm interested in how you use technology both inside and outside of school, and what kinds of opinions you have towards working in groups. Your participation in this study is completely voluntary. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Bobi Balla by email at the email address specified below.

bballa@student.oulu.fi Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Gender
1. girl
2. boy

Grade
1. 5A
2. 5B
3. 6A
4. 6B
5. 7A
6. 7B

Age - fill in the blank space your age
What device can you see below? Fill in the blank space.

| Name |   |   |   |   |   |

What devices you can use at your home?

1. Smartphone
2. Tablet
3. Memory stick
4. laptop
5. PC

What devices you can use in your classroom?

1. PC
2. laptop
3. smart-board
4. smartphone
5. tablet

What kind of computer user are you?

1. I often need help from others when using information technology
2. I use IT as well as others
3. Sometimes I counsel a teacher in the use of information technology

How well do you know to use the following devices?
I use the devices for the following purposes

<table>
<thead>
<tr>
<th></th>
<th>I take photos or videos</th>
<th>I watch videos or movies</th>
<th>I listen to music</th>
<th>I like to contact my friends or family</th>
<th>I use for school assignments</th>
<th>if other, please state</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>laptop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>smartphone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>smart-board</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How much time do you spend using the devices?

<table>
<thead>
<tr>
<th></th>
<th>0-30 minutes</th>
<th>30-60 minutes</th>
<th>60-120 minutes</th>
<th>more than 120</th>
<th>don't know</th>
</tr>
</thead>
</table>
How often you use the device?

<table>
<thead>
<tr>
<th></th>
<th>never</th>
<th>one day per week</th>
<th>two days per week</th>
<th>daily</th>
<th>weekly</th>
<th>don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>laptop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tablet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>smartphone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

How do you feel about technology? Do this attitudes to technology questions and then read the commentary in the answer key. Choose only one answer.

<table>
<thead>
<tr>
<th>I enjoy using technology</th>
<th>disagree totally</th>
<th>disagree</th>
<th>not strong opinion</th>
<th>agree</th>
<th>agree strongly</th>
<th>don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I avoid using technology when I can ❏ ❏ ❏ ❏ ❏ ❏ ❏

I think using technology in class takes too much time ❏ ❏ ❏ ❏ ❏ ❏ ❏

I know that technology can help me to learn many new things ❏ ❏ ❏ ❏ ❏ ❏ ❏

I would be a better learner if I knew how to use technology properly ❏ ❏ ❏ ❏ ❏ ❏ ❏

I am very confident when it comes to working with technology at home/at school ❏ ❏ ❏ ❏ ❏ ❏ ❏

I believe that I can improve my skills when I use technology ❏ ❏ ❏ ❏ ❏ ❏ ❏

I use the Internet: tick as many as these answers are true for you

1. to look up websites to find out about things I am interested in
2. to play games online
3. to chat online or send messages
4. to find game cheats
5. to listen to music
6. to watch trailers for films
7. to do homework or a school project
8. to browse
9. Other - please specify __________

How many times have you been involved in a group work required for a course?

1. never
2. once
3. 2-3 times
4. 4-5 times
5. 6-7 times
6. more than 7 times
Overall, how positive were your group work experiences?

1. very negative
2. negative
3. undecided
4. positive
5. very positive

When working in group work, do you usually find yourself in the position of leader?

1. no
2. yes

How easy or difficult has it been for you to communicate your thoughts or opinions to the group?

1. very difficult
2. difficult
3. unsure
4. easy
5. very easy

Please tell us how strongly you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>undecided</th>
<th>agree</th>
<th>strongly agree</th>
<th>d</th>
<th>k</th>
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</thead>
<tbody>
<tr>
<td>Overall, I really enjoy working in groups with my classmates</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>d</td>
<td>k</td>
</tr>
<tr>
<td>The group work has helped me to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>d</td>
<td>k</td>
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<tr>
<td>understand better the lessons</td>
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<tr>
<td>I prefer classes that have a group work</td>
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<tr>
<td>I generally, get along well with other team members</td>
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<tr>
<td>I prefer to have a leader in my team</td>
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<tr>
<td>Group learning has helped me to learn effectively in groups</td>
<td></td>
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<tr>
<td>When I work in team, I use a device (laptop, smartphone or tablet) to get more information about the topic we are given</td>
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</tbody>
</table>

What size team do you prefer working in?

