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The Effect of Philosophy Education for Children (P4C) on Students' Conceptual Achievement and Critical Thinking Skills: A Mixed Method Research

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Abstract
The research aims to investigate the effect of philosophy education for children in social studies course on students' conceptual success and critical thinking skills. Sequential descriptive model, one of the mixed methods research approaches, was used in this study. The study group of the research consists of 64 students studying in 5th grade in a secondary school affiliated with the Ministry of National Education located within the provincial borders of Istanbul city. The students included in the study group studied in the same primary school. The students were randomly selected by the researcher considering their primary school grade score averages, gender characteristics and their economic conditions. Quantitative data of the study were collected using Conceptual Achievement Exam and Critical Thinking Skills Scale, on the other hand qualitative data was collected using Semi-Structured Interview Form. In order to reveal the effects of philosophy education practices for children on students' conceptual success and critical thinking skills, a 10-week practice was conducted in the context of "Technology and Life" unit in 5th-grade social studies course book. Quantitative data of the research were analyzed with SPSS package program, and qualitative data were analyzed with MAXQDA program. According to the results of the research, before practices of Philosophy Education for Children, no significant difference was found between mean rank of experimental group's Conceptual Achievement Exam and Critical Thinking Skills Scale pre-test scores and control group's Conceptual Achievement Exam and Critical Thinking Skills Scale pre-test scores. After the practices of Philosophy Education for Children, a significant difference was found between mean rank of experimental group's Conceptual Achievement Exam and Critical Thinking Skills Scale post-test scores and control group's Conceptual Achievement Exam and Critical Thinking Skills' post-test scores on behalf of the experimental group. Experimental group students made a comprehensive evaluation of practices of philosophy education for children. The students stated that philosophy practices for children not only improved their skills in different ways but influenced their critical thinking and also creative, social, verbal and empathy skills as well.

Keywords: Philosophy for Children, Conceptual Achievement, Critical Thinking Skills

1. Introduction

Inspired by Vygotsky's theory of learning, Matthews Lipman and Ann Sharp developed Philosophy Education Program for Children (P4C). In the program, in which Socratic Method is used, firstly, a discussion about a

subject is initiated. Then, the discussion is developed within the cause and effect relationship. The discussion is concluded ending up with a judgment. During the discussion, children listen to each other and ask questions about the topic and answer the questions addressed. In the practices of philosophy education for children, a discussion group is formed in which the teacher is included. Participants sit in a round shape. The group is guided by the teacher and the question is supported by case studies. Discussion process is carried out under the guidance and control of the teacher (Ferreira, 2004; Marashi, 2008; O 'Riordan, 2013).

In the activities of philosophy education for children, students are creative and can form hypotheses explaining their ideas. In this process, students can test what they produce by producing mental models during the discussion. In this process, students may encounter situations that confirm or contradict each other. In contradictory situations, students can experience mental instability. With this contradiction, students can organize new schemes in their minds. The activities of philosophy education for children enable high-level thinking in terms of discussing in society, defending and proving one's ideas. An opinion is considered true only if it is expressed in public (Akkocaoğlu Çayır, 2015; Biesta, 2017).

From 1970s to present day, the philosophy education program for children has spread all over the world and has become a program which is a philosophy of life. Lipman, inspired by John Dewey's idea that "research begins with a certain knowledge," aimed to develop critical thinking skills of children via philosophical dialogue by respecting each other's thoughts. Lipman suggested the idea that there is no real difference, philosophically or scientifically, in the inner and outer worlds of mind. Accordingly, critical thinking is the process of decision making about how to solve the situations that cause problem in order to generate hypotheses. Lipman's aim is not to turn children into philosophers but to help them become individuals who direct to critical and reflective thinking and develop themselves in this direction. By this way, children know not only when to take action, but also when not to take action (Vansieleghemand Kennedy, 2011).

