

Investigating the Effectiveness of Philosophy Education Based on the Wartenberg Approach on Adolescents' Critical Thinking and Caring Thinking

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ABSTRACT

Objective: The present study aimed to investigate the effectiveness of philosophy education based on the Wartenberg approach on adolescents' critical thinking and caring thinking.

Methods and Materials: The research method was quasi-experimental with a pre-test, post-test, and control group. The statistical population of this study consisted of 12 to 15-year-old adolescents in Tehran Province who lived in residential care centers; 24 adolescents were selected by convenience sampling and randomly assigned to experimental and control groups. The experimental group received 12 sessions of philosophy education, while the control group received no training. Research tools included Ricketts' Critical Thinking Questionnaire and Hedayati's Caring Thinking Questionnaire. Data analysis was performed using SPSS software version 26 and covariance analysis.

Findings: The results showed that philosophy education for children had a positive and significant impact on improving adolescents' critical thinking and caring thinking.

Conclusion: Therefore, given the effectiveness of this education on critical thinking and caring thinking, it is recommended to provide this education for adolescents.

Keywords: *Philosophy for Children, Critical Thinking, Caring Thinking.*

1. Introduction

Adolescence is a very important period because adolescents have a high capacity and aptitude for accepting or rejecting what they have learned. During this time, adolescents face obstacles and problems in life, and they need to learn various skills, including thinking skills, to overcome them (Shi, 2023). Many scientists consider

humans to be thinking animals, distinguishing thought as the key differentiator between humans and animals. While some experiments show that low-level thinking can be observed in some animals, fundamental thinking is unique to humans (Riveros et al., 2023). Thinking or cognition begins with a mental process involving questioning, analyzing received data, and defining necessary solutions to achieve a goal. In children, thinking starts with their incessant questions about

their environment. The process of questioning is always accompanied by their thinking. Curiosity provides a foundation for more thinking. Gradually, however, due to improper educational and upbringing practices by parents and teachers, the child who once had a keen interest in questioning and thinking may lose their spontaneous motivations and become mentally and intellectually lazy. As a result, the child no longer shows interest in thinking about topics and waits for others to provide answers without contemplating them themselves (Zhao et al., 2023).

Therefore, although thinking is an inseparable and intrinsic part of being human, it is not fixed and can be strengthened through education, learning, and practice. Thus, intellectual development from birth to the end of life is essential and inevitable, and research in this area is a continuous and ongoing task. However, studies show that current educational programs are not sufficiently effective in fostering thinking, questioning, and proper criticism (Mirzaei et al., 2024).

In this regard, the main goal of the philosophy education program for children is not to teach and memorize philosophical information but to teach critical, creative, and caring thinking. Nowadays, this program is common in many countries. The main method in this program involves using stories in circles composed of children and teachers. The division of thinking, as done by Lipman in 1994, categorizes thinking into "critical," "creative," and "caring" types (Lipman, 1998). Lipman believes that engaging the minds of children and adolescents in philosophical discussions can develop their thinking. He also argues that philosophy for children is an educational initiative that improves thinking in children and uses philosophy to foster critical and moral judgment (Lipman, 1998). In today's world, it is necessary to find an effective method for filtering information, and critical thinking makes this possible by seeking the truth amid the chaos of events and information, aiming to achieve the most complete understanding possible (Lipman, 1998; Marin & Halpern, 2011).

Education for proper thinking requires care for the way of thinking. This care for thinking, called "caring thinking," should be taught at all stages of developing critical and creative thinking. Caring thinking is rooted in different branches of philosophy, such as ethics, aesthetics, and epistemology (Najm Alhuda et al., 2024). This type of thinking is an aspect of human capability that originates in the heart. Thus, thinking with the heart and personal values is called caring thinking. Caring thinking creates a precise value system in an individual for accurate, compassionate,

and valuable evaluations. In fact, caring thinking includes the necessary care and effort to listen to others and increase the ability to appreciate each opinion's merit. This process also involves valuing conversation and thought and accepting the related consequences. Caring thinking includes passionate and strong reasoning, attention to oneself and others, and freedom from the absolute certainty of claims regarding various issues. Caring thinking is a kind of faith and loyalty to values. Caring thinking addresses the values inherent in all matters and considers why something is valuable and how these values affect human ethical judgments and decisions (Zulkifli & Hashim, 2020).

Research by Siddiqui et al. (2019) concluded that the philosophy for children program positively affects non-cognitive functions of students, such as social and communication skills, resilience, empathy, fairness, and justice (Siddiqui et al., 2019). Shi's (2023) study on improving reasoning with philosophy of science education through critical questions in Chinese high schools showed that students who participated in the philosophy of science education, by asking critical questions suggested by instructors, demonstrated significant progress in understanding and applying reasoning (Shi, 2023). Zulkifli and Hashim (2020) found in their study aimed at identifying the impact of philosophy for children (P4C) on improving students' critical thinking that the treatment group scored higher on the post-test critical thinking score compared to the control group, indicating that philosophy for children helped improve students' critical thinking (Zulkifli & Hashim, 2020). Research by Hosseiniamin et al. (2018) showed that philosophy education affects the social behavior of fifth and sixth-grade male students (Hosseiniamin et al., 2018). Cassidy et al. (2018) demonstrated that philosophy education for children could improve children's emotional connection, empathy, and self-regulation (Cassidy et al., 2018).

Philosophy for children is an educational program that allows children and adolescents to shape their complex thoughts. Consequently, their reasoning, critical and creative thinking, and altruism increase. This program is systematic and gradual, mainly designed to work with children aged 4 to 18 (Ding et al., 2024). Despite extensive research on the effectiveness of philosophy education for children in various fields such as creativity, intelligence, cognitive abilities, and ethics, there is still a significant research gap regarding the impact of this education on adolescents' critical and caring thinking. Therefore, to address this research gap, the present study aimed to investigate the impact of the philosophy

education program for children based on the Wartenberg approach on adolescents' critical thinking and caring thinking.

2. Methods and Materials

2.1. Study Design and Participants

The present study, in terms of its aim, falls under applied research and is quantitative in nature. This research was quasi-experimental with a pre-test-post-test design with a control group. The statistical population of this study consisted of 12 to 15-year-old adolescents in Tehran Province who lived in residential care centers. According to inquiries made, the number of these children exceeded 1000. The sample size and sampling method, in consultation with professors and considering the dispersion of subjects in multiple centers, was determined to be 24 individuals, selected through convenience sampling, and the subjects were randomly assigned. At the beginning and end of the study, both the experimental and control groups were tested for critical thinking and caring thinking. Then, philosophy education was conducted for the experimental group, while no education was provided for the control group. Finally, a post-test was conducted for both groups, and the necessary data were collected to examine the research objective.

2.2. Measures

2.2.1. Critical Thinking

The Critical Thinking Questionnaire was designed by Ricketts in 2003. The original form of this test has 33 questions and includes three subscales. The first part includes 11 questions to measure the creativity scale, the second part includes 9 questