



## The Effect of Electronic Portfolio Applications on 6th Graders' Research Skills \*

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### Abstract

The purpose of this study is to examine the effect of electronic portfolio applications on 6th graders' research skills. Exploratory design, one of the mixed methods in which qualitative and quantitative techniques are both used, was employed in the study. While pretest-posttest paired control group design, one of the quasi-experimental designs, was used for the study's quantitative dimension; case study, one of the qualitative research designs, were used for the study's qualitative dimension. The study group was made up of 64 6th graders attending two different public middle schools during the second semester of 2014-2015 academic year. Participants numbered 34 in the experimental group and 30 in the control group. During the process, Research Skills Teaching Program (RSTP), developed by the researcher, was administered to experimental and control groups to develop research skills. While electronic portfolio applications were carried out with the students in the experimental group, no other application was carried out with the students in the control group. The application was carried out for 10 weeks and a total of 21 periods for both of the groups. Used for the research, the electronic portfolio portal was developed by web design specialists after the researcher defined the process. While the study's quantitative data were collected by Research Skills Test qualitative data were collected by Semi-Structured Interview Form. The data obtained from the study's quantitative dimension were analyzed with Independent Samples T-Test and Paired Samples T-Test. For the qualitative dimension of the study, the data obtained through interviews were analyzed using content analysis method. The quantitative findings obtained at the end of the study reveal that RSTP increased the research skills of students in the control group. In addition, research findings reveal that research skills education based on electronic portfolio applications increased the experimental group students' level of using research skills significantly compared to control group students. Qualitative findings obtained at the end of the study support the quantitative

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findings. Qualitative findings showed that electronic portfolio applications were effective on development of students' research skills and students' attitudes and interests towards research.

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## Introduction

Important and rapid increase in information that resulted from the developments in technology brought the idea that the only fact that will not change is the change itself. Along with the increase in the amount of information, important and rapid developments has happened in areas like society, culture, economy, politics and education in fields such as social, cultural, economical, political, and educational. Today's age in which these developments happen is called the Information Age. Being the information society that is a requirement of the Information Age has gained great importance.

In addition to the increase in information, developments in information and communication technologies enabled the rapid spread of information. Continuity in increase and spread of information left this age's individuals with a need for lifelong learning. In line with all these developments, people's perspective on the nature of learning has changed in the Information Age and the concept of "lifelong learning" has come to the fore (Berber, 2003). In this context, the characteristics of individuals that the information societies need have changed. What is needed now is not individuals who can store information that will become outdated soon but individuals who can learn throughout their lives, who can reach new information accurately and fast and who can effectively use the information and skills they learned in every aspect of their lives (Demirel, 2007; Kutlu, Doğan, & Karakaya, 2014).

The change in individual characteristics needed in information societies led to a change in the concept of student achievement and change in successful students' characteristics. While the concept of student achievement was previously defined as the attainment level of the target behaviors in the program, now it is defined as the process in which students learn the basic information about the objectives in the program and use these information with their individual characteristics in new life cases (Ovayolu, 2010). Therefore, students being successful in life is now linked to them reaching a level where they can use the basic information and skills they learned in school in real life (Berberoğlu, 2006). Accordingly, in developed countries creative individuals who can research, think critically, solve problems, know themselves, feel confident, use what they learned in real life, in short who have high-level cognitive skills have begun to be considered successful (Kumandaş & Kutlu, 2013).

In order to train individuals equipped with high-level cognitive skills that the societies need, structures of educational systems have been affected by the changes that happened in other areas. Consequently, changes in the structures of educational systems, schools and learning environments have become inevitable. Educational systems have been restructured based on the constructivist approach, a product of post-positivism, emphasizing that information is constructed by the learner individually. The new perspective put forward by the constructivist approach about the learning-teaching process also changed the structure of the education programs. Accordingly, changes in course contents, teaching methods, materials and tools used and measurement and evaluation approaches occurred (Gelbal & Kelecioğlu, 2007).

Changing because of the individual characteristics, structure of educational purposes turned the education programs' approach from requiring low-level thinking in students into requiring high level thinking in students and turned the teaching materials and techniques from a teacher-centered structure into a student-centered structure. In addition, measurement and evaluation approaches turned from a structure measuring at what level information is attained and remembered into a structure measuring how information can be used in real life cases (Kutlu et al., 2014; Marzano, Pickering, & McTighe, 1993; Stiggins, 1999). Also, measurement and evaluation process included changes in students testing their own learning process and their own learning (Collins, 1991).

With the constructivist approach at its basis, education programs started to include new measurement and evaluation methods aiming to determine high-level cognitive skills, bringing closer the teaching and evaluation processes and providing opportunities that build connection between the school learning and the real life. Since traditional measurement and evaluation approaches gave very little information on how students use the knowledge they have, how they solve the problems they face and how they use these knowledge in the tasks they prepare, the importance of performance based assessment and portfolio assessment have increased (Aslanoğlu & Kutlu, 2003; Forker & McDonald, 1996; Klenowski, as cited in Koraneekij, 2008; Lekamge & Karunnayaka, 2007). Aiming to determine high-level cognitive characteristics, portfolios have begun to be used in schools since 1980s. Aiming also to monitor and determine the development in student success, portfolio use spread at every level of education from elementary to higher education (Kutlu et al., 2014; Popham, 2011).

McMillan (2007) defined portfolios as the systematic and purposeful collection and evaluation of student works between a certain period in order to determine evidences of students' level of reaching goals and objectives specified in education programs. Portfolios can be used both for evaluating based on monitoring in order to monitor students development during the process by determining their strong and weak sides and for evaluating based on level determination in order to determine students' learning at the end of the process. At the same time, portfolios can be used as a student tool for them to evaluate themselves (Koraneekij, 2008).

Since technological developments and increase in internet use in recent years created new options in the field of measurement and evaluation, portfolios have been transferred into electronic environment and have been presented in electronic environment since the 1990 and thus the concept of electronic portfolio emerged (Barrett, 2001). Electronic portfolios are defined as bringing together, saving and storing the original products created by the students in electronic environment digitally (Gülbahar & Köse, 2006). Because of difficulties like doing research, updating, storing and documenting various information types like voice and video in traditional paper-based portfolios, the importance of electronic portfolios has increased and the use of it has become widespread (Chang & Wu, 2012).

Since electronic portfolios can include different information types like voice, video, animation and presentation in addition to information types like text, images and graphics, they help learning to be produced more rich and more complete (Hartnell-Young & Morris, as cited in Ayan & Seferoğlu, 2011; Pullman, 2002). Electronic portfolios also help us to build bridge between standards, products (works) and reflections that provide opportunities to see the big picture about the student's ability and development. Because electronic portfolios give opportunity to the students and teachers to log in the portfolios from anywhere the internet and computers exist, it is easier to access the portfolios and to organize, prepare, combine and update the works compared to paper-based portfolios. Electronic portfolios make it possible for the teachers and the peers to give immediate feedback about the student works. To access the electronic portfolios, there are passwords for the teacher, student and the parent. By this way, access to the file by others and damage to the works (being torn, creased, and stained) are prevented. In addition, electronic portfolios give opportunity to the students to add different information documents like voice recordings, video images and photographs. It is more fun to create compared to traditional portfolios. Working with electronic portfolios also develops computer skills (Barrett, 2005; Challis, 2005; Doig, Illsley, McLckie, & Parsons, 2006; Hartnell-Young & Morris, as cited in Ayan ve Seferoğlu, 2011; Hewett, 2004; Koraneekij, 2008; Kutlu et al., 2014; Ntuli, Keengwe, & Kyei-Blankson, as cited in Theodosiadou & Konstantinidis, 2015; Paulson, Paulson, & Meyer, 1991; Stefani, Mason, & Pegler, 2007; Van Wesel & Prop, 2008; Whitworth, Deering, Hardy, & Jones, 2011).

