

CAN SOCIAL NETWORKS AND E-PORTFOLIO BE USED TOGETHER FOR ENHANCING LEARNING EFFECTS AND ATTITUDES?

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ABSTRACT

As the choices that information technologies offer has increased, efficiency of these at education, the area and time it covers increases, as well. E-portfolio and social networks are the latest choices that informational technologies offer. In this study, both technologies have been used at education and results have been analyzed. For that purpose, there has been integrated an e-portfolio application prepared by the researcher on Facebook, which is one of the most popular social networks of the present-day and has been made available the use of for students. The study in which there has been used Isman Instructional Design Model has been used was carried out with 10th grade students studying at Tekirdag Technical and Industrial Vocational High School in the 2nd term of 2010-2011 academic year and it lasted for 18 weeks. Personal Information Questionnaire, Academic Success Test and Attitude Scale towards E-Portfolio Process have been used as data collection tools. It's observed that the averages of doing homework given for education and level of interest towards this homework have been fairly low, the interest of students towards the homework on e-portfolio application has been found as high. It has shown that e-portfolio application is a process in which students revel in participating. Although students have been abstained at the beginning of the application, creating original products, developing the skills of using technologies and having low grade anxiety has caused change of students' viewpoints towards the application positively. SPSS 17.0 packaged software has been used for the statistical analysis while evaluating the data obtained from the research.

Keywords: Social networks, e-portfolio, Isman Model, online portfolio, Facebook

INTRODUCTION

In the present-day when informational and communicational technologies have made a rapid progress, opportunities that the Internet offers to people have pushed the limits. Personal web sites, forums, blogs and ultimately, social networks have become one of the indispensable part of the life. Individuals have used the Internet for various different purposes. Social networks have been popularized as the most preferred way of communication for the people to establish communication. Social networks can be used as multi-purpose with technological convergence as it is for many technological products. Technological convergence means interwinement of technological products each of which has different functions and only one product's actualizing more than one function. Social networks that have Web 2.0 properties render personalized services and provide opportunities for users to identify, arrange and share this produced content (BY, 2010). Facebook, twitter, linkedin, badoo, myspace, netlog, flickr, friendfeed, pinterest and jaiku are some of those mostly known social networks.

Facebook has been the most popular one among the social networks with its users over 750 million as of September, 2011. Some statistics explained by the Facebook on <http://www.facebook.com/press/info.php?statistics> address in September, 2011 have been listed below:

- Average number of friends of each user on Facebook is 130.
- Users spend time over 700 billion minutes on Facebook for each month on Facebook.
- One user creates on average 80 contents.
- 30 billion contents have been shared on a monthly basis.
- Nearly 70% of the Facebook users are out of the United States of America.
- Facebook users download 20 million applications every day.
- Active users over 250 million access to Facebook from mobile equipments.
- Users who access from mobile equipments access to Facebook two times more than the ones who do not have mobile.
- More than 200 GSM operators in 60 countries support Facebook applications.

If the world population has been considered as being over 7 billion, there can be said that one of each 7 people is a Facebook user. If the regions where the use of informational technologies and the rate of Internet connection is low, this rate has been noticed as much higher in developed and developing countries.

E-portfolio offers students the opportunity of creating, sharing and developing their own ideas. Those properties which are in accordance with the basic philosophy of the structuralist approach have caused the use of e-portfolio and social networks on education to be unavoidable.

It's aimed to use e-portfolio in different manner because there are kinds of e-portfolios used alone or implemented in a school webpage. Social network would be a good choice as an interface because more students use and interacts in social networks. Facebook preferred because it's the most popular. The main idea was using e-portfolio as helpful tool and an evaluation method. Social network is support tool to interact with students and create virtual classrooms.

In this study, an e-portfolio has been integrated into Facebook as application. For this reason, education, social networks and e-portfolio are in interaction with each other (Figure 1.).

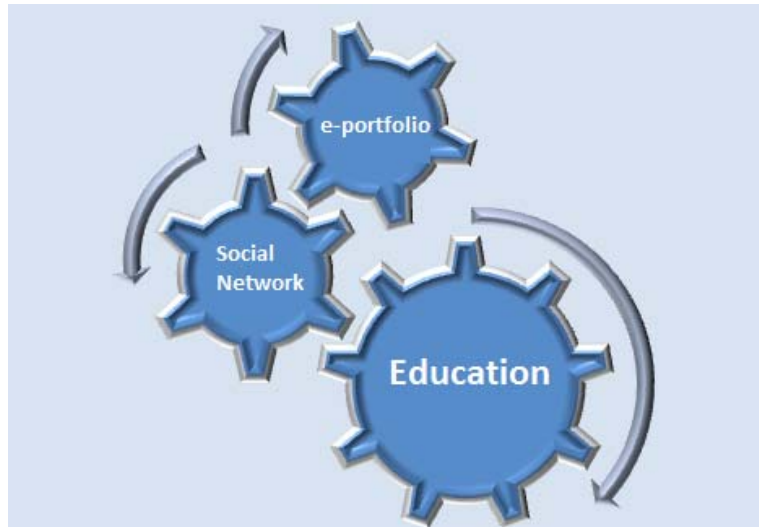


Figure 1. The education, e-portfolio and social network relationship

RELEVANT STUDIES

In this section, there has been given information about some studies and researches that have been carried out about the use of both e-portfolio and social networks on education.

Studies about E-Portfolio

Whereas studies about e-portfolio started to be increased at the beginning of 2000, it has shown increase in Turkey especially as of 2006. There have been many studies as both articles and notification. Especially in recent years, increasing of the studies on this subject has revealed that the researches and practices have created positive conclusion.

Macedo et al. (2001), Sjunnesson (2001), Sanalan and Altun (2001) and Erdogan (2006) have developed an e-portfolio in order to evaluate studies of the students. Wang (2004) has suggested that e-portfolio is not only an evaluation instrument but also an instrument that structures teaching and learning consideration. Mason et al. (2004), have carried out a practice on a course after graduation in Open University Educational Technologies Institute. Chen (2005) has carried out a research for e-portfolio use of pre-service teachers in Ohio State University in 2003-2004 academic year. Bahceci (2006) has used a portfolio developed to teach skeleton and muscular system in anatomy course. Albert (2006) has emphasized the process of creating an e-portfolio for learning, evaluation, employment on teaching training in Department of Music Education. Kazan (2006) has mentioned that he aimed to reveal how Online Portfolio will be used in Turkish Educational System in details. Cayırcı (2007) has analyzed the effect of Web Based Portfolio site upon the academic success of elementary education 7th grade students in verbal and numerical courses. Gurol and Demirli (2007) have researched the effect of e-portfolio process that emerges as a reflection of changes in pedagogy and technology on educational practices upon the motivation of students. Erice (2008) has researched the effects of online portfolio upon the writing skills of the students who have intermediate level English language skills. Hargadon (2008) has suggested that Web 2.0 technologies are the future of education. Doslu (2009) has asked for the opinions of students about the web-bases portfolio preparation and web-based portfolio evaluation in secondary education 10th grade Information and Communication course, and also has analyzed success of students developed as result of using web-based portfolio method and attitudes of students towards e-portfolio teaching process.

Basciftci (2011) has researched the effect of portfolio upon student success and permanence in elementary education 6th grade Science and Technology course “Journey to the Internal Structure of Living Being”.

Studies about Use of Social Network on Education

Social networks have recently become one of the concepts as the first thing coming to mind with Internet. Integration of the technology into education has been actualized through the concepts such as computer-assisted training and Internet-assisted training. There have been carried out studies for the use of every technological innovation on education. There have also been carried out many studies for the use of social networks that are coming into our life rapidly on education. Whereas those studies have been carried out in abroad more, they have been intensely carried out in our country, as well. So much so that the topic title of the opening speech of Prof. Dr. Petek Askar in “World Conference On Educational Technology Researches-WCETR” that has been carried out in Turkish Republic of Northern Cyprus in July, 2011 was “Social Network Analysis for E-Learning Environments”.

Siemens (2004) has defined in his study called “Connectivism: A Learning Theory for the Digital Age” that the three approaches as behaviorist, cognitive and structuralist have been the mostly used to create learning environments. He has supported that the concept of connectivism will be one of the theories to create learning environments in conjunction with the popularization of the Internet. Vuorikari (2005) has emphasized whether social networks will improve learning and education in near future. He has suggested a concept that is called “folksonomy” created with the combination of “folk” and “taxonomy” words. This means arrangement of the digital content on web. In the study, properties of different social networks have been listed and there have also been emphasized that those will be able to be used in future for educational purposes. Lockyer and Patterson (2008), Conole and Culver (2009) have emphasized the use of web technologies and social networks on education together with the development of Web 2.0 technologies. Ivanova (2008) has placed an e-portfolio within NING, which is one of the social networks, and has proved that this will facilitate learning and communication. Ovrur (2009) has emphasized the positive and negative effects of Facebook upon the community life. Muñoz and Towner (2009) have analyzed usability of social networks (Facebook) on education. Mazman and Usluel (2010), Mazman (2009) have researched how Facebook will be modeled to be used for educational purposes. Atici and Polat (2010) and Kert and Kert (2010) have analyzed the effects of social networks upon success of elementary education students and their learning environment preferences. Gulbahar et al. (2010), Robyler et al. (2010) have dealt with the researches and suggestions carried out for the use of social networks such as Facebook, Twitter and Flickr in educational processes in different ways. Brady et al. (2010) have mentioned that several lecturers of distance education have used social networks. They also mentioned that several social networks such as Facebook, MySpace and LinkedIn have been used. Ozmen et al. (2011) have offered suggestions based upon the literature to reveal the importance of social network sites for individual and social development, to analyze functions of social networks on education and to use social networks efficiently in terms of career development. Tiryakioglu and Erzurum (2011) have tried to determine whether lecturers of Anadolu University Faculty of Communication Sciences have used Facebook that takes place within the social networks as an educational material or not.

PURPOSE OF THE STUDY

The purpose of the study is to provide students studying at Tekirdag Technical and Industrial Vocational High School Informational Technologies and Electric-Electronic departments to learn concepts and skills included in Career Development course efficiently and make an evaluation at the end of the training process using e-portfolio. In accordance with this purpose, there has primarily been designed an e-portfolio interface. Students have been provided to gain access to this e-portfolio interface which has been integrated into a social network (Facebook). Then, instructional design model (Isman Model) has been determined for the course that will be taught in this teaching management system. Whereas subjects have been taught through face-to-face training at school, the homework prepared by the students has been collected through e-portfolio interface. By this means, there has been aimed for students to accept Facebook as a training environment of which they have used for entertaining before.

In this study, an e-portfolio applied teaching and evaluation process has been actualized using Isman Instructional Design Model so as to create a more significant and permanent teaching experiences in Career Development course of secondary education students. At the end of this process, there have been sought answers to the questions below:

1. In order to support traditional intraclass teaching activities, do e-portfolio applications used as being integrated into Facebook social networking site provide more efficient contributions for students upon their learning concepts and skills included in Career Development course of the students?

2. Do e-portfolio applications used as being integrated into Facebook social networking site provide contributions for students upon their attitudes regarding the e-portfolio process positively?

IMPORTANCE OF THE STUDY

E-portfolio which has been used in all aspects of life is one of the current educational technology instruments, as well. In this study, there has been used an e-portfolio format that was integrated into a social network website unlike other known e-portfolio applications. Recently, use of social social network websites is very popular. It can be possible to reach more students including those websites into the educational process. Moreover, by this means, there has been aimed to practise and design a more entertaining, motivating, efficient and permanent educational process. E-portfolios' attaining a place within social network websites will bring a new perspective into education.

MATERIAL AND METHOD

Research Model

In this study, there has been used Pre-test and Post-test Control Group Design Model from experimental designs.

Population and Sample

Study group of the research has included Informational technologies and Electrical-Electronic Technology students studying in the 10th grade of Tekirdag Technical and Industrial Vocational High School in 2010-2011 academic year. Tekirdag Technical and Industrial Vocational High School contains 3 different school types within itself. These schools are Industrial Vocational High School, Technical Vocational High School and Anatolian Technical Vocational High School. Implementation groups have been chosen randomly in a way the researcher can control the implementation. Including different school types and students from different departments has been aimed while creating the groups.

Limitations

1. The homeworks given in e-portfolio application is limited in Vocational Development course.
2. This study is limited in 2009-2010 term at Tekirdag Technical and Vocational Highschool 199 10th grade students of IT and Electric-Electronics Fields students.
3. The course subject is limited in Vocational Development course subject when implementing Isman Instructional Design Model.
- 4.

Data Collection Tools

As data collection tool in the research;

Personal Information Questionnaire: This questionnaire has been created by the researcher in order to obtain data regarding personal information, time to use computer and Internet and time to use social networks of students besides their demographical information.

Academic Success Test: This test developed by the researcher has been used to determine academic success of students after the implementation and readiness level of students.

Attitude Scale Towards E-Portfolio Process: There have been 38 clauses in this attitude scale prepared by Demirli (2007). Cronbach Alpha coefficient has been found as 0,885 for the pre-test and as 0,919 for the post-test performed in the research.

Determination of Instructional Design Model

In the research, there have primarily been reviewed instructional design models that take place within the literature while determining the instructional design model. After analyzing different instructional design models, Isman Model has been decided to be used. This model was firstly created by Isman in 2005 and took its final form in 2011 by being developed. Isman Model has been defined as a systematical planning process including five steps (Isman, 2011). These steps are: Input, Process, Output, Feedback and Learning.

The design has been actualized considering these steps while preparing the e-portfolio. In the **input** step which is the first step of Isman Model, there should be actualized the steps of identifying needs, identifying contents, identifying goals and objectives, identifying teaching methods, identifying evaluation materials and identifying the instructional media. Depending upon the steps in input step, there has been determined for what purpose the e-portfolio will be designed, who will use, what it will include, what will be on interface and what will be shared and on what level the access level will be.

In the process **step** which is the second step; there should be actualized the steps of test prototypes, redesigning of instruction and teaching activities. Before implementing the prepared e-portfolio, there has been performed a preliminary test in another classroom. The mistakes have been cleared considering the technical problems

encountered during the feedbacks of students and test and teaching activities have been fulfilled finalizing its form.

In the *output* step which is the third one; there have been actualized the steps of evaluation and revising teaching. Because e-portfolio application has been the basis of the research, it has become more of an issue. Homework declared to the students at the beginning of the term has been evaluated during the term as being interpreted.

In the *feedback* step which is the fourth one; the relevant step has been returned evaluating the outputs acquired at the end of the teaching process and feedbacks from the students. Within this context, subsequent studies of students have been aimed to be better as being interpreted from e-portfolio by both teachers and their classmates. Moreover, good and bad examples from the studies of the students have been tried to offer an insight into subsequent students being presented in classroom.

In the last *learning* step; permanent learning has been fulfilled. In this step, there has been observed whether students accomplished the targets of teaching plan. If accomplished, new learning activities have been performed and at the end of this step instructional designer has become to fulfill permanent learning. At the end of e-portfolio teaching process, e-portfolios created by the students have been evaluated. At the same time, to what extent e-portfolio affects student success has been noticed performing academic success test.

Preparation of E-Portfolio Application

Characteristic features of a social network are target, belonging, process, compliance and opportunity factors (Pettenati and Cigognini, 2007). When those features have been taken into consideration, integration of the social networks into education can be actualized creating an environment where equal opportunities have been provided, there is no time limitation providing them the feeling of belonging and in accordance with a specific purpose. In this study, an e-portfolio application has been integrated into a social network using the opportunities Facebook provides accompanied with these parameters. This process has been actualized through a systematic and comprehensive study (Figure 2).

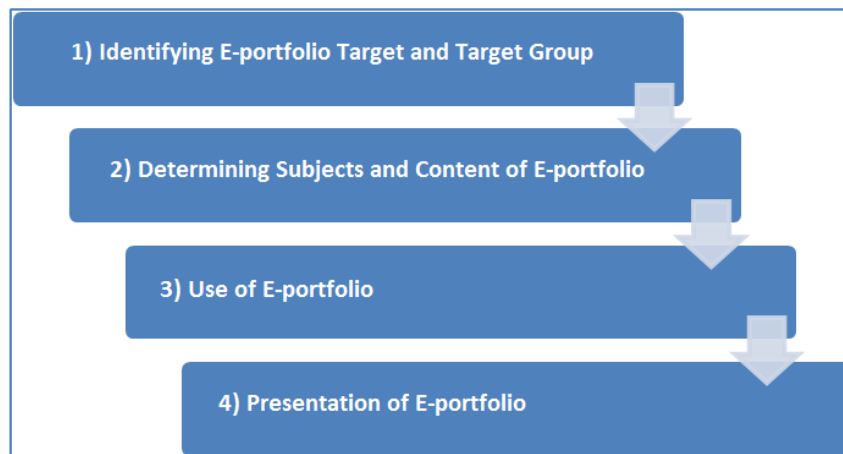


Figure 2. E-portfolio networking stages

- 1) **Identifying E-portfolio Target and Target Group:** In this step, there have been sought answers to the questions of
 - For what will e-portfolio be designed?
 - For what reason will e-portfolio be used?
 - Who will use the e-portfolio?
 Type and user group of e-portfolio is determined according to this.
- 2) **Determining Subjects and Content of E-portfolio:** In this step, there have been sought answers to the questions of
 - What will e-portfolio platform include?
 - What will there be on interface?
 - What will be shared?
 - How will the access level to data be?
 Content, shape and access level of the e-portfolio is determined according to this.

- 3) **Use of E-portfolio:** In this step, the subjects of,
- The format of content that will be included in the e-portfolio,
 - Access type of the e-portfolio,
 - Interaction of e-portfolio with social network,
 - Use of social network components,
- have been identified. By this means, there have been determined the issues such as the environment where e-portfolio will be used, the usage in this environment, format of the data that will be added to the e-portfolio and how these data will be saved.
- 4) **Presentation of E-portfolio:** In this step, there has been determined how e-portfolio platform and downloading data will be saved and presented (disc, database, web, etc.).

Stages of Research Development

In this section, stages of the research have been presented in steps. Depending upon the calendar given in thesis proposal, the research has been carried out in a structure including 11 steps.

- 1) **Performing personal information questionnaire:** In Tekirdag Technical and Vocational High School, correspondingly with the research,
- experimental and control groups have been determined,
 - which social network will be used has been decided
- performing personal information questionnaire to student groups which have been chosen randomly before.
- 2) **Creating E-portfolio structure:** Being prepared as in the way mentioned above, integration of e-portfolio into the social network (Facebook) has been actualized. Facebook has a structure that allows applications to be used by being added within its content. There have primarily been designed interfaces of the e-portfolio application that will be primarily prepared in the research. There have been designed two different interfaces as the student interface (Figure 3.) and teacher interface (Figure 4.). ASP programming language has been used while preparing the application. Prepared interfaces have been integrated into Facebook.



Figure 3. E-portfolio student interface

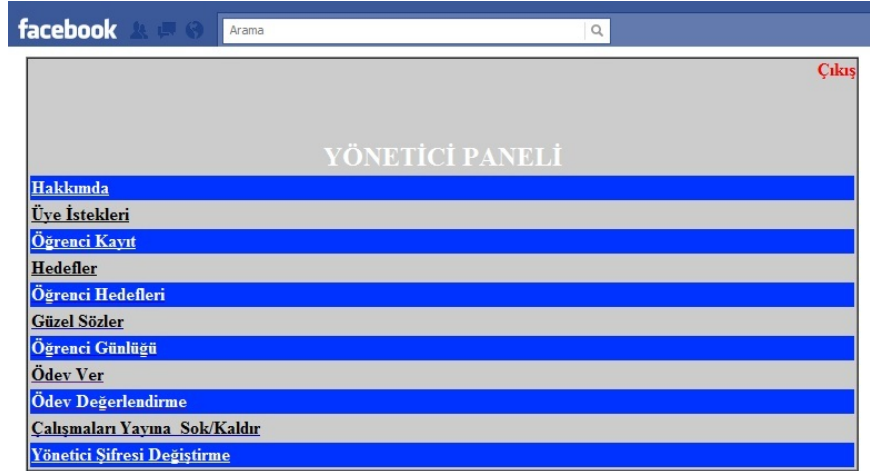


Figure 4. E-portfolio teacher interface

- 3) **Publishing of e-portfolio in social network:** Prepared e-portfolio was started to be published on Facebook. Later on,
 - visuality has been revised,
 - there has been performed a pilot scheme for four weeks at 11th grade Visual Programming course, feedbacks have been rovided,
 - contextual and technical mistakes have been removed according to feedbacks and it has been finalized.
- 4) **Informing students in experimental and control groups:** Students in the experimental group have been informed about e-portfolio, web-based and assisted education and computer-assisted education. Moreover, students in the experimental group have been acquainted with e-portfolio interface and how to use it has been demonstrated. Students in the control group have been informed about the research.
- 5) **Performing of scales as pre-test to the students:** In this step, students in the experimental group has been performed
 - Attitude scale regarding the e-portfolio process,
 - and moreover, academic success test has been performed to students in the experimental and control groups as pre-test.
- 6) **Determiation of homework that will be placed in e-portfolio:** In this step, determining homework titles according to the curriculum and targets of the course,
 - scores have been graded,
 - they have been declared from the e-portfolio,
 - there has been specified to what extent they will effect final academic success grade.
- 7) **Registering students to e-portfolio:** According to the data obtained from personal information questionnaire performed before, whole of the students in the experimental group have been known as the member of Facebook. Because of their this membership,
 - they have been registered to use e-portfolio,
 - an e-portfolio group has been created on the social network,
 - message groups have been created categorizing according to classes.
- 8) **Actualizing e-portfolio application:** E-portfolio application has been performed during the 2nd term of (18 weeks) in 2010-2011 academic year. At the end of each period given for homework, the homework presented by the students has been evaluated.
- 9) **Presenting good and bad examples:** During and after the application, studies having good and bad grades have been presented to students in the classroom.
- 10) **Performing scales to students as post-tes:** In this step, attitude scale regarding the e-portfolio process has been performed to the students in the experimental group. Furthermore, academic success test has been performed to students as post-test.
- 11) **Evaluation of studies presented in e-portfolio:** At the end of the term, year end grades of the students have been determined reflecting them in the rate given in Table 1 to academic success points they acquired from the studies they presented in e-portfolio.

Table 1. Determining year end academic grades of the students

Measurement	Efficiency Percentage
First written examination	% 15
Second written examination	% 30
Oral examination	% 10
Averages of homework grades	% 40
Averages of grades of which friends gave	% 5
Year end grade	% 100

Data Collection

Some of the scales and questionnaires used in the research have been paper-based and some of them have been performed using Google questionnaire tool. Paper-based data have been taken into digital media using Google questionnaire tool and whole input data were transferred into MS Excel.

Data Analysis

SPSS 17.0 package software has been used for the statistical analysis while evaluating the data obtained in the study. For two groups, Mann Whitney U-test has been used for the intragroup comparison of parameters that do not represent normal distribution to compare quantitative data. For more than two groups, Kruskal Wallis test has been performed for intragroup comparison of parameters that do not represent normal distribution to compare qualitative data and Mann Whitney U-test has been used for determining the group that causes difference. The results were at 95% confidence interval and significance has been evaluated on $p < 0.05$ level.

FINDINGS

In this section of the research, qualitative and quantitative data obtained as result of the experimental studies have been evaluated by analyzing. Findings have been acquired collating observations made during the practice and results of attitude scale, literacy scale, academic success test and personal information questionnaire.

