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Investigation of the Effectiveness of the Research Skills Teaching Program

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Abstract: In this study, it was investigated whether the Research Skills Teaching Program (RSTP) prepared for elementary school 4th grade students was effective in imparting the sub-skills required for conducting the research process to students. To this end, pretest-posttest control group design; one of the quasi-experimental designs; was employed. The study was conducted on the students attending two classes of a state elementary school. In the experimental group, the program developed on the basis of the Big Six Research Skills Model was administered, while no such special application was conducted in the control group. In both of the groups, the Research Skills Test was administered as pretest and posttest and Monitoring Tests. The collected data were analyzed by using Independent Samples *t*-test and Paired Samples *t*-test. The responses given by the experimental and control group students to each of the open-ended items in the Monitoring Tests were separately examined. It was found that the activities developed within the context of the teaching program had comprehensive effect on the development of the skills needed to direct the research process. When the number of the students giving the most correct answers in the items in the monitoring tests was examined, it was seen that although there are students finding the most correct answers to the items in the experimental group, their levels of using these strategies were not found to be at the desired level and there are students in the control group finding the most correct answers only for four skills.

1. INTRODUCTION

The developments in technology lead to occurrence of rapid and important changes in social life. This reality caused our age to be called the information age and forced individuals to be involved in lifelong learning. In this era where knowledge is considered a product of wealth, the perspective of the nature of learning has changed and the concept of lifelong learning has come to the fore (Berber, 2003).

Lifelong learning is a process that stimulates and activates individuals to use their knowledge, skills, values and understanding when needed in their real life (World Initiative on Lifelong Learning [WILL], cited in Candy, 2003). According to Cambridge (2010), lifelong learning is a process that includes all kinds of learning actions that allow individuals to develop their knowledge, skills and strategies by recognizing themselves and exhibiting their talents throughout their lives. In this connection, lifelong learning includes skills and features that

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enable the individual to gain new knowledge and acquire new skills both in personal and business life (Demirel, 2007).

Changing perspective of the phenomenon of learning has also changed the characteristics of the individuals needed by the information societies. In this regard, today's information societies are not in need of individuals who store information that will lose its actuality in a short time; yet, they need individuals who can have access to new information properly and quickly and use the information they have learned effectively in every area of their lives (Kutlu et al., 2017).

Changing desired characteristics of individuals in information societies forced student characteristics to be reviewed and changed. Students' being lifelong learners and successful in life depends on their gaining the ability to use the basic knowledge and skills they have acquired during their school life in the real life (Berberoğlu, 2006). In this regard, in developed societies, not the individuals who use information as it is rather the individuals who do research, think critically, creatively, solve problems, know themselves, are confident, can use what they have learned in real life; that is, the individuals having higher order mental skills are considered to be successful (Kumandaş & Kutlu, 2013). As a result of the handling of the qualities that a successful individual should have in different dimensions, the concept of student achievement has also been expressed differently. The concept of student achievement, defined as the level of achieving the goals and behaviours in the curriculum for many years, has been defined as the power to learn the basic knowledge and skills and to use them in the life situations they encounter by associating them with their own individual characteristics since 1980s. Therefore, higher order mental skills that individuals need to acquire in order to be successful in life are the unity of cognitive, affective and kinetic characteristics that the individual uses while demonstrating his/her ability (Kutlu et al., 2017).

Higher order mental skills require learning by understanding rather than rote-learning, using information, solving problems related to new situations, making explanation, synthesis and generalization and using the hypothesis formulation skill (Üstünoğlu, 2006). Higher order mental skills include the skills of asking questions, doing research, conducting critical, reflective, logical, systematic and creative thinking, solving problems, thinking analytically, making evaluations and producing new information (King et al, 1998; Zoller, 2000). These thinking skills become activated when students face problems, uncertainties, questions or dilemmas. For this reason, in order to impart higher order mental skills to students, appropriate learning environments should be prepared at schools (Aksu, 2005), students should be provided with activities based on thinking and questions that require students to think should be posed (Beyer, 1987).

Inculcation of higher order mental skills in students in elementary school, which is one of the most important steps of education for application individuals who are equipped with the higher order mental skills required by societies and who can adapt to developments, has become one of the most important goals of educational institutions (Kutlu et al, 2010). It is only possible for students to continue learning on their own if they are equipped with higher order mental skills (Doğanay, 2008). In this context, it has been attempted to include higher order mental skills in curriculums from the elementary education onward and to impart them to students (Milli Eğitim Bakanlığı [MEB], 2006).

Rapid increase in the amount and dissemination of information in today's information age has given rise to the question "What is the way of having access to information?" In order to find an answer to this question, more emphasis has been placed on the necessity of gaining research skills which are seen as one of the main characteristics of contemporary societies and which are one of the higher order mental skills (Alkan, 1989; Shuman et al., 2005). Research skills are considered as one of the most important basic life skills that 21st century learners should have. Research skills include skills that require access to reliable and qualified information from

different sources, to present this information effectively by bringing it together, and to direct the research process accurately and systematically (Polat-Demir & Kutlu, 2016).

The research process, which consists of many sub-skills, is defined in different ways in the literature. The American Association of School Librarians [AASL] (2007) defines them as skills that enable students to create new insights, achieve results and produce new information by guiding the research process so that they can understand, learn and master the topics. Abston et al. (2004), on the other hand, defined them as the ability to research information carefully and systematically to investigate and identify a phenomenon or principle.

According to Bird (2000), students will learn most of the skills that make up the research process at school. Therefore, there are many important duties to be assumed by teachers and parents in this process. Bird (2000) discusses the basic skills of the research process under three headings described below. These are researching, evaluating and note taking.

Researching: Doing research is not just finding and extracting information, but knowing where and how to find it. For example, the student needs to know how to obtain information from books.

Evaluating: When students read a book, they need to finds answers to such questions as "How correct is the information included in the book?", "Does the book present the desired information?", "Does the book include some biases?" Elementary school students may find it difficult to make such an inquiry, but they can make a start on it. Teachers and parents should encourage students to ask these questions about the use of resources. Encouraging students to ask questions will help them gain research skills.

Note taking: Students should be taught simple note-taking skills such as drawing pictures, maps and plans, writing descriptions, noting measurements, instructions and plans, taking pictures, and writing notes from the book.