The question of “what is the way to reach information?” came to the fore in the Information Age where changes occurred in education programs in parallel with changes in characteristics sought in individuals. To find answer to this question, the necessity to teach research skills that are considered basic characteristics of modern society and are among the high-level cognitive skills was focused on more (Alkan, 1989; Shuman, Besterfield-Sacre, & McGourty, 2005). Accordingly, research skills were aimed to teach students by including them within the scope of elementary school education programs (Milli Eğitim Bakanlığı [MEB], 2006; Yıldızlar, 2013).

Research skills are among the most important skills the 21<sup>st</sup> century learners should have and include the skills leading the research process. Research skills are skills that enable students to understand and learn information, to develop new understanding by leading the research process, to reach results and to create new information (American Association of School Librarians [AASL], 2007). According to Abston, Stout, and Crowder (2004), research skills is the ability to carefully and systematically research information to search and determine a fact or principle.

To train individuals with skills making up the research process is possible with providing quality education from an early age (İlter, 2013; Numanoğlu, 1999). In this context, great responsibility falls on the teachers and parents. Thus, teachers should give homework where they will use these basic research skills to develop them and parents should guide this process (Bird, 2000). It is seen that many of the students are inadequate in doing research even though emphasis is given to teaching the research skills to elementary school students and even though these skills are taken in the scope of education programs. This inadequacy affect students’ future learning and decreases students’ tendencies and interests in doing research (Knutson, Dozier, & Migotsky, 1995). Despite the importance of teaching research skills to students from an early age and despite the necessity of developing appropriate learning environments to teach these skills, it is seen that studies (Alkan-Dilbaz, 2013; Chu, Chow, Tse, & Kuhlthau, 2008; Güneş, 2011; Wu & Hsieh, 2006; Yıldırım, 2007) on this subject is not sufficient. Therefore, in this study it is aimed to determine the effect of electronic portfolio applications on 6<sup>th</sup> graders’ research skills. For this purpose, the answers to the following questions were sought:

1. Is there a significant difference between the pre-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out and the pre-test scores of students in the control group who did not participate in the application?
2. Is there a significant difference between the pre-test and post-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out?
3. Is there a significant difference between the pre-test and post-test scores of the Research Skills Test of students in the control group in which the electronic portfolio applications were not carried out?
4. Is there a significant difference between the post-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out and students in the control group who did not participate in the application?
5. What are students’ views on the effect of electronic portfolio application on their research skills?

### ***Importance of Research***

Today, the nature of educational objectives has changed with the changes in society's and individuals' characteristics. In education, closer relationships between measurement and evaluation and learning process and teaching process. The patterns emerging from these relationships showed that traditional measurement and evaluation tools (e.g. extended response, short response, multiple choice, right-wrong) measuring students' low-level thinking processes are inadequate in measuring student achievement. Especially after the 1980s, giving importance to students' high-level thinking skills led to emergence of alternative assessment approaches and increased use of them in educational applications (Marzano et al., 1993). During this process, the importance and use of electronic portfolios that are used to determine development of high-level cognitive skills with its differentiated structure became widespread (Chang & Wu, 2012; Kutlu et al., 2014; Popham, 2011). The use of electronic portfolios in educational applications in Turkey has a recent history. When portfolio applications are examined, it is seen that these applications do not go beyond keeping students' in-class work in a file and appropriate feedback based on objectives is not given to students. When lack of researchs in the literature is taken into consideration, it is believed that this study will be an example to individuals who will conduct portfolio applications, especially teachers.

Although research skills are included in the curriculum, there are not adequate activities in textbooks written based on programs in order to develop these skills. In recent years, even though there are breakthroughs in teaching research skills in Turkey, it is seen that there is not a special program that can develop research skills. In this context, it is believed that the education program developed for the study will guide teachers, specialists and parents in how to teach skills making up research processes to students.

## **Method**

### **Research Model**

In the study, mixed method that involves both qualitative and quantitative methods was employed. Studies using mixed method takes advantage of at least two different research methods (Creswell, 2009). In mixed method, more comprehensive analysis and interpretations related to the study problem is possible with using complementary quantitative and qualitative methods together (Creswell & Plano-Clark, 2007).

In the study, exploratory design, one of the mixed methodology designs, were used and the study was conducted in two successive phases. While in the first phase of the study quantitative data was collected and analyzed, in the second phase of the study qualitative data was collected and analyzed to support the data obtained during the quantitative research process. Findings gained from the quantitative and qualitative analysis were interpreted in relation to each other.

Aimed to put forth the cause-effect relationship between the independent variable and dependent variable and controlled directly by the researcher, pretest-posttest paired control group design, one of the the quasi-experimental designs (Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel, 2009), were used while obtaining quantitative data in the first phase of the study. In the study, before examining the effect of electronic portfolio applications on research skills, Research Skills test (RST) was administered as a pre-test to students in both experimental and control groups. After administering RST, an education on skills during the research process was provided to both groups. During the education process, while electronic portfolio applications were carried out with students in experimental group, only the education was given to the control group and no other application was carried out with students in this group. RST as a post-test was administered to students in both groups at the end of the application.



In the second phase of the study, case study, one of the qualitative research designs, was conducted. McMillan (2000) described case study as a method thoroughly examining one or more than one event, environment, program, social group or other interconnected systems. Yin (1984) described case study as a method examining a phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident and when multiple sources of evidence are used.

Interview form approach, an interview method, was used to collect the qualitative data. According to Patton (2002), interview guide approach is used to gather same kind of information from different individuals by focusing on similar subjects and it includes the list of questions and subjects that will be discussed during the interview.

### **Study Group**

The study group was made up of 6<sup>th</sup> graders attending two different public middle schools in the city of Niğde during the second semester of 2014-1015 academic year. It was believed it would be better to select two different schools with relatively same educational and socio-economic characteristics in order to eliminate the interaction between the students in experimental and control groups. The schools having a computer lab and internet connection were considered for selection since these were requirements of the study.

While determining classes for the experimental and control groups, students' educational amenities at home (desk, quiet place to study, computer to be used for school work, computer education program, help books for school work, dictionary) and student characteristics (frequency of library use, education level of the mother and father) were taken into consideration. Two classes equal to each other in terms of these amenities and characteristics were included into the study and one of these classes was randomly selected as the experimental group and the other as the control group. The study was conducted with a total of 64 students, 34 students in the experimental group and 30 students in the control group.

Maximum variation sampling method, one of the purposeful sampling methods, was used to determine the group the study's qualitative data would be collected from. In this study, achievement level and sex were determined as sources of variation. Therefore, interviews were conducted with a total of nine students in the experimental group, five females and four males. The students were at different achievement levels.

### **Research Process**

Information on the research process and the data collection tools used during this process are presented below.

#### ***Electronic Portfolio Portal***

Since an appropriate electronic portfolio portal that is reachable in terms of research process and student applications did not exist, a new electronic portfolio portal was decided to be developed. Electronic portfolio portal used within the scope of the study were developed by web design specialists after the researcher identified the process. The portal was designed as a site that can be transferred by web browsers after connecting to a web server and that students can access from anywhere anytime. Electronic portfolio portal was published at the personal web address of the researcher ([www.betulpolat.com](http://www.betulpolat.com)).

Electronic portfolio portal offers specialized sites for each student in the experimental group by writing their personal e-mail addresses and creating their own passwords. The students can only log in to their own site after the system administrator's (researcher) approval in order to eliminate the risk of students other than the students in the experimental group accessing the portal. In the portal, the students were not allowed to access another student's system from their own system to protect students' personal information and to prevent others to access a student's portfolio.

