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SUNUŞ

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Assessment Approach with Mahara and Moodle in E-Learning

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Abstract: Various approaches regarding the assessment and evaluation system which is still effective today have been emerging. In recent years, portfolio (individual development files) evaluation approach have emerged with the necessity of alternative assessment and evaluation systems including learning, learning materials, and styles. In addition to classical evaluation methods of students, portfolio, a new teaching and evaluation system, is a method in which performance of students is evaluated with studies and projects they have carried out throughout their lives. Portfolio have been introduced since it is believed that portfolio shall have an importance role in terms of evaluating students in distance learning system in which communication is limited. With this aim, suggestions were proposed by touching on the subject what benefits a portfolio to be created through learning management system used in distance learning will have for distance learning students.

Keywords: Moodle, Mahara, Digital portfolio, Portfolio, Assesment, Learning Management System

Introduction

Learning, which constitutes a huge part of our life, has become to be more important with technological advances. With learning opportunities provided thanks to these advances, the need of people regarding learning has increased significantly. Distance learning, a system which everyone can benefit from, has been a very important factor in terms of offering people different education environments. With distance learning, an updated, dynamic, and rich content is offered to students with a time and place independent learning environment. With this content, many educators aim at providing education to their students in the most effective and right way.

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In order to assess this, many assessment methods such as written, oral exams, homework, and projects involving short answer questions were being used. However, today there are different methods used to assess in-class and non-class activities, studies, experience, and knowledge. All of these approaches show that evaluating all knowledge and skills in the same way is extremely wrong (Gülbahar & Köse, 2006).

Different from traditional education, all activities (homework, quiz, project, and etc.), experience, knowledge, and studies of students are used to evaluate students by being gathered in collection with a file system called portfolio. It is thought that it is very difficult for educators to assess and evaluate students who receive education through internet, because face to face communication cannot be in question when evaluating students. Therefore, educators cannot help students about their future choices (Gülbahar & Köse, 2006). For this reason, e-portfolio system to be developed carries great importance for personal success, future education targets, motivation, and learning responsibility of students. Portfolios are used in order to gather studies together and display performance in various areas. Moreover, if the portfolio is prepared successfully, it will reflect the performance of students in the best way.

E-Learning

E-Learning is a way of learning and a part of "learn anything, anytime, anywhere" approach. Internet technologies are used in this system and it is an alternative to the learning in class. Educators and students use this system without any physical environment (Duran, Önal & Kurtuluş, 2006). As we mentioned before, e-Learning is an alternative to the learning in class. With e-learning, students can receive education via internet independently from time and place. E-Learning, which constitutes the infrastructure of many universities and has become widespread today, is student-centered. When the student cannot understand the subject, he can communicate with other students or teachers by using communication tools.

Synchronous and asynchronous contents are provided for students with e-learning. In Asynchronous content, student reaches learning sources. In synchronous content, learning is carried out with the content offered

through internet as a class environment simultaneously. Student receives education simultaneously through the class environment created. This situation is a very effective form of learning because student can improve himself and his motivation throughout his life.

Portfolio (individual development file) system which is an evaluation method has begun to be used in order to reflect the studies of the student and offering achievements of the student to himself or others in the future of e-learning which has many advantages.

Portfolio Evaluation

Portfolio is the overall studies reflecting the development and skills of students. It is accepted as an evaluation approach for the performance of students as an alternative apart from classical evaluation methods used in traditional education. Portfolio is a new evaluation method which isn't very common in our country.

According to Paulso, Paulson, and Meeyer (1991:60), portfolio is an evaluation method reflecting efforts, development, and achievements of a student. According to Wade (1996:65), portfolio is a structure that is important in education and development of students. It provides service to both students and teachers. While students reflect their own studies and achievements, teachers find opportunity to evaluate their success and development. Tests used in classical evaluation cannot uncover the potential and development of students (Tezci & Dikici, 2002).

Since the classical result evaluation methods are becoming a thing of the past, "Portfolio File", i.e. "Individual Development File" samples are being created because of the fact that all stages of learning, a product of a process, should be evaluated (Baki, Birgin, Güven & Karataş, 2003). Portfolio which is one of the most effective tools in dynamic evaluation processes is prepared separately for every student. In portfolio, all studies of every student are gathered together. In addition, portfolio includes all activities carried out and is a guideline supporting educators in the development of their students. Portfolio is created with an aim to monitor

the development of the student, document their learning processes, and provide an environment to the student in order that he can evaluate himself.

Features of Portfolio

Criteria should be determined in order to select student students while preparing portfolio. Furthermore, criteria should be determined for the evaluation of student studies and contents that reflect students and their performances in the best way should be chosen. The features of portfolio are defined as below according to Wade and Yarbrough.

1. It is developmental: Portfolio represents the development and experience of a student during a certain time. Portfolio is collecting learning results in a long process; it cannot be defined as target behaviors that can be observed within a short time.
2. It is dual valued: Portfolios give information to teachers and are also important for students. In addition to providing opportunity for learner to reflect the records of learning process, it also offers a valuable method for teachers to evaluate learning situation and development of students.
3. It is selective: Portfolio gives a chance to the student to make a selection. In this way, he can decide how he will present his portfolio in terms of content and structure.
4. It is authentic: Portfolio combines the studies and performance of the student. Traditional tests cannot provide information about how the student develops himself or cannot reflect his potential with all aspects. However, portfolio is an authentic evaluation technique in terms of displaying the development of the student and concrete learning products.
5. It is reflective: Portfolio can help students to determine targets for their future learning by providing them to reflect evidence regarding their own learning. In addition, it can help them to realize that they can make everything better by observing their past efforts. After realizing this, they can carry out better studies and improve themselves thanks to portfolio.

6. It is individual: Portfolio shows the development of the individual on a basis prepared and structured in accordance with individual choices. In other words, there are individual content selection and reflection of individual style in portfolio.
7. It is interactive: Learner shares his studies with his teachers and friends through portfolio. In this way, he can receive suggestion and guidance. Because the student cooperates with his teachers and friends while creating and developing portfolio, interaction increases as a result (Kan, 2007).

Portfolio Evaluation Methods

It is a process in which there are evaluation methods and the student presents some of his studies, interests, skills, and what he has learned within the system he lives in. In this process, portfolio is developmental and encouraging for students. In portfolio system, which is student-centered; thinking, interpretation, collaboration, and taking responsibility skills increase. Feedback continues during learning in all evaluations.

In these feedbacks, teacher analyses the formation process of the product, interprets the studies of the student, and helps him to realize his failures or mistakes. In this way, student finds opportunity to improve himself more quickly. Evaluation of students is carried out through many multi-dimensional homework rather than test exam systems implemented in traditional education. Furthermore, in traditional education, students are forced to learn, but in portfolio, there is evaluation during learning process. Textbooks are clear and informative. Students can easily harmonize old and new information.

In portfolio system, which is an alternative evaluation method, student is evaluated in accordance with a determined criterion, and he is aware of these criteria. Evaluation is carried out by the student and teacher together.

E-Portfolio (Digital Individual Development File)

E-Portfolio is a portable and on-the-internet sharable file, which is created by students, and contains all the backgrounds and success of the

students. With e-Portfolio, individual backgrounds and every document, picture, blog, multimedia, hyperlink, and contact information that a person wishes to publish can be gathered on a single platform (Tezci & Dikici, 2002).

Once the individual development files are integrated with advanced information technologies it will be possible to get more concrete data regarding the development of students who are away; and with portfolio assessment it will be possible to monitor student's development process. By using advanced web technologies students are able to store data on different platforms. Thanks to it, every study in a text, sound, image, and picture format can be stored in an internet environment. If required, these files can be shared easily with teachers and other users. Thanks to these files, which are created solely by the learners, by choosing the learning materials, the sense of self-test and responsibility – important for a healthy functioning of distance education – can also develop; and not only the teachers but the students as well will be able to track their own development process easily.

During an education process based on e-learning, it is also necessary for students to have technically sufficient capacity on the web, so that they can prepare their digital portfolio. The portfolios may contain big files, thus it is important to allocate a specific space for each student and to inform students about how they can efficiently use this space. Another important aspect that should be kept in mind about the digital portfolios is that they can make a difference in your post-education job applications.

Why E-Portfolio?

It is such a long process to gather a student's background and success both. Gathering all the background in a file, which only consists of papers, keeping all these studies up to date, and duplicating take a lot of time; and loss of data may also occur during these processes. In today's world, it is almost a must to be able to create all these studies, projects, and background of students on a digital environment and share them on the internet easily. Thanks to this digital environment called e-portfolio, the student is able to gather all the personal gains, all the documents, pictures,

blogs, multimedia, and contact info which s/he wishes to publish on a single platform and can update them at any time. On these online portfolios, users are able to develop their portfolios in a dynamic way.

On e-portfolio platform, with the student's permit, the student's portfolio may be viewed and evaluated by consultants, teachers, and other willing users. The student is able to choose which parts of the portfolio may be viewed by highlighting his/her successes or experiences. On E-portfolio, students may always access their portfolios and do not encounter problems such as lost data or deleted data (What is E-Portfolio, n.d.)

Evaluation with E-Portfolio at E-Learning

Today's advancing technology provides the necessary environment for the development and usage of different methods and tools in e-learning (Doruk, 2005).

So far, so many tools like computers, internet, mobile phones, and PDAs (Personal Digital Assistant) have been used in distant education. With the introduction of publishable education environment audio, visual and interactive, synchronic and asynchronous contents can be provided in distant education. These technological tools are also used to assess the effectiveness of these contents provided to students. In this regard, with the learning management system used in e-learning, in addition to providing an educational content, it is also possible to make evaluations with applications such as exam and project. Generally it is thought that the evaluation methods of traditional education such as exam and homework are insufficient in e-learning. Owning to the fact that there is no one-to-one communication in e-learning, now different evaluation methods started to be applied. With the e-portfolio, which is one of these methods, now it is possible to evaluate all the background, studies and projects of students. While evaluating, attention is paid on what the student learned, what kind of method s/he used while learning, how s/he analysed the information, and what kind of difficulties s/he encountered.

Learning Management System and Moodle

Learning Management Systems are software enabling automatic

realization of many functions such as providing asynchronous learning material through network, sharing, and discussing presented learning material in various forms, registering to classes, receiving homework, taking exams, giving feedbacks regarding these homework and exams, organizing learning materials, and keeping student, teacher, and system records etc. Learning Management Systems are software monitoring, managing, and reporting the interaction between students and materials, likewise teachers and students (Duran et al., 2006).There are Learning Management Systems offered whether commercially or freely. Moore? is one of the most common used learning management systems. Moodle learning management system is free open source software. Moodle learning system consists of tools enabling everything that can be performed through internet such as communication, posting content, collecting student works, managing student groups, questionnaires, and monitoring tools, wiki, blog, chat, and forum etc. Since it is an open source system, security gaps can be removed more quickly in comparison with commercial systems.

What is Mahara E-Portfolio System?

Mahara is customisable and flexible. It is the perfect personal learning environment mixed with social networking, and also allowing you to collect, reflect on, and share your achievements and development online in a space you control.

An e-Portfolio has a much broader scope as an online collection of reflections and digital **Artefacts** (such as documents, images, blogs, resumés, multimedia, hyperlinks, and contact information). Learners and staff can use an e-Portfolio to demonstrate their learning, skills, and development and record their achievements over time to a selected audience (Mahara User Manual, n.d.).

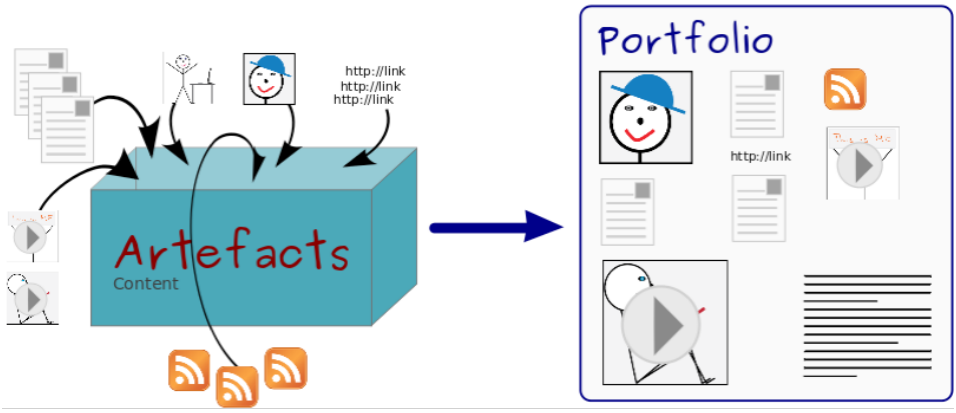
- **What sets Mahara apart from other existing open source e-Portfolio platforms?**
  - Students have complete ownership of their e-Portfolio

- Users have the ability to set permissions of access to various nominated groups
- All Artefacts have associated meta-data including user defined tagging
- Contextual help is available throughout the system
- Social networking functionality
- Flexibility to be used to create formal, informal, course related, personal, and/or professional environments
- Modular design, best practice programming, and full documentation allow for new features and functionality to be easily integrated into the application
- Language translation package based
- Designed for scalability, security and interoperability
- Strong consideration for pedagogy and policy during development (An overview of the e-Portfolio application, 2008)

Mahara Framework

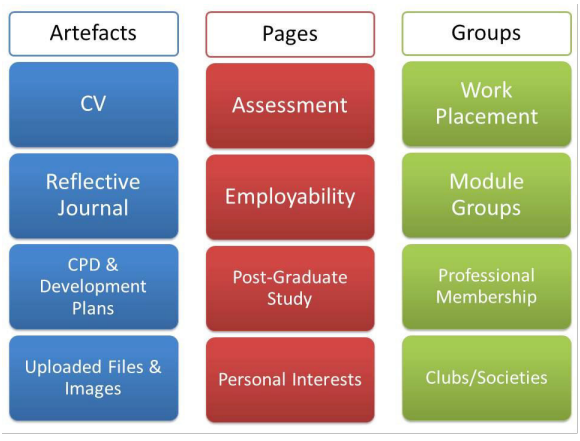
With Mahara, **you** control which items and what information within your portfolio other users can see. Such items and information are termed artefacts. To facilitate this access control, all artefacts you wish to show to other users need to be arranged into one area. In Mahara this compilation of selected artefacts is called a View. You can have as many Views as you like, each with a different collection of artefacts, and intended purpose and audience. Your audience, or the people you wish to give access to your View, can be added as individuals or as a member of a Group. It can even be made publicly available (Mahara User Manual, n.d.).

Figure 1: Portfolio works with Mahara



For example you could create a View for your friend and family that includes holiday photos and a personal Blog. You could create another View for your tutor, which includes assessments and your reflective learning journal. You could create a third View to showcase your best pieces of work and your resumé for potential employers. In fact you can create as many Views as you wish for work, study and leisure purposes. The diagram below of example artefacts, Views, and groups illustrates how content in Mahara can be shared and reused in different contexts and for different audiences (Mahara User Manual, n.d.).

Figure 2: Mahara Framework



How does Mahara fit in to the e-learning landscape?

While Mahara's APIs are open to all, Mahara can integrate with Moodle to provide a streamlined user experience. Currently this is limited to SSO, but from Moodle 2.0, students will be able to export assignments, blogs, and much more straight into Mahara to use as artefacts (which can then, of course, be placed into Views) (Mahara User Manual, n.d.).

Conclusion and Suggestions

Technological advances are continuously changing especially in educational field. These advances have become to be effective in assessment and evaluation. In traditional education, assessment and evaluation is carried out through written and oral exams which are highly classical in evaluation. However, it is seen that classical evaluations aren't sufficient enough in evaluating students. Therefore, portfolio evaluation system has become more important because of its effectiveness in evaluating students.

Portfolio is the total of studies revealing developments, works, and achievements of students. When it is considered that students receiving education with e-learning method are insufficient in terms of communication and evaluation; form of evaluation with portfolio will become necessary for the evaluation of distance learning students.

Portfolios to be prepared are based on a long process. In this process, participation of the students should be ensured and criteria should be determined in selecting student studies. All of these constitute a priority in an effective portfolio system. In addition, criteria should be determined in the evaluation of student studies. In education field, designers should prepare portfolios by considering these criteria. E-Portfolios have some advantages in terms of storing, updating, and issuing in comparison with traditional portfolios. Portfolios should have some targets such as making students realize their problems, observing their development, and increasing their problem-solving and thinking skills.