When these three basic skills are examined, it will be seen that students can learn these skills easily at school. When students are given tasks that require the use of research skills, it is important that parents support their children in the development of these skills. In this context, it can be possible to train individuals equipped with the skills that make up the research processes through a qualified education approach from an early age (İlter, 2013; Numanoğlu, 1999). Although a great emphasis is put on the importance of imparting research skills particularly to elementary school students and they are included in curriculums, it has been reported that students are fall short in conducting research (Alkan-Dilbaz, 2013; Chu et al., 2008; Polat-Demir & Kutlu, 2016; 2017). This inadequacy also affects students' later learning process and reduces students' tendency and interest in doing research (Knutson, Dozier & Migotsky, 1995). Students who do not have sufficient knowledge and skills in conducting research find measurement activities such as projects and performance tasks that require the use of these skills in different situations harder than they really are. Therefore, such activities are seen as a waste of time by teachers, parents and students.

The importance of imparting research skills to students from a young age and the necessity of preparing appropriate learning environments for this to happen are known (Alkan-Dilbaz, 2013; Chu et al, 2008; Güneş, 2011; Polat-Demir, 2016; Wu & Hsieh, 2006; Yıldırım, 2007). Nevertheless, it is noteworthy that the studies for the development of research skills are not sufficient and that there is no application program that will contribute to the development of these skills. This study was carried out to contribute to the elimination of this deficiency. To this end, it has been investigated whether the Research Skills Teaching Program (RSTP) prepared for elementary school 4th grade students is effective in imparting the sub-skills that make up the research process to the students. In this connection, answers to the following questions were sought:

1. Is there any significant difference between the pretest and posttest mean scores taken from the Research Skills Test by the experimental group and the control group?
2. Is there any significant difference between the scores taken from the monitoring tests by the experimental group students subjected to the Research Skills Teaching Program and the control group students not subjected to this program?
3. What is the number of the most correct answers obtained by the experimental and control group students for the open-ended items in the monitoring tests used in the Research Skills Teaching Program?

The teaching program prepared within the context of the current study is thought to guide teachers, experts and families about how the skills that make up the research processes should be imparted to students. In this context, activities and worksheets prepared within the context of the program are important in terms of providing examples on how to impart research skills to students. In the current research, the level of the students' use of research skills, which are one of the higher order mental skills, was determined with tests consisting of open-ended items. These items prepared within the scope of the current research are thought to provide examples for both practitioners and researchers for measuring higher order mental skills. For this reason, this research is also important in terms of providing examples about the tools that can be used to measure higher order mental skills and the preparation of these tools.

2. METHOD

2.1. Research Model

In the current study, it was attempted to reveal the cause and effect relationship between the independent variable and dependent variable. For this purpose, the Research Skills test was applied as a pre-test to six different classes in the study, and two classes that were equivalent in terms of these skills were included in the study. One of the groups was randomly assigned as the experimental group and the other as the control group. In the study, the pre-test - post-test paired control group design, which is one of the semi-experimental designs, was used because the groups were studied on ready groups and group matching was made (Büyüköztürk et al., 2009).

2.2. Study Group

The study group of the current research is comprised of the 4th grade students attending a state school in the city of Nigde. A great care was taken to match students in terms of their socio-economic status and mother and father's education level and to do so, opinions of the school principle and classroom teachers were sought. The Research Skills Test developed by the researchers and explained in detail below was administered to the students in these classes as pretest. Independent samples *t*-test was run to determine whether there is a significant difference between the scores taken from the test by the students in these classes. As no significant difference was found between their scores, these two classes were selected as the study group. One of the two randomly selected classes was assigned to the experimental group and the other to the control group. The findings of the independent samples *t*-test are presented in Table 1

Table 1. *Results of the Independent Samples t-test conducted on the pretest scores*

Test	Group	N	$\bar{X}$	S_x	*df*	*t*	*p*
Pretest	Experimental group	34	15.12	7.13	68	.322	.748
	Control group	36	14.67	4.32			

The experimental group students' mean score taken from the pretest is $\bar{X}$= 15.12, while that of the control group students is $\bar{X}$= 14.67. The pretest mean scores of the students calculated out

of 100 points show that the students in both groups have very little knowledge and very few skills on the research process. The results of the independent samples *t*-test revealed that there is no significant difference between the pretest mean scores of the experimental and control group students ($t_{(68)}$=.322; p>.05). This proves that the knowledge and skills possessed by the groups are equal to each other.

The current study was conducted with the participation of 70 students; 34 students in the experimental group, 36 students in the control group. Distribution of the students to experimental and control groups by gender is given in Table 2.

Table 2. *Distribution of the students to experimental and control groups by gender.*

Group	Gender	N	Total
Experimental group	Female	15	34
	Male	19	
Control group	Female	17	36
	Male	19	

As can be seen in Table 2, the number of male students in both the experimental and control groups is higher than that of the female students. Of the experimental students, 44.1% are females and 55.9% are males while in the control group, 47.2% are females and 52.8% are males.

2.3. Research Skills Teaching Program (RSTP)

The Research Skills Teaching Program (RSTP) was prepared on the basis of the Big Six Research Skills Model developed by Eisenberg and Berkowitz in 1987. Through this model, it was aimed to make the students conduct research by directing their research process (Eisenberg & Berkowitz, 1990). In the development process of the RSTP, the sub-skills of the research skills were determined considering the six processes in the Big Six Research Skills Model *(target – task definition, information seeking strategies, finding and having access, using knowledge, organizing knowledge, evaluation)*. A great care was taken for the objective statement to represent the mental level corresponding to both a specific content and the relevant skill. The stages in Bloom's updated cognitive classification were used in defining the "mental level" dimension regarding the objectives (Anderson et al., 2001).

A great care was taken for the compliance of the objectives with the sub-skills of the research skills, for them to be measurable and to be scientifically correct. Moreover, special importance was attached for expressions to be clear and understandable and unnecessary expressions were avoided. The clarity and understandability of the objectives, their compliance with the sub-skills constituting the research skills and their measurability were submitted to the review of three experts specialized in the fields of measurement and evaluation, curriculum development and language. The sub-skills and objectives of RSTP are given in Table 3. While creating the learning area / content, the literature was reviewed taking into account the relevant grade level. Teaching activities suitable for each objective have been designed by considering the learning area. Activities are associated with the objectives and topics of the 4th grade social studies course. The examples in the activities were prepared in accordance with the content of the social studies course. The social studies course was selected because its content is easy to relate to the objectives of the prepared program and research skills are handled within the scope of the curriculum of this course. While designing classroom activities, mainly *lecturing, question-answer, demonstration and allowing students to practice* and *brainstorming* teaching methods and techniques were used.

Table 3. *The Sub-skills and objectives of the Research Skills Teaching Program.*

Sub-skills	Objectives
Target (Task) Definition	1. Selects the research topic by dividing the topic into sub-topics. (Analysis) 2. Narrows the subject of the research and writes research questions in such a way as to allow him/her to investigate different aspects of the subject. (Creating)
Information Seeking Strategies	3. Selects suitable types of resources to reach the information he/she needs. (Analysis) 4. Determines key words suitable for the research questions. (Analysis)
Finding and Having Access	5. Has access to information by using search indices in the library catalogue. (Application) 6. Reaches the information he/she needs by using the contents list, directories list, guides and keywords in printed sources. (Application) 7. When searching the internet with keywords, it reaches the information by using different techniques (Boolean operators, +, -, "....." (quotation marks). (Application)
Using Information	8. Prepares a note card to record the information he/she reaches. (Application) 9. Prepares a bibliography card. (Application) 10. Apply the rules of quoting and referencing. (Application)
Organizing Information	11. Determines the outline of a research. (Analysis) 12. Organizes the information in a manner suitable for the outlines in the research report. (Creating) 13. Prepares the cover page of the research report. (Application)
Evaluating	14. Evaluates the research report in terms of compliance with the report writing rules. (Evaluating)

Ten different teaching materials were prepared in accordance with the learning content and teaching activities in order to provide resources for the students about research skills and were distributed to the students in the experimental group along the process. In the teaching materials, examples and exercises related to the skills are also included. These examples and exercises were created taking into account the content of the social studies course.

A lesson plan was prepared for each sub-skill taking into account the objectives in the RSTP, learning area and teaching activities. Lesson plans were evaluated by four experts (two measurement and evaluation experts, one curriculum development expert and one social studies teaching expert) in terms of the suitability of the RSTP for the level of the students and its scientific accuracy.

The RSTP was applied to the experimental group students by researchers in order to improve their research skills throughout the research process. No such a special application was made to the control group. The application in the experimental group lasted five weeks, three class hours a week, thus a total of 15 class hours.

2.4. Data Collection Tools

The data in the current study were collected by using the Research Skills Test as pretest and posttest and the monitoring tests used along the process. The features of these tests are discussed below.

2.4.1. Research Skills Test

The Research Skills Test (RST) was developed by the researchers to measure students' research conducting skills. In the RST, there are 11 open-ended items to measure 13 objectives in the first five sub-skills addressed in the teaching program *(target-objective definition, information seeking strategies, finding and having access, using information, organizing information)*. Since the research skills include integrated skills, two objectives were tried to be measured together in some items. The RST includes a text and questions based on this text. In the text,

the subject of "Technological Products" in the "Science, Technology and Society" learning area in the elementary school 4th grade social studies curriculum was taken into consideration. Information from different resources was collected and a text called "*Technology and Technological Products*" was prepared (Başdoğan, 2013; Daştan & Gürler, 2016; Mısırlı, 2007; Turam, 1999). The students were asked to design a research using the information provided in the text and respond to the items given in the test.

A great care was taken to ensure that open-ended items would be suitable for the student level. The items were expressed plainly and clearly, and unnecessary expressions were avoided. In order to prevent students from giving long and unrelated answers to the items, some restrictive guidance was given at the root of the item and a place was left for the response of each item.

The reliability of the items was determined through expert review. The opinions of four experts (two measurement and evaluation experts, one curriculum development expert and one social studies teacher) were sought to determine whether the items are related to the relevant objectives, whether there is any mistake from a scientific point of view, whether the items are suitable for the grade level and whether there is any mistake in terms of expression. In light of their feedbacks, required corrections were made and final form of the RST was given.

In the writing of open-ended items, care was taken to express the item root in a simple, short and clear manner and to be suitable for the level of the student. Necessary space is left for the student to write his/her answer under each item.

The validity of the items was determined based on expert opinion, and for this purpose, two assessment and evaluation, one Turkish language and one Social Studies teaching experts were consulted. The experts were asked whether the items were related to the relevant acquisition, whether they had a scientific error, whether they were appropriate for the grade level, and whether they contained errors in terms of language and expression characteristics. Experts were asked to evaluate whether each item was appropriate in line with these criteria and the percentages of agreement were calculated. The percentages of agreement for each item were calculated using the following reliability formula proposed by Miles and Huberman (1994).

$$Percentage\ of\ Reliability = \frac{Number\ of\ Consensus}{Number\ of\ Consensus + Number\ of\ Disagreement} x100$$

It was determined that the calculated agreement percentage was 75% for the 10th item and 100% for the other items. Accordingly, it was concluded that the validity of the RST was high and the RST was evaluated out of 100 points.

2.4.2. Monitoring Tests

Monitoring tests were prepared to be consisted of open-ended items to monitor the learning in each of the basic skills that make up the research process. The items were developed in such a way as to allow students to associate each skill with case studies that correspond to their real-life situations. In order to determine the suitability of the items to the student level, their relation with the objectives in the RSTP and their power to measure the related skill, the opinions of two classroom teachers and two measurement and evaluation experts were consulted and the items were finalized.

The items forming the monitoring tests were applied to the experimental and control groups after the completion of the learning phase related to each sub-skill. After the items were applied, they were immediately evaluated and the students were given feedback before proceeding to learning related to the next skill. The items were prepared based on the objectives in the relevant skill. Information about the characteristics of these items is given below:

"Target (Task) Definition" Monitoring Test 1: It consists of two items. Through these items, the students' skills of selecting the research topic and writing research questions suitable for the topic they have selected were measured. The highest score to be taken from these items is 12.

"Information Seeking Strategies" Monitoring Test 2: It consists of two items. Through these items, the students' skills of selecting the types of resources suitable for findings answers to the research questions and determining proper key words were measured. The highest score to be taken from these items is 15.

"*Finding and Having Access*" *Monitoring Test 3*: It consists of 4 items. Through these items, the students' skills of using the indices in the library catalogue to have access to the information they need, using Boolean operators and different techniques while conducting an internet search and making use of the content list, directory list and guiding and key words in the printed resources were measured. The highest score to be taken from these items is 13.

"Using Information" Monitoring Test 4: It consists of three items. Through these items, the students' skills of preparing bibliography and note card and citing the references within the text in accordance with the rules were measured. The highest score to be taken from the items is 15.

"Organizing Information" Monitoring Test 5: It consists of two items. Through these items, the students' skills of determining the outline of the research report, organizing the information in compliance with the outline and preparing the cover page were measured. The highest score to be taken from these items is 29.