Electronic portfolio portal offers each student asynchronous communication (announcement), file uploading and downloading and personal information loading sites. Works that will be in the portfolio (performance task, formative test, self-assessment form) can be given to the students via the portal and the students can download these works uploaded by the researcher to the portal into the computer and can save them in a place they want. When the students complete their works, they can upload them via their personal systems and by this way the works can be taken from the students via the portal. Portal provide the opportunity to give immediate feedback to the student works sent. Also, the students can communicate with the educator (researcher) whenever they want or they can give their opinions via this system.

### ***Research Skills Teaching Program***

Prepared to develop research skills, the teaching program was developed after the model that was developed by Eisenberg and Berkowitz in 1987 and that teaches research process. This model is called the "Big Six Research Skills Model". While developing the Big Six Research Skills Model, standards identified by the American Association of School Librarians (AASL) for the students of 21<sup>st</sup> century were taken into consideration. The Big Six Model is a "big picture" taking into account the research process (Hughes, 2003). This model is used ore with the elementary and secondary school students to teach research skills (Eisenberg & Berkowitz, 1990). The Big Six Research Skills Model includes six stages that include six different skills in each stage. These stages are task definition, information seeking strategies, location and access, use of information, synthesis and evaluation.

In the development process of Research Skills Teaching Program (RSTP), first sub-skills of research skills were identified by taking into consideration the six stages (task definition, information seeking strategies, location and access, use of information, synthesis, evaluation) of Big Six research Skills Model. Then, objectives regarding the six sub-skills that form this high-level cognitive skill were written. While writing the objectives, attention was paid to the objective sentence so that the sentence represented both a specific context (subject dimension) and a cognitive level corresponding the related skill. In the identification of the "cognitive level" dimension regarding the objectives, hierarchical classification in Haladyna's (1997) and Bloom's (Anderson et al., 2001) updated taxonomy.

While writing the objectives, attention was paid to objectives being appropriate to the sub-skills of the research skills, measurable, clear, understandable and scientifically correct and short and self-expressions statements are included. The objectives' clarity and understandability, appropriateness to the sub-skills of the research skills and measurability were evaluated by four experts. These experts were from the fields of measurement and evaluation, program development and language.

While developing the learning area/context, related literature was reviewed by taking the grade level of the students into consideration. The fact that the students would attain many of the skills and information regarding the research process for the first time and the time allocated for the research were taken into consideration while developing the scope of the learning content. Paying regard to the learning area, teaching activities appropriate to each objective were designed. While designing classroom activities, mainly methods like lecture and show and tell and techniques like question-answer, brain storming and narration were used. The examples in the teaching activities were prepared in accordance with the Social Studies course content. Prepared to provide resources to the students about the skills making up the research processes, teaching materials that included examples and exercises were distributed to the students in written.

Within the scope of RSTP, lesson plans for each sub-skill were prepared taking the learning area and teaching activities into consideration. The lesson plans were presented two experts from the fields of program development and measurement and evaluation in order to evaluate the RSTP for appropriateness to student level and scientific accuracy. In line with the suggestions taken from the experts, necessary corrections were made in the lesson plans.

In the lesson plans, formative tests were used to determine students' leaning regarding the basic information and skills making up the research process and for them to associate the real life situations given to them with the example events representing them. In accordance with this purpose, five different formative tests made up of open-ended items were prepared and they were administered to both groups for monitoring when each stage about every sub-skill of the educational process was completed. *Formative Test 1* is made up of four items developed based on the objectives in the Task Definition sub-skill. *Formative Test 2* is made up of two items developed based on the objectives in the Information Seeking Strategies sub-skill. *Formative Test 3* is made up of three items developed based on the objectives in the Location and Access sub-skill. *Formative Test 4* is made up of three items developed based on the objectives in the Use of Information sub-skill. Finally, *Formative Test 5* is made up of two items developed based on the objectives in the Synthesizing sub-skill.

The validity of the items were determined based on expert opinion. After the development of the items, the opinions of two experts in the field of measurement and evaluation were asked. In accordance with the experts, appropriate changes were made in the items and the items were finalized. To score the answers given to the open-ended items, a rubric was developed for each item. While preparing the rubric, first for each item possible correct, wrong and other answers were identified. The possible correct answers of the item were discussed in two ways like "Correct Answers" and "Distant Correct Answers". Therefore, five dimensions, "Correct Answers", "Distant Correct Answers", "Wrong Answers", "Left Blank" and "Other (Meaningless-Unrelated) Answers", were defined for scoring in the study. Due to these identified dimensions, it was possible to give detailed feedbacks to the students.

### *Teaching-Learning Process*

In the study, the teaching-learning process was administered in different forms for the experimental and control groups. In this section, both these processes and the tools used during these processes were discussed.

#### *1. Experimental Group*

During the teaching process, students in the experimental group were informed on various subjects. First, "Portfolio Information Form" was given to the students to determine their knowledge, expectations and views on portfolio. According to the answers given to the three items in the form, it was found that students did not have any knowledge and experience regarding portfolio applications. Accordingly, "Portfolio Application Instruction" was developed to inform the students about portfolio applications. Accordingly, information on what a portfolio is and how it is prepared was given to the students and "Portfolio Application Instruction" were distributed.

Students were informed about the purpose of the portfolio and how they can perform activities like subscribing to the portal, logging in the portal using their personal e-mail addresses, downloading and uploading the homework, reading the feedbacks, adding their works to the portfolio and sending messages. Students were also informed on what the feedback is and from which sources (teacher and oneself) it can come from. Performance Tasks Rubric that will be used in the evaluation of the products they produce, Self-Assessment Form that will be used to evaluate themselves and Feedback Form were introduced to the students.

Self-Assessment Form was used during the electronic portfolio applications process with the students for them to recognize the characteristics behind their success while thinking on their own learning and for them to see their strengths and weaknesses regarding their works. By evaluating their own works and efforts at the end of each work, the students had the opportunity to reflect their perceptions and experiences.

Self-Assessment Form was developed by reviewing the related resources and examining sample forms. Keeping the age level in mind, the statements are kept short and understandable. The opinions of a measurement and evaluation expert and a Turkish Language teacher were asked to determine whether the items were clear, understandable and appropriate to the grade level and the form was finalized.



Feedback Form was used with the students to inform them about their situation regarding the measured basic knowledge and skills. Through the feedbacks, the students saw their successful sides in their works and sides that needed to be improved. Brief information on the study skills, six sub-skills and objectives for each six sub-skills were also given.

The teaching process for the experimental group were carried out for a total of 21 class hours for 10 weeks by the researcher. Formative tests made up of open-ended items administered for monitoring purposes were directed to the students in the experimental group both written and via the portal when stages regarding each sub-skill were completed and the answers were collected during the class hour. Performance tasks were given to the students via the portal and products they produced during the class time were collected via the portal. The Self-Assessment Form was given to the students after completion of each work and they were asked to evaluate their own works. The feedbacks regarding students' works were carried out via the electronic portfolio portal. Information on the performance tasks used during this process and the rubric developed specifically for the task are presented below.

### *Performance Tasks*

To determine how the students access information, and how effective they use the information they accessed and learned, three different performance tasks allowing them to research were prepared for the students in the study. For them to complete their performance tasks, students need to collect new information in addition to the information they learned in the class and the information in the textbooks and they need to present this information as a product (research report) by relating the information they collected with the information they learned in the class.