1. 2 persons
2. 3 persons
3. 4 persons
4. 5 persons
5. 6 persons
6. more than 7 persons

What do you like most about working on group/team?
APPENDIX 2 - Interview questions and transcript

Interviewer: Hello! My name is Bobi Balla and actually I am studying at the University Of Oulu, Finland. I am looking for few students to take part in an interview for my research study. The aim of this study is to find the experiences of using the ICT tools in the Romanian school and do they work in teams.

Respondent 1: .... I like ICT because if don’t know what to do with computers then practically: 1 – living under rock after my opinion… because some people just don’t like the technology but I’m always in love with it. We use it every day in our life… from our
machines: from washing machines to the dish washing machines and even our cell phones are technology. With these tools we can know about it and be aware of the consequences of it and you weren’t aware then the future would be quite tragic so I really feel in love with technology but anyways, technology makes our life much easier (ANA)

Respondent 2: …. I think ICT is kind of useful because all the project that we make and all the things we are making every day are... how to… are made by ICT… so, like my colleague said, it’s very important to know how to use ICT and I will pass to my colleague… (IOANA)

Respondent 3: …. I think ICT is very important in our life because they can help us to evolve – they can help us at school, to find aaaaa, different things on web. (REBECA)

Respondent 4: …. I think ICT is important because with ICT you can put your ideas into practice and ICT can make you be more creative (NATY)

Respondent 5: …. I consider ICT is very important at school we can study when we need (ALEX)

Respondent 6: …. I think ICT is very important for us because, first, we discover more information’s on the web and we can use it in project, PowerPoint and other software for our school and we can understand better (SOFIA) 14 yrs.

Interviewer: I have a question, did you use any software in this school, in your classes?

Respondent 6: Yes, of course we use our computer, we use our phones and if we have tablets.

Interviewer: But what about the software? I don’t mean the device. If you have any online learning platform?

Respondent 6: PowerPoint and we use an online web software like Prezi. I discovered it and now I show to my colleagues. I am not mad at them, I am just very happy that I tried and I made things better for them and easier.

Respondent 1: OK… I think that we all use the Office 365. We use Prezi. I don’t think we use only these, we use also Word, Excel.

Respondent 2: So, the software we are using, or they are not specific sites but we get the information’s from different sites and that’s all about software.

Respondent 3: A… in my opinion the software is very important. In our English class we use a platform called Learning English Teens and it’s very funny.
Interviewer: Why is it funny?

Respondent 3: because we have video-clips there or melodies and we can learn them and in that platform we learn how to speak English well with an accent.

Interviewer: In your English classes, did you try to work in groups using that online English learning platform?

Respondent 3: Yes, we tried. We made some beautiful projects and they were kind of cool.

Interviewer: And how many members you were in a team?

Respondent 3: ammmmm, like 3

Interviewer: 3 to 4

Respondent 3: and it was kind of sometimes stressful because we all have different ideas and it’s very hard to put them in a PPT.

Interviewer: so is not that easy to build an idea

Respondent 3: yeah….

Respondent 4: no

Interviewer: it’s like a brainstorming

Respondent 3: yeah… and it’s sometimes kind of hard

Interviewer: Ok, so… I don’t know how much you have worked or you have been involved in a group work. But what could you tell me about the experiences you had.

Respondent 1: A… well... it depends a lot on the project that you are doing on the discipline and also on the team mates because in teams they count a lot the people you are working with. Because most of the time I was stuck, it was a situation you weren’t like a hard worker and you were stuck in group of not saying, they just sat like slackers and they were like just telling ……………

Respondent 2: So, about teams: ammmmm, to be honest, I like being in a team and like my colleague said before ……………………

Respondent 6: another opinion of mine, I think it is cool when you work in group because you
can blame each other (laughing) and that sometimes sounds pretty cool and it’s not only your fault or you didn’t do your homework or project.

Interviewer: But did it happen phenomena of bullying?

All respondents: yyyyyeaaaaa…. laughing … respondent 2 … just sometimes …. Respondent 5 … it depends …. Yeeeee respondent 3 … if you want to put on the count all the little bad things that are happening as bullying, yeah. Bullying is every-day but if you put like only the bad things and the very bad stuff is not that…..

Interviewer: What the limits or barriers that you encountered in group work?

Respondent 1: well, it was a barrier on the time of the presentation, for example at English we had a barrier of 5 minutes or quite many barriers: the number of slides and … told us the information informatics class, she told us the presentation on the slides it shouldn’t be longer than 7 words maximum and when I was doing my presentation in team I was trying a looooot to put in that number of words but as I like to always keep looong, I always pass that limit. But the limit of the information that it must be good information, quality information.

Respondent 3: I think, ammmm, something that could be a barrier, ammmm, is that……

Respondent 6: I want to give an example for our English classes. Our teacher gives us a project, gives us a book to read and then we have to make a project about it for 1 point to 4 points for a better grade but what happens, she gives us a project and then we make it. When we go to school, we prepare it and she tells us you have 5 minutes to prepare or present project and for example what if I have a video and a nice game with my colleague, teams work game to make them work together better and when the time runs out we have to stop and suspend our project.

Respondent 5: Aaaa, well… I don’t think the barrier is a good solution because who presents that PowerPoint for example, he wants to show his ideas

Respondent 6: so, I think creativity has no barriers because I think it’s better to stay out of the box, not in the box, because if you stay in the box but you must be different of all

Respondent 2: I think the barriers are cooperation that we don’t cooperate because everybody
has a different idea, for example: each of us have an idea and we don’t cooperate on a single idea. So we have to solve this by doing a brainstorming and then combine all ideas.

Respondent 5: I think the team people can be a barrier too because if I don’t like a person for example, I can’t work with him because I simply don’t like him and very hard.

Interviewer: One of you, could you give me a certain problem and the solution how you solved. Think about your group activity experiences you had so far. How did you solve the problems in your group?

Respondent 6: Year, well, they are kind of negative because when someone gets mad and then let’s say two work individually and other if we go together and … has a PowerPoint and gets kind of annoying ….

Respondent 1: and also when we try to… or when we have different ideas and we want to yell, I have an idea, idea and they were quite... but we try always to combine the idea even it was a quite stupid idea and we can say: can we just don’t include that (she says very silently) or politely to tell it or to…

Respondent 5: to find a common point or to say we do this first and then we do that …. 

Respondent 6: that’s very true. Other questions, do we have?

Interviewer: yes… what kind of feelings you had in this kind of activities in the cooperation?

Respondent 5: sometimes, I feel very good and simply it’s just funny… please detail (interviewer)

Respondent 5: aaaaaa, we get to know each other more

Respondent 6: When I work in groups, I feel fun because for example we laugh a lot. We had a project on Geography and yesterday we went to my classmate home to make that project. We laugh a lot and it was very interesting.

Respondent 1: when we work in teams there is whole mixture of feelings … sometimes it depends on the people most… you feel satisfaction for the well done work and other time you feel hhhhhhhhhhh (striking your kneels around) or other time you feel funny

Respondent 6: other colleagues or me can feel very competitive and it’s something like we have to win, we have to do: this, this, this… we can’t have any fun and then we have something like: see, we lose … it’s your fault because you didn’t want to do that and you
didn’t write that. Being very competitive it’s negative and you have to be more confident and positive.

Respondent 5: I had 2 years ago a project which we had a group at French language class so we could build a house and describe at class, at school what we see in the house. So my friends, came at my house then we build from a box, a house and we had fun. The next day at school we presented the house with furniture

Respondent 2: You can feel happy because you work with your friend, you can feel very angry because you work with your enemy. You can feel very confident because you know the subject – you are the boss on that subject or you can feel like very depressed because you don’t know anyone in that team, you don’t know what to do and you don’t know anything about that. I’m confused.

Interviewer: Now, let’s change a bit the topic and we are switching to this technology enhanced-learning. How do you think that technology can enhance learning?