A rubric was prepared for each item in order to score responses to the open-ended items in the monitoring tests. While preparing the rubrics, five dimensions were defined as "*the Most Correct Answer*", "*Distant Correct Answers*", "*No Answer*" "*Wrong Answers*" and "*Other Answers*" for each item. *The most correct answer* is the sample answer that fully covers the characteristic measured by the item and does not have any deficiencies. *Distant correct answers* contain partial accuracy and are scored depending on their proximity to the most correct answer. *Wrong answers* are accurate in themselves, but they represent another characteristic, not the characteristic measured by the item. *Other responses* are those that do not have anything to do with the basic information learned within the context of the characteristic measured by the item. These answers can sometimes be fictitious and absurd.

2.5. Data Analysis

The data were analyzed by using SPSS 21.0 software. In the analysis of the data, the significance level was accepted to be α =0.05. In the analysis of the data, first it was checked whether the distributions of the scores taken by the experimental and control groups are normal. For this purpose, the skewness and kurtosis coefficients calculated for the distribution of the scores taken from the pretest and posttest by the experimental and control group students were examined. The skewness and kurtosis coefficients were found to be between -1 and +1. Thus, it was concluded that the pretest and posttest scores exhibited a normal distribution (Büyüköztürk, 2009). Then, Levene *F* test was run to test the homogeneity of the variances. The pretest score (F= 7.364, p < .008) and posttest score (F= 15.173, p <.000) found as a result of the Levene *F* test have revealed that the variances are not equal forbetween goups. As normality assumption was satisfied but homogeneity of the variances was not satisfied, Paired Samples *t*-test, one of the parametric test statistics, was used to test whether there is a significant difference between the pretest and posttest scores of the experimental and control group students while Independent Samples *t*-test was used to test whether there is a significant difference between the posttest scores of the experimental and control group students. In order to determine how effective the RSTP in developing research skills, eta-squared (η^2) and Cohen d values were calculated. The Eta-squared value (η^2) named as effect size showing how much

of the total variance in the dependent variable is explained by the independent variable varies between 0.00 and 1.00. If the eta-squared value is in the range of $0.01 \leq \eta^2 < 0.06$, then it indicates "a small effect", in the range of $0.06 \leq \eta^2 < 0.14$, then it indicates "a medium effect" and in the range of $0.14 \leq \eta^2$, it indicates "a large effect". In order to determine whether the sample selected in the study represents the universe and whether the power of the research is sufficient, the power of the statistical test results was calculated and the GPower3.1 analysis program was used.

It was also investigated whether there is a significant difference between the scores taken from the tests consisted of monitoring items by the experimental and control group students. To this end, the responses given to the open-ended items in the monitoring tests by the experimental and control group students were scored and the scores taken from each monitoring test were separately analyzed. First, it was investigated whether the distribution of the scores is normal. For this purpose, skewness and kurtosis coefficients were examined and they were found to be between -1 and +1. On the basis of this finding, it was concluded that the scores taken from the monitoring tests showed a normal distribution. As the normality assumption was satisfied, Independent Samples *t*-test; one of the parametric test statistics, was used.

The responses given by the experimental and control group students to each of the open-ended items in the monitoring tests used in the application process of the RSTP were separately analyzed. The scores and numbers of the students reaching the most correct answer, distant correct answers and wrong answer were separately calculated for the experimental and control groups and are presented in tables.

3. RESULT / FINDINGS

In this section, findings obtained from the analysis of the data are organized and interpreted considering the research questions.

3.1. Findings related to Pretest and Posttest Scores of the Experimental and Control Group Students

In order to determine whether the pretest and posttest scores of the experimental and control group students varied significantly, Paired Samples *t*-test was used. Findings are presented in Table 4.

Table 4. *Paired Samples t-test results of the experimental and control groups.*

Group	Test	*N*	$\bar{X}$	S_x	*df*	*t*	*p*
Experimental Group	Pretest	34	15.12	7.13	33	10.277	.000*
	Posttest	34	42.62	17.24			
Control Group	Pretest	36	14.67	4.32	35	-.142	.880
	Posttest	36	14.53	6.31			

* $p<0.05$

As can be seen in Table 4, while there is a significant difference between the pretest and posttest mean scores taken from the RST by the experimental group students ($t_{(33)}= 10.277$, $p<.05$), there is no significant difference between the pretest and posttest mean scores of the control group students ($t_{(35)}= -.142$, $p> .05$). While the experimental group students' mean score was $\bar{X}= 15.12$ before the application, it increased to $\bar{X}= 42.62$ after the application. On the other hand, while the control group students' mean score before the application was $\bar{X}= 14.67$, it was found to be $\bar{X}= 14.53$ after the application, thus, no increase was observed. These findings show that there is a significant increase in the experimental group students' posttest mean score compared to their pretest mean score and that their level of using research skills significantly improved after the application.

Independent Samples *t*-test was used to check whether there is a significant difference between the posttest mean scores of the experimental and control group students. Findings are presented in Table 5.

Table 5. *Independent Samples t-test results for the posttest scores.*

Test	Group	*N*	$\bar{X}$	S_x	*df*	*t*	*p*	η^2
Posttest	Experimental group	34	42.62	17.24	68	9.150	.000*	0.552
	Control group	36	14.53	6.31				

*$p<0.05$

As can be seen in Table 5, there is a significant difference between the posttest mean scores of the experimental and control group students in favour of the experimental group students ($t_{(68)}$= 9.150, $p<.05$). In the posttest, the students in the experimental group were found to be more successful than the students in the control group. These findings show that the application given had a positive effect on the development of the students' research skills. Eta-squared effect size value was found to be η^2= 0.552. These value show that the RSTP had a "large effect" on the development of the students' research skills. The power of the study was found to be 0.909. This finding shows that the power of the study conducted on 70 people is 90.9%.

3.2. Findings related to Monitoring Tests Scores of the Experimental and Control Groups

Independent-samples *t*-test was used to test whether there is a significant difference between the scores taken from the monitoring tests by the experimental and control group students. Findings are presented in Table 6.

Table 6. *Results of the Independent Samples t-test for the scores taken from the monitoring tests.*

Monitoring Test (MT)	Group	*N*	$\bar{X}$	S_x	*df*	*t*	*p*
MT1	Experimental group	33	8.88	2.83	64	6.629	.000*
	Control group	35	4.11	3.09			
MT2	Experimental group	33	8.42	3.08	65	6.979	.000*
	Control group	34	4.27	1.58			
MT3	Experimental group	32	8.75	2.45	61	14.296	.000*
	Control group	31	2.03	1.02			
MT4	Experimental group	32	10.44	3.75	62	13.240	.000*
	Control group	34	1.57	0.56			
MT5	Experimental group	33	14.70	4.38	66	10.434	.000*
	Control group	35	5.57	2.67			

*$p<0.05$

When the scores given in the table are examined, it is seen that the experimental group students received higher scores than the control group students in all the monitoring tests. When the results of the independent samples *t*-test are examined, it is seen that the differences between the mean scores are significant ($p<0.05$) in favour of the experimental group. These findings show that the teaching performed within the context of RSTP developed the students' level of using research skills. Moreover, Table 6 also shows that increasing mean scores were obtained from the monitoring tests in the advancing phases of the teaching process. This also shows that the students' learning of research skills improved.

The findings obtained from the experimental and control groups for the basic research skills aimed to be measured by each monitoring test are presented "between Table 7 to Table 11" In these tables, the "score" column shows the highest score to be taken from the relevant items in

the monitoring test while the "number" column shows the number of students responding to the relevant item. In the "Total" column, the sum of the scores taken from all the items in the test is presented.

3.2.1. Findings obtained from the "Target (Task) Definition" sub-skill of the Monitoring Test 1

The distribution of the scores taken by the students in the experimental and control groups in the current study from the "*Target (Task) Definition*" sub-skill is given in Table 7. The "*Target (Task) Definition*" sub-skill included in the Monitoring Test 1 generally aims to measure the student's skills of *selecting a research topic* and *writing a research question for the selected topic*. To this end, two items to test the related skill are used. The characteristics measured by the items are as follows:

1st item: The student determines three research topics on the basis of the given information and selects one of them as the research topic.

2nd item: The student writes two research questions suitable for the research topic he/she has selected.

The distribution of the responses given to the two items in the "Target (Task) Definition" sub-skill is given in Table 7.

Table 7. *The distribution of the responses given by the experimental and control group students to the two items in the "Target (Task) Definition" sub-skill in the Monitoring Test 1.*

Monitoring Test 1*	Group	The Most Correct Answer		Distant Correct Answers		Wrong Answers		Received Minimum	Received Maximum
		Score	Frequency	Score Range	Frequency	Score	Frequency	Score	Score
1a	Experimental	6	21	1-5	12	0	-	2	6
	Control	6	5	1-5	19	0	11	0	6
1b	Experimental	2	30	1	1	0	2	0	2
	Control	2	16	1	2	0	17	0	2
2a	Experimental	2	15	1	13	0	5	0	2
	Control	2	-	1	26	0	9	0	1
2b	Experimental	2	11	1	8	0	14	0	2
	Control	2	-	1	2	0	32	0	1
Total	Experimental	12	7	1-11	25	0	1	0	12
	Control	12	-	1-11	33	0	3	0	10

** The monitoring test 1 was responded by 33 students in the experimental group and 35 students in the control group.*

As can be seen in Table 7, after the completion of the application given in relation to the "Target (Task) Definition" sub-skill in the RSTP, it is seen that the responses of the experimental and control group students are gathered in different response categories. The findings obtained from the analysis of the responses given by 33 students in the experimental group and 35 students in the control group to the items in the monitoring test 1 are as follows:

In the (1a) item, the students were asked to determine three research topics on the basis of the information given in the text and 6 points were defined for the most correct answer, 1-5 points were defined for the distant correct answers and 0 point was defined for the wrong answer. In the (1a) item, 21 students from the experimental group and 5 students from the control group were able to determine three research topics based on the information given in the text and reached the most correct answer; the remaining 12 students in the experimental group were grouped in the category of distant correct answers while the remaining students in the control group were grouped in the categories of distant correct answers and wrong answer. In the (1b)

item, the students were asked to select one of the three research topics they had determined as the research topic and 2 points were defined for the most correct answer, 1 point for distant correct answers and 0 point for the wrong answer. In the (1b) item, 30 students in the experimental group and 16 students in the control group were able to select the research topic and to reach the most correct answer and the more students in the control group were grouped in the category of the wrong answer.

In the (2a) and (2b) items, the students were asked to write a research question for the research topic and 2 points were defined for the most correct answer, 1 for distant correct answers and 0 point for the wrong answer. In the (2a) item, 15 students in the experimental group were able to write the first research question suitable for the research topic and thus reached the most correct answer, 13 of them were gathered in the category of distant correct answers while 5 students in the category of the wrong answer, while none of the students in the control group reached the most correct answer and a high majority of them were gathered in the category of distant correct answers. In the (2b) item, while 11 of the students in the experimental group were able to write the second research question suitable for the selected research topic and reached the most correct answer, 8 of them were grouped in the category of distant correct answers and 14 were grouped in the category of the wrong answer, none of the students in the control group was able to reach the most correct answer and they were largely grouped in the category of the wrong answer.

When all the items in the monitoring test 1 are correctly answered, then the highest score to be taken is 12. When Table 7 is examined, it is seen that seven students in the experimental group gave the most correct answer and got this highest score yet none of the students in the control group reached the most correct answer and in both of the groups, the majority of the both experimental and control groups students were grouped in the category of distant correct answers.

3.2.2. Findings obtained from the "Information Seeking Strategies" sub-skill of the Monitoring Test 2

The distribution of the scores taken by the students in the experimental and control groups in the current study from the "*Information Seeking Strategies*" sub-skill is given in Table 8. The "Information *Seeking Strategies* " sub-skill included in the Monitoring Test 2 generally aims to measure the student's skills of *determining the types of resources suitable for having access to the needed information* and *determining the key words suitable for the research questions*. To this end, two open-ended items to test the related skill are used. The characteristics measured by the items are as follows:

1st item: The student selects three different resources suitable for having access to the information needed for the given three topics and writes their characteristics.

2nd item: The student determines three key words suitable for the research question.

The distribution of the responses given to the two items in the "Information Seeking Strategies" sub-skill is given in Table 8. As can be seen in Table 8, after the completion of the application given in relation to the "Information Seeking Strategies" sub-skill in the RSTP, it is seen that the responses of the experimental and control group students are gathered in different response categories. The findings obtained from the analysis of the responses given by 33 students in the experimental group and 34 students in the control group to the items in the monitoring test 2 are as follows.

Table 8. *The distribution of the responses given by the experimental and control group students to the two items in the "Information Seeking Strategies" sub-skill in the Monitoring Test 2.*

Monitoring Test 2*	Group	The Most Correct Answer		Distant Correct Answers		Wrong Answers		Received Minimum Score	Received Maximum Score
		Score	Frequency	Score Range	Frequency	Score	Frequency		
1a	Experimental	4	5	1-3	28	0	-	1	4
	Control	4	-	1-3	34	0	-	1	3
1b	Experimental	4	5	1-3	24	0	-	0	4
	Control	4	-	1-3	18	0	16	0	2
1c	Experimental	4	6	1-3	26	0	1	0	4
	Control	4	-	1-3	20	0	14	0	2
1	Experimental	12	2	1-11	31	0	-	1	12
	Control	12	-	1-11	34	0	-	2	9
2	Experimental	3	15	1-2	14	0	4	0	3
	Control	3	6	1-2	21	0	7	0	1
Total	Experimental	15	2	1-13	31	0	-	1	15
	Control	12	-	1-11	34	0	-	2	11

** The monitoring test 2 was responded by 33 students in the experimental group and 34 students in the control group.*

In the (1a), (1b) and (1c) items, the students were given a research topic for each and they were asked to write which resources they would prefer while seeking information about these topics and the characteristics of these resources and 4 points were defined for the most correct answer, 1-3 points for distant correct answers and 0 point for the wrong answer. As can be seen in Table 8, only some students in the experimental group were able to determine three resources suitable for having access to the information needed for the research topic and wrote their characteristics correctly while all the control group students were grouped in the categories of distant correct answers and the wrong answer. In the first item, only two students in the experimental group were able to reach the most correct answer. In the second item, the students were asked to write three key words suitable for the given topics and 3 points were defined for the most correct answer, 1-2 points for distant correct answers and 0 point for the wrong answer. While 15 students in the experimental group and 6 students in the control group reached the most correct answer, the majority of the students in both the experimental and control groups were grouped in the category of distant correct answers.

When all the items in the monitoring test 2 are given the most correct answers, the highest score to be taken is 15. When Table 8 is examined, it is seen that two students in the experimental group gave the most correct answer and got this highest score yet none of the students in the control group reached the most correct answer and the remaining 65 students in the experimental and control groups were grouped in the category of distant correct answers; yet, the scores of the experimental group students are higher.

3.2.3. Findings obtained from the "Finding and Having Access" sub-skill of the Monitoring Test 3

The distribution of the scores taken by the students in the experimental and control groups in the current study from the "*Finding and Having Access*" sub-skill is given in Table 9. The "Finding and Having Access" sub-skill included in the Monitoring Test 3 generally aims to measure the student's skill of *reaching the resources needed by using printed resources and techniques to conduct an internet search in the library catalogue with key words*. To this end,

four open-ended items to test the related skill are used. The characteristics measured by the items are as follows:

1st item: The student selects the suitable search index in the library catalogue to have access to the information needed for the topic given and explains its reason.

2nd item: The student prefers to search techniques in the search engine to have access to the information needed for the topic given and explains its reason.

3rd item: The student writes the search techniques he/she has preferred correctly in the search engine.

4th item: The student has access to the information needed by using the content and list of directory of the book.

The distribution of the responses given to the four items in the "Findings and Having Access" sub-skill is given in Table 9.

Table 9. *The distribution of the responses given by the experimental and control group students to the four items in the "Finding and Having Access" sub-skill in the Monitoring Test 3.*

Monitoring Test 3*	Group	The Most Correct Answer		Distant Correct Answers		Wrong Answers		Received Minimum Score	Received Maximum Score
		Score	Frequency	Score Range	Frequency	Score	Frequency		
1	Experimental	2	18	1	-	0	14	0	2
	Control	2	-	1	-	0	31	0	0
2a	Experimental	2	18	1	13	0	1	0	2
	Control	2	-	1	-	0	31	0	0
2b	Experimental	2	9	1	19	0	4	0	2
	Control	2	-	1	-	0	31	0	0
3a	Experimental	2	17	1	4	0	11	0	2
	Control	2	-	1	-	0	31	0	0
3b	Experimental	2	15	1	4	0	13	0	2
	Control	2	-	1	-	0	31	0	0
4	Experimental	3	26	1-2	6	0	-	2	3
	Control	3	13	1-2	15	0	3	0	3
Total	Experimental	13	2	1-12	30	0	-	5	13
	Control	13	-	1-12	28	0	3	0	3

** The monitoring test 3 was responded by 32 students in the experimental group and 31 students in the control group.*

As can be seen in Table 9, after the completion of the application given in relation to the "Finding and Having Access" sub-skill in the RSTP, it is seen that while the responses of the experimental group are generally gathered in the categories of the most correct answer and distant correct answers, the responses of the control group students are generally gathered in the category of the wrong answer. The findings obtained from the analysis of the responses given by 32 students in the experimental group and 31 students in the control group to the items in the monitoring test 3 are as follows.

In the first item, the students were asked to determine which search index they need to use while conducting a resource search in the library catalogue and to explain its reason and 2 points were defined for the most correct answer, 1 point for distant correct answers and 0 point for the wrong answer. As can be seen in Table 9, in these items, only 18 students in the experimental group reached the most correct answer and the remaining 14 students were grouped in the category of the wrong answer while all of the control group students were gathered in the category of the wrong answer.

In the (2a) and (2b) items, the students were asked to write the search technique while conducting a search in the internet with its reason and 2 points were defined for the most correct answer, 1 for distant correct answers and 0 point for the wrong answer. When Table 9 is examined, it is seen that only some of the students in the experimental group were able to reach the most correct answer and almost all of the students in the experimental group were grouped under the categories of the most correct answer and the wrong answer while almost all of the students in the control group were gathered in the category of the wrong answer.

In the (3a) and (3b) items, the students were asked to write the search technique they preferred while conducting a search in the internet in the search engine and 2 points were defined for the most correct answer, 1 point for distant correct answers and 0 point for the wrong answer. When Table 9 is examined, it is seen that only some of the students in the experimental group were able to reach the most correct answer in these items and moat of the students in the experimental group were gathered in the categories of the most correct answer and the wrong answer while all of the students in the control group were gathered in the category of the wrong answer.

In the fourth item, the students were asked to determine three different page numbers from the content and list of directories of the book and 3 points were defined for the most correct answer, 1-2 points for distant correct answers and 0 point for the wrong answer. In this item, 26 students in the experimental group were able to correctly make use of the content and list of directories and reached the most correct answer and the remaining 6 students were gathered in the category of distant correct answers. In the control group, while 13 students were able to reach the most correct answer, 15 students were gathered in the category of distant correct answers and three were gathered in the category of the wrong answer.