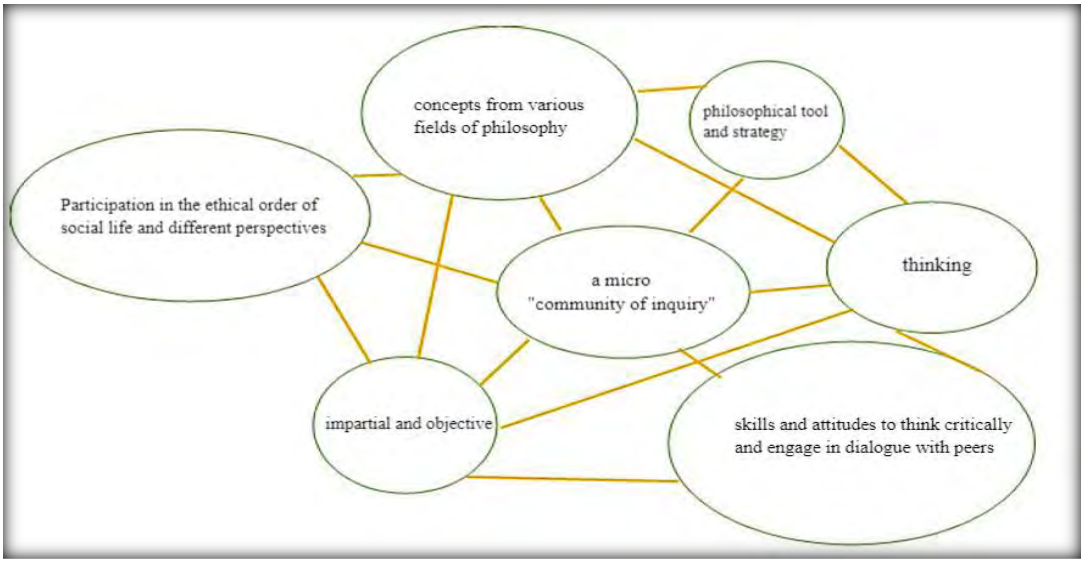

Figure 1: Elements of Lipman's P4C method

While teaching in 1960s, Lipman read stories to students, asked questions and discussed with them. At the end of the discussion, Lipman developed a number of tests to assess achievement. Receiving positive results from this application, Lipman decided to develop a philosophy program for children (Karakaya, 2006). In 1969, he wrote the story book "Harry Stottlemeier's Discovery," which is the first book of the philosophy education program for children for students at the age of 11-12. The book includes suggestions that improve questioning and reasoning, and encourages the development of alternative thinking and imagination (Lipman, 1974). In 1974, Lipman co-founded the Institute for the Advancement of Philosophy for Children with Ann Margaret Sharp. In 1975, Ann Margaret Sharp and Frederick S. Oscanyan wrote a teacher's handbook to implement "Harry Stottlemeier's Discovery." After that, curriculum development and teacher education for philosophy for children was initiated by IAP4C. The institute has shown that philosophy education for children can be

performed with various activities (tale, story, legend, drama, pictures, music and sports) (Karakaya, 2006). Lipman wrote stories for students of different ages and developed guidebooks for teachers to use these stories as well. Regarding the program many teachers were given seminars and courses by Lipman. In 1979, the Institute for the Advancement of Philosophy for Children started publishing *Thinking: The Journal of Philosophy for Children*. The journal includes lecture and practice reports accessible to educators. The materials of the philosophy education program for children are translated into 24 different languages and implemented in 63 countries today (Gardner, 2019).

Studies in Turkey regarding the philosophy education for children firstly started in 1974 with the establishment of the Philosophical Society of Turkey (TFK). The institution has been organizing various seminars and courses and holding meetings since its establishment. The Philosophical Society of Turkey became a member of the UNESCO International Federation of Philosophical Organizations (FISP) in 1979. Philosophy Education Unit for Children was established within the scope of Philosophical Society of Turkey. In 2005, with the suggestion of Turkey, the Philosophy Strategy was prepared by UNESCO and put into practice in the member states. According to this strategy coordination would be ensured between philosophy organizations and civil society organizations for the development of philosophy education and philosophy research would be supported. It would also focus on current philosophical matters. Ankara University Children's Science Center has been giving philosophy education to children since 2014. Teachers are also given philosophy education for children at various universities. The Ministry of National Education in Turkey decided to teach “Thinking Education” course in 7th and 8th grades in 2016 (MEB, 2016; Tepe, 2015).

During the practices of philosophy education for children, teachers help students make logical inferences and direct class discussions within the framework of certain rules. Rather than forcefully teaching students what philosophy of life should be, teachers should pave the way for them to practice philosophy via logical deductions. Students’ expressing their personal or emotional problems is not a philosophical discussion. This situation can only be a starting point for students, who have the ability to philosophize, to have philosophy education for children. Whether a situation has philosophical consequences or not is determined under the guidance of teacher. However, teachers should not act omnisciently determining whether the situation is philosophical or not. This situation causes a lack of confidence in students as they cannot think independently while getting the answers from the teacher to discover themselves during the practices of philosophy education for children. Teachers must be in the model of a person who knows everything but does not reflect this to student and guides student during the application process, instead of criticizing the inadequacies of students (Hashim, R, 2017; Lipman, Sharp and Oscanyan, 1977).

In studies carried out within the context of the effect of philosophy education practices on critical thinking skills, it was found that philosophy education practices for children have an influence on students' critical and creative thinking skills. Critical thinking is a high-level way of thinking. From this point of view, critical thinking requires an analysis and evaluative way of thinking that contains the logic of discussion at its core. On the other hand, creative thinking is a way of thinking that enables new ideas, concepts or objects to occur. In this context, creative thinking is a way of thinking that supports critical thinking. Via critical thinking a judgment is made by using logic, on the other hand new ideas are produced through creative thinking (Boyacı, Gülenç & Karadağ, 2018; D’Olimpio & Teschers 2017). Philosophy education practices for children that contain critical and creative thinking skills are considered as an effective approach in education today (Gardner, 2019).

According to Lipman, who is accepted as the founder of philosophy education practices for children, philosophy education for children is a philosophical approach applied to reveal reasoning and judgment competence of students. In traditional understanding of education, there is an education practice based on memorizing knowledge. In this learning approach, the value of transforming knowledge into skill is low. Although critical thinking skill is important, it might not be sufficient when it is used alone. This situation must be supported by creative thinking. In this context, philosophy education practices for children offer opportunities for development of cognitive, discernment and reasoning skills by including critical thinking and creative thinking skills.