While developing the performance tasks, the five-stage model suggested by Marzano et al. (1993) was taken into consideration. Development process of the performance tasks are presented gradually below:

1. *Determining of content standards that will be in the performance task:* Content and objectives within the scope of the Social Studies course were taken into consideration.
2. *Selecting of high-level cognitive skill:* The sub-skills of the study were taken into consideration and three different performance tasks aiming to measure different sub-skills were developed. While the first performance task was prepared based on the objectives in Task Definition and Information Seeking Strategies sub-skills, the second task was prepared based on the objectives in Location and Access and Use of Information sub-skills. The third performance task was prepared based on the objectives in Task Definition, Information Seeking Strategies, Location and Access, Use of Information and Synthesizing sub-skills.
3. *Developing of the draft performance task:* A draft performance task consisting of the information identified in the first and second stages was developed.
4. *Determining information processing standards:* The information processing standards were determined and the performance task was revised to clarify these standards.
5. *Determining effective communication and cooperation standards:* Effective communication and cooperation standards were determined and the performance task was revised to clarify these standards.

Two experts in the fields of measurement and evaluation and social studies education provided their opinions on whether the performance tasks were appropriate to the sub-skills of the research skills that they wanted to measure, to the objective, to the subject area and to the student level.

### **Rubric**

Rubric was developed to score the performance tasks given to the students. With rubric, providing feedbacks to the students on their works became possible. In the development of Rubric, steps suggested by Goodrich (2001) were used:

1. *Listing criteria that will be used in determining the performance:* Five criteria were determined by taking the five sub-skills that would develop the power of doing research into consideration.
2. *Deciding the rubric that will be used:* Since the performance tasks are needed to be appropriate and scored in detail, "analytic rubric" was used in the study.
3. *Determining performance levels and making the level definitions:* Each criterion was graded between one and four by determining the best and the worst performance levels. It was decided that while the students who show performance at a "Beginner" level will get one point, students who show performance at an "acceptable" level will get two points. It was also decided that students who show performance at a "successful" level will get three points and students who show performance at an "exemplary" level will get four points. While making level definitions, literature was reviewed and developed rubrics were examined.
4. *Getting expert opinions:* Rubric was finalized by getting opinions from experts from the fields of measurement and evaluation and language.

### **2. Control Group**

During the teaching process, brief information on study skills, six sub-skills and objectives for each six sub-skills were given to the students in the control group. Learning process for the control group were carried out for a total of 21 class hours for 10 weeks by the researcher. During the learning process, Formative Tests made up of open-ended items administered for monitoring purposes were directed in written to the students in the control group when stages regarding each sub-skill were completed and the answers were collected during the class hour. Performance tasks were given in written to the students and products they produced in written during the class time were collected. The feedbacks were given as grades by the researcher within the framework of traditional education.

### **Data Collection Tools**

In this section, data collection tools used within the research are discussed.

#### **Research Skills Test**

Research Skills Test (RST) was developed to measure students' skills on their research processes. Since the purpose of the RST is to measure research skills that are among the high-level cognitive skills, it was decided that it would be better to have open-ended items in the test. Accordingly, the RST included 14 open-ended items measuring 19 objectives of the first five sub-skills that were determined within the scope of the learning program. Since research skills included integrated skills, two objectives were measured together in some items. The RST was rated at 100 points.

While writing the open-ended items, their appropriateness to student level was taken into consideration. The item root was stated simply and clearly and statements aiming to put forth only the behavior that needs to be measured in the root are included. To prevent the students giving long and unrelated answers, some restrictive instructions were given in the item root and only the necessary space for each item was provided.

The validity of the items were determined based on expert opinion. Four experts in the fields of measurement and evaluation, language and social studies education provided their opinions on whether the items were about the related objective, they contained any scientific errors, they were appropriate to student's grade level and whether they contained any errors in terms of language. After examination of experts' suggestions, appropriate changes were made in the items. Then, RST was presented to a Social Studies and Turkish Language teacher and their opinions were taken. In line with all the opinions and suggestions, the test was finalized. As a pilot study, the final version of the test was

administered to 20 6<sup>th</sup> graders attending a different private school and whether the understandability of the items were tested.

### ***Interview Form***

In this research, interview form approach, an interview method, was used to determine student views regarding the effect of electronic portfolio applications on research skills. According to Patton (2002), interview guide approach is used to gather same kind of information from different individuals by focusing on similar subjects and it includes the list of questions and subjects that will be discussed during the interview. Accordingly the "Semi-Structured Interview Form" was prepared. The form includes four open-ended items. In order to clarify the points students did not understand during the interview, alternative items were also included in the form. The items being appropriate to the interview's purpose, being understandable by the students, including answers that the interviewed students can give and not having leading statements were paid special attention to. Opinions of two experts in the fields of measurement and evaluation and language were asked regarding the quality of the items. In line with the experts' suggestions, appropriate changes were made and the form was finalized. Interviews were conducted with the students after the research process was completed. When clear answers were not received from the students or when the students did not understand the question, the questions were expressed differently to the students and different questions were asked.

### **Data Analysis**

Data was analyzed using SPSS 18.0 statistical software package. In the analysis of the data, the significance level was accepted ( $p$ ) 0.05. In the course of data analysis, first, whether assumptions were met or not was tested. Because the pre-test and post-test score distributions showed normal distribution and homogeneity of variance and equality of covariance matrices assumptions weren't met, t-test were used. Whether there was a significant difference between both the pre-test and post-test scores of the experimental and control groups was tested with Independent Samples t-test that compares two unrelated measurements. To determine how much the electronic portfolio applications are effective in developing research skills, values of eta squared ( $\eta^2$ ) and Cohen's  $d$  were calculated. Terms also as the effect size, value of eta squared is the measurement of the size of the relationship between the dependent and the independent variable (Mertler & Vannatta, 2005). Showing the explanation amount of independent variable's total variance on dependent variable,  $\eta^2$  changes between 0.00 and 1.00 and the  $\eta^2$  values at .01, .06 and .14 levels are interpreted as "small", "medium" and "large" effect sizes respectively (Büyüköztürk, 2009; Cohen, as cited in Stevens, 2002). On the other hand, a Cohen's  $d$  value at .20 is interpreted as a "small" effect size, .50 as a "medium" effect size and .80 as a "large" effect size (Cohen, 1988). Whether there was a significant difference between the pre-test and post-test scores of both the experimental and control groups was tested with Paired Samples t-test that compares the difference between the means of correlated samples.

Qualitative data obtained from the interviews conducted with the students were analyzed by content analysis. Content analysis is used to regress qualitative data and to make logical predictions from qualitative data, and attempts to determine the basic meanings (Patton, 2002). According to Yıldırım and Şimşek (2010), the basic purpose of content analysis is to reach the concepts and relationships explain the collected data. In content analysis similar data are brought around certain concepts and themes and these are organized and interpreted in a way that the readers can understand.

## Results

In the findings section of the study, results regarding each sub-purpose are respectively given below.

### *Findings and Interpretation Regarding the First Sub-Purpose*

To find answer to the question of "Is there a significant difference between the pre-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out and the pre-test scores of students in the control group who did not participate in the application?", the pre-test scores of the groups were examined with Independent Samples t-test to determine whether the groups showed significant difference or not. The findings are given in Table 1.

**Table 1.** Results of Independent Samples T-Test Regarding Pre-Test Scores

Test	Group	N	$\bar{X}$	S <sub>x</sub>	df	t	p
Pre-test	Experimental Group	34	7.53	3.25	62	-.142	.888
	Control Group	30	7.67	4.46			

While the experimental group students' average of pre-test scores obtained from RST of the experimental group students is  $\bar{X}=7.53$ , this is  $\bar{X}=7.67$  for the control group students. The pre-test scores reveal that students from both of the groups have little knowledge and skills regarding research process. When the results are examined, there is not a significant difference between the pre-test scores of the experimental and control group students ( $t_{(62)}=-.142$ ;  $p>.05$ ). This finding indicates that the groups' knowledge is equal in terms of groups' research skills.

### *Findings and Interpretation Regarding the Second Sub-Purpose*

To find answer to the question of "Is there a significant difference between the pre-test and post-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out?", the pre-test and post-test scores of the experimental group were examined with Paired Samples t-test to determine whether their scores showed significant difference or not. The findings are given in Table 2.

**Table 2.** Results of Paired Samples T-Test of the Experimental Group

Group	Test	N	$\bar{X}$	S <sub>x</sub>	df	t	p
Experimental Group	Pre-test	34	7.53	3.25	33	7.716	.000*
	Post-test	34	30.06	19.33			

\* $p<0.05$

When Table 2 is examined, it is seen that there is a significant difference between the pre-test and post-test scores of students in the experimental group ( $t_{(33)}=7.716$ ,  $p<.05$ ). This finding indicate that there is a significant increase in the post-test scores of students in the experimental group compares to their pre-test scores and thus students' learning increased after the electronic portfolio applications based research skills training.

### *Findings and Interpretation Regarding the Third Sub-Purpose*

To find answer to the question of "Is there a significant difference between the pre-test and post-test scores of the Research Skills Test of students in the control group in which the electronic portfolio applications were not carried out?", the pre-test and post-test scores of the control group were examined with Paired Samples t-test to determine whether their scores showed significant difference or not. The findings are given in Table 3.

**Table 3.** Results of Paired Samples T-Test of the Control Group

Group	Test	N	$\bar{X}$	S <sub>x</sub>	df	t	p
Control Group	Pre-test	30	7.60	4.57	29	9.205	.000*
	Post-test	30	15.10	6.25			

\* $p<0.05$

When Table 3 is examined, it is seen that there is a significant difference between the pre-test and post-test scores of students in the control group ( $t_{(29)}=9.205$ ,  $p<.05$ ). This finding indicate that training given to the control group also positively increased students' levels of using research skills.

When the study's second and third sub-purposes are examined, it is seen that there is a significant difference between the pre-test and post-test scores of both the experimental and control group in favor of post-test scores. In this case, to be able to explain why the post-test scores of students in the experimental group are significantly higher than their pre-test scores with electronic portfolio applications in addition to the training given, whether the post-test scores of the students in the experimental and control groups are significant or not must be examined. In this direction, the fourth sub-purpose of the study is tested and the findings are given below.

#### **Findings and Interpretation Regarding the Fourth Sub-Purpose**

To find answer to the question of "Is there a significant difference between the post-test scores of the Research Skills Test of students in the experimental group in which the electronic portfolio applications were carried out and students in the control group who did not participate in the application?", the post-test scores of the groups were examined with Independent Samples t-test to determine whether the groups showed significant difference or not. The findings are given in Table 4.

**Table 4.** Results of Independent Samples T-Test Regarding Post-Test Scores

Test	Group	N	$\bar{X}$	$S_x$	df	t	p	$\eta^2$	Cohen d
Post-test	Experimental Group	34	30.06	19.34	62	4.051	.000*	0.209	1.02
	Control Group	30	15.10	6.25					

\* $p<0.05$

When Table 4 is examined, there is a significant difference between the post-test scores of students in the experimental and control groups in favor of the experimental group ( $t_{(62)}=4.051$ ,  $p<.05$ ). While the average of post-test scores of the control group is  $\bar{X}=15.10$ , the average for the experimental group is  $\bar{X}=30.06$ . Thus, compared to the students in the control group, the students in the experimental group were more successful in the post-test. These findings indicate that electronic portfolio applications have a positive effect on developing students' research skills. The value of eta squared effect size was  $\eta^2=0.209$  and Cohen's d index of effect size was  $d=1.02$ . This finding indicates that electronic portfolio applications have a "large" effect on students' research skills development.

#### **Findings and Interpretation Regarding the Fifth Sub-Purpose**

To find answer to the question of "What are students' views on the effect of electronic portfolio application on their research skills?" the responses given to the four items in the given below.

*First item in the Interview Form: "Do you think the portfolio application carried out during the development of your research skills contributed to the development of this skill? Can you explain your opinion with its reasons?" Findings obtained from this item and interpretations regarding the findings are given below.*

When student views are examined, it is found that all of the students stated that portfolio application contributed to the development of research skills. Students' views regarding this item are presented in Table 5.

**Table 5.** Views Regarding the Contribution of Portfolio Applications on Research Skills and Their Distributions

Category	Code	Students	f
Contribution	The feedback given helps to correct mistakes and see shortcomings	S1, S2, S4, S5, S7, S8, S9	7
	It helped to study more organized	S3, S6	2



Seven (77.8%) of the students stated that portfolio application contributed to the development of research skills when the feedbacks given during the application helped them to correct their mistakes and see their shortcomings. Some of the students' views regarding this subject are given below.

S1: "... I think the portfolio application helped the development of my skill. Because while doing this application, I did better homework by seeing my shortcomings with the help of feedbacks given. ..."

S8: "... It helped me a lot. When we did something wrong, the teacher gave feedback and this helped us to correct our mistakes. ..."

Two (22.2%) of the students stated that portfolio application contributed to the development of research skills by studying more organized due to keeping of our works in a file. S6's view regarding this subject is given below.

S6: "It helped to the development of our research skill. Because it helped us collect our works in a file and to study more organized."

*Second item in the Interview Form: "In what ways do you think the portfolio applications carried out during the works related to the development of your research skills contributed to you? Can you explain your opinion with its reasons?" Findings obtained from this item and interpretations regarding the findings are given below.*

When students' views on the contribution of portfolio applications, it is seen that these contributions are grouped under two dimensions, cognitive and affective characteristics. Students' views on portfolio applications' contributions are presented in Table 6.

**Table 6.** Student Views Related to Portfolio Applications' Contributions and Their Distributions

Category	Code	Students	f
Cognitive Characteristics	Helping us to make more qualified research homework	S1, S2, S3, S4, S6, S7, S9	8
	Reaching the correct information easier by carrying out the research process more planned	S2, S6	2
	Helping the research homework in other courses	S2, S7	2
Affective Characteristics	Increasing the interest about doing research	S1, S2, S3, S4, S6, S7, S8, S9	8
	Decreasing the anxiety about doing research	S1, S7	2
	Teaching the importance of doing research	S5, S7	2

While eight (88.8%) of the students mentioned they could give direction to their works through the feedback given and they started to do more qualified research homework, two (22.2%) of them mentioned that they carried out the research process more planned because of the feedbacks given during the process. Two (22.2%) of the students stated that they did more qualified research homework in other courses. Some of the students' views on this subject are given below:

S2: "... Because of the feedback, I saw my mistakes and corrected them and because of them I can do my homework full. ..."

S6: "... It helped me do an organized research. Because in the past I used to take every information and did homework. Now I can complete my homework with less information but with correct information. ..."

Eight (88.8%) of the students whose views were taken stated that portfolio applications increased their interest to do research, two (22.2%) of them stated that they decreased their anxiety to do research and two (22.2%) of them stated that they taught the importance of doing research. Some of the students' views on this subject are given below:

S1: "... feedbacks changed my opinions about research. My increase about research increased. At first, doing research was boring to me but as I understood, it became fun."

S2: "... I wanted to do research more because of the feedbacks you gave and I thought you really cared about us. But it was a little bit boring. At first I didn't want to do it at all. But then I thought this work was important for us and I started to do it. ..."