When all the items in the monitoring test 3 are given the most correct answers, the highest score to be taken is 13. When Table 9 is examined, it is seen that two students in the experimental group gave the most correct answers to all the items and got this highest score yet none of the students in the control group reached the most correct answer and the majority of the students were gathered in the category of distant correct answers.

3.2.4. Findings obtained from the "Using Information" sub-skill of the Monitoring Test 4

The distribution of the scores taken by the students in the experimental and control groups in the current study from the "*Using Information*" sub-skill is given in Table 10. The "Using Information" sub-skill included in the Monitoring Test 4 generally aims to measure the student's skill of *preparing a note card to record the information reached, a bibliography card and referencing*. To this end, three open-ended items to test the related skill are used. The characteristics measured by the items are as follows:

1st item: The student prepares a note card using the information given.

2nd item: The student prepares a bibliography card using the information given.

3rd item: The student shows the information related to the reference in compliance with the citation rules.

The distribution of the responses given to the three items in the "Using Information" sub-skill is given in Table 10. As can be seen in Table 10, after the completion of the application given in relation to the "Using Information" sub-skill in the RSTP, while the responses of the experimental group are generally gathered in the categories of the most correct answer and distant correct answers, the responses of the control group students are generally gathered in the categories of distant correct answers and the wrong answer. The findings obtained from the analysis of the responses given by 32 students in the experimental group and 32 students in the control group to the items in the monitoring test 4 are as follows.

Table 10. *The distribution of the responses given by the experimental and control group students to the three items in the "Using Information" sub-skill in the Monitoring Test 4.*

Monitoring Test 4*	Group	The Most Correct Answer		Distant Correct Answers		Wrong Answers		Received Minimum Score	Received Maximum Score
		Score	Frequency	Score Range	Frequency	Score	Frequency		
1	Experimental	7	6	1-6	25	0	1	0	7
	Control	7	-	1-6	25	0	7	0	1
2	Experimental	6	8	1-5	23	0	1	0	6
	Control	6	-	1-5	25	0	7	0	1
3	Experimental	2	23	1	4	0	5	0	2
	Control	2	-	1	-	0	32	0	0
Total	Experimental	15	2	1-14	30	0	-	0	15
	Control	15	-	1-14	31	0	1	0	2

** The monitoring test 4 was responded by 32 students in the experimental group and 32 students in the control group.*

In the first item, the students were asked to prepare a note card on the basis of the information given and 7 points were defined for the most correct answer, 1-6 points for distant correct answers and 0 point for the wrong answer. The rubric for this item is given in Appendix-1 as an example. When Table 10 is examined, it is seen that six students in the experimental group reached the most correct answer and 25 students were gathered in the category of distant correct answers while the students in the control group were gathered in the categories of distant correct answers and the wrong answer.

In the second item, the students were asked to prepare a bibliography card by using the information given and 6 points were defined for the most correct answer, 1-5 points for distant correct answers and 0 point for the wrong answer. While Table 10 is examined, it is seen that only eight students in the experimental group reached the most correct answer and 23 students were gathered in the category of distant correct answers, while the students in the control group were gathered in the categories of distant correct answers and the wrong answer.

In the third item, the students were asked to show the information related to the source in accordance with the citation rules and 2 points were defined as the most correct answer, 1 point for distant correct answers and 0 point for the wrong answer. When Table 10 is examined, it is seen that 10 students in the experimental group reached the most correct answer and the other students were gathered in the categories of distant correct answers and the wrong answer while 32 students in the control group were gathered in the category of the wrong answer.

When all the items in the monitoring test 4 are given the most correct answers, the highest score to be taken is 15. When Table 10 is examined, it is seen that two students in the experimental group gave the most correct answer to all the items and got this highest score while none of the students in the control group reached the most correct answer to the items and 61 students in both the experimental group and the control group were gathered in the category of distant correct answers yet the scores of the experimental group students are higher than those of the control group students.

3.2.5. Findings obtained from the "Organizing Information" sub-skill of the Monitoring Test 5

The distribution of the scores taken by the students in the experimental and control groups in the current study from the "*Organizing Information*" sub-skill is given in Table 11. The "Using Information" sub-skill included in the Monitoring Test 5 generally aims to measure the student's skill of *determining the outline of the research and organizing information in compliance with*

the outline and preparing a cover page. To this end, two open-ended items to test the related skill are used. The characteristics measured by the items are as follows:

1st item: The student writes the research report by determining its main and sub headings.

2nd item: The student prepares the cover page of the research report.

The distribution of the responses given to the two items in the "Using Information" sub-skill is given in Table 11.

Table 11. *The distribution of the responses given by the experimental and control group students to the two items in the "Organizing Information" sub-skill in the Monitoring Test 5.*

Monitoring Test 5*	Group	The Most Correct Answer		Distant Correct Answers		Wrong Answers		Received Minimum Score	Received Maximum Score
		Score	Frequency	Score Range	Frequency	Score	Frequency		
1	Experimental	20	1	1-19	32	0	-	2	20
	Control	20	-	1-19	35	0	-	1	8
2	Experimental	9	22	1-8	11	0	-	6	8
	Control	9	-	1-8	22	0	13	0	6
Total	Experimental	29	1	1-28	32	0	-	8	29
	Control	29	-	1-28	35	0	-	1	13

** The monitoring test 5 was responded by 33 students in the experimental group and 35 students in the control group.*

As can be seen in Table 11, after the completion of the application given in relation to the "Organizing Information" sub-skill in the RSTP, the students in the experimental and control groups were gathered in the category of distant correct answers yet the scores of the experimental group students are higher than those of the control group students. The findings obtained from the analysis of the responses given by 33 students in the experimental group and 35 students in the control group to the items in the monitoring test 5 are as follows.

In the first item, the students were asked to write the research report by determining the main and sub-headings and 20 points were defined for the most correct answer, 1-19 for distant correct answers and 0 point for the wrong answer. When Table 11 is examined, only one student in the experimental group reached the most correct answer in this item while the other students in both of the groups were gathered in the category of distant correct answers.

In the second item, the students were asked to prepare a cover page for the research report and 9 points were defined for the most correct answer, 1-8 points for distant correct answers and 0 point for the wrong answer. When Table 11 is examined, it is seen that 22 students in the experimental group reached the most correct answer in this item and the remaining 11 students were gathered in the category of distant correct responses. The students in the control group were gathered in the categories of distant correct answers and the wrong answer.