It can be stated that social studies curriculum is important since it provides students with the opportunity to think creatively, to approach events critically, to make sense of current events and follow them. At this point, it is thought that philosophy education for children can be effective in teaching social studies. When studies regarding this subject were examined, no study was found on philosophy education for children in the field of social studies education. In this context, it is thought that this study will contribute to literature. In addition, it is thought that the findings and results of the study will guide researchers and teachers working in this field. In the study, it was aimed to investigate the effect of philosophy education for children in social studies course on students' conceptual achievement and critical thinking skills. Within the context of this purpose, the problem statement of the research is; what is the effect of philosophy education for children in social studies course on students' conceptual achievement and critical thinking skills?

- Answers were searched to the following questions in the research:
- Is there a statistically significant difference in students' conceptual achievement before and after the practice?
- Is there a statistically significant difference in students' critical thinking skills before and after the practice?
- What are the students' views regarding philosophy education practices for children after the practice?

2. Method

2.1. Research Model

Sequential descriptive design model, which is one of the mixed methods research approaches, was used in this study. In this design, qualitative data was collected after quantitative data were collected and analyzed. Quantitative data is generally prioritized. Qualitative data is mainly obtained in order to increase quantitative data. Data analysis is interrelated and often combined in data interpretation and discussion sections. This design is especially useful in explaining unexpected research findings or relationships (Creswell, 2017).

In this research design, researcher can use the strengths of other methods within the same study in order to cover the weaknesses of a method. Not being restricted by a single method researcher can answer research questions in a broader and more complete way and present strong evidence for results by looking at the closeness and accuracy of findings. Moreover, researcher produces more precise and complete information about theory and practice through the combined use of qualitative and quantitative research. However, combining quantitative and qualitative work can be difficult for a single researcher and require teamwork, especially if both methods are to be used simultaneously. Some details about mixed studies being left to be studied entirely by methodologists, might be the disadvantage of this design (Creswell & Plano-Clark, 2007; Freankel, Wallen, & Hyun, 2012; Johnson & Onwuegbuzie, 2004). The model for the sequential descriptive design is indicated in figure 2.

Figure 2: Sequential descriptive design model

2.2. Study Group

Determining the subject group, subjects must be chosen randomly in experimental studies. The study is carried out with existing groups in school environments where random grouping is not possible. In this case, two

groups, which are close to each other considering their features, are selected. Sample size is recommended to exceed 30 in groups (Büyüköztürk et al. 2017). In this direction, study group of the research consists of 64 students studying in 5th grade in a secondary school which is located within the provincial borders of Istanbul city and affiliated with the Ministry of National Education. The students included in the study group study in the same primary school. Study group students were chosen randomly by the researcher considering the degree of closeness to each other, primary school grade score averages, gender characteristics and economic structures. Information about the study group is indicated in figure 3.

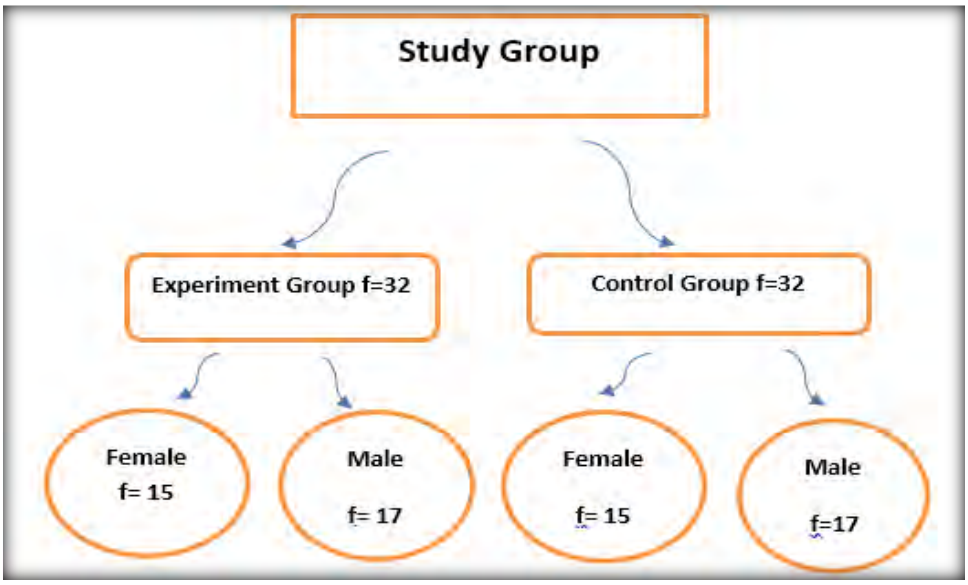

Figure 3: Study group information

2.3. Data Collection Tools

Quantitative data of the study was collected with Conceptual Achievement Exam and Critical Thinking Skill Scale; qualitative data were collected with Semi-Structured Interview Form.