Respondent 3: I think technology is very important in the learning process because when you are learning from the internet in 99% of the time but… and we use books also for the information’s that are not safe on the internet.

Interviewer: For example, let’s take a subject and you are tempted to retrieve the information from Google in that class. Did you have this temptation instead of paying attention to your teacher?

Respondent 3: For me, I don’t because I RESPECT the teacher to be HONEST.

Respondent 1: Neither for me because like I said, not only respecting the teachers but I love teachers too. And I also think that technology can enhance the learning like respondent 3 told. There are so many ways where technology can help us (we can handle like natives because we were born with it, you know what do I mean.. and 2: we all have fun learning technology, for some people the books are just boring and they would say in their minds : I would rather play a game than doing this)

Respondents 2, 4, 5: I don’t agree because the books are very good and delivers knowledge.

Respondent 2: I am not so good in ICT, but I think if we evolve with the technology we can save the world, we can the animals

Interviewer: Do you find any connections between collaboration and technology enhanced-
learning?

Respondent 3: To be honest, I find because on the internet I can find resources that are good for any type of thinking and learning …. Respondent 2: yea, but some sources can be fake like Wikipedia.

Respondent 1: there are connections. When we collaborate we use technology to find the information and use that for creating PowerPoints, Excel, and Word. All these staff is connected to technology.

Respondent 5: we use technology every day because we talk on WhatsApp to communicate on Facebook, Instagram, Twitter or other

Interviewer: By the way, do you have any groups on Facebook or other social media?

All respondents: yes, we have WhatsApp group of our class and Gmail with teachers too.

Respondent 5: on Gmail group of our class, our teacher send us homework’s, announcements

Respondent 1: it’s kind of sad we don’t have a Facebook group because not everyone has WhatsApp.

Interviewer: Do you think that Facebook group would be a good communication platform?

All respondents except 6: no, not everyone has Facebook account

Respondent 3: I don’t like the social media to be honest, I have only WhatsApp so I think WhatsApp is the best idea because it’s very useful …. I think, Instagram is good too

Respondent 1: as whole conclusion, the teamwork is very important but the knowledge too (all students say yes)

These 26 minutes were very funny and very interesting

Interviewer: How did you find my activities?

Respondent 2: I found them super delicious and colorful.

All respondents: interactive and very interesting

Respondent 1: I love that you used very complicated words, there are people who are interested in learning science.
APPENDIX 3 – Work sheets

**Work sheet 1**

What do I think about group learning? Ce crezi despre invatarea in grupe?

Discuss in groups of 5 for 10 minutes then write down your thoughts in Padlet. Each group should nominate a leader.

Discuss in grupe de cate 5 elevi timp de 10 minute, apoi scrie pareri in Padlet. Fiecare grup trebuie sa alega un lider.

Collaborative Learning

**Work sheet 2**
Cariera de viitor - Future careers

Discussati in grupa de 15 minute despre cariera voastra de viitor. Ganditi-va ca trebuie sa decideti in cel mai scurt timp posibil.

Discuss for 15 minutes in groups about your future careers. Think you have to decide in the shortest time possible for your future careers.

- Ce credeti sa insemna cariera? Discutati in grup (What do you think about career? What is the meaning?)
- Urmariti materialul video si dat de exemplu de cariere
  Watch the video material and come up with examples
- Rezolutati o prezentare in Sway accesand urmatorul link (i.e. create a presentation)
  Realize a Sway presentation following the given link then upload your presentation below the link.

Ce este cariera?

What i know about working and learning in groups.

Work sheet 3

Cum devin expert intr-un domeniu? - How do I become an expert in a field?

1. Gândite-te la 3 aspecte la care ești foarte bine. Cum poți valorifica acele abilități și cum le pot utilize? (Think of 3 aspects you are good in. How can you master that skill?)
2. Discuta cu colegi tăi de eshala (Discuss with your mates in group)
3. Alege un plan de dezvoltare a unei cariere după modelul următor (Design a career plan development following the given model)

Planul carierei mele

What I know about working and learning in group.