When all the items in the monitoring test 5 are given the most correct answers, the highest score to be taken is 29. When Table 11 is examined, it is seen that only one student in the experimental group gave the most correct answers to all the items and got this highest score while none of the students in the control group reached the most correct answer to all the items and that all the remaining students in both of the groups were gathered in the category of distant correct answers.

When the scores obtained by the students from both the posttest application of the RST and the monitoring tests are examined, it is seen that the activities prepared within the teaching program had comprehensive positive effects on the development of the skills directing the research process. When the number of the students having reached the most correct answer to the items in the monitoring tests is examined together with these scores, it is seen that there are students in the control group reaching the most correct answer in the sub-skills of "*selecting a research*

topic", "determining key words" and *"having access to the information needed by students by making use of the content list and list of directories in printed resources and key words*". These findings also reveal the inadequacy of the existing programs in our education system in developing the skills that make up the research process. In the experimental group, although there were students who had the most correct answers in all of the skills, it was observed that all students' level of using these skills did not reach the desired level. These findings indicate that the prepared program had an important effect on developing students' research skills, but that a longer period is required to develop these skills.

4. DISCUSSION and CONCLUSION

When the findings obtained from the application of the pretest before the implementation of the Research Skills Teaching Program are examined, it is seen that the students' level of using skills related to research process is quite low. This finding is similar to the findings reported in the literature on research skills. In the existing research, it has also been reported that students' level of using research process skills is low (Alkan-Dilbaz, 2013; Chu et al., 2008; Polat-Demir & Kutlu, 2016; 2017). This shows that not enough importance is attached to these skills in Turkey.

At the end of the study however it was found that a significant improvement occurred in the experimental students' level of using the skills required to conduct the research process successfully when compared to the control group students. The findings of the current research show that the RSTP was effective in the inculcation of the skills constituting the research process in students. This finding concurs with the findings reported by the studies investigating the effect of special programs prepared to develop higher order thinking skills such as problem solving, critical thinking, conducting research, scientific process skills (Goudas & Giannoudis, 2008, Kurnaz & Kutlu, 2016; Ünal & Aral, 2014).

In their study, Goudas and Giannoudis (2008) examined the effectiveness of the Team Sports-Based Life Skills Program they developed for 6th and 8th grade students. The program was developed with a focus on goal setting, positive thinking and problem solving life skills. As a result of the study, it was concluded that this program was effective in developing students' life skills such as goal setting, positive thinking and problem solving. Kurnaz and Kutlu (2016) examined the effectiveness of the Scientific Process Skills Program they prepared for 4th grade elementary school students. As a result of the study, it was determined that this program was effective in developing students' scientific process skills. Ünal and Aral (2014), on the other hand, demonstrated that the Experiment Based Education Program was effective in developing the problem solving skills of 6-year-old children.

When the distribution of the scores taken from the monitoring tests used during the implementation of the program is examined, it is seen that the control group students couldn't reach the most correct answer in most of the items in these tests and that the number of control group students having reached the most correct answer is very few. On the other hand, in the experimental group, there are students having reached the most correct answer in all the items in the tests, yet some experimental group students' level of using these skills is quite low. In this respect, it is thought that a longer and circular teaching process is needed to impart the skills required for the successful conduct of the research process. Therefore, research skills should not only be included in the curriculum as a subject of a course, but activities that will enable students to gain these skills should be included in all courses from pre-school education onwards. In the literature, it is emphasized that more practice and time are required for students to acquire higher order mental skills (Beyer, 1991; Kurnaz & Kutlu, 2016; Kutlu et al., 2017). Beyer (1991) stated that it would take time to develop critical thinking skills and thinking activities should be done to impart these skills to students. In their study investigating the effectiveness of the Scientific Process Skills Program, Kurnaz and Kutlu (2016) emphasized

that it should be taken into consideration that the development of scientific process skills could take a long time.

Based on the results of the current study, suggestions are made for both practitioners and researchers. A Research Skills Program prepared independently of the course content can be applied in schools from elementary school onwards. Thus, the development of students' skills that make up research processes can be positively affected. In schools, activities that can positively affect students' use of research skills can be included in all the subjects. Effective use of research skills by teachers and families can make it easier for students to develop these skills. For this reason, applications can be organized to increase the level of using research skills by teachers and parents. Researchers can develop a Research Skills Teaching Program and examine its effectiveness for different grade levels, regardless of the course objectives and content.

Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors.

Authorship Contribution Statement

Betul Polat: Investigation, Resources, Methodology, Visualization, Software, Formal Analysis, and Writing -original draft. **Omer Kutlu**: Investigation, Resources, Methodology, Visualization, Software, Formal Analysis, and Writing -original draft.

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APPENDIX

Example Rubric
Monitoring Test 4 - Item 1

ANSWERS	Achievement Score
Most Correct Answer	
The student fills in the scorecard using all four pieces of information in the piece "Historical development". The student writes the information about “the change of village settlement centers” on the note card. The student writes down the note card and bibliography card number and the page numbers containing the information.	**7**
Distant Correct Answers	
The student fills in the note card by missing one of the four information in the "Historical development" text. The student writes the information on the "change of village settlement centers" on the note card, the note card and bibliography card number, but writes one of the page numbers where the information is found.	**6**
The student fills in the scorecard using the three pieces of information from the text “Historical development”. The student writes the information on the "change of village settlement centers", the note card and bibliography card number on the note card, but does not write the page number where the information is found. ***Or*** The student writes the information on the "change of village settlement centers" on the note card, writes the note card number and the page numbers where the information is found**.**	**5**
The student fills in the note card by missing one of the three pieces of information in the "Historical development" text. The student writes the information on the "change of village settlement centers" on the note card, writes the note card number and one of the page numbers where the information is found.	**4**
The student fills in the scorecard using the two pieces of information from “Historical development” text. The student writes the information on the "change of village settlement centers" and the page number of the information on the note card. ***Or*** The student writes the information on the "change of village settlement centers" and the bibliography card number on the note card.	**3**
The student fills in the note card by missing one of the two pieces of information in the "Historical development" text. The student writes the information on the "change of village settlement centers" and one of the page number containing the information on the note card.	**2**
The student fills in the note card by writing only one piece of information in the "Historical development" text. The student writes briefly the information on the "change of village settlement centers" on the note card. **Or** The student either writes down the bibliography card number or only one of the page numbers containing the information.	**1**
Empty	**0**
Wrong Answer	
The student writes down information that is completely different from what needs to be written.	**0**