2.3.1. Conceptual Achievement Exam (CAE)

Conceptual Achievement Test (CAE), which was developed to assess the conceptual achievement of students in the research, consists of 10 questions in total. Preparing the exam, conceptual achievement exam developed by Ferreira (2004) was taken as an example. The exam questions include classifying scientific process skills, observation and inference, the difference between concepts and questioning scientific concepts.

Multiple choice questions, paragraph writing and some drawings were required in the exam, which consisted of 10 questions. Each question in the exam was 10 points, totally 100 points. During the analysis, scores were analyzed and evaluated at the rate of 1/10, over 10 points, for simplicity by resembling the results of other tests. In addition, questions of the acquisition assessment exam support each other with the concepts of basic skill scale. Answers of the participants were evaluated by preparing an answer key and analyzed by converting them into numerical data.

2.3.2. Critical Thinking Skills Scale

Critical Thinking Skills Scale (CTSS), which was developed by Eğmir and Ocak (2016), was used to measure critical thinking skills of students participating in the research. The scale was formed in a multidimensional way. The scale aims to understand a given problem situation, distinguish between subjective and objective judgments, analyze and evaluate inferences, ask questions appropriately, and determine and measure the reliability of a source. For this purpose, the scale prepared was first applied to 5th-grade students and analyzed. The first scale

form, which involved 39 questions, was carried out, and then the number of questions was reduced to 25 as a result of item analyzes and pilot schemes. The revised scale was applied to one 5th grade classroom in each of 4 secondary schools, and difficulty and distinctiveness analyzes were made on retest items. In the final analysis of the scale, internal consistency reliability values were determined KR-20 value as 0,61 and KR-21 value as 0,63; the difficulty index of the test was 0,37 and the distinctiveness index was 0.32.

2.3.3. Semi-Structured Interview Form

A semi-structured interview form was prepared by the researcher to evaluate the application process. The interviews took place in parents meeting room of the school where the study was carried out. 32 students in experimental group participated in the interview. The interviews took four hours. The interviews were audio taped by a recorder and transcribed later. Students were informed that the interviews would be used for research purposes only and their identity information would be kept confidential. Each student was given a code (eg, S.1,….., S.32) and interviews were conducted and analyzes were made accordingly.

2.4. Implementation Process

A 10-week practice was conducted in the context of "Technology and Life" unit in 5th grade social studies textbook in order to reveal the effects of philosophy education practices for children on students' conceptual achievement and critical thinking skills. Before starting the application, participants were informed about Philosophy for Children (P4C) and the things to be done in the process were explained. In the first week, the Conceptual Achievement Examination (CAE) and the Critical Thinking Skills Scale (CTSS) were applied to experimental and control groups. Afterward, lessons were taught every week in line with the lesson plan made for experimental group and control group. In this process, activities were carried out based on stories that were created in the context of P4C practices. At the end of the application, Conceptual Achievement Examination (CAE) and Critical Thinking Skills Scale (CTSS) were applied again to experimental and control groups. In addition, a semi-structured interview form was applied to experimental group of students to support the data obtained from philosophy education practices for children. The implementation process of the research is indicated in Figure 4.

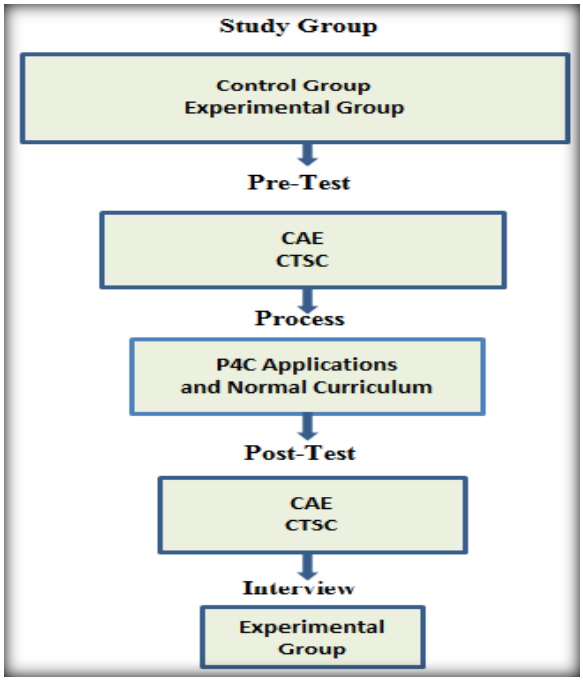

Figure 4: Implementation process

2.5. Analysis of Data

Quantitative data obtained from the research was arranged considering research questions and transferred to SPSS 22.0 statistics program. In the analyses it was examined whether experimental and control groups' scores from the conceptual achievement test and critical thinking skills scale indicated a statistically significant difference before and after the application or not. In significance tests of the findings obtained from SPSS program, $p>0.05$ means there is no significant difference, $p\leq0.05$ means there is a significant difference (Can, 2019). Kolmogorov-Smirnov test was used to check whether pre-test post-test difference of the groups indicated normal distribution or not and it was evaluated according to 0.05 significance value. In qualitative data of the research, MAXQDA 2020 qualitative data analysis program was used to analyze semi-structured interviews. The interviews were analyzed with the coding made in MAXQDA 2020 program.

3. Findings

3.1. Quantitative Data Findings

Table 1: Experimental and Control Group CAE Pre-Test Scores

Group	N	Mean Rank	Sum of Rank	Z	*p*
Experiment	32	32,42	1037,50		
				-,034	.973
Control	32	32,58	1042,50		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Conceptual Achievement Exam (CAE) pre-test scores is 32.42; mean rank of control group is 32.58. There is no statistically significant difference between the mean scores of experimental group and control group according to mean rank [z=-.034; p> .05].

Table 2: Experimental and Control Group CAE Post-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	37,84	1211,00		
				-2,309	.021
Control	32	27,16	869,00		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Conceptual Achievement Exam (CAE) post-test scores is 37.84; mean rank of control group is 27.16. According to mean rank, there is a statistically significant difference between mean scores of experimental group and mean scores of control group in on behalf of experimental group [z=-2.309; p< .05].

Table 3: Experimental and Control Group CTSS Pre-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	37,84	1211,00		
				-2,309	.021
Control	32	27,16	869,00		

According to the table, when Mann-Whitney U test results are examined, it is seen that mean rank of experimental group's Critical Thinking Skills Scale (CTSS) pre-test scores is 33.03; mean rank of control group is 31.97. There is no statistically significant difference between mean scores of experimental group and control group according to mean rank [z=,-230; p> .05].

Table 4: Experimental and Control Group CTSC Post-Test Scores

Group	**N**	**Mean Rank**	**Sum of Rank**	**Z**	***p***
Experimental	32	38,14	1220,50		
				-2,441	.015
Control	32	26,86	859,50		

According to the table, when the results of Mann Whitney U test were examined, mean rank of Critical Thinking Skills Scale (CTSS) post-test scores of experimental groups were 38.14; mean rank of control group was 26.86. According to mean rank, there is a statistically significant difference between mean scores of experimental groups and mean scores of control group on behalf of experimental group [z=-2,441; p< .05].

3.2. Qualitative Data Findings

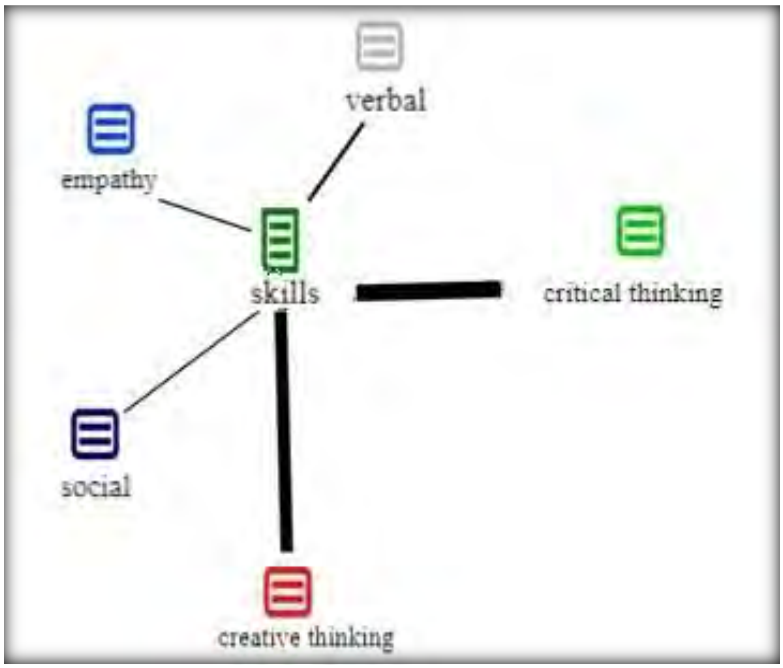

Figure 5: MAX Maps code concurrence model for philosophy education for children (P4C) skill development

Experimental group students made a comprehensive evaluation of practices of philosophy education for children. When students were asked about which skills the practices of philosophy education for children developed, they stated that their skills were developed in different ways. Students stated that practices of philosophy education for children mostly influenced their critical thinking skills. Regarding this, student named S12 stated that, "*When I first heard the name of this practice, it seemed unfamiliar to me. But, I started to like these activities when we made the applications. I couldn't wait for social studies course. These activities also developed my critical thinking skills. I started to look at things from this perspective*." Similarly, student S18 stated that practices of philosophy education for children improved their critical thinking skills and that these practices must be done in

other lessons as well. "*I can criticize using practices of philosophy education for children in social studies class. I feel like a philosopher. I wish these activities were applied in other lessons as well*." S9 stated that "*We philosophized via practices of philosophy education for children. Philosophy means thinking critically. I can say that it really improved my critical thinking skills. Of course, it improved my other skills too, but it mostly influenced my critical thinking skills*." Students stated that practices of philosophy education for children developed their creative thinking skills. Regarding this, S8 stated that, "*I was very nervous when I first heard the name of this activity. But later on, I felt that the lessons were different. I started to be more creative. I started to be more sociable in terms of generating new ideas*". Similarly, S7 stated that practices of philosophy education for children improved their creative thinking skills and these practices must be done in other lessons. "*Practices of philosophy education for children helped me to produce more creative ideas when I use them in social studies class. I wish we could apply these activities in other lessons as well."* S19 stated that "*With the practices of philosophy education for children, my critical thinking ability has improved. Since I could think critically, I started to be creative. I get well done by my teachers in most lessons. By philosophizing, we can think critically. I can say that with the practices of Philosophy for Children, I have improved my ability to think critically. Depending on this, my creative thinking skill has developed*." Students stated that practices of philosophy education for children improved their social skills. Regarding this, S11 stated that, "*I co-worked with my friends in Philosophy for Children activities. I listened to their ideas. I criticized their ideas or added something to them. In this situation, I realized that I am a more sociable student*." Similarly, S17 stated that, "*Our teacher gave us seats in a round table in the lessons. He suggested that we discuss our ideas with our friends and contribute. I am not a very sociable person, but I think that my social skills have improved with these applications*." S29 stated that "*My social skills improved with the practices of philosophy education for children. As my social skills improved, I started to establish closer relationships with my friends. This situation was also reflected in my family life at home. I get appreciation from my mom and dad for this*." S20 expressed that, "*We philosophize with our friends. I can say that my social skills have improved significantly with the practices of Philosophy for Children*." Students stated that practices of philosophy education for children improved their verbal skills as well. Regarding this, S31 stated that, "*Our teacher gave us the right to speak in Philosophy for Children activities. This made me develop better speaking skills*." Similarly, S27 expressed that, "*Our teacher taught us different sitting styles in the lessons. He wanted us to discuss our ideas with our friends and contribute to others' ideas. As an introvert person, I couldn't speak. At first, I couldn't speak in class, but later on, I could easily tell my friends about my ideas*." S23 stated that "*My verbal skills improved with the practices of philosophy education for children. As my verbal skills improved, I started to communicate with my friends more easily*." S20 stated that, "*We discuss with our friends via philosophy. We improve our communication by discussing. I can say that my verbal skills have improved significantly with the practices of Philosophy for children*." The students stated that practices of philosophy education for children improved their empathy skills. Regarding this, S28 stated that, "*While making the practices of Philosophy for Children, one of my friends expressed an idea from a different point of view, I did not criticize him, I tried to find out why he thought that way. After all, we all have different characters. I thought that my friend might look at that event from a different perspective*." Also, S16 stated that, "*Our teacher had told us about a skill called empathy. In fact, I can say that my ability to empathize has improved with this application. I tried to understand the other person and to respect others' ideas*."

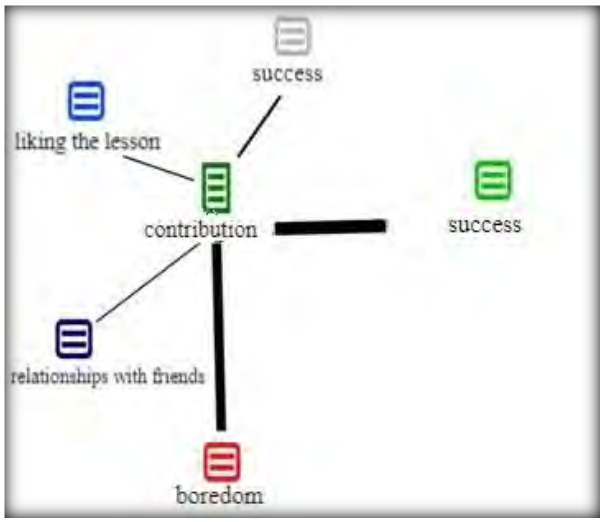

Figure 6: MAX Maps code concurrence model regarding philosophy education for children (P4C) contribution

Experimental group students made a comprehensive evaluation of practices of philosophy education for children. Regarding the question asked about how practices of philosophy education for children contribute, students made statements in different ways. The students stated the contribution of philosophy education practices for children as making the lesson more interesting. Since social studies course is a verbal course, it can emerge from students' opinions that these practices will be appropriate for the course. S9 expressed that, "*Sometimes I get bored in classes. Especially in verbal lessons such as social studies and Turkish lessons... But when our teacher said that we would perform practices of philosophy education for children in social studies lesson, I was a little worried. Then, I realized that the lesson was not boring anymore. I felt like a philosopher*." S25 stated that "*I was bored because Social Studies course was a verbal course. Don't get me wrong, our teacher teaches well, but I feel sleepy and bored in class. When our teacher made these practices in class, I stopped getting bored during the lesson*." Students mentioned the contribution of philosophy education practices for children as an increasing of success in the course. S19 expressed that, "*I couldn't get a high score in the social studies course. Our teacher gave us an exam before we started to teach the lesson with these applications. I didn't get a high score. But I got high scores in other exams. Philosophy education course increased my course success. I hope to get higher scores in exams from now on*." S20 stated that, "*I can say that the biggest contribution of philosophy education practices for children is that it increases my success in social studies course. Because before these applications, I was getting lower scores in exams, but now I am getting better scores*." S13 expressed that, "*I am preparing for the scholarship exam. I used to get bored while studying for social studies class and I couldn't work. This negatively affected my performance. But with the practices of philosophy education for children, I stopped getting bored with the lesson. Maybe we processed only one unit with these practices. But I started working on other units as well. While solving the exam preparation questions, both my interest and the number of correct answers in tests increased*." Students stated the contribution of philosophy education practices for children as developing some skills. S22 stated that, "*These practices mostly contributed to the development of my critical thinking skills. As I answered in the first question, the practices improved my critical thinking skills*". S2 expressed that, "*The biggest contribution of philosophy education practices for children was improving my creative thinking skills. I started to be more creative with philosophy activities. I even started to give different answers to the questions asked by our teacher*." S17 stated that, "*As I said in the first question, it contributed to my critical thinking skills. From the beginning to the end of the application, we criticized the events with suspicion. Because of this situation, philosophy education for children contributed to the development of my critical thinking."* Students stated that the contribution of philosophy education practices for children as enjoying the lesson. S8 expressed that, *"I used to dislike social studies course. I used to be bored with the lesson. But now I'm starting to enjoy the lesson and I'm looking forward to the next lesson.*" S12 expressed that, "*Our teacher Y.... lectures the lesson well. But I used to dislike the lesson. Now I can say that I like the lesson with these activities*." S10 stated that, "*I am not interested in some courses. I can't. One of these courses was Social Studies course. I don't have such an attitude towards the course at the moment. Because what we did in the lesson increased my bond with social studies lesson*." Students stated the contribution of philosophy

education practices for children as the improvement of their relations with their friends. S1 expressed that, "*Maybe it will be a little irrelevant, but the activities that our teacher applied in the lesson improved my relations with my friends. This may also be due to the fact that I was an unsociable person at the beginning. But I can say that philosophy education for children really contributes*." S27 stated that, "*Our relations have improved since we started to be in contact with our friends since the beginning of philosophy education practices for children. Thanks to this, our good friendship developed further. This made me very happy*."

4. Conclusion and Discussion

According to the results of the research, no significant difference was found between mean rank of experimental group's Conceptual Achievement Examination (CAE) pre-test scores and control group's conceptual achievement pre-test scores before practices of philosophy education for children. After the Practices of Philosophy Education for Children, a significant difference was found on behalf of experimental group between mean rank of experimental group's Conceptual Achievement Exam (CAE) post-test scores and control group's conceptual achievement exam post-test scores. In the study of Bilen (2020) and Wilson & Harris (2018) students' conceptual achievement and scientific process skills were found to be on behalf experimental group with philosophy education for children. In the study by Mhosronejad & Shokrollahzadeh (2020) and Şavşet (2016) it was found that academic and cognitive levels of students, who received philosophy education for children, were higher than other group students. Similarly, in terms of permanence, encouraging the students to learn must be permanent. Kefeli and Kara (2008) and Youssef, Campbell and Tangen (2016) state that philosophy education for children improves academic success by improving students' reasoning system and making it easier to understand the subject. In the study of Sprod (1994) and Wang (2019) it was found that practices of philosophy education for children improve students' conceptual achievement and scientific process skills.

According to the results of the research, no significant difference was found between mean rank of experimental group's Critical Thinking Skills Scale (CTSS) pre-test scores and control group's critical thinking skill pre-test scores before philosophy education practices for children. After the practices of philosophy education for children, a significant difference was found in behalf of experimental group between mean rank of experimental group's Critical Thinking Skills Scale (CTSS) post-test scores and control group's critical thinking skills post-test scores. The students, who participated in the research, carried out activities within the context of understanding certain problem situations, distinguishing subjective and objective judgments, making certain inferences, analyzing and asking appropriate questions in the process, which improved the critical thinking skills of students. According to Sıddıqui, Gorard, and See (2019) applying philosophy activities to students, influence their development of critical thinking skills. In the process, students' analysis and evaluation, attributing different meanings to questions and making certain inferences contribute to their critical thinking skills. Rahdar, Pourghaz, and Marziyeh (2018) state that students' understanding of problem situations, making certain inferences and being active in practices by asking purposeful questions in the face of these situations positively influence their critical thinking skills. Naseri, Gorjian, Ebrahimi, and Niakan (2017) state that practices of philosophy for children develop students' critical thinking skills. Philosophy education for children encourages students to think critically from different perspectives in terms of understanding, analysis, synthesis, evaluation and making sense of questions. In the study of Fereira (2014) it was found that philosophy education for children had a positive effect on students' critical thinking skills. Gasparatou and Kampeza (2012) suggest that philosophy education for children encourages students to think in multiple ways. Being able to look at questions from different perspectives, analyze and evaluate allow students to develop their critical thinking skills. According to Matsuoka (2007) inferences, analysis and evaluations are important factors considering students' ability to think critically and be creative. Trickey and Topping (2004) suggest that Practices of Philosophy Education for Children and the most basic thinking skills observed in students are integrated under critical, creative and reflective thinking skills. Other studies regarding the subject (Pennel, 2012; Jones-Teuben, 2013; Karadağ & Demirtaş, 2018; Işıklar, 2019; Sormaz Öğüt, 2019) are similar to the results of the research.