S7: "In this application, not just sending homework through the system but correcting information through the feedback given and evaluating yourself with self-assessment helped us. Other than these, I have an interest in doing research. I can do better research and I am not afraid of doing performance homework. ..."

According to the findings obtained from the views, it can be concluded that electronic portfolio applications contributed to the development of research skills of all students who had different levels of using these skills and that these contributions are at different dimensions. Findings indicate that applications helping students to correct their mistakes, see their shortcomings and include them to the evaluation process through the feedbacks given during these portfolio applications contributed to positive changes in students' towards research, increase in their interest and decrease in their anxiety to do research. In line with this, according to the findings, it can be concluded that electronic portfolio applications are effective on students' both cognitive and affective characteristics.

*Third item in the Interview Form: "What made you happy the most about the portfolio works? Can you explain?" Findings obtained from this item and interpretations regarding the findings are given below.*

**Table 7.** Student Views Related to What Made Them Happy the Most about the Portfolio Works and Their Distributions

Category	Code	Students	f
Feedback	Helping them to recognize their shortcomings	S1, S6, S9	3
	Helping them to correct mistakes	S1, S2, S7	3
Positive Thought	Increasing interest related to doing research	S4	1
	Making them like doing research	S8	1
Usability	It is easy to create portfolio	S3, S5	2

Five (55.5%) of the students stated that feedbacks made them the happiest in this study. Three (33.3%) of these students mentioned that feedbacks helped them recognize their shortcomings and three (33.3%) of them mentioned that feedbacks helped them correct their mistakes. Some of the students' views on this subject are given below:

S1: "What made me happy the most about the portfolio applications was the feedbacks. Because I learned my mistakes and shortcomings".

S2: "What made me happy the most about the portfolio applications is that you gave us feedback and you made me undone my mistakes".

Two (22.2%) of the students stated that what made them the happiest about the portfolio applications was that they positively affected their attitudes towards doing research. Some of the students' views on this subject are given below:

S4: "My interest to do research increased. I started to do more research".

S8: "What made me happy the most about the portfolio applications is that they made me like doing research. Sending back the wrong homework made me happy and my interest to do research increased".

Two (22.2%) of the students stated that what made them the happiest about the portfolio applications was that creating a portfolio became easier by saving the works into the system during the application. S5's view regarding this subject is given below.

S5: "Easily saving the files made me happy. Because of this we created our portfolios easier".

Fourth item in the Interview Form: "Under what circumstances did you have difficulty doing portfolio applications? Can you explain?" Findings obtained from this item and interpretations regarding the findings are given below.

When students' views on the circumstances they had difficulty doing portfolio applications are examined, it is seen these difficult circumstances are grouped under three dimensions, e-portfolio portal, evaluation skill and computer usage skill. Students' views on circumstances they had difficulty doing portfolio applications are presented in Table 8.

**Table 8.** Student Views Related to Circumstances They had Difficulty Doing Portfolio Applications and Their Distributions

Category	Code	Students	f
E- Portfolio Portal	Logging in the system	S5, S6	2
	Loading homework into the system	S4, S7	2
	Creating portfolio	S1, S8	2
Evaluation	Doing self-assessment	S5, S6, S8	3
Computer Usage Skill	Using Microsoft Office program	S2, S3, S5, S8, S9	5

Two (22.2%) of the students mentioned they had difficulty in logging in their personal systems, two (22.2%) of them mentioned they had difficulty in creating portfolio. Some of the students' views on this subject are given below:

S1: "While doing portfolio work, I had difficulty in loading my works into my own portfolio. Because at first I messed up because I didn't know at all".

S5: "... While doing portfolio work, I had difficulty in logging in the first two weeks. ..."

S5: "... At first, I had difficulty in loading my homework into the system. I couldn't send my homework."

Three (33.3%) of the students stated that they had difficulty in filling out the self-assessment form since they have not this kind of evaluation before. S6's view regarding this subject is given below.

S6: "While doing portfolio work, I had difficulty in logging in the system and filling out the self-assessment form".

Five (55.5%) of the students stated that they had difficulty in organizing their works in Microsoft Office program. Some of the students' views on this subject are given below:

S2: "While doing portfolio work, I had difficulty in organizing homework in Word file".

S3: "... I had difficulty in saving the homework that were sent and I had difficulty in doing my homework on Word".

According to the findings obtained from the interviews conducted with them, it is found that portfolio applications contributed to the development of students' research skills. It is seen that due to the feedbacks given, students did their research tasks in a more qualified and more planned manner and thus with their negative thoughts towards doing research changed, they began to enjoy doing research. Based on their views, it is found that students had the most difficulty in logging in the system, loading homeworking into the system and preparing their homework on the office program. According to the difficulties students faced during this process, it can be concluded that students' competencies in using computers are low.

### Discussion, Conclusion and Suggestions

In the study, no significant difference was found between the pre-test scores of the students in experimental and control groups. There was a significant difference between the pre-test and post-test scores of both experimental and control groups in favor of the post-test scores. According to the findings obtained in the study, it can be concluded that while the students' research skills were equal to each other or at a very low-level at the beginning of the study, the RSEP was effective in attainment of these skills. This finding shows similarity with studies (Goudas & Giannoudis, 2008, Kurnaz & Kutlu 2016; Ünal & Aral, 2014) examining the effects of special programs created to develop high-level skills like problem solving, critical thinking, research skills and scientific research skills. Goudas and Giannoudis (2008) concluded that the Team-Sports-Based Life-Skills Program they developed for 6<sup>th</sup> and 8<sup>th</sup> grade students was effective in developing life skills like objective determination, positive thinking and problem solving. Kurnaz and Kutlu (2016) stated that the Scientific Process Skills Program he developed for 4<sup>th</sup> grade students was effective in developing students' scientific process skills. Ünal and Aral (2014) reached the conclusion that the Experiment-Based Education was effective in developing six years old children's problem-solving skills. Therefore, it is believed that developing and applying programs which will make it easy for students to acquire high-level cognitive skills starting from preschool will positively affect the way students use these skills. It is, also, believed that using these skills will help the students reach the desired levels in a short period of time. In this frame, it is suggested that a Research Skills Program independent of the course content may be carried out starting from elementary school.

In the study, a significant difference between the post-test scores of students in the experimental and control groups in favor of the experimental group was found. Calculated to determine how much the electronic portfolio applications are effective in developing research skills, the value of eta squared effect size was found 0.209. According to the findings obtained in the study, it revealed that electronic portfolio applications have a "large" effect on developing students' research skills. Similar findings have been found in studies examining the effect of electronic portfolios on high-level cognitive skills (Ayan, 2010; Ayan & Seferoğlu, 2011; Gömleksiz & Koç, 2010; Meyer, Wade, & Abrami, 2013; Nicolaidou, 2013). These studies have shown that electronic portfolios are effective in developing many skills. It is determined that electronic portfolio developed students' application (Gömleksiz & Koç, 2010), reflective thinking (Ayan, 2010; Ayan & Seferoğlu, 2011), self-assessment, self-regulation and self-management skills (Ayan, 2010), creativity (Meyer et al., 2013) and peer feedback (Nicolaidou, 2013) skills. In this context, it is believed that administering electronic portfolio applications in every grade level starting from elementary school will develop skills that make up students' research processes. Within this scope, it is suggested that these applications be administered at every grade level.