Findings Relevant to the First Problem

Regarding to the primary problem of the research, pre-test and post-test academic success test results of the experimental and control groups have been given in Table 2.

Table 2. Academic success test results of the experimental and control groups

	Experimental		Control		t	p
	Avg	Sd	Avg	Sd		
Academic Success (pre-test)	60,696	12,905	50,764	14,856	5,021	0.000**
Academic success (post-test)	70,935	12,675	62,655	14,297	4,315	0.000**
p	t= 7,59; .,000**		t= 7,83; 0.000**		**p<0.01	

The difference between group averages has been found as statistically significant as result of the t-test performed to determine whether academic success (pre-test) grade averages of the research participants differ according to the education or not ($t=5,02$; $p=0.000 < 0.05$). Academic success (pre-test) grades of the students in the experimental group have been found as higher than the academic success (pre-test) grades of the students in the control group.

The difference between group averages has been found as statistically significant as result of the t-test performed to determine whether academic success (post-test) grade averages of the research participants differ according to the group variable or not ($t=4,31$; $p=0.000 < 0.05$). Academic success (post-test) grades of the students in the experimental group have been found as higher than the academic success (post-test) grades of the students in the control group. The graphic that represents academic success pre-test and post-test results of the students in the experimental and control groups have been given in Figure 5.

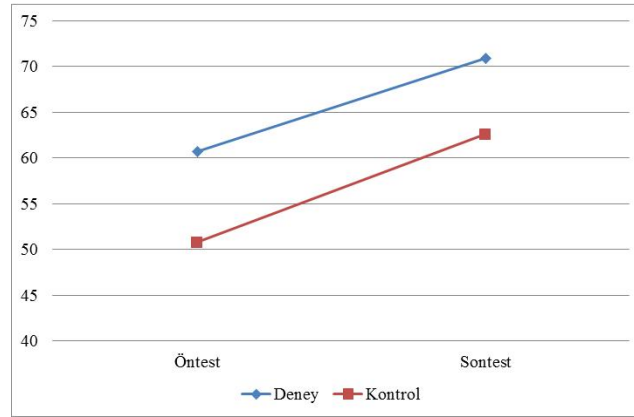


Figure 5. Academic success pre-test and post-test results graphic of the students in the experimental and control groups

Kolmogorov and Smirnov test of normality has been performed to analyze whether the difference between pre-test and post-test of the experimental and control groups was significant or not. The difference ($p < 0.05$, $p = 0.016$) has been noticed as normal at the end of performed test. For this reason, there could not be found a significant difference as result of the Mann Whitney U-test performed to analyze whether the difference between Academic Success pre-test and post-test results of the students in the experimental and control groups was significant or not.

Findings Relevant to the Second Problem

Findings relevant to the second problem of the research have been given in Table 3.

Table 3. Effect of e-portfolio application upon the attitude for e-portfolio process

	Before		After		t	p
	Avg.	Sd.	Avg.	Sd.		
Attitude For E-Portfolio Process	2,904	0,516	3,409	0,595	-12,473	0.000

There has been found a statistically significant difference between the arithmetic means at the end of the matched group t-test performed to determine whether averages of Attitude for E-Portfolio process (before) and Attitude for E-portfolio process (after) have differed significantly or not ($t = -12,473$; $p = 0.000 < 0.05$). Average of Attitude for E-portfolio Process (after) has been found as higher than the average of Attitude for E-portfolio Process (before).

CONCLUSION AND SUGGESTIONS

In this section of the research, findings obtained at the end of the experimental studies have been interpreted. Student attitudes and computer literacy levels have been analyzed. Moreover, academic success results and observations made during the practice have been discussed.

Results for the First Problem of the Research

Primary problem of the research is "In order to support traditional intraclass teaching activities, do e-portfolio applications used as being integrated into Facebook social networking site provide more efficient contributions for students upon their learning concepts and skills included in Career Development course of the students?". Although the results obtained for this sub-problem have not been statistically significant, academic success post-test grades of the students in the control group have been higher than the grades of students in the experimental group and this can be said as affecting the success of the students during the e-portfolio assisted teaching process.