Consequently, portfolio can be seen as an evaluation method but in fact it is a learning method. Evaluation method with portfolio is an improving

method in terms of student's learning and an evaluation form reflecting the futures of students.

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Observation of Young Age Individual's Approach to a New Computer Fact

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Abstract: Besides being imported to all of the areas in our lives, computers have a very important effect on all age groups. With the effect of the high-speed learning, in addition to using every kind of technological improvement easily, it can be observed that their speed of integrating those improvements into their lives is at a surprising level. In this study, behavior patterns of children, between the age of 12-15, in the first phase of a technological fact has been observed and worked on. "Cloud Computing" has been chosen as a fact that they will first face with. Firstly, a test has been given to the children in order to find out if they have any idea about the fact. After that, a presentation has been made about the fact chosen and then by applying a last test, it has been tried to find out how they comprehend the new fact. The data has been observed by "definitional statistic method" and "Depended Groups T-Test" using SPSS 21.0 software, and the results have been interpreted. The results show how fast children are in integrating new technology into their lives. In addition, the results include the details about the children's viewpoint and sense.

Keywords: Human computer interaction, technological improvement, computer usage, cloud computing.

Introduction

We live in the era of digital natives. Rising generation meets with smart machines when they first open their eyes to life. The viewpoint of rising generation on events, their discovering innovations and perceptions show difference in comparison with the previous generations. Like Elikind (1999) said, children "grow mature" earlier compared to past. The reason is that they can learn not only their environment and houses but also people, places, and events that they don't know. The minds of children are partly being occupied through computer, television, computer games, and cinema or they perceive the information in their schools by changing from

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time to time. Smart machines are becoming an individual of their families. The most prominent of these are computers and mobile devices without doubt. Devices that can respond to every request in a very short time are becoming more attractive for children whose perceptions are strong and who are just discovering world. Therefore, everything that is seen as only tool to non-digital natives can be a part of life and a reality of the world for digital natives.

Internet technology and computer which were considered as a tool for information gathering and computing have become an essential part of our lives with its use increasing every passing day. In every house in developed or developing countries, there are many mass communication tools. In addition, computers and internet have an important place in many children's lives. For example, in a study carried out in USA it was found out that there was a computer in the house of 70% of the children and internet in the house of 52% of children who were at the age of 2-17. Moreover, it is seen that between 1999 and 2000 the rate of computers found in the house of families living in USA increased 2% (from 68% to 70%) and the rate of internet usage increased 11% (from 41% to 52%) (Woordard & Gridina, 2000). According to the data (August, 2011) obtained from Turkish Statistical Institute, the rate of house having internet access increased to 42,9 % throughout Turkey. According to these statistics recorded on a regular basis, it can be said that the rate of house having internet access and the usage of internet and computer, on age groups basis, have significantly increased. The age group having the highest computer and internet usage rate was 16-24 (65,8%) and it was also revealed that 90% of the individuals using internet was using internet on a regular basis. It is now easier to use computers compared to previous periods, and this produces many different results. One of these results is the usage of computer and information technologies in the field of education. Alakoç (2003) argues that new advances in technology, computer, and communication result in changes in education understanding, and this brings along the usage of new techniques and methods in today's education.

Another important fact of modern day is that young individuals and children can easily adapt to every technological development they face

and integrate it into their lives. Technology offers learning and additional opportunities to children in order to present what they have learned. It also offers different learning environments and pays attention to their personal differences and learning styles. It allows them to progress and improve in line with their needs and interests (Clements, 1999). For this reason, they can easily solve the usage of a new social network, a web system, or electronic device and integrate them into their lives. Young minds are continuously exposed to the effects of digital technology and they are the most sensitive minds against these effects (Small & Vorgan, 2008). There are many studies carried out to figure out whether these effects are positive or negative. According to a research carried out on 94 families in certain cities in Turkey (Eskişehir, Bursa, and Kütahya) families think that internet is a necessity in modern life and it does not have negative effect on their family relations (Odabaşı, 2005). In another research conducted to determine the effects of children on internet usage in terms of families, data was obtained with qualitative and quantitative research methods with 38 families and 31 children. In line with the findings obtained in the research, it was concluded that children are very effective in internet usage at home. In addition, it was concluded that interfamilial conflicts and discussions began to result from internet usage (Rompaey, Roe & Struys, 2002). It is known that when direct methods are followed, information technologies play a very important role in children's lives. On this subject Healy (1998) stated in a study that new technologies create an environment for children in which they learn by doing and experiencing and simply complicated or intangible concepts by visualizing them; Papert (1998) stated that computers offer tangible experience to children, children can control computers and computers have positive effects on them as long as children are in interaction with their friends. Furthermore, it is suggested that computers offer effective and rich learning environment for children (Dodge & Colker, 1995). In addition, the importance of families is great in terms of creating technological awareness in children. Factors such as computer usage by families at home, offering children such environments, and spending time with their children on computer are efficient in terms of creating technological awareness in children (Blatchford & Siraj 2001).

The aim of this study is to analyze the behaviors of children about perceiving a subject about which they don't have information previously, integrating them into their lives, and adding what they learn to their individual application areas.

Method

The study was administered in Turkey Journalists Association Elementary School. The sample was determined as 60 students (29 male, 31 female), at the age of 12-15. Application steps followed in the study are as follows:

- A questionnaire was conducted among children in order to collect demographic information, measure knowledge levels regarding information technologies, and determine the role of computers in their daily lives.
- Pre-test application, to be used as pre and post-test and regarding the subject (cloud computing), which they haven't information about, was performed.
- A presentation, which lasted 15 minutes and gave general information about cloud computing and its fundamentals, was made.
- The questionnaire conducted as pre-test was then applied as post-test.
- Demographic data obtained was analyzed with descriptive method.
- In addition, questions asked for identifying the changes in children's information regarding cloud computing were analyzed by applying Dependent Groups T-Test.
- Data obtained was evaluated.

After identifying the population and sample of the study, the study was conducted in accordance with the application steps. Data obtained was analyzed and interpreted with the appropriate analysis methods. It was assumed that the most effective results can be obtained if the study was carried out in children's own classes and during course hours. Furthermore, students were encouraged to give intimate answers by emphasizing that the questionnaire wasn't an exam.

The change which the presentation created on children was evaluated in two ways. First one is a mini exam hidden in the questionnaire consisting of general and simple questions about cloud computing. The aim of the exam is to identify whether the presentation gives general information about cloud computing. In addition, in the first phase of this exam it was aimed to identify how much information students have about cloud computing and confirm the assumption of choosing cloud computing as a technological fact that students do not know. In the second analysis, the change of students' choices in using cloud computing as a solution was interpreted. The rates of preferring cloud computing by the students at the end of the first test and what kind of changes happened in their preferences after the general information they received were the subjects examined by the study.

After the questionnaire was competed, reactions received in dialogues carried out with children attending the study were taken into consideration and this information was also involved in findings.

Findings

The study was carried out with 60 children, 31 female and 29 male, in their own classes during course hours. Demographic data was obtained for detecting children's computer knowledge, interest and access status and the data was analyzed with descriptive method. General information regarding participants was given in Table 1.

The number of participants	60			
Average age	14			
Daily Computer Usage Time	4,43 hour/day			
Daily Internet Usage Time	4,67 hour/day			
Gender	**Female**		**Male**	
	N: 31	% 51,7	N: 29	% 48,3
Having computer	**Yes**		**No**	
	N: 55	% 91,7	N: 5	% 8,3
Having mobile phone	**Yes**		**No**	
	N: 50	% 83,3	N: 10	% 16,7
Having an interest in working with computer	**Yes**		**No**	
	N: 33	% 55	N: 27	% 45

Table 1: General information regarding participants

As a result of the questionnaire, it is seen that while computer usage of participants was 4,43 hour/day, internet usage duration was 4,67 hour/day. From this result, it can be understood that internet usage is more than computer usage because they use the internet with other devices such as tablets and mobile phones. 51,7% of the participants are female and 48,3% of them are male students. As a result of the questionnaire, it is seen that 91,7% of the participants have a computer in their houses and only 8,3% do not have computers. In addition, 83,3% of the participants have mobile phones and 16,7% of them do not possess mobile phones. Participants were asked whether they want to work in a job related to computers and 55% of them said they want to work with computers and 45% of them said they do not want to work in a field related to computers even if they use computers actively.

Figure 1: Methods used for internet connection

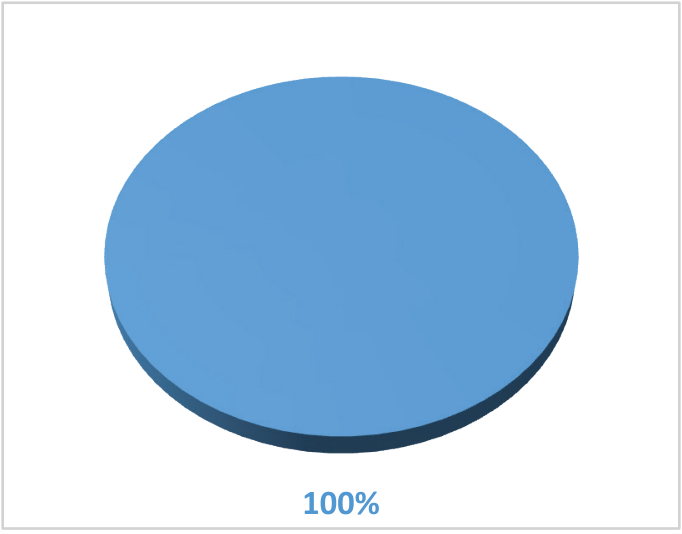
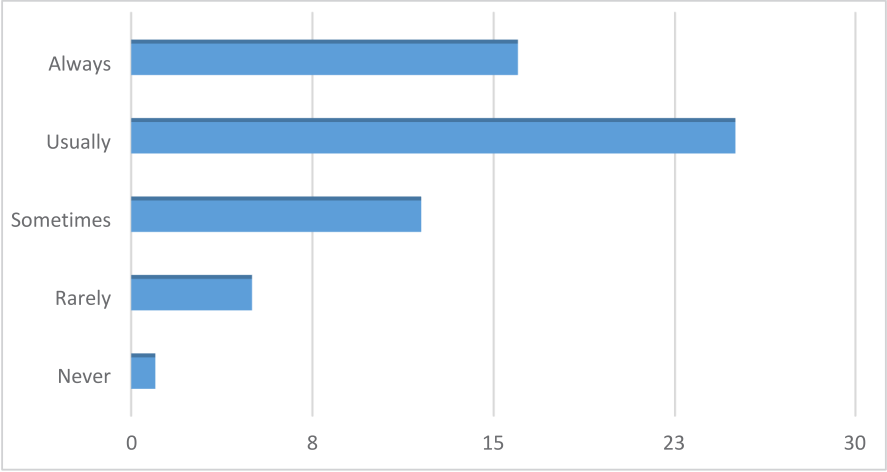


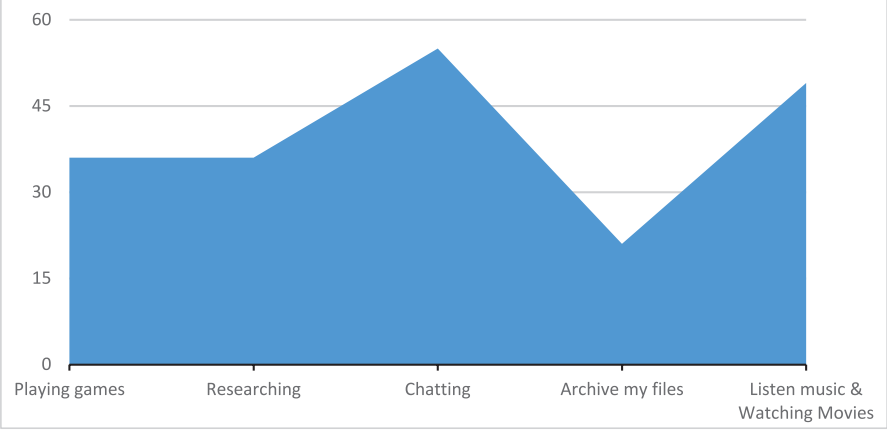
Figure 1 shows the channels that participants use for internet connection. Those using computers for internet connection have the highest rate. While the rate of participants connecting to the internet by using mobile phone is 38%, the rate of tablet usage is 15%. In addition, the rate of preferring other choice is 1%.

Figure 2: Allowance situations of families for internet usage



Participants were asked whether their parents allow them to use internet. According to the data obtained, it can be said that the parents of the participants generally allow their children to use internet. There are also some parents who do not allow their children to use internet, but the rate of them is too low. Answers show that parents are comfortable about internet usage. Data collected showed that "generally" and "always" were the options chosen most (Figure 2).

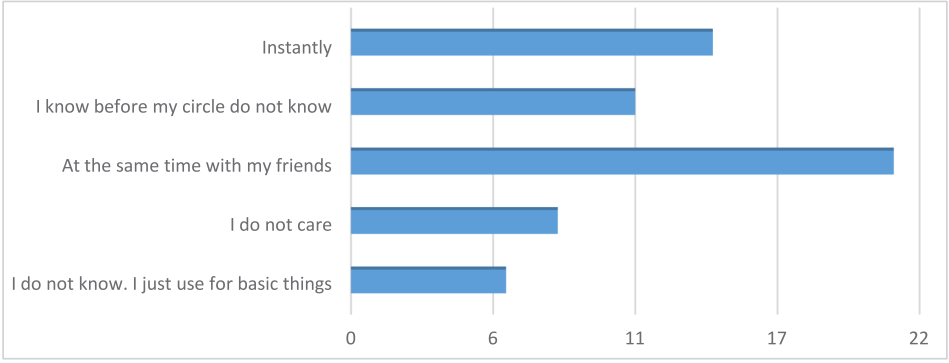
Figure 3: For what purpose computers are being used



The participants were asked what kind of activities they carry out on computers and answers given are shown in Figure 3. While 54 participants stated that they use computer for communication, 50 of them said they use computer for listening to music. 37 participants said they use computer for playing game or doing research. The number of participants using computer for archiving files is 22. Answers obtained from this question show that children use computers especially for communication and multimedia purposes.

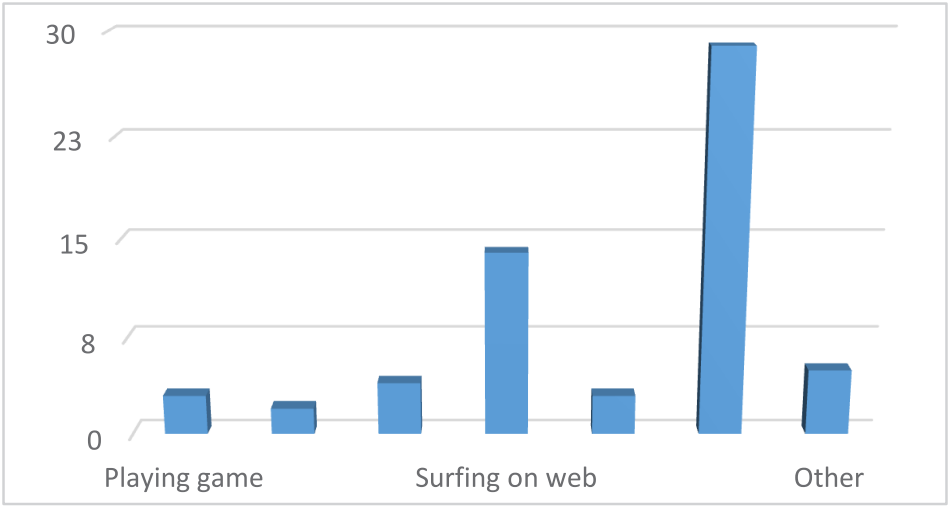
Children were also asked how many individuals their families consist of and how many of them benefit from internet connection. According to the answers, their families consist of 3-4 individuals and 2,95 of them use internet.

Figure 4: Technological developments and following situations of children



The participants were asked whether they follow developments regarding computer and internet. 21 students stated that they start considering at the moment their friends begin using. 14 students said they start analyzing when a new development emerges. When other answers are examined, it is seen that 11 participants learn before their environment is informed about the new development about internet or computer. In addition, the number of those who do not care is 8 and the number of students who do not know anything new about computer or internet is 7 (Figure 4).

Figure 5: The opinions of children about the invention reason of computers



The answers given to the question "Why were computers invented?" are shown in Figure 6. The majority of participants (33 participants) thought that computers were invented for communication purposes and 17 participants said they were invented for surfing on web. When age averages of participants are taken into account, the answer of "playing game" is expected but only 3 participants gave this answer. 5 participants said they were invented for watching movie. While 4 participants stated computers were invented for computing, 6 participants thought archiving files was the reason of invention. The participants (7 students) who chose other option gave answers such as "leaking information from different countries or bad intentioned groups", "getting information about other cities and countries", "killing time", "all of them", and "useful for humans".

During the application, a questionnaire consisting of 7 questions was organized for testing the knowledge of children on cloud computing before and after the presentation. According to the answers given, children got points from 0 to 7. The findings obtained before and after presentation were analyzed with Dependent Groups T-Test.

	Groups	N	$\overline{X}$	SS	t	Sd	P
Information Questions	Before	60	4,28	1,263	-11,698	59	,000
	After	60	6,05	1,443			

Table 2: Dependent Groups T-Test results of the scores that the participants obtained on the test

It was observed that the results of the information measuring questionnaire averagely showed an increase after the presentation when compared to the results obtained before the presentation. The difference emerging after the presentation is statistically meaningful according to the Dependent Groups T-Test ($p < .05$).

Discussion and Conclusion

Within the scope of the study, the approaches of 60 participants on "Cloud Computing", which is a new concept for them were observed. First of all, participants' demographic information and attitudes toward computers were analyzed. The majority of children (91,7%) have computers and it was identified that all of them use computers. Internet usage rate (4,67 hour/day) is more than computer usage rate (4,43 hour/day). This shows that children are also using internet through their mobile phones or tablets.

In table 2 it is specified that the majority of participants did not have information about cloud computing before the presentation and thanks to the presentation, a statistically meaningful difference was occurred in their information regarding cloud computing. General information about cloud visually created a difference on a group that is really familiar with computer and internet environment. The presentation lasting 15 minutes enabled them to get general information regarding cloud computing and create ideas about how to integrate it into their lives. After the study, children exchanged ideas with one another with the mini discussion they started unconsciously. They discussed where cloud can be used and for which problems solutions can be offered. This shows that this rising generation

that is very familiar with the technology can easily adapt new facts thanks to kick-off movement and integrate them into their lives.

According to the findings, it can be concluded that children consider computers as a communication tool. The question "Why were computers invented?" was asked to the children and the majority of them gave the answer "communication". A similar answer was given to the question "For what reason do you use computers?" All of these show that children see computers as a door opening to the outside world. At this point, it can be concluded that computers are mainly used for communicating rather than computing which was its invention reason.

According to the answers of the question regarding to what extent parents limit computer usage, it can be said that most of the parents do not limit internet or computer usage in their houses. However, the answers to which children gave about for what purposes they use computer show that not limiting computer usage does not really have disadvantages.

According to the results of the study, it can be stated that the application performed with the sample group showed that children behaved in a curious and enthusiastic way when they first face to a computer fact and they produced ideas about how to use the fact with the know-how they obtained.

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Cultural e-Learning Through Erasmus Experience Management

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Abstract: The practice of cultural orientation through e-learning is one of the achieved success of our technology use, as culture is said to be a form or stage of civilization of a certain nation or period, this might imply that we are the culture and learning the culture is learning ourselves. This paper is trying to bring close to our vision the need for the cultural experience management system, through which people that have the knowledge of another culture can share and document their experiences of that culture. A cultural knowledge system can build a vocal community with human understanding that will help in, use of cultural signs, selection of words for communication, and guide us in our physical appearance to a certain community, with respect and preservation of human integrity from each society. The system will assist in bringing up a civilized young generation that will be good ambassadors in any geographic location they found themselves. Based on this, we may say, a student that goes to Erasmus program can have a lot to share regarding to a culture in a different perspective that is likely not to be the same with a person who learn about the culture through papers or by attending classes. Culture is taught and learned and shared, these can be better accomplished through the management of such experience.

Keywords: Culture, e-Learning, Erasmus, experience management, Erasmus students

Introduction

Since the start of visual technology, cultural advocacy has become a concern within our society which leads to creation, implementation, and recreation of different means of cultural awareness. Culture as a stage of civilization characterized by social, ethnic, and age group of a community can be attributed to every one of us. Culture or civilization might vary from one community to another, but they all fall under individual awareness of

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the culture in that vicinity, to be civilized is to be cultural. Various forms and means are been used in the awareness of culture, such as TV programs and movies that later become more practical with the introduction of cultural exchange through the exchange of student and teachers. Due to the variability of the culture in different regions, culture plays a major role in our educational environments, and in many places the educational systems demand that students should be introduced to the culture of such a locality before undergoing their normal learning process. This creates a challenge for learners who are culturally different from the culture that develops the learning content, especially when they must deal with curricula that are developed from and upon a different cultural basis (Olaniran, 2009). Student exchange programs have helped a lot in the cultural exchange even though few of the countries have realized the achievement through such programs. Introduction of Erasmus programs in the European countries and bilateral programs in other countries succeeded in the intermingling of culture and cultural knowledge sharing. This paper is not on culture or e-Learning nor was it on management, specifically rather it's on the integration of all through e-Learning to improve cultural awareness to those who have been in the above mentioned programs and those who have not been opportune but will have the means through the available e-Learning infrastructures.

Cultural e-Learning

Culture in particular encompasses the majority of our life, starting from what we eat down to our social amenities and religious affairs, it is a huge and complex topic to deliver in any medium, and therefore, integrating culture to e-Learning will require great effort and dedication from material preparation, material format up to the delivery of the material. For such reasons if people from both cultures are to identify with the software, the content should be carefully written so that there are no clashes of cultural identity (Al-Hunaiyyan, Al-Huwail ,Al-Sharhan, 2008). In the design of such a system the designer has to take precaution of some areas that has ethnic impact to certain ethnicity or group. It is not all about putting content on an e-Learning media rather all the technological, cultural differences

should be in consideration; modelling and simulation of such a system will have to be in an ethnic permissible format, because the culture that is presentable in some countries might not be acceptable in other countries. The selection of modelling technologies that can model a cultural belonging exactly as the way it should be. Designers and instructors of cross-cultural online learning should become familiar with the need for cultural awareness and sensitivity, and the potential influences of effective communication and collaboration on learning resulting from appropriate training (Chen, Hsu, Caropreso, 2006). We always like to acquire more of knowledge in particular to understand ourselves, sometimes we study others' culture and even write about it, so as to make others learn from our knowledge, some of those writing are done without the actual physical knowledge of the exact place or locality. Looking to the other side of the coin we have another such a person that happens to be in other places, seeking knowledge that also have the passion of culture even though they lack the passion of putting things to paper. For such people we can create a room through the electronics learning paradigm to make them share their knowledge that will definitely be full of other cultural perspectives. This is very important because considering the cultural learning and awareness are not confined to training and design only. Also naturally we happen to be more attentive when acquiring something that come from the source rather than unverified imaginative forms of knowledge. These include the role of the instructor and the level of interaction. Intercultural competence has to do with the capacity to understand more than what the words record in spoken or written language. It has to do with the human communication process and therefore goes beyond linguistic competence (Belisle, 2008). Having an e-Learning system that will manage our Erasmus and exchange student experience will contribute a lot to the cultural awareness.

Management of Cultural Experiences

Information management among all has also pioneered many parts in our daily life. It has become the source of our modern development, though, for the past it has played a key role in human development. Today the huge struggle and war of success has been pinned to information success, which

can only be achieved through effective management of the information. It has always been stated that "information is power" but we are all a witness that information is not only a power rather power, money, and life in general. Before the advent of sophisticated, intelligent technologies, different means and methodologies have been adopted in retaining information for future generation and implementation. Experience management in other ways can be seen as opportunity management that if well documented can save us a lot in life, we lost many opportunities not because we do not know but it is because we are not able to preserve or share them with others. Documentation of this kind of knowledge or information can help our life struggle both in seeking knowledge, health, and business. With faster access to needed information, managers can make better decisions about procedures, future directions, and developments by competitors, and make them more quickly (Reddy, et. al, 2009). Consequently, the manager or system operator can use the time and resources s/he would have used in monitoring or fixing problems for other key uses (Nowduri, 2010). The management of cultural experiences can also be classified in its value of information, legal requirements, and its sensitivity. To manage experiences is to capture, preserve, store, protect, and deliver the right knowledge and culture to the right people at the right time. These can appropriately be achieved by having a system that is dedicated to collecting cultural experience from various people, and it can help in future decision on cultural e-Learning technology development.

Cultural Experience and Student Exchange Programs

This is a broad topic that comprises of other broad topics, to make this topic more manageable, boundaries and area of restriction will be further delineated. Because of its vastness a lot of frameworks have been adopted to specifically concentrate on each and every culture. The main focus here is on student information management, but wait a minute, did I say student information management; this is something everyone is aware of. Right from the start of human in seeking knowledge on earth, mentors have been documenting and managing their student's information. That is right, and if you come into same conclusion with the above statement, you will soon

realize that, students are still missing a vital part of their student life. We all know that keeping student's records, such as starting and ending date, class of certificate, and success and failure of the student throughout the years of studies are all kept intact and they can be traced back whenever required. The vitality of the above secured document makes a lot of us think, in a student life, there is nothing useful apart from that, for example when seeking for a job or any political position. We are yet to foresee other aspect of school life to be helpful, not only for the formally mentioned aspect but also for our upcoming young energetic leaders of tomorrow. Those are the students underway for their tomorrow, preparing for the varsity life, registered or in the registration process. The movement of student from one school to another seeking for knowledge and gaining experience is named after the founder's name Erasmus. It has become common practice in all parts of the world, but it is known to originate from Europe. This kind of life experience must have carried vital information that can be beneficial to others.

Need for a Web Based Experience Management System

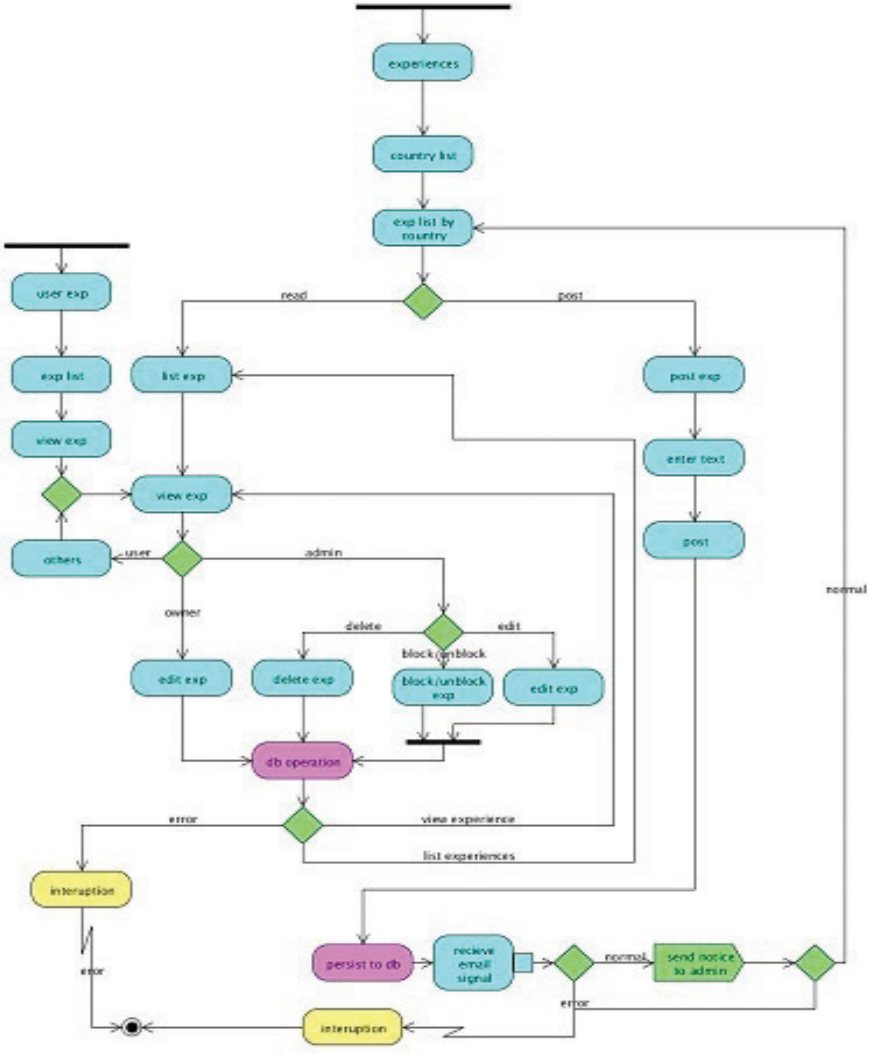
Experience management system will give exchange student the ability to express and pass on their experience through e-Learning arena to their colleagues and other interested parties. Such a system should also help other student who is planning to go for such a great program preparing for the upcoming social and cultural norms.

System Detailed Flow Graph

The below diagram in figure 1 is a detailed interaction between users and the system. Though the log-in and registration aspect of the system diagram are not shown, after a successful registration or log-in to the system, a user can see already existing user written experiences. A user can always add an experience to the desired country and read any written experience from any country of interest. Likewise depending on the privilege of a user he can have permission to view written experiences only if he is not the author of the experience or have the right to view and edit the experience if he is the owner of the experience. An administrator can view, block/unblock,

and delete any experience, most especially if the author tends to violate any of the rules and regulation. As shown in the graph posted experiences are blocked by default unless otherwise unblocked after the control of the administrator. When an experience is posted in the system an email notice is sent to the administrator for control.

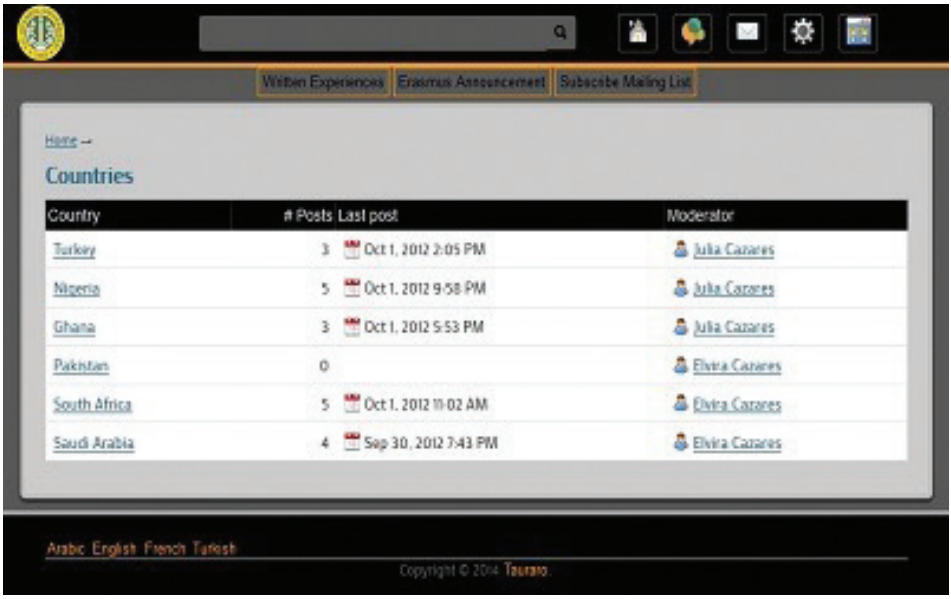
Figure 1: Experience management model detailed graph



Experience Management's System Countries' Interface

The interface in figure 2 is an experience interface based on countries and moderators of each country. A moderator is an administrator of a country that is responsible for the country administrative issues of contents management as shown in figure 2 below.

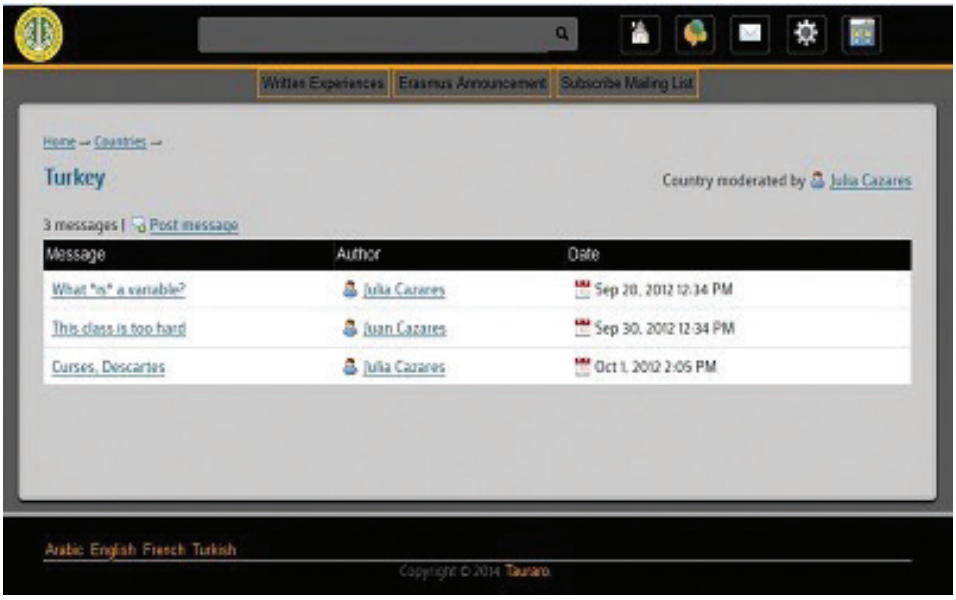
Figure 2: System Countries' Interface



Country Content View

The content of a country will consist of students' written experiences in details as shown in figure 3 below. A user can click on any of the experiences to view the written content, the user can also have the privilege to edit if s/he is the owner, moderator, or general administrator.

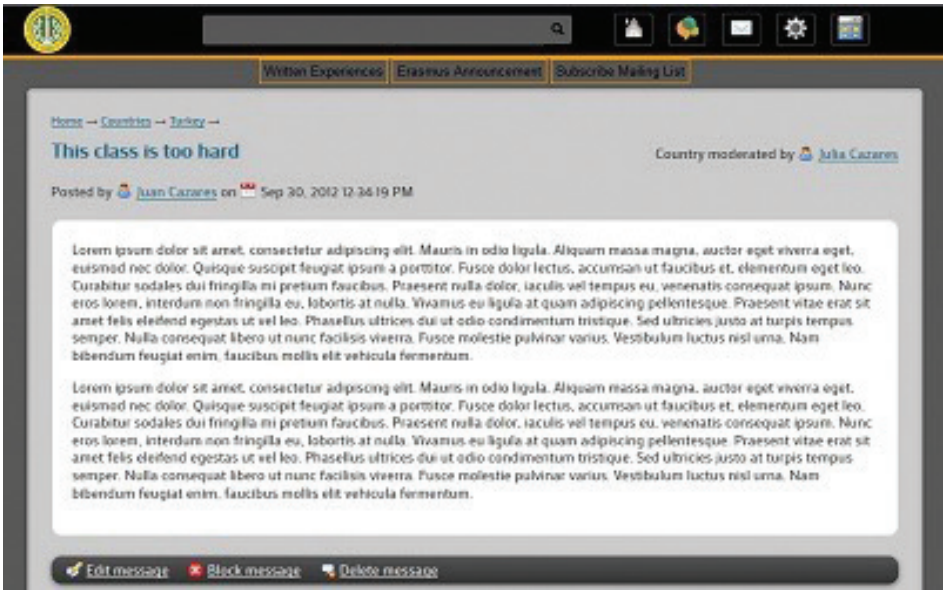
Figure 3: View of a country's content



The View of a Written Experience

Finally, the classification of a content to a certain country is done to avoid confusion and give direction to authors. Selecting an experience to view will give you the detail of the content author, moderator, and administrator; this gives users the opportunity to contact the author, moderator, or general administrator for anything that has to do with the content. In figure 4, the view of content in the system inside a country is shown.

Figure 4: The view of a written experience in a country



Impact of Exchange Programs on Our Social and Cultural Norms

According to studies carried out on student opinions about international exchange programs in which the question and response are as follows: When asked to rate the relevance of the experience to their future job opportunities, 58.1% of the students rated it as very or extremely relevant, 33.1% rated it relevant, and only 8.9% felt it was irrelevant (M = 3.75, SD = .98) (Hoof & Verbeeten, 2008). This indicates that, such kind of experience worth recognition and management. Give a visit to someone that has undergone such kind of life, you will surely notice the life from the photo album. Such people always try to share what has amazed them during such program to family, friends, and acquaintance. The technological opportunity we are blessed with also opens doors of extreme relationship. Different people from different geographic arena might have an interest in one another, but cultural barrier can defeat the purpose. The elites, are those having a good understanding of different cultures, always abide by the rules and give due respect to human beings irrespective of where they come from and how they appear to them. Building a moral community does not stop at giving

children professional education only, rather it expands to introducing them to other cultural perspective, and this is the main idea with exchange and Erasmus programs. The students build their social understanding with one another, share their moral behavior and understanding of the different world they come from, sometimes they become future carrier advisors to one another that will open doors for international relationships and businesses. Hypothetically, in any case, those students are proven to be more open to the world and knowledgeable than their colleagues whom have not been in such a program. Moreover, as stated in a survey named "outcome assessment of a short-term U.S. Thailand student exchange program" pinpoints that at the tour's conclusion, more than 75% indicated a moderate to high level of knowledge (Robbins & Orr, 2004). This is on social and cultural norms.

An area to notice is that people have been going for such life, and they keep on going; the more the population is increasing the more applications are increasing. People always face difficulties right from the application to the successful conclusion of such program. As technologies become more a part of our life, the area of difficulties is changing to different aspects. We use technology to document student's information, sometimes social life, and more general school life. The later, is mostly used to be a paragraph/student statement and some pictures on a site. Giving student the ability to sit and write all s/he has across through their student life, all the pitfalls, and how s/he overcomes them can be a door to student success. With such information available for student, they will be able to make better decisions about procedures, future directions, and success of their studies. For this we need a system to fill this gap, not a student management information system, rather more specific "student experience management information system". In this paper we are more specific to "Erasmus student's experience management system".

Conclusion

Much has been written about student, among the plausible need of student life, is the student cultural experience management system. This paper points out the need for a SCEMS that will manage cultural experiences from

exchange students and teachers, these people can be our students that go to timely study programs or our teachers that go for periodical teaching to other schools within and outside their countries' of residence. As we know culture is not only to be learned in books and classes, to better understand the culture you either get someone that have the experience of that culture or that belongs to that culture. We are trying to say that experience is the best teacher, and documenting and sharing of that experience can lead to a great success. Most of the people that have this kind of experience are always willing to share it with others, if so, then why cannot we afford to documents and manage their knowledge and thought. A sample system is shown to allow students and teachers to register and share their experience with other students and teachers. The system assigns an administrator that has to control any submitted post before the audience can see it, this is to avoid cultural right violation, as everything that people do does not mean that it belongs to their culture. Currently the system's cultural segmentation is country-wise, which is in a more general way. But in the near future, we will look toward implementing the segmentation in each country to be based on the different culture in that country.

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Determine the Usage of Mobile Applications Among University Students

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Abstract: Net Generation people have grown up with new technologies such as Internet, high powered computers and mobile phones. They like to multi-task and prefer to collect and learn information through multimedia such as pictures, audios, animations etc. more than text. In other words, they are able to engage with multiple sources of information at the same time. But traditional teaching methods are not enough to keep them occupied, so it is necessity in order to ensure Web 2.0 learning tools and mobile applications in the education arena. The main aim of this study is to determine the usage of mobile applications among university students. 144 voluntary university students attended the study. Data was collected by questionnaire and descriptive statistics, paired t-test, frequency, and percentage methods were used. The results of the research showed that students frequently use Whatsapp, Facebook, and YouTube through other mobile applications.

Keywords: Mobile applications, technology enhanced learning, Whatsapp, Facebook, YouTube

Introduction

Fast developments and recent changes in the technology have affected the society and resulted in the formation of the "digital age". These new changes have also shaped the characteristics of individuals. Tapscott (2009) stated that the Net Generation had begun in January 1977 and ended in December 1997. Palfrey and Gasser (2010) defined that the Digital Natives came into view later than 1980. The Millenials can be grouped as those born in or later than 1982 (Oblinger, 2003). In summary, since the people who were born after the year 1982 are part of this new generation,

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the terms like Digital Native, Net Generation and Millenial can be used for this generation. Net Generation people have grown up with new technologies such as Internet, high powered computers and mobile phones (Duffy, 2007). Under the sway of new technologies, they have advanced skills in the use of information and communication technologies (Kennedy et al., 2010), supposed to be tech-savvy (knowledgeable) and immersed digital technologies (Bennett & Maton, 2010). Helsper and Eynon (2010) mentioned that they speak digital language of computers and the Internet. They learn differently from traditional learning methods (Roodt et al., 2009) and they prefer learning activities in blogs, virtual worlds (social networking sites such as Facebook, Twitter, Google+ etc), video (YouTube) (Jones et al., 2010) because they respond and expect feedback immediately (Duffy, 2007, p.119). On the other hand, they like multi-task and they prefer collect and learn information though multimedia such as pictures, audios, animations etc. more than text (Helsper & Eynon, 2010). In other words, they are able to engage with multiple sources of information at the same time. But traditional teaching methods are not enough to keep, so traditional teaching methods must be supplemented by engaging learning methodologies and interactive learning tools. It means that it is necessity in order to ensure Web 2.0 learning tools and mobile applications in the education arena because of their potential as contemporary education technologies. For this, it is indispensable to determine usage of mobile applications among university students.

The Aim of the Study

The main aim of this study is to determine the usage of mobile applications among university students. To reach this aim, the authors search answers of the following questions:

1. How are the mobile usage conditions of students?
2. Does the mobile usage condition of students show differences according to their gender?
3. What is the budget of students for mobile applications?
4. What are the quotas of students for Internet usage?

Method

Participants

The research has been conducted at the Near East University during the spring of academic year 2013-2014. The aim of the study was announced at the university web site and a link was given where interested volunteering students could reach to participate in the survey. Of the 144 volunteered participants, 54.2 % (n=78) were females and 45.8 % (n=66) were males. Students from different departments have participated in the research. The distribution of participants based on their departments was as follows: 18.8% (n=27) students from Department of Pre-School Teaching, 27.1% (n=39) students from Department of Nursery, 14.6% (n=21) students from Department of Divinity, 8.3% (n=12) students from Department of Psychological Counselling and Guidance, 12.5% (n=18) students from Department of Interior Design, 6.3% (n=9) students from Department of Computer Education and Educational Technology, 6.3% (n=9) students from Department of History Teaching, and 6.3% (n=9) students from Department of Law.

Data Collection Tools

The questionnaire named "Determine the Usage of Mobile Applications among University Students" was prepared by the authors after related literature was reviewed. Content and validity of items were investigated by 5 experts on technology and educational technologies, and were found to be satisfactory. Internal consistency of the questionnaire was calculated by using Cronbach Alpha and found .84. Cronbach Alpha is greater than .70, so that it can be concluded that the prepared questionnaire can be used during the study (Sipahi, Yurtkoru & Cinko, 2010). The questionnaire consisted of two sections: First section consisted of 9 personal items. The second section of the questionnaire consisted of twenty one items, and focused on gathering information about usage of mobile applications among university students. Students rate each item on a 1-3 Likert scale from "Frequently" (3), "Sometimes" (2) and "Don't use" (1).

Data Analysis

The developed questionnaire was used to collect data during the study. The collected data were used to make statistical analysis by SPSS 20.0. Paired Sample *t*-test, descriptive statistics, frequency, and percentage methods were used.

Results & Discussion

A-The Usage of Mobile Applications

It can be seen from Table 1 that the students use Whatsapp (M = 2.43, SD = .50), Facebook (M = 2.60, SD = .67), and YouTube (M = 2.62, SD = .56) frequently. It is very expensive for students to use traditional methods to communicate with their friends. We can say that they prefer mobile applications and Facebook for these purposes because using Whatsapp is free and user only needs Internet connection. Also, Facebook is the most popular social networking site (Ebner et al., 2010; Junco, Heiberger & Loken, 2011), so that they can meet with their friends easily and share pictures, videos etc. Students marked that they use YouTube frequently. The authors think that this is joyful result of the study. Because, Roodt and De Villiers (2011) underlined that using YouTube in the classroom is an innovative method of teaching. On the other hand, Harris (2011) stated that it has the ability to enrich course content and improve student engagement. We can say that if instructors use these tools in education, they can motivate their students.

On the other hand, students sometimes use Viber (M =2.10, SD = .74), Skype (M = 1.87, SD = .66), Instagram (M = 2.18, SD = .88), Twitter (M = 2.00, SD = .86), and Google+ (M = 2.27, SD = .78). Google+ is a social media that students and instructors can share their ideas and information on the Web. Circles, Handgout, Spaks, and Huddle are its main features that can be interesting for education. Erkollar and Onerer (2011) stressed that Google+ has the potential to improve students' collaboration between instructor and friends through circles. Also, researcher concluded that Twitter promoted both student engagement and grades (Johnson, 2011; Junco et al., 2011; Junco et al., 2013). Salomon (2013) pointed out that

Instagram is a mobile application that enables users to instantly share pictures and images with others on the network. Skype is another mobile application that can be used for videoconferencing and Viber is a free communication tool. It is understood that these mobile applications can be used for Net Generation students as a virtual learning environment because of their features.

The interesting result of the study is Line (M = 1.31, SD = .50), MessageMe (M = 1.27, SD = .56), Voxer (M = 1.06, SD = .24), Tango (M = 1.39, SD = .67), Talkatone (M = 1.04, SD = .20), Flickr (M = 1.14, SD = .45), Snapchat (M = 1.52, SD = .84), Eyem (M = 1.06, SD = .24), Path (M = 1.04, SD = .20), Snapfish (M = 1.02, SD = .14), Linkedin (M = 1.12, SD = .39), Classmates (M = 1.02, SD = .14), and Tumblr (M = 1.10, SD = .56) are not used by university students. Research stressed that Millenial usage of technology such as mobile applications is increasing day by day (Jones et al., 2010; Wesch, 2011). On the contrary, in this study, students stated that they did not use upper applications.

Mobile Applications	Mean	Std. Deviation	Usage
Line	1.31	.50	Don't use
Whatsapp	2.43	.76	Frequently
Viber	2.10	.74	Sometimes
MessageMe	1.27	.56	Don't use
Voxer	1.06	.24	Don't use
Tango	1.39	.67	Don't use
Talkatone	1.04	.20	Don't use
Skype	1.87	.66	Sometimes
Instagram	2.18	.88	Sometimes
Flickr	1.14	.45	Don't use
Snapchat	1.52	.84	Don't use
Eyem	1.06	.24	Don't use
Path	1.04	.20	Don't use
Snapfish	1.02	.14	Don't use
Facebook	2.60	.67	Frequently
Twitter	2.00	.86	Sometimes
Google+	2.27	.78	Sometimes
Linkedin	1.12	.39	Don't use
Classmates	1.02	.14	Don't use
YouTube	2.62	.56	Frequently
Tumblr	1.10	.36	Don't use

Table 1: Descriptive statistics results of the mobile applications usage

B- Gender

In order to find out whether or not there was any statistically significant difference between gender's usages of mobile applications among students, Paired Sample *t*-test was carried out and the results are shown in Table 2. According to Table 2, there is no statistically significant difference between genders ($p > .05$).

	F	%	Mean	Std. Deviation	t	P
Female	78	54.2	1.60	.18	2.72	.101
Male	66	45.8	1.66	.27		

Table 2: Paired sample t-test results

C- Budget for Mobile Applications

Table 3 consisted of frequency and percentage of budget for mobile applications. 37.5% (n=54) of students had allocated 0-50 TL budgets, and 12.5% (18) allocated 51-100 TL and, 6.5% (9) allocated 101 TL and more. It is very interesting to notice that 43.8% (63) of students underlined that they have not got budget for mobile applications. This means that they do not have Internet connection on their phones.

Budget for mobile applications	**F**	**%**
0-50 TL	54	37.5
51 – 100 TL	18	12.5
101 TL+	9	6.3
No Budget	63	43.8

Table 3: Frequency and percentage of budget for mobile applications

D- Mobile Internet Quota

Table 4 shows the frequency and percentage of mobile Internet quota of students. More than half of attended students 37.5% (n=54) have 500 Mb Internet quota. 16.7% (n=24) of students have 1GB, 12.5% (n=18) of students have 2Mb, 3Mb and 250Mb Internet quota. Only 8.3% (n=12) students underlined that they do not use Internet.

Mobile Internet quota	**F**	**%**
250Mb	18	12.5
500Mb	54	37.5
1Gb	24	16.7
2Gb	18	12.5
3Gb+	18	12.5
Don’t use	12	8.3

Table 4: Frequency and percentage of mobile Internet quota

Conclusions

Nowadays, everything that we do is digital. The use of computers and high-tech software and many other technological gadgets are being used by millions all over the world. In other words, we are in a digital era where everything is at your fingertips and thus information should be available at any place and at any time without any restrictions by students and instructors. It has now become a necessity to move forward from the traditional learning environment to a new and more efficient technological learning tradition. From another point of view, the integration of technological learning environments such as social networking sites, Web 2.0 tools with the traditional educational instructions will definitely help prepare millennial students in a much better manner for their future careers. Overall, by integrating mobile applications in educational instruction will aid student learning in many significant ways and will indeed help their education period be more beneficial.

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New Technology Experience in Turkey: The Case of Bitcoin

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Abstract: A Cryptocurrency is an important alternative for money transactions. It is also a digital currency based on mathematics and cryptography. There exist more than a hundred of cryptocurrencies such as Ripple, Litecoin, Namecoin, Dogecoin, Mastercoin, Zerocoin, etc. But the most arguable and dominant cryptocurrency is Bitcoin. Although it provides money exchange and payment process, based on peer-to-peer network, without any central authority, there are one million estimated users globally. In this paper, the familiarity of Bitcoin (btc) in Turkey was researched. A questionnaire was designed, which contains totally 29 multiple and 5-point Likert-scale questions about general concept of btc. It was answered by 250 participants, who have at least undergraduate degree and know btc as a currency unit. Collected data were analyzed by using descriptive analysis. The results show that btc was accepted as a trustable e-cash flow system by well-educated individuals.

Keywords: Cryptocurrency, Digital Currency, Bitcoin (btc), Money Transactions

Introduction

E-commerce sites provide merchandising in any time and at any place. They also use several payment systems such as Google Wallet, Paypal, or online banking systems (Bamert, Decker, Elsen, Wattenhofer, & Welten, 2013). Emerging as an alternative to these payment infrastructures, phenomenon of cryptocurrency is a pioneer of change in terms of trade and economy. There exist more than a hundred of cryptocurrencies such as Ripple, Litecoin, Namecoin, Dogecoin, Mastercoin, Zerocoin, and etc. But Bitcoin is the most popular example of cryptocurrency technology (Taylor, 2013) that supplies both currency and payment system (Bamert, Decker, Elsen, Wattenhofer, & Welten, 2013).

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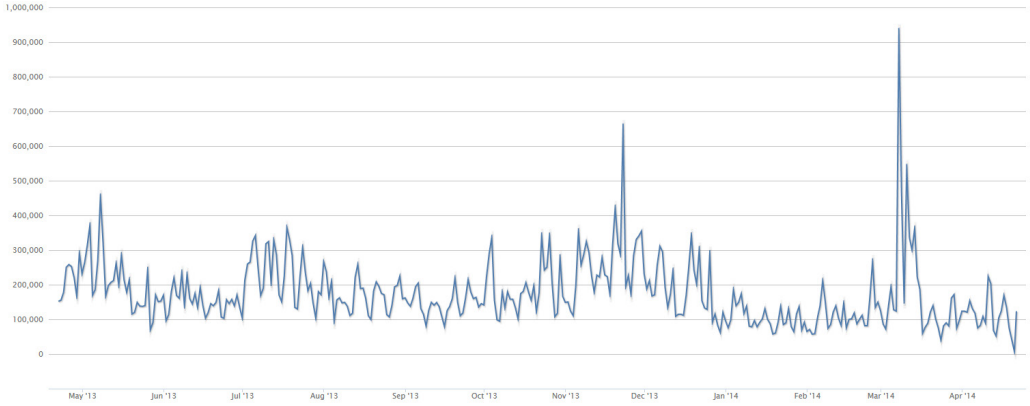
Bitcoin was defined as a chain of digital signatures (Nakamoto, 2008). It compromises money transfer and payment process, based on peer-to-peer network, without any central authority (Bamert, Decker, Elsen, Wattenhofer, & Welten, 2013; Reid & Harrigan, 2011). Confirmation process in these types of transactions depends on the acceptance of majority of participating nodes (Bamert, Decker, Elsen, Wattenhofer, & Welten, 2013). Users have installed a Bitcoin wallet to their computers or mobile phones, thus it generates unique Bitcoin adress. These adresses can be disclosed for payment or vice versa (The Bitcoin Foundation, 2014).

The first Bitcoins were transacted in January 2009 and by June 2011 there were 6.5 million Bitcoins in circulation among an estimated 10 thousand users (The Economist, 2011). Figure 2 illustrates estimated transaction volume of bitcoin between May 2013 and April 2014.

Figure 1: Estimated transaction volume of bitcoin (Blockchain, 2014)



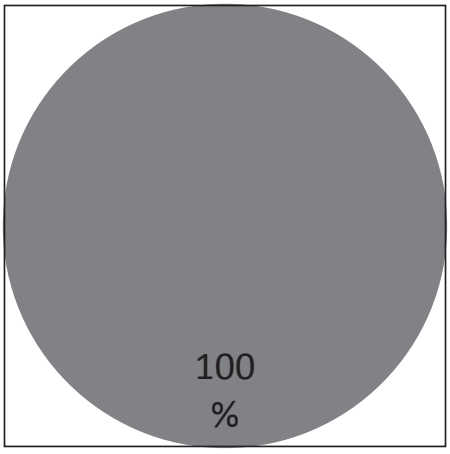
The goal of this study is to indicate familiarity of the bitcoin concept in Turkey. Therefore "the Bitcoin Usage Questionnaire" was designed, which contains multiple choices and 5-point Likert-scale questions for about the general concept of bitcoin. This questionnaire was applied throughout Turkey. Sample group was specified by having at least bachelor's degree and defining bitcoin concept as "a currency unit". The number of participants that matches with this profile is two hundred and fifty. 46%

of the participants have bachelor's degree and 54% of them have master's degree.

Findings

Firstly, participants were asked: "How did you hear bitcoin for the first time?". Figure 2 illustrates the acquaintance of the participants with bitcoin.

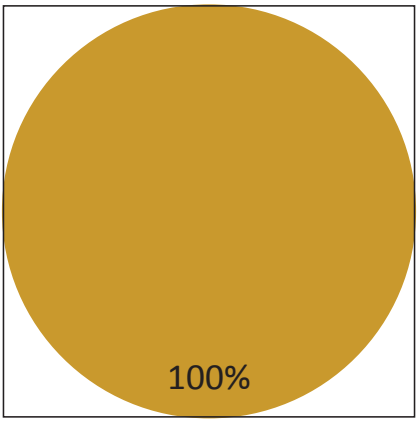
Figure 2: Acquaintance of the participants with bitcoin



Analyzing Figure 2; it can be seen that a large portion of respondents (53%) were faced with this concept while just searching on the internet without any referral. Searching on the internet is followed by the guidance of friends (16%) and social network shares (12%) respectively.

In order to understand familiarity of the participants to the concept of bitcoin, they were asked: "For how long have you known the bitcoin concept?". Figure 3 illustrates the familiarity of the bitcoin concept for participants.

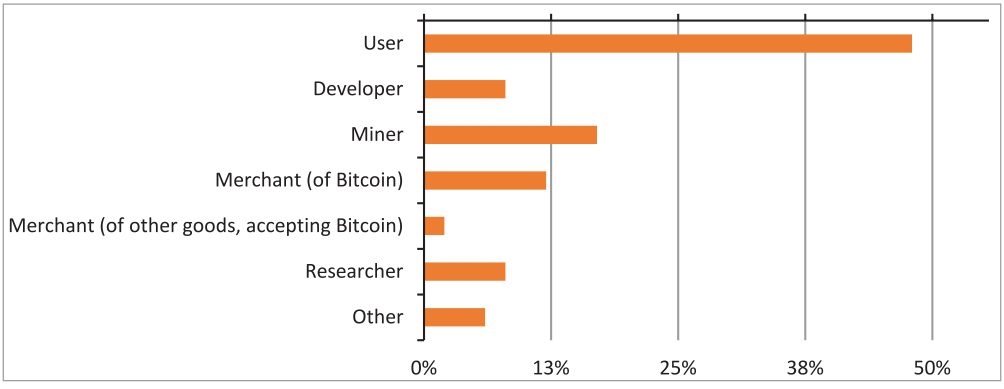
Figure 3: The familiarity of the bitcoin concept for participants



It can be seen from Figure 3 that the majority of participants (%55) know bitcoin less than one year.

To locate role-based relationship of participants with bitcoin concept, they were asked "Which role might describe you in relation to bitcoin?". Figure 4 illustrates participants' roles in the use of bitcoin.

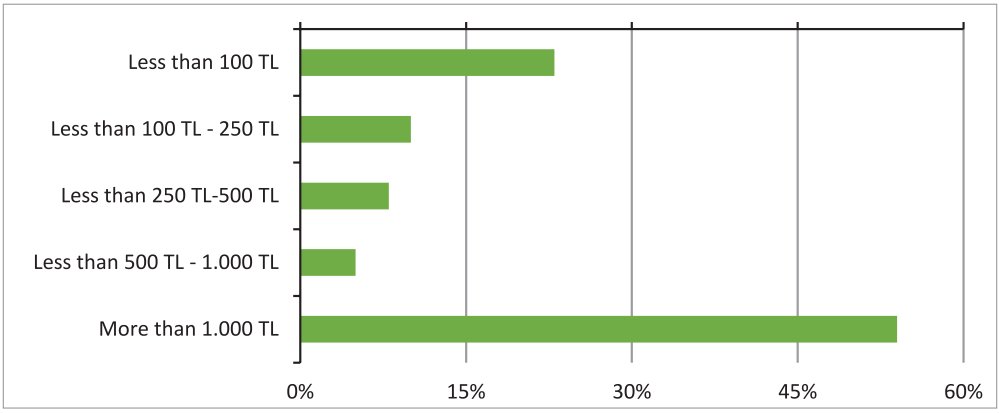
Figure 4: Roles in the use of bitcoin



Analyzing Figure 4, the majority of participants (48%) prefer to include in the role defined as user. Figure 4 also shows user role choice of participants followed by the miner (%14), merchant (%14) roles respectively.

Participants also were asked about the amount they can spend with bitcoin. Figure 5 illustrates information about bitcoin spending ranges:

Figure 5: Information about bitcoin spending ranges of participants



Analyzing Figure 5, it can be seen that the majority of the participants (54%) can spend an amount of 1000 TL and above. At this point, by asking participants the amounts of bitcoin they have, it is analysed that how much the answers reflect the reality. The participants have the lowest value of 0,04 btc and the highest value of 5814 btc.

Conclusion

Bitcoin has a certain fame in digital world not only for its cryptographic sturucture but also as an e-cash flow system. There are also many negative and positive approaches to usage of bitcoin in countries and some of the largest e-commerce sites, which directly or indirectly effect individuals' attitude. In this research, the individuals that have a certain level of education (at least Bachelor's degree) were evaluated in terms of familiarity on the concept of bitcoin. The results showed that participants have an increasing curiosity and the desire to use bitcoin technology and they have an increasing trust (73%) even if there is no any central authority.

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Production Process of Women Health Nursing Practice Videos in Istanbul University Florence Nightingale Faculty of Nursing

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Abstract: Limited opportunity for practicing skills in the clinical environment has resulted in a growing need for more effective use of skills laboratory in the faculty of nursing. Using instructional multimedia including video films for cognitive and psychomotor learning in nursing education appears to be an effective complement in the learning activities for nursing practice. Video films are valuable resources for learning nursing skills but require a great deal of time, effort and financial sources to create. Therefore it is important to decide on the best means of design, interaction and integration of the videos. Istanbul University Florence Nightingale Faculty of Nursing conducted a project to produce video films about all skills and practical issues about nursing. All departments in the faculty worked about their own specialties. The aim of this article is to present the development and production process of women health nursing practice videos in Istanbul University Florence Nightingale Faculty of Nursing.

Keywords: video, nursing, skill, women health

Introduction

Istanbul University Florence Nightingale Faculty of Nursing has been one of the leading and oldest nursing schools in Turkey since 1961. The

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faculty offers undergraduate and postgraduate degrees in nursing and has many specialties as the departments, including the department of Women Health and Diseases Nursing. The main course of this department, Women Health and Diseases Nursing, aims to review the concepts of women's health and reproductive health in line with the requirements of the country and gain knowledge and skills about prevention and promotion of the health and well-being of the women and family throughout all stages of life and providing their health care needs through a holistic approach in case of health problems. The course is presented through 4 hour theoretical, 4 hours laboratory, and 8 hours clinical education per week in the 3rd grade of the faculty. Students are supervised by academic staff in clinical and laboratory practice hours. Traditionally major skills of the course had been taught to students in the clinical environment. However, in the recent years, there has been a considerable increase in class sizes from seventy students to one hundred and fifty students. The number of students in Women Health and Diseases Nursing was one hundred and fifty in the last autumn semester in 2013-2014, and it is expected to be more than two hundred in the following years. Limited opportunities for practicing skills in the clinical environment has resulted in a growing need for more effective use of skills laboratory in the school. In the laboratory, skills were taught by a demonstration and practice technique. Although, the large number of students had to be broken up into small groups for the demonstration and practice, only some of them could have chance to practice the skills. These conditions motivated the academicians to review their teaching methods and to use videos as aids in clinical skills teaching. The faculty conducted a project to produce video films about all skills and practical issues about nursing. All departments in the faculty worked on their own specialties. As an example, the aim of this article is to present the development and production process of women health nursing practice videos in Istanbul University Florence Nightingale Faculty of Nursing.

Background

Acquiring clinical skills is a vital part of nursing education, but a number of factors can limit students' chances to practice, including

overloading of placements and ethical considerations in 'practicing' skills on some patients such as pregnant women and children (Brimble, 2008). Traditional strategies to teach psychomotor skills in healthcare education include lecture, textbooks, self-instruction, and live demonstration. Current advances in information and communication technologies have spurred the need to incorporate higher levels of technology into university classrooms (Nikopoulou-Smyrni, & Nikopoulos, 2010). Some recently employed multimedia technologies, including video, film, DVD/CD-ROM, computer simulations, slide presentations, audio recordings, and web based content have been utilized to present lectures, supplement classroom activities, and demonstrate psychomotor skills (Smith, Cavanaugh, & Moore, 2011).

Advantages of instructional multimedia and video clips include increased availability and repetition of instructional content, improved ability of students to learn at their own pace, less demand on instructor time, and the provision of an alternative approach to describe complex topics or three-dimensional relationships (Cannon, Kelly, Lyng, & McGrath, 2009; Smith, Cavanaugh, & Moore, 2011; Cooper 2004).

Instructional multimedia for cognitive and psychomotor learning across higher education appears to be most effective as a complement to classroom instruction rather than a substitute for classroom instruction (Kelly, Lyng, McGrath, & Cannon, 2009; Lowe, 2002; Smith, Cavanaugh, & Moore, 2011). Previous investigations of nursing students' attitudes towards instructional multimedia found that instructional multimedia enhanced learning, allowed for greater flexibility, and provided a platform for independent self-management of learning (Kelly, Lyng, McGrath, & Cannon, 2009; Kenny, 2002; Gibbins, Meddalena, Yamada, & Stevens, 2007; Smith, Cavanaugh, & Moore, 2011).

In a similar project by Cannon, Kelly, Lyng, & McGrath (2009), an on-line video learning bank was produced for skills training in the School of Nursing in Dublin City University. Following integration of the videos into their education, most of students reported that they found the use of the video server easy, enjoyed learning skills through video, felt prepared for the skills class after they watched the videos, liked the fact that they

could watch the videos in their own time, and found videos as a useful reference point later while on clinical practice.

Nikopoulou-Smyrni and Nikopoulos (2010), assessed the impact of lectures with the use of video clips on university students' learning over traditional teaching methods. Their results showed that all of the students' test scores was higher during intervention and follow-up conditions demonstrating that video-based lectures were at least as equally effective as standard teaching lectures.

In an experimental study on student physical therapists by Smith et al (2011), the control group was taught with live demonstration of the examination skills, while the experimental group was taught using multimedia. Lecturers reported that, students in the experimental group reported greater study time alone compared to other group (Smith, Cavanaugh, & Moore, 2011). Similarly, in another study on physical therapy students, Kinney, Keskula, & Perry (1997) found no differences in written test scores between students receiving instructional multimedia and students receiving interactive lecture presentation. However, the authors reported less time was needed for the multimedia instruction group (mean 82.6 minutes) to complete the lesson compared to the interactive lecture group (124.6 minutes).