The study's findings are at the same time similar to studies (Alkan-Dilbaz, 2013; Brickman, Gormally, Armstrong, & Hallar, 2009; Chu et al., 2008; Cuevas, Lee, Hart, & Deaktor, 2005; Güneş, 2011; İlter, 2013; Wu & Hsieh, 2006; Yıldırım, 2007) aiming to develop research skills by enriching the learning environments through different activities, methods and tools. Wu and Hsieh (2006) found out that research-based learning environments are effective in developing students' research skills. Likewise, Project-Based Learning Model (Yıldırım, 2007), research-based learning projects (Chu et al., 2008), research-based lab education (Brickman et al., 2009), research-based learning process in Science course (Alkan-Dilbaz, 2013) and 5E learning cycle model in Social Studies course (İlter, 2003) are found to be effective in developing students' research skills. Thus, it is believed that enriching the learning environments by using different activities, methods and tools will positively affect the way students use these skills. It is, also, thought that using these skills will help the students reach the desired levels in a short period of time. In this frame, it is suggested that activities that will positively affect students' use of research skills may be included in classes.

Qualitative findings obtained from the interviews conducted with the students in the experimental group support the quantitative findings. Findings obtained from the qualitative data indicate that electronic portfolio applications contribute greatly to students' both cognitive and affective characteristics. Interview findings show that the feedbacks given during the electronic portfolio application helped students' thoughts on research positively change by allowing them to overcome their shortcomings and to correct their mistakes, increased their interest and decreased their anxiety. Similarly, Ersin (2005) concluded that research-based portfolio work conducted during the reading course changed students' attitudes towards research in a positive way. Büyüköztürk (1997) stated that even though teaching research information and skills is a basic condition for developing individuals' research skills, it is not taught enough and he emphasized that individuals' interest to do research and anxiety over doing research are also effective in them doing research. Similarly, Rezaei and Zamani-Miandashti (2013) stated that negative attitude towards research prevents making adequate effort during the research process. Also, Papanastasiou (2005) found that individuals whose research skills are developed have high attitudes towards research and have less research anxieties. In this context, it is believed that including activities in education programs to develop students' research skills will increase students' attitudes and interests towards research and will reduce their anxieties.

This study is limited to sixth grade level and research skills. Researchers can examine the effect of electronic portfolio applications on research skills at different grade levels by conducting similar studies. Moreover, the effect of portfolio applications on the development of other high-level cognitive skills can be examined in other studies. Researchers can also examine the effectiveness of the program by developing the Research Skills Program independently of the course content for different grade levels.



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## Appendix 1. Elektronik Portfolio Portal




### E-PORTFOLYO

Eğitimde portfolyo, eğitimcilere kolaylık sağlayan ve kullanımı gittikçe artan bir teknoloji. Proje bazlı eğitim tekniklerinin hem yaratıcılığı geliştirmesi hem de etkinlikleri yapmaya teşvik etmesi bakımından da öğrencilerin potansiyellerini kullanmalarını açısından oldukça güzel bir yöntem. İnternet'in hayatımıza girmesi ile doğan sosyal medyanın son zamanlardaki kullanım avantajlarını göz önünde bulundurursak, öğrencilerin kendi ortamlarını, tasarımlarını oluşturup, kendilerine özgü bir şekilde tasarladıkları elektronik portfolyoların da ilerleyen zamanlarda çok daha önemli bir konumda olacağını söylesek yanlış olmaz.

Eğitmen İşlemleri Öğrenci İşlemleri

Hızlı erişim için yer işaretlerinizi buraya, yer işareti çubuğuna yerleştirin. [Yer işaretlerinizi şimdi içe aktar...](#)



### Eğitmen İşlemleri

**Giriş Yap**

E-mail :

Şifre :

[Giriş Yap](#)

**Kayıt Ol**

Ad Soyad :

Branş :

Telefon :

Doğum Tarihi :


Email :

Şifre :

[Kayıt Ol](#)



Hızlı erişim için yer işaretlerinizi buraya, yer işareti çubuğuna yerleştirin. [Yer işaretlerinizi çimdi içe aktar...](#)



## Öğrenci İşlemleri

**Giriş Yap**

E-mail :

Şifre :

**Giriş Yap**

**Kayıt Ol**

Ad Soyad :

Öğrenci NO :

Telefon :

Doğum Tarihi :

Email :

Şifre :

**Kayıt Ol**

- Anasayfa
- Duyurular 1
- Ödevler 16
- E-Portfolyo
- Kişisel Bilgilerim
- Mesajlar
- Öğrenciler

### Ödevler Ödev Ekle

- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 8 🗑
- Ölçme ve Değerlendirme - Performans Görevi 3 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 7 🗑
- Ölçme ve Değerlendirme - Açık Uçlu Madde 5 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 6 🗑
- Ölçme ve Değerlendirme - Performans Görevi 2 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 5 🗑
- Ölçme ve Değerlendirme - Açık Uçlu Madde 4 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 4 🗑
- Ölçme ve Değerlendirme - Açık Uçlu Madde 3 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 3 🗑
- Ölçme ve Değerlendirme - Performans Görevi 1 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 2 🗑
- Ölçme ve Değerlendirme - Açık Uçlu Madde 2 🗑
- Ölçme ve Değerlendirme - Öz Değerlendirme Formu 1 🗑
- Ölçme ve Değerlendirme - Açık Uçlu Madde 1 🗑

- Anasayfa
- Duyurular 1
- Ödevler 16
- E-Portfolyo
- Kişisel Bilgilerim
- Mesajlar
- Öğrenciler

### Ödev Ekle

**Başlık :**

**İçerik :**

**Başlangıç Tarihi :**

**Bitiş Tarihi :**

Nisan 2015

Pzt	Sal	Çar	Per	Cum	Cmt	Paz
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

**Gönder**

Anasayfa

Duyurular 1

**Ödevler 16**

E-Portfolyo

Kişisel Bilgilerim

Mesajlar

Öğrenciler

### Ödev Ekle

**Başlık :**  
Performans Görevi 1

**İçerik :**

**Başlangıç Tarihi :**  
01.04.2015

**Bitiş Tarihi :**  
03.04.2015

**Ek Dosya :**  
 Dosya seçilmedi

Anasayfa

Duyurular 1

Ödevler 16

**E-Portfolyo**

Kişisel Bilgilerim

Mesajlar

Öğrenciler

### Dosya Ekle

**Dosya Adı :**

Dosya seçilmedi

#### Dosyalarım

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Link : <http://www.betulpolat.com/uploads/e0e678852ae593991cb915e435f615f.docx>  
apık uğlu soru 1-macla Nur Tuncer  
Link : <http://www.betulpolat.com/uploads/b6801dc676a851d6ee89de57aa719f13.jpg>  
apık uğlu soru 1-Necla Tuncer  
Link : <http://www.betulpolat.com/uploads/b0e3849c52c35389c19fee9a07b99107.docx>  
apık uğlu soru 1-abdullah gökçe  
Link : <http://www.betulpolat.com/uploads/ffc660a930f9ea0484429d3c6093158e.jpg>  
apık uğlu soru 1-abdullah gökçe  
Link : <http://www.betulpolat.com/uploads/48f89d789044e116c0e3a2289b6730c5.docx>  
apık uğlu soru 1-Aleyna Özcan  
Link : <http://www.betulpolat.com/uploads/c82118b002f1c48d04ef290eaba40f4.jpg>  
apık uğlu soru 1-Aleyna Özcan  
Link : <http://www.betulpolat.com/uploads/c3f60c02f52e247bc109ab79b5e2289b.docx>  
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Link : <http://www.betulpolat.com/uploads/cb878876d9a24aa9538a45f41d379f9.jpg>  
apık uğlu soru 1-Bekir Tuncer  
Link : <http://www.betulpolat.com/uploads/c4fedc0818992039527964699df0d8.jpg>  
apık uğlu soru 1-Bekir Tuncer  
Link : <http://www.betulpolat.com/uploads/fd5936f64ee8d7407c54c1ef9024300.docx>