E-portfolio applications are not only about the academic sides of the students. It has supportive features about increasing comprehension and skills of the students together with their knowledge. As knowledge and skills about the chosen course increases in e-portfolio applications, there has also been increase at knowledge and skills about the informational technologies.

E-portfolio is an archive in which studies are saved and presented. This property of e-portfolio has been considered as arousing the attention of students. Whereas the averages of doing homework given for education

and level of interest towards this homework have been fairly low, the interest of students towards the homework on e-portfolio application has been found as high. Normally, whereas the students studying especially at vocational high schools adopt a reckless manner about homework, there has been observed a feedback at a quite high rate in this study.

Results for the Second Problem of the Research

In this section, when the findings of the second problem of “*Do e-portfolio applications used as being integrated into Facebook social networking site provide contributions for students upon their attitudes regarding the e-portfolio process positively?*” have been analyzed, there was found a statistically significant difference between the attitudes of the groups. Whereas the average of the attitudes of the students before the application was 2,904, it was 3,409 after the application. In the studies carried out in previous years as in this study, there can be told of negative sides of this process together with students’ having positive attitude at the end of the e-portfolio assisted training process. Problems such as its taking much time, technological incompetencies and difficulty in evaluation are the leading of those.

According to the findings about this problem, e-portfolio application is a process in which students revel in participating. Although students have been abstained at the beginning of the application, creating original products, developing the skills of using technologies and having low grade anxiety has caused change of students’ viewpoints towards the application positively. E-portfolio application’s being a student-centered method is another positivity of it. At the end of the practicing this application which has a supportive role in traditional education method there has been observed that students were satisfied with presentation of their own studies and evaluation of those studies by their friends. Presentation of good and bad examples chosen during and after the practice has become motivating for carrying out better studies.

Giving homework in vocational education institutions and doing the homework or not has always become a matter of discussion. Whereas there has been observed that the homework was not handed in, and the result of homework was not cared about in traditional education method, during this study there has been noticed that students checked whether the teacher took the homework or not or whether their studies were evaluated by their friends. Moreover, students have been observed as doing their homework more voluntarily.

In addition to these, such a practice process has helped to teach the concept of e-portfolio to the students. It has also caused to the consideration that e-portfolio can be used in fields apart from the education. An e-portfolio that has been structured and practiced considered the areas that students find as negative can be thought to be more productive.

SUGGESTIONS

In this section, there have been offered suggestions to researchers and implementers in consideration of the findings obtained from questionnaire and scales performed and difficulties that have been encountered during the practice.

- 1) There can be researched whether the use of e-portfolio has been more productive by itself alone or as being integrated into a social network.
- 2) There can be researched the usability of social networks apart from Facebook for educational purposes.
- 3) There can be developed an attitude scale regarding the use of social networks on education.
- 4) The use of learning management systems with social networks can be experimented.
- 5) There can be provided the collocation of e-portfolio application placing it into learning management system.
- 6) There can be prepared e-portfolio templates free to use of anyone as being integrated into any social network.
- 7) There can be carried out studies regarding the use of e-portfolio applications in vocational education, especially in information technologies.
- 8) There can be designed a national e-portfolio template in parallel with the FATIİH Project that has been conducted by the Ministry of National Education.
- 9) Advantages and disadvantages of using e-portfolio and social network can be revealed analyzing the previous implementation results.
- 10) There can be researched which social network will be better for e-portfolio integration.
- 11) There can be researched how instructional design will be provided under the support of social network.
- 12) There can be researched the position of virtual socialization concept developed within the scope of social networks in terms of pedagogy and social psychology.

13) There can be researched the relation of connectivism with e-portfolio applications and use of social networks on education.

* This study has been prepared benefiting from the “*Integration of The E-Portfolio into a Social Network and Analysis of Results*” doctoral thesis of Mehmet Fatih BARIS.

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