In Taiwan, Hwang, Lin, & Sun, (2010) proposed a project named "MUST-Care" combining Multimedia-on-Demand Assistant Teaching Project, Ubiquitous Care Project, and Clinical Simulation Teaching Project. Improving the effect of digital videos related to nursing was an important element of the project and authors believed that this platform could be used to encourage e-Learning and distance learning systematically to guide nursing students during their training process and teach them how to apply clinical technology.

Multimedia technologies, including video films are valuable resources for learning skills but require a great deal of time, effort, and financial sources to create (Cooper, 2004). Therefore, it is important to decide on the best means of design, interaction, and integration of the videos.

Video Production Process

The academic staff in the department of Women Health and Diseases Nursing worked together on all aspects of the video production process. Guidance and professional equipment support were received from the Istanbul University Faculty of Communication. Financial support was received from the Foundation of the Florence Nightingale Nursing Schools and Hospitals.

The first step was deciding the topics and numbers of skills to be covered in video production process. Almost all the skills taught in the Women Health and Diseases Nursing course were decided to be included. Topics were determined in 4 main video groups including pregnancy, birth, postpartum, and gynecology & women health (Table 1).

The second step involved writing detailed scenarios and scripts. The academic team agreed on a scenario format with the guidance from an academician film director from the Faculty of Communication. The main sections of the scenario format included overview, preparation and materials, demonstration (action), audio, additional visual materials (graphics, figure, slide etc.), and recording. The original scenarios were written and reviewed by the academic team of the department for the videos based on the desired educational outcomes. In order to provide consistent and up-to-date information about the skills, all checklists and student guide book were revised. All these preparatory activities took about 3 months.

The next step was filming and editing. The academic staff adopted the roles of nurse and patient in simulated scenarios. In addition, volunteer women from the cleaning staff of the school and volunteer postgraduate students acted as patients, pregnant women and breastfeeding women in some scenarios. Filming was conducted in the skill laboratory of the faculty in an intensive 2 week block in the summer period. Nursing skills laboratory of the faculty provided a simulated hospital environment, and all materials about nursing, including simulators, were available. The responsible academicians of the scenario were always present during filming and editing processes to guide the technical team and director about the important aspects of the scenario. When all academic staff of

the department were satisfied with the draft edits of the videos then moved into the final stages of production where graphics resembling presentation slides giving textual information and color and audio corrections were completed.

Plans for the Integration of the Videos into Learning Activities

Women Health Nursing Practice Video DVD will be used in laboratory teaching as a complement

DVDs will be available in the skills laboratory to give the opportunity to review the skills when students practice on their own without an instructor

DVDs will be provided for each student

Video films will be uploaded on an online server of the faculty

Expected Outcomes

- Ensure that content is delivered in a consistent manner,
- Required time to show repeated demonstrations by the lecturers will be shortened
- The amount of students' time to practice in the skills laboratory on their own will be maximized
- Students' satisfaction from learning activities will be enhanced
- Students' success will improve

Currently, Women Health Nursing Practice Video DVD is almost complete and we plan to use them in the autumn semester of 2014-2015. Although production process of video films required a great deal of time, effort, and financial sources to create, we believe that they will be valuable resources for learning. Effects of videos on our expected outcomes will be evaluated after the implementation.

Figure 1: Scenes from production stages

Video Groups	Video Topics
Pregnancy	History Taking/Anamnesis Health Assessment Leopold Maneuvers Antenatal Education (self-care, exercise, nutrition) Fetal Monitoring
Birth	Admission to Delivery Unit history taking/anamnesis listening fetal heart rate assessment of uterus contractions vaginal examination Nursing Care During the First Stage of Labor Nursing Care During the Second Stage of Labor Pushing Techniques Mechanism of Birth and Nursing Care During Delivery Newborn Care Nursing Care During the Third Stage of Labor delivery of placenta episiotomy repair of perineal tears Nursing Care in the Fourth Stage of Labor
Postpartum	Postpartum Care monitoring vital signs assessing the fundus assessing the lochia perineal care Discharge Education for Postpartum Women Breastfeeding Technique and Nursing Support Hand Expression of Breast Milk Pumping Breast Milk Storing Expressed Breast Milk Nursing Care for Breastfeeding Problems insufficient breast milk supply engorgement retention of breast milk sore / cracked nipples inverted nipple mastitis
Gynecology and Women Health	Pelvic Examination Kegel's Exercises Self Vulva Examination Discharge Education After Gynecologic Operations Family Planning Counseling Counseling for Genital Infections and STD's

Table 1: Video Groups and Topics

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Student Oriented Bachelor Degree Engineering Studies

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Abstract: Development of information society is transforming not only business, but all other areas of human activities as well, including science and studies. Probably the greatest advantages of electronic studies are related to the distance studies organisation method, which is constantly becoming more popular due to its flexibility, possibility to study at a convenient time and place. However, variety of tools, used in distance studies, does not determine effective study process itself. It is necessary to have capability to select suitable instruments for the organisation of distance studies, assess possibilities of their use, to be aware of alternative tools, have a clear structural organisation scheme of distance studies, and answer series of related questions. The authors of the article discuss possibilities of increasing efficiency of bachelor's degree studies by applying methods of distance studies.

Keywords: Distance studies, Bachelor degree studies, experience of training organisation

Introduction

Modern world cannot be imagined without new information technologies, which provide an opportunity to transfer necessary information quickly and independently, contact necessary people, transmit not only static, but dynamic information, not only text, but sound; search for information not only in local, but in global data bases, as well. Newly emerging electronic tools improve and make traditional studies better, make them more appropriate and change the principle of organising the studies itself by orientating them to the student. Gradually, old training forms are supplemented or changed into flexible ones. Probably, the most advantages are related to the method of organising distance studies, which are constantly becoming more popular due to their flexibility and

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possibility to study at a convenient time and place. The process of distance studies uses specially established virtual study environments, which due to its complexity and necessity combine not only electronic study material, systems of knowledge assessment, but databases of scientific publication, news portals, and electronic mail, electronic communication tools as well; they occupy more and more users by their convenience and work speed. However, variety of tools, used in distance studies, does not influence an effective study process. It is necessary to have capability to select suitable instruments for the organisation of distance studies, assess possibilities of their use, to be aware of alternative tools, have a clear structural organisation scheme of distance studies, and answer series of related questions as well.

One of the most important challenges in distance studies in comparison to traditional studies is limited communication with auditorium (Trinkūnas et. al., 2008). Namely, this issue considerably burdens transfer of information during the study process, decreases possibilities to assess the level of student's knowledge quickly and effectively; makes organisation of study related consultations difficult, and provides other limitations, which are not typical of other types of studies. However, constantly developing information technologies provide more and more possibilities in this area. The most modern tools suitable for desktop video conference organisation ensure good connection of communication in a convenient place for a student, and provide an opportunity not only to communicate, but record lectures, conferences, transfer view of the surroundings of an interlocutor as well, organise presentations, perform internet broadcasting and provide more other possibilities.

While talking about distance studies, a particular significance is placed on technical sciences. Sometimes you may meet people, who think, that studies of technical sciences cannot be generally organised in a distance way. However, organisation of such studies has been performed in Vilnius Gediminas Technical University for years. Organisation of university bachelor degree studies of exact sciences is a great challenge and responsibility not only because of the fact that it is the process of preparation of future engineers, but also due to the fact that studies are considerably longer than that of the second stage studies, some students

have never been in touch with university studies and are not always ready to study independently. Therefore, it is important to select the lecturing staff with good knowledge in the subject and skills for working with information and communication systems. It is important to not only load material, but also organise the training process precisely and interestingly. The subject material has to be relevant and clearly presented. Constant feedback is important as well.

Founders of distance studies

The form of distance studies has been used from the middle of the 19th century, which has also been known as „correspondence courses", when training material was written by hand or printed and sent to the students by post. The first pioneer of distance training is considered to be Isaac Pitman, a scientist of the United Kingdom, who started teaching students stenography in 1840 by mailing material. Together with appearing new production, transport, communication and knowledge transfer systems, new opportunities appeared in training area as well. In 1971 the Open University of the United Kingdom offered its first 25 000 of students to select one of four courses in arts, social sciences, science or mathematics. The first chancellor of the open university stated that: „If you could use the media and devise course materials that would work for students all by themselves, then inevitably you were bound to affect – for good – the standard of teaching in conventional universities" (The Open University). At the same time, i.e. in 1973, the first correspondence school „Fotonas" of young physicists was established in Lithuania (Junior physicists' school).

However, distance studies started developing in 1998 when Lithuanian distance training network was established, and the following projects were initiated and implemented: "Development of Distance Learning in Lithuania" (a project, conducted by LieDM (Lithuanian Distance Education Network) in the year 1998); later „Development of Distance Learning in Lithuania (a second project of LieDM – 2 in the year 1999-2000); later while implementing the programme „Lithuanian Virtual University (2007-2012)". Today a large part of Lithuanian higher education institutions develop distance studies while communicating in the consortium of

Lithuanian Distance Learning Network, maintained and enhanced by LieDM. Now a national project "Development of LieDM network" is being implemented, which provides opportunities to unify the project partners while solving relevant issues in organisation of distance studies for all. Progressive solutions implemented under this project provide opportunities for more effective communication between a lecturer and a student in a virtual environment; tools are established for the statistical analysis and assessment of the needs of the studies; a platform is developed, which provides opportunities for exchange of open educational sources. While the consortium is participating in the programme „Integrations of Information technologies of Lithuanian Science and Studies" , infrastructure of Lithuanian Distance Learning LieDM network, is partially maintained, and conditions for constant quality improvement of distance learning studies are established (Lithuanian Distance Education Network).

Technical tools in the organisation of distance studies

Development of information technologies has inevitably changed some stages of the study process. It is difficult to imagine the preparation for lectures without a computer or internet starting from searching for the study material using large international data bases of scientific publications, tools for the preparation of presentations, and, finally, independent students' works with the help of informational technologies, computerised knowledge assessment and other tools. One of the main reasons for the study success is appropriate organisation of studies. While talking about distance studies, this aspect is even more important. Whereas students have significantly limited opportunities for direct communication, everything has to be discussed in detail. Virtual study environment plays extremely important role on the organisation of distance studies, which connects all tools into one complex and is a place, where all or almost all study process is going on. A student not only works in a virtual environment independently, but also communicates and cooperates with other members of the process and a lecturer, presents prepared tasks, uses various self-control tools, tests, prepares laboratory work in virtual laboratories; as well as performs other activity, which is inseparable of the study process.

Virtual study environment serves as walls of virtual university, behind which all the study process is performed.

Moodle is one of the most popular and widely used virtual training environments in the world. This environment has many advantages. First of all, because it is distributed for free and is accessible for all; moreover, a user interaction is available in many world languages and can be easily applied to the requirements of a particular institution; it is constantly updated while searching better technical solutions; and it has various software supplements used for various purposes (Kliukas & Vinogradova, 2013). It is also important that a lot of people have been acquainted with this system due its popularity, and this means, that its use will cause less inconveniences, and those, who start using it can find a lot of special methodological material.

While organising the process of distance studies in Vilnius Gediminas Technical University a virtual environment is mainly used for the following purposes: presentation of electronic learning material; knowledge assessment; communication and cooperation with students; organisation of training (learning) process; presentation of training process and attendance statistics; performance of surveys; accumulation of information on the student's learning process; organisation of individual or group work; presentation of a student, profile establishment; personalisation of a learning track (Kliukas & Vinogradova, 2013).

The environment of Moodle, as most of other virtual study environments, has a lecturer of a particular study subject, who is responsible for the organisation of the study process. However, it is important to have a purposeful view on the distance study process, and raise unified quality requirements in the whole institution, constantly search for the ways, suitable for the improvement of the studies. Therefore, even when virtual environment is quite good, it constantly acquires special needs. With regard to these needs, intellectual supplements of virtual environment are developed, which personalise training for a particular student. The aim of such supplements is to establish individual training plans or help to establish the most appropriate sequence of training material. It also helps to personalise the study material for a particular student with regard to

specific needs, such as learning style, cognition, competence, etc. While personalising the training process, students learn to take a decision and think independently (Dzemydienė & Tankelevičienė, 2005).

One of the most important achievements of information technologies, which are used in distance studies, is video conference systems. The first communication programmes provided an opportunity to communicate among conference halls with special professional equipment. Current technological solutions allow the participants of learning to connect to video conference from their personal computers, tablets or even smart phones, organise presentations and participate in lectures, communicate with other students, perform researches, and discuss their results practically in any place, where internet connection is available with no particular requirements. Such solutions are an important step towards distance studies, which not only bring distance studies nearer to traditional studies, but provide them with certain advantages as well. Video lectures can be recorded and later repeatedly viewed. It is also important, that students, who are not able to participate in video lectures, later can see video records and in this way directly obtain important information.

While studying exact sciences, practical courses are important. Laboratory equipment can be controlled in a distance by providing students opportunity to work in a distance. An alternative way is virtual laboratories, which are installed in a computer simulating the functioning of devises.

Use of virtual laboratories has the following advantages: 1) it is not necessary to buy expensive equipment and reagents; 2) modelling of processes, which functioning is impossible in laboratory conditions; 3) possibility to see the acting processes in other time scale; 4) safety, e.g., works under high voltage or dangerous chemical substances; 5) quick performance of several experiments with different inserted parameter means; 6) time saving by saving results in electronic form; 7) laboratory use when an institution does not have a laboratory or its equipment is old; 8) saving of laboratory materials and resources (Truchin, 2002).

Experience of VGTU while organising distance bachelor's degree studies

Distance studies in Vilnius Gediminas Technical University have been organised for more than ten years. A great experience accumulated during this period in the organisation of such studies provides an opportunity to constantly improve the study process, make such studies more accessible and qualitative. Appearance of new programmes organised in a distance are encountered with new challenges, and their solution helps to improve the study process. Currently it is possible to choose from 20 different distance study programmes at the university, which include not only the second, but the first stage study programmes as well. Namely, the first stage study programmes (which provide university bachelor's degree) have raised a lot of new challenges. First of all, these are not only the study programmes of technical sciences, but also it is important that a large part of students have never studied at a university and, sometimes, do not live in Lithuania. Therefore, it is important not only to present the study material in an appropriate manner, but also organise a study process in such a way, that students' attention could be kept during the whole semester without transformation of all study load before exams; as well as in parallel, taking into account that most of students have jobs, sometimes work shifts or even in different countries.

All this has conditioned the fact, that during organisation of bachelor's degree distance studies in Vilnius Gediminas Technical University Visa, an analysis of different measures and opportunities has been performed; and on its basis, a new order of organisation of distance studies was established, which was oriented towards a student.

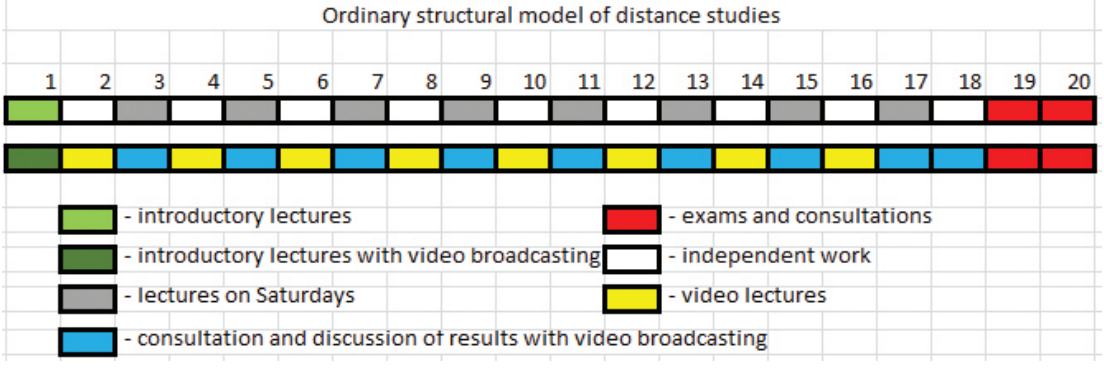
Regarding the study schedule, prepared according to the order of organisation of distance studies, the study process, in most cases, has been divided into three parts: 1) a week of introductory studies; 2) lectures on Saturdays; 3) Consultations and exams.