Anasayfa

Duyurular 1

Ödevler 16

E-Portfolyo

Kişisel Bilgilerim

Mesajlar

**Öğrenciler**

Ad Soyad	Öğrenci No	Yakın	Doğum Tarihi	Email	İzle
Murat Dalgıç	224	0548102086	1999-03-10	murat.dalgic21@gmail.com	<input type="button" value="İzle"/>
Ömer Kaplan	263	111	2001-05-10	osm.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Ömer Özcan	262	111	2000-00-00	olmez.ozoz21@hotmail.com	<input type="button" value="İzle"/>
Abdulhalim Diler	271	111	2000-00-00	agiloz17@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman	277	111	2000-00-00	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Baran Usluoluc	262		2008-04-20	baran.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Sıla Kaya	264	111	2000-00-00	silakaya26@hotmail.com	<input type="button" value="İzle"/>
Abdulhalim	424	111	2002-09-18	halim.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Meriç İsmail Çelik	263	111	2000-00-00	burcu_ismail_21@hotmail.com	<input type="button" value="İzle"/>
Ömer Diler	266	0511899288	2000-00-00	ozm.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Merve İsmail Çelik	211	0505102022	2000-00-00	merveozsoy@hotmail.com	<input type="button" value="İzle"/>
Bülent Çelebi	290	111	2002-08-08	bulent.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Sıla Demir	265	0507050885	2005-01-10	silademir@gmail.com	<input type="button" value="İzle"/>
Şevket Emin Kaya	209	111	2000-00-00	evkaya@hotmail.com	<input type="button" value="İzle"/>
Yakup Nur Tuncer	261	05050200710	2002-07-01	yakupnur21@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman Başak	279	111	2000-00-00	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman Başak	278	0507483497	2000-00-00	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Bülent Çelebi	275	05050200475	2002-08-04	bulent.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Kıymet İsmail Özcan	273	842 884 47 16	2000-08-18	kyimetsuleyman@hotmail.com	<input type="button" value="İzle"/>
Süleyman Kaya	268	111	2000-00-00	suleymanozsoy@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman	262	111	2002-08-08	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Halim Çelik	268	111	2000-00-00	halimozsoy@hotmail.com	<input type="button" value="İzle"/>
Alpina Nur Özcan	242	111	2000-00-00	alpinur.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Ömer Diler	229	05050200110	2000-08-08	ozm.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman	261	111	2000-00-00	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman	269	05061241616	2005-01-01	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Merve İsmail Çelik	243	05051020224	2001-10-20	merveozsoy@hotmail.com	<input type="button" value="İzle"/>
Halim Süleyman	217	0505210001	2002-07-08	halim_suleyman@hotmail.com	<input type="button" value="İzle"/>
Ömer Diler	274	05050200122	2002-08-08	ozm.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Murat Dalgıç	224	0548102086	2000-08-01	murat.dalgic21@hotmail.com	<input type="button" value="İzle"/>
Ömer Diler	220	0505048889	2000-02-04	ozm.ozsoy@hotmail.com	<input type="button" value="İzle"/>
Abdulhalim	272	0505102078	2005-04-04	abulhalim2005@hotmail.com	<input type="button" value="İzle"/>

- Anasayfa
- Duyurular 1
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- E-Portfolyo
- Kişisel Bilgilerim
- Mesajlar
- Öğrenciler

### Öğrenciler

Ad Soyad	Öğrenci No	Telefon	Doğum Tarihi	Email	
Hazal Deligöz	224	05456182866	1999-10-10	hazal.deligoz224@gmail.com	<a href="#">Profile Git</a>
Ozan Ergülleş	283	111	2003-05-10	ozan.er283@hotmail.com	<a href="#">Profile Git</a>
Olçay Özsoy	282	111	0000-00-00	olcay.ozsoy282@hotmail.com	<a href="#">Profile Git</a>
Abdullah Gökçe	271	111	0000-00-00	a.gokce271@gmail.com	<a href="#">Profile Git</a>
Ferhan Süde İnce	277	111	0000-00-00	ferhan_ince@hotmail.com	<a href="#">Profile Git</a>
Edanur Ulukurt	562		2006-04-20	prenses-3851@outlook.com	<a href="#">Profile Git</a>
Sıla Aysu	384	111	0000-00-00	sila_51_06@hotmail.com	<a href="#">Profile Git</a>
♣Mert Şahin♣	424	111	2002-09-16	mert_159951@hotmail.com	<a href="#">Profile Git</a>
Hanife Yaren Çelik	339	111	0000-00-00	burcu_basak_07@hotmail.com	<a href="#">Profile Git</a>
eren öztur	398	5511359288	0000-00-00	eren.oztur398@hotmail.com	<a href="#">Profile Git</a>
Rumeysa Rana Çiçek	311	05061500222	0000-00-00	rumeysa639@hotmail.com	<a href="#">Profile Git</a>
	290	111	2003-03-03	elifcanpolat03@hotmail.com	<a href="#">Profile Git</a>

www.betulpolat.com/ogrenci/anasayfa.php?auth=78&code=ca7724498403de30829ae36f9c9149b75

Anasayfa
Hosgeldiniz Hazal Deligöz
Çıkış Yap

- Anasayfa
- Duyurular 1
- Ödevler 16
- Geribildirim 1
- E-Portfolyom
- Kişisel Bilgilerim
- Mesajlar 4

### Ödevler

Ölçme ve Değerlendirme - Öz Değerlendirme Formu 8

Ölçme ve Değerlendirme - Performans Görevi 3

Ölçme ve Değerlendirme - Öz Değerlendirme Formu 7

Ölçme ve Değerlendirme - açık uçlu soru 5

Ölçme ve Değerlendirme - Öz Değerlendirme Formu 6

Ölçme ve Değerlendirme - Performans Görevi 2

Ölçme ve Değerlendirme - Öz Değerlendirme Formu 5

Ölçme ve Değerlendirme - Açık Uçlu Soru 4

Anasayfa
Hosgeldiniz Hazal Deligöz
Çıkış Yap

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### Geribildirimler

Öğretmen : Ölçme ve Değerlendirme - Betül Polat  
Ödev : açık uçlu soru 5  
Durum : Okundu

Öğretmen : Ölçme ve Değerlendirme - Betül Polat  
Ödev : Performans Görevi 3  
Durum : Okunmadı

Öğretmen : Ölçme ve Değerlendirme - Betül Polat  
Ödev : Performans Görevi 3  
Durum : Okundu

Öğretmen : Ölçme ve Değerlendirme - Betül Polat  
Ödev : Performans Görevi 2  
Durum : Okundu

Anasayfa

Hosgeldiniz Hazal Deligöz Çıkış Yap

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- Geribildirim 1
- E-Portfolyom**
- Kişisel Bilgilerim
- Mesajlar 4

### Dosya Ekle

Dosya Adı :

Dosya seçilmedi

### Dosyalarım

- İzleme Testi 1 ✕
- Öz Değerlendirme Formu 1 ✕
- İzleme Testi 2 ✕
- Öz Değerlendirme Formu 2 ✕
- Performans Görevi 1 ✕
- Öz Değerlendirme Formu 3 ✕
- İzleme Testi 3 ✕
- Öz Değerlendirme Formu 4 ✕
- İzleme Testi 4 ✕
- Öz Değerlendirme Formu 5 ✕
- Performans Görevi 2 ✕
- Öz Değerlendirme Formu 6 ✕
- İzleme Testi 5 ✕
- Öz Değerlendirme Formu 7 ✕
- Performans Görevi 3 ✕
- Öz Değerlendirme Formu 8 ✕