Experimental group students made a comprehensive evaluation on practicesof philosophy education for children. When asked about which skills the philosophy education practices for children developed, the students stated

that their skills developed in different ways. Students stated that practices of philosophy education for children influenced their critical thinking mostly, and then being creative, social, verbal and empathy skills. In the study of Echeverria & Hannam (2016) and Karadağ & Yıldız Demirtaş (2018) it was suggested that the practices of philosophy education for children approach have a positive effect on students' critical thinking skills. In the study of Leng (2015), it was suggested that with philosophy education for children, students use inductive and deductive reasoning skills to establish relationships between concepts and demonstrate their flexible thinking and empathy skills. Gimenez-Dasi, Quintanilla, and Daniel (2013) stated that philosophy education for children contributes positively to students' understanding of emotions and the development of their social skills. McBryde (2013) stated that philosophy education for children is an application in which high-level thinking skills such as creative, critical and empathy skills are used effectively. According to Lam (2011) considering the philosophical inquiry dimension of philosophy education for children, it can be stated that students develop their critical thinking skills. Daniel et al. (2005) stated that philosophy education for children positively influenced students' creative thinking skills. Similar results were obtained in other studies (Whitebread et al., 2006; Jenkins & Lyle, 2010) in terms of high level of thinking skills.

Experimental group students made a comprehensive evaluation of philosophy education activities for children. In the question asked about how philosophy education practices for children contribute, the students stated that they contribute in different ways. The students stated that the contribution of philosophy education practices for children is to change the lesson from being dullness to being interesting, to increase the success of the lesson, to develop some skills, to love the lesson and to increase relations with friends. Bhurekeni (2021) and Bilen (2020) states that with philosophy education for children students enjoy discussing and explaining their ideas. They feel important while focusing on discussions. Students participating in discussions in practices of philosophy education for children they improve their language use, self-expression and social skills. On the other hand, students have a positive attitude towards the lesson. According to García-Moriyón, González-Lamas, Botella, González Vela, Miranda-Alonso, Palacios, & Robles-Loro (2020) and Güven (2019) with the philosophy education for children, students like to think and produce together. Along with the process of thinking and decision-making with peers, a collaborative thinking style emerges. Students establish closer relationships with each other via philosophy education for children. Students actively determine the discussion process while philosophizing. The questions they ask in this process are the determinants of the discussion process. Students feel more free in their thoughts. Cassidy, Marwick, Deeney, and McLean (2017) state that philosophy education for children provides students more contribution compared to regular classrooms, considering student self-regulation, active participation, and attention to the lesson. Makaiau, Ching-Sze Wang, Rangoonaden and Leng (2017) and Siddiqui, Gorard, and See (2017) suggest that philosophy education for children contributes positively to students' communication skills, self-confidence in discussion environments in which they are involved in the discussion, respect the different opinions of their peers and are effective in solving social and behavioral problems. Barrow (2012) states that philosophy education for children contributes to the development of students' self-expression and self-esteem, arouses curiosity and enable them develop positive attitude towards the lesson. Işıklar & Öztürk (2022) and Jones (2015) and Kiyarsi (2017) states that in a society that makes inquiries, students are aware of their self-awareness and social awareness skills and are in a socially positive relationship with their peers. Kilby (2019) and Paine (2012) stated that philosophy education for children motivates students towards the lesson, makes the lesson more interesting and provides understanding of the subject. Philosophy education for children provided success in students' participation in the course, in their satisfaction with the subject and also their motivation. Students indicated a difference in terms of self-knowledge, self-confidence, respect and support for their peers, and it was seen that this situation was at a different level from academic learning. In addition, students have been successful in learning the language of reasoning about their own world. Via philosophy for children, students learned to be more flexible, tolerant and open-minded in their relations with their friends in the context of being cooperative. The common point of research regarding the subject of philosophy education for children is that it has a positive effect on self-awareness, social awareness, self-confidence, classroom communication, empathy, critical thinking and collaborative dialogue of students.

5. Suggestions

- Philosophy education for children can be used in other courses in secondary schools (Science, Thinking Education, Environmental Education, Law and Justice, Media Literacy).
- In-service training can be given to social studies teachers in terms of efficiency of practices of philosophy education for children.
- Activities performed in abroad for philosophy education for children can be researched.
- A guide book can be prepared and distributed to schools as a guide for teachers in philosophy education for children.
- This study is limited to 10 weeks. By working more longitudinally, the activities related to the subject can be discussed in detail.
- In this research, Social Studies course was conducted in the context of the "Technology and Life" unit. Different studies can be done by applying them to different units in Social Studies course.
- This research was conducted in a secondary school with 5th grade students. Different studies regarding the subject can be carried out in different grade levels and different school types.
- In this study, the effect of philosophy education for children on conceptual achievement and critical thinking skills was investigated. The effects of philosophy education practices for children on different variables can also be investigated.

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