This means that students intensely participate in the study process at the beginning of a semester. During the semester lectures are usually organised on Saturdays, when students come to the university. Meanwhile, all other time is devoted to independent studies, where the results and effectiveness

of this process is difficult to assess. Moreover, having in mind that most of the students have never studied at all, such sequence of the study process may influence the fact, that part of the students will not be able to finish tasks on time and will be forced to leave studies or preparation for the examination will be of lower level than expected.

On the basis of a newly established model, the study process is spread through the whole semester, and lectures are divided into synchronic and asynchronous types. In this way students can constantly consult lecturers on the preparation of tasks; and constant preparation of tasks forces students to study during the whole semester. Moreover, integration of video transferring tools into the study process establishes opportunities to study without coming to the university. While talking about people, who have jobs, a very important opportunity has been implemented with the application of video records of lectures, when a student is able to get acquainted with information, which was presented during the lecture without participation in it. Whereas lectures are held not only on Saturdays, the study schedule is more divided by changing the study load. With regard to these provisions, the studies are organised according to the following structure, presented in Figure 1 (Vilnius Gediminas Technical University, 2013).

Figure 1: Structural study scheme



With regard to the scheme, presented in Figure 1, it is clear, that unlike traditional case, while organising distance lectures, video lectures occupy

a large period of time. During video lectures students are provided with structuralised information, which they have to know before practical courses, laboratory works or seminars. Participation of a lecturer is not necessary for the presentation of such material; moreover, while preparing the material, more attention could be paid for the presentation and quality of the content than during the conduction of a lecture alive. Students can use advantages of asynchronous lectures and get acquainted with information at a convenient time unlike in a traditional case, when students had to attend lectures every Saturday.

After having acquainted with the necessary material, students can actively participate in other courses. Those, who are not able to come for consultations and discussion of results, can do that with the help of video conference equipment. Therefore, students, who are in different towns or outside Lithuania, can combine studies with their daily activity by minimum correction of their ordinary calendar.

While working with distance auditorium, when students are in different countries and time zones, the organisation of studies has to be well-considered. Virtual training (learning) environment is used in order to bring nearer and improve traditional training methods. During the preparation of a distance course, it is important to plan the training (learning) plan comprehensively in order to present the material logically, in a convenient form, sequence and interrelation of all elements, and consider ways of increasing students' motivation. The presentation of a course depends on the auditorium. There are several ways of presenting the study material in virtual training (learning) environment. The material could be presented in chronological order, when material is divided into weeks or according to topics. Whereas the study process is divided into weeks, the presentation of material shall be more convenient when it is divided into weeks (Kliukas & Vinogradova, 2013). In this way, a student can prepare a plan, how much to study each week. If there were no possibility to attend lectures, it is easy to understand, what was missed and which tasks have to be prepared. All necessary material (video records, text information, self-test tasks, exercises, etc.) is related to particular days and shall be presented next to a certain part of a course of a particular day.

A lecturer is, first of all, responsible for the preparation of the study subject material. Therefore, a great attention is paid to the training of academic staff of Vilnius Gediminas Technical University. A distance study centre is specially established in order to obtain a unified structure of the study material, use existing technical and programming resources as much as possible for lecturers' working in distance studies. A prepared special training methodology is intended to provide lecturers with the main training (learning) possibilities of virtual environment, organisation of video conferences, preparation of video records, communication in a distance, etc. There are special auditoria established for this reason, where a simulation of distance studies is possible in order to train academic staff. While working in a group, lecturers are able to see the training (learning) process in the eyes of a student, as well as, see the study process though their subjects, and using their accumulated pedagogical experience, think about the most appropriate use of the system tools in their subject. Work with lecturers according to such methodology encourages development of new ideas and their application in the preparation of the study material and organisation of studies.

Each study subject presented in a distance way includes a material for independent studies and an opportunity to check knowledge by using tests. A lecturer checks students' knowledge during the studies. Students usually have a positive attitude towards computer tests, they are tend to experiments and often take a quick interest in things that make the study process more colorful or help to reveal additional study motives. Advantage of computer testing is a possibility of automatic selection of answers and elimination of a human factor, when students see a partner, not an opponent in a lecturer. Despite wide application opportunities of electronic tools in the study process and a complex structure of final assessment, a large part of final assessment falls on examination, during which a lecturer can directly assess obtained knowledge of a student. Currently this stage of the process is the least flexible, because exams are held in a particularly determined time, and a student has to physically participate in the exam.

One of the most difficult subjects is a preparation of an appropriate material. Video lecture recording tool is used for lecture recording, screen

recording tool is BBFlash, Vidyo conference system, which is distributed for free with the help of special equipment. Variety of equipment was influenced by high requirements of the study organisation process and target orientation of these tools, which is not universal.

Direct video broadcasting was implemented with Big Blue Button (BBB) software, which is integrated into the Moodle system, but due to a larger number of students, it was decided to choose commercial conference desktop software Vidyo. A group of students communicates with a lecturer in a realistic time using camera and a microphone. Any participant of a conference may broadcast documents of any format and a desktop of a personal computer.

Students send digital or scanned woks to a lecturer to check or solve test-type tasks. Tests include different answer types with regard to the subject (select a right answer from several possible, solve the task and enter an answer into the system, open question type, etc.). While preparing test answer variants lecturers take into account typical students' mistakes and present logical answers. This takes a lot of time, but it ensures, that a student shall not guess an answer so easily.

Training quality depends on the competence of a lecturer, training methodology, student motivation, favourable training environment and other factors. The quality of a course is assessed by a group of experts, relevancy is checked and how clearly the material is presented, self-control tasks, video material, learning schedule, etc. If a course is approved, it is considered as equal to a printed publication, which is included into certification of a lecturer.

Conclusion

After application of the Moodle virtual environment of in Vilnius Gediminas Technical University, the number of students in distance studies has increased. 8 distance programmes for a bachelor's degree students have appeared: Construction Technologies and Management; Mechanical Engineering; Transport Engineering; Engineering Informatics; Business

Information Systems; Telecommunication Engineering; Construction Engineering; Construction Engineering Systems.

While preparing a bachelor's degree courses an interactive material was prepared, laboratory works were filmed, and virtual training objects were created. The study time was divided into courses conducted at a realistic time, which cover not less than 50% of time, and video lectures, which cover up to 50% of all course time. Such division of work encourages constant independent work of a student and provides an opportunity to consult a lecturer periodically. During a video lecture, a lecturer can use a material prepared in advance, which makes the time of a lecturer more flexible, and the course material more qualitative. A video course material, once prepared, may be used in further study years, and free time may be devoted for the improvement of a subject and communication with students.

Assessment of students' knowledge is performed at the university; therefore, the quality of knowledge assessment is the same as in traditional studies. A student is interested to prepare offered tests independently in order to prepare well for the final knowledge testing.

In order to supply desktop conferences at a realistic time, it was decided to shift from a free Big Blue Button communication tool to a commercial product Vidyo, because of a possibility to connect a larger number of users at the same time, better quality of a view transmission, and more modern technical solutions.

A great attention is paid on the quality assessment of the distance study material prepared by lecturers. The study subjects, prepared for distance training undergo obligatory certification with regard to the order approved at the university. Such certification unifies requirements for the study material, develops students' expectations and facilitates the study process.

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Visualization in Teaching Computer Science and Mathematics

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Abstract: In this article we present several possibilities of the use of educational software for visualization in teaching computer science and mathematics. The ICT help to achieve a higher quality, expertness, and effectiveness compared to the teaching resources and tools, which have been used until now. We show some examples of computer aided education in subjects of mathematics and computer science. This teaching is connected to the goals described in the new Slovak Curriculum ISCED 2 for education of these subjects at the secondary education. The place of different tools, such as Imagine, Baltie, or GeoGebra as a tool for teaching and learning will be discussed. The relationships between mathematics, informatics, and other subjects, which are supported by educational software, are a very important part of integration of ICT in education.

Keywords: visualization, educational software, teaching computer science, teaching mathematics

Introduction

The information and communication technologies (ICT) bring new opportunities to make teaching and learning more effective and attractive. The computer is used not only to review (practice) the study materials, to create and enhance the skills and habits for the algorithmic solving of different tasks, but it can also significantly facilitate the development of student's individual work through the individualization of tasks. It is possible to assign each student with a task of various difficulties and with different time amount, which is needed for its solution. It is also possible to use computers while solving application tasks from the actual practice, which are usually difficult because of time consuming numerical computations. These computations can be carried out by the computers with

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the appropriate pedagogical software, whereby the chances are developed, which aim the education at understanding of discussed concepts together with their utilization in practice. The concepts can be actively sought by students, whether through the individual or group work.

An important advantage of use of ICT in mathematics and informatics' teaching is a reinforcement of a role of visualization. Its importance can be seen especially in the following aspects (Gunčaga, 2008):

Firstly, the visualization can often provide a simple and effective approach to the discovering of the results, to the problem-solving, and discovering of the structure of a model itself, whereby students get new information. The visualization of relations and causalities within a single model allows us to derive new results in other fields and areas of science through models, which are isomorphic with the existing model (completely or only partially).

A second aspect results from the necessity and importance of exploitation of various teaching styles within the teaching process. A geometric approach, which leads to the acquisition of skills and knowledge through the graphical objects and visual geometric realizations, can be an appropriate supplement (although not an unconditional basis) of verbal-logic style, which is often preferred by the teachers.

Last aspects are the actual trends of the study of models that can be realized through the educational software (Computer Algebra Systems, Dynamical Geometrical Software). These systems help to easily discover the universal coincidences and rules followed by the model, what is often realized at the expense of decrease in the common algebraic thinking. However, they allow to dynamically change parameters of image (graphs of functions, geometric shapes), thus making it faster and easier for the students to find dependences while adopting new knowledge.

Concerning these relatively new challenges but also the unprecedented opportunities of ICT, the requirements for training and practical work of teacher are changing. It is necessary for the teachers to be trained in the spirit of these new tasks as soon as in their teacher's education. They have

to know not only the new methods of using ICT for teaching, but also how to achieve the objectives of their subjects.

Musa et al. (2013) showed that an important aspect of computer aided education is the computer animation and visualization. Within the framework of science education, it can bring forward the following points:

- Can be considered as one of the main tools available for teachers to use to promote effective learning nowadays.
- An effective approach while looking for the results, solving the problems, and discovering the very structure of the model.
- A visualization of relations in the model allows an inference of new results in other areas and fields of science subjects at school.
- Support of digital competences and basic competences in science and technology.

The pedagogical software is a tool for learning, exploring, and experimenting for students. A student needs to understand the issues and create the correct ideas of the used concepts. Otherwise, he is unable to understand the ideas that are based on these concepts and apply them in practice. In the science it is not possible to succeed with formal know-how obtained from the superficial, mechanical learning by heart.

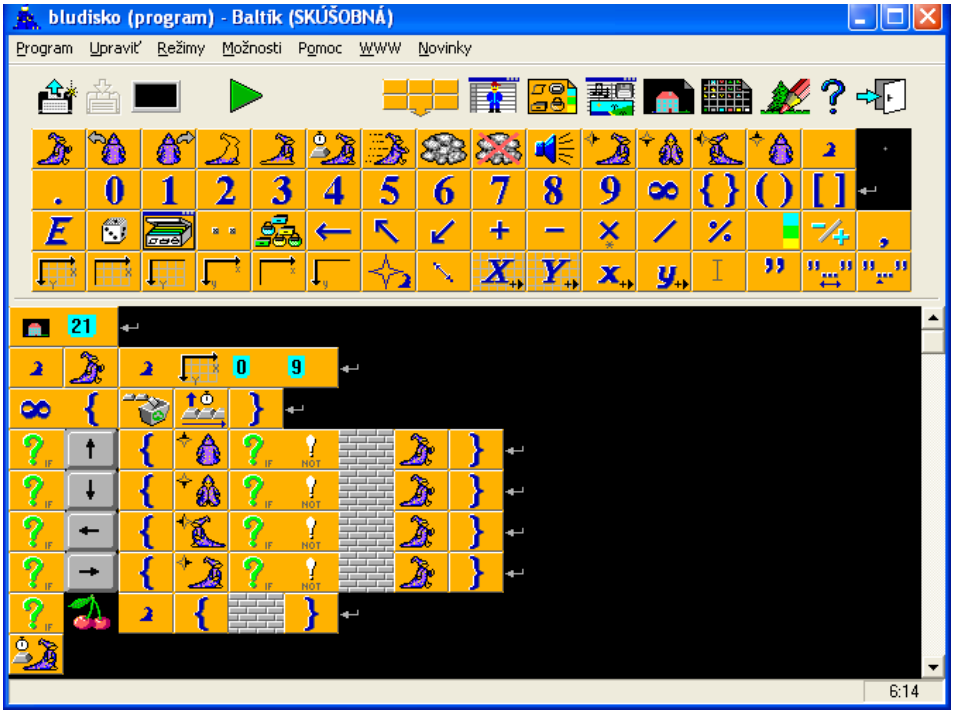
Educational Software

In this section we briefly introduce the educational software, which we use in our work with pupils and university students - future teachers for secondary education.

The first example for educational software is Baltie (http://www.sgpsys.com/en/whatisbaltie.asp). Baltie is an educational graphic oriented visual programming tool for kids, children, youth, and adults. Baltie is also a name of the main character of this software - a little wizard keen to execute miscellaneous commands and to conjure pictures (tiles) in his environment (fig. 1). With Baltie's help, children will quickly realize computer program. Baltie can be used also for exercising logical thinking. It makes no demands on child's knowledge, only requirements are playfulness and imagination.

Gülseçen et al. (2013) showed, that children programming environment is a way from the first touch with the computer, through the understanding of its working, to mastering the most important methods of software creation.

Figure 1: Environment of software Baltie

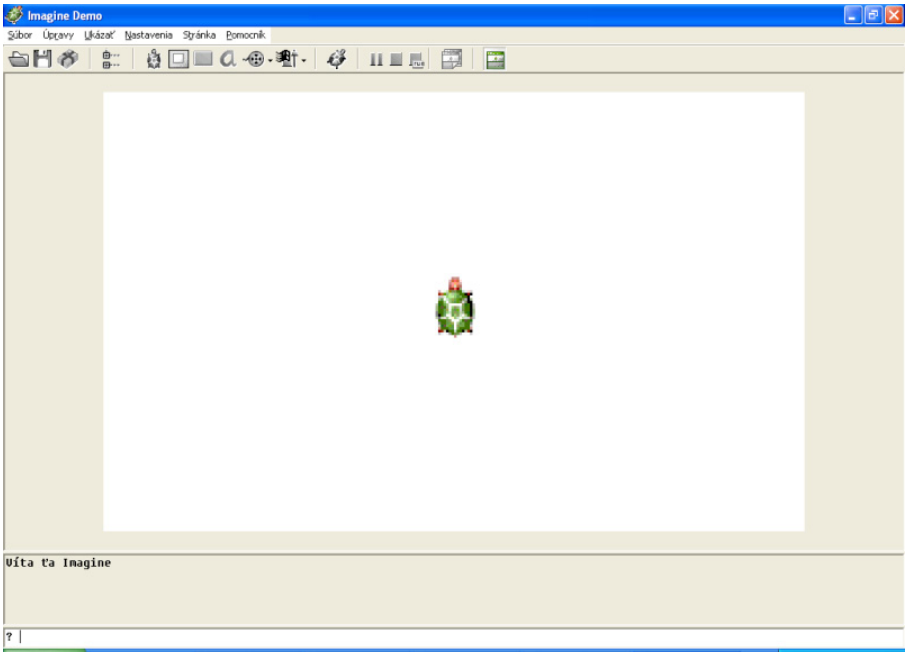


The second software, which we will present, is Imagine. Imagine (http://imagine.input.sk/) originated in 2001 as an indirect successor to the Comenius Logo. It is an object language driven events. "The hero" (a main character) is a turtle, which can change its shape, draw to the area. The aim of the authors was to create a modern programming environment that is easy to control for an experienced user, but also for an absolute beginner – a pupil at primary and secondary school. The advantage for younger pupils is that they may not write a coherent program that focuses on the solutions of all possible situations, but many small sub-programs, sometimes referred to as one statement, that will be automatically called

during various events, for example a mouse click, drawing, collision with other objects, etc. It is possible to define different subroutines for the various objects and their events. Environment has an integrated simple editor background graphics, multimedia, and internet (fig. 2).

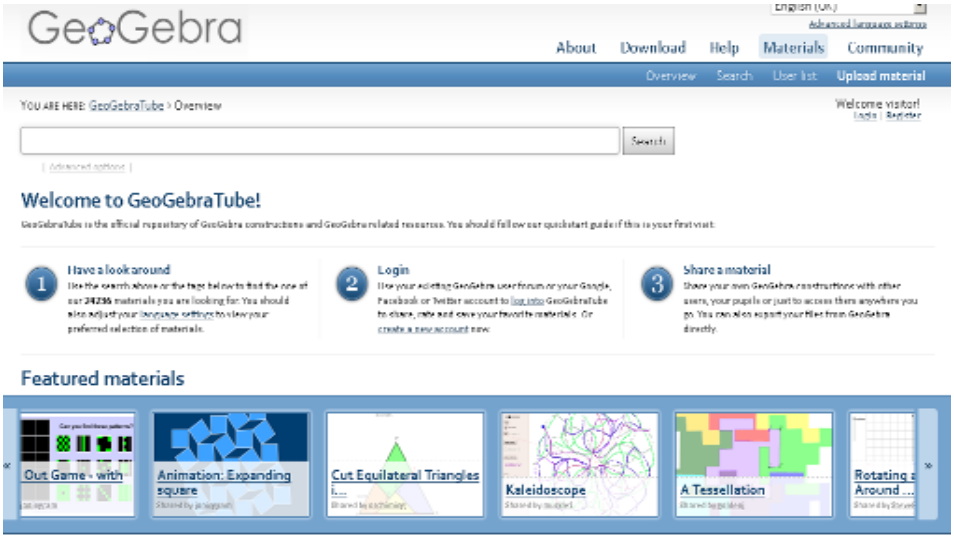
An interesting new feature is the possibility to publish the projects on the Web: using the Imagine plug-in, we can run the finished projects from the network in an Internet browser. The component of the Imagine is also a bitmap editor that is used to prepare the images, especially for the LogoMotion shapes of turtles, but also to create great-looking animations.

Figure 2: Imagine - basic environment



Finally, software GeoGebra connects features of a computer algebra system, dynamic geometric software, and a spreadsheet. Its big advantage is a user friendly nature and possibility to create dynamic HTML websites with interactive pictures (see Hohenwarter & Lavicza, 2010). Materials developed by GeoGebra can be found on the website GeoGebra Tube or on the older website GeoGebra Wiki.

Figure 3: GeoGebraTube (http://www.geogebratube.org/



The latter contains also some materials created in multiple languages (http://www.geogebratube.org). These materials and applets use the interactivity and dynamic character of software. Moreover, the materials follow different topics, for example calculus and geometry (e.g. topics of an exponential and logarithmic function, cube or hexagonal prism, constructions of triangles, parallelograms). Naturally, the website contains also materials for teaching natural science and computer science (fig. 3).

Visualization of Plants

We can use some type of educational software for visualization in the science education. Natural phenomena can be represented by students through computer visualization. Louca (2005) showed that the objective is to help students to learn with and about the models and modeling in science. Modeling is a reasoning skill, which refers to development of the ability to construct and improve models. We solve the tasks, which require the work with different representations of a given problem.

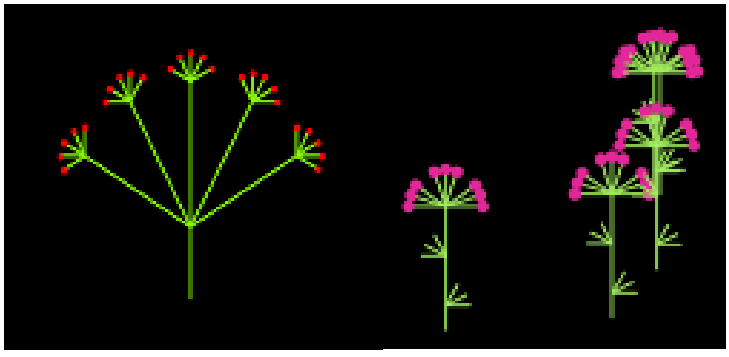
We designed teaching of modeling of plants in secondary education in the intention of obtaining of motivation in science education and modeling

knowledge and skills. We connect subject mathematics, computer science, and biology. The aim of lessons is that students using information technology tools have to create a simple model of the real world (Kelemenová, 2005). We have examined its conjunction with learning algorithms and programming.

We realized the experimental teaching through the lessons of algorithms and programming at the first grade of a high school (Majherová, 2009). Pupils created a simple model of a flower (see Majherová & Gunčaga, 2011). By the example of a plant's model, the pupils have understood the concept of the model and principle of its creation in computer - visualization. By the creation of the model, pupils applied also knowledge from geometry and biology (mutual relationships of geometric shapes, morphology of plants, etc.).

Pupils used a turtle graphics in programming environment Baltie 4 C#. Plant's model was created in the coordinate system with the help of procedures for the simple orders of movement forward, left and right. As a pattern of the originals, we have used the pictures of various types of flowers (fig. 4).

Figure 4: Models of flowers



By the creation of the plant's model we have determined following educational goals, which were assigned the code based on their location in hierarchy customized by revised Bloom's taxonomy by Anderson et al. (2001). (see tab.1).

The Knowledge Dimension	The Cognitive Process Dimension					
	1. Remembering	2. Under-standing	3. Applying	4. Analyzing	5. Evaluating	6. Creating
A. Factual knowledge		X	X			
B. Conceptual knowledge		X	X			
C. Procedural knowledge		X	X	X	X	X
D. Metacognitive knowledge		X	X	X		

Table 1: Dimensions of the education goals in the creation of the plant's model

During the education, the students have obtained the following knowledge and skills:

- To design graphic model of the plant based on original – that means in customized Bloom's taxonomy to understand and apply real, conceptual, and procedural knowledge (code **A2, A3, B2, B3**, **C3),** and also metacognitive aspect of the connection of knowledge from several subjects **(D2)**
- To use the instruction of the turtle graphics for realization of the plant's model – to apply conceptual and procedural knowledge (**B3, C3)**
- To use the element of the casualness by the modeling – to apply conceptual and procedural knowledge (**B3, C3)**
- To realize graphical model of the plant on the computer – to create (**C6)**
- To change the properties of the model – to apply and analyze the knowledge (**C4, C5)**
- To use variables, cycles, methods in the program – to apply procedural knowledge (**C3, C4)**

- To create the project Modeling in informatics – to create, apply, and analyze relationships among subjects (math–biology–informatics) **(C6, D3, D4)**

Within the frame of cognitive process, a student should obtain competences in all areas from memorizing up to valuation and creation of the new products. By qualitative analysis of pupil's programs and projects, we have found that all students have reached the levels of memorizing, understanding, application. Part of them has reached knowledge by analysis and some of them have showed level of independent analyses, evaluation, and creation.

Logic Game in Teaching Computer Science

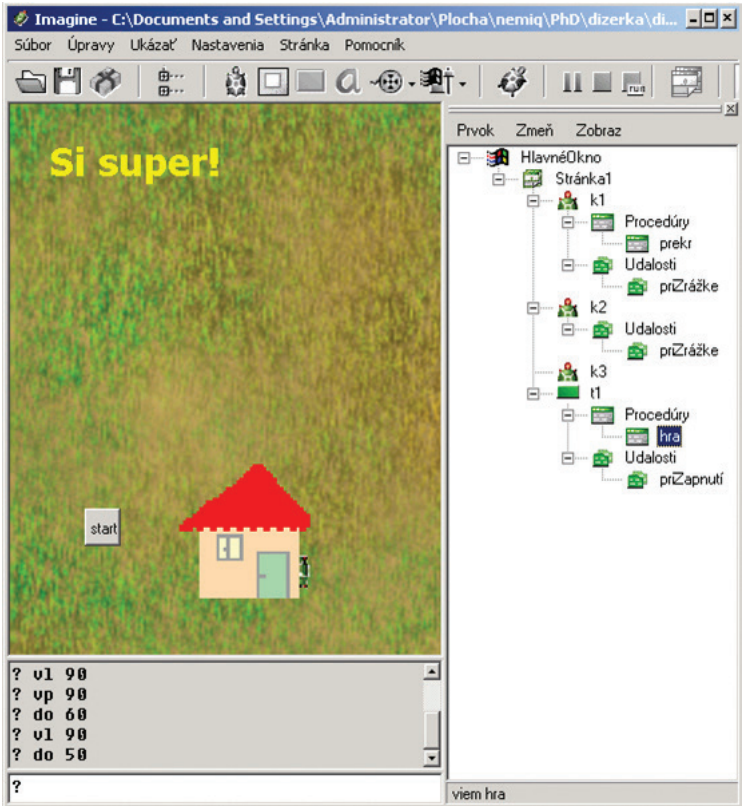
Prensky (2001) compiled several key characteristics of the computer games such as management of certain rules, definition of goals and ideas, results and feedback for the players, responses to conflict / competition / challenge / opponents, interaction with other players or the computer, and the representation of the story.

We often meet with the misconception of parents and sometimes even teachers that the games (so much fun) and learning simply cannot go hand in hand (Círus, 2010). If we learn about something important, which we will need later on written works and in the oral replies, we must not entertain and we must not simply be in a good mood.

Using just the dimension of learning in the computer games is well designed and interesting to enhance motivation from: thanks to that learning becomes fun, because children want to play themselves. This kind of education in general does not feel like a duty. Facer (2004) argues that a key factor in learning through games is developing the skills. Among the most important skills here include communication and work in a team, problem solving, and developing logical thinking and mathematical skills by special kinds of games. The success depends on the correct use of logical reasoning in a logical game. Logic games are based on logical procedures that need to be applied. Such games develop logical thinking, force the player to think over each next step creatively.

We show one logic game which we use in teaching a thematic unit "Algorithms and algorithmization". It was conducted at the St. Andrew High School in Ružomberok for the first grade students. One part of the experiment was the introduction in the teaching of online games, custom games, and projects, which were programmed in the programming language, as well in the creation of student´s Imagine projects. The game was used for learning the basic commands in the programming language Imagine. There are two visible turtles on the desktop, one turtle is hidden. The first turtle has the shape of a small house. The task of the player is using basic commands: left, right, forward, or backward to get a second turtle in a small house (fig. 5). Although the principle of the game is simple, it takes the pupils' attention. The pupils create a simple game themselves.

Figure 5: Example for the Imagine games



The introduction of logical tasks in the teaching process has a positive impact for the pupils, particularly, on the interest of the pupils and their subsequent tasks of joy. When pupils learn, they are more successful in resolving. Tasks do not constitute a stress factor for pupils, but they represent a form of entertainment. The ability to think logically and algorithmically will be gradually developed by pupils.

The Geometrical Tasks in GeoGebra

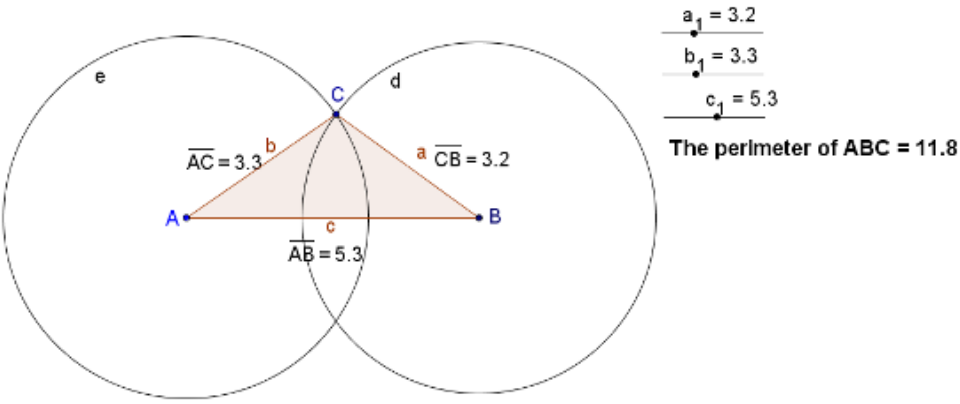
The new Slovak curriculum ISCED 2 for lower secondary level includes multiple educational competencies for teaching of geometry. The pupils should be able to construct and describe the basic geometrical figures or to specify properties of their particular elements (e.g. a relationship of sides, diagonal, triangle inequality and so on). They should know basic geometrical transformations, axial and central symmetry, the relationship between figure and its picture in transformation, and how to analyse and solve application of geometrical tasks with a use of mathematical know-how (see ISCED 2 (2010)).

Since the new curriculum in mathematics in Slovakia has been introduced only recently, textbooks satisfying these new rules are still missing. The materials from Wiki can help teachers to educate pupils in these new conditions. During this process of development, our aim is to cooperate with the teachers at schools, pupils and university students – future teachers. Some examples can be also found in works by Duatepe (2013), Billich (2008), or on the website http://geogebra.ssgg.sk.

Now we can present some works, which are applicable in teaching of geometry. These examples have been prepared by students from the training programs for teaching of mathematics at secondary school. The materials are focused to explain new notions with support of interactive GeoGebra applets.

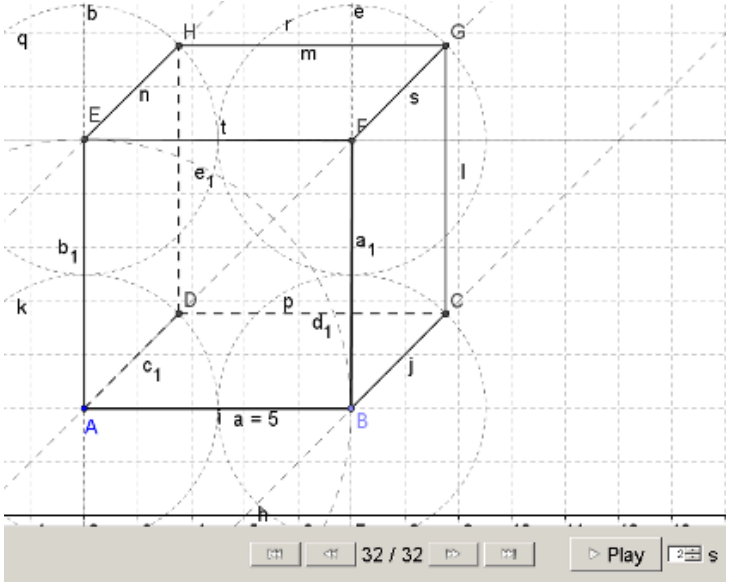
The first example belongs to the framework of teaching the plane geometrical figures (triangles). On the Figure 6 we can see an applet for the construction tasks for a triangle in the case that we know sizes of all sides (Ranostaj, 2010).

Figure 6: The triangle in Geogebra



The second example describes how to draw a cube in the plane using the rule that the side edges have the half length compared to the front edges (fig. 7). Playing the construction is an important advantage in this teaching unit, see Kopáčová (2014).

Figure 7: The cube with the bottom play



The software GeoGebra can be used as an effective tool to motivate pupils as it can visually represent a variety of mathematical notions and their relationships in a dynamic way, see Herendiné-Kónya (2014). Within the interdisciplinary relationships, we can use GeoGebra also in teaching of computer science in secondary education.

Conclusion

In our paper we describe different examples of using of educational software in teaching of mathematics and informatics in secondary level. There are numerous possibilities for visualization and simulation processes using a computer. The relationships between mathematics, informatics, and other subjects, which are supported by educational software, are a very important part of integration of ICT in education.

Visual possibilities of didactic software allow students to work with models of different objects. Students can apply knowledge gained in learning stage while looking for solutions of different problems. Moreover, they can visually observe the result and thus, understand and adopt basic concepts and notions more easily. Creation of the model and its visualization by computer allows pupils to gain specific experiences regarding the use of mathematics, science and informatics in a practical life.

The role of the teacher is strongly changed. He is no more only instructor in the computer aided education of different subjects, but more like a manager and a moderator of pupils or students. He must prepare activities, in which the educational software and its visualization and modeling aspects can support construction of new knowledge by every pupil (see Krech, 2009).

Solving logical problems helps develop a logical and algorithmic thinking by pupils via modeling and educational computer games. The various tasks have various levels of difficulty and so we have to devote much time for choosing the right tasks. They have many advantages: visualization of algorithms, interactivity and higher motivation of students. Our pedagogical experiments have shown that this kind of teaching is appropriate for students and support and develop their creativity.

Activities with educational software as Baltie, GeoGebra, Imagine, and other tools can effectively assist teachers in supporting the pupils' cognitive processes. Pupils can develop their formal and logical reasoning, cooperation and communication. They gain skills that are necessary for the research work, as the ability to implement a simple research project, to formulate a problem, to look for the solution and cause context, and to learn how to use various methods of problem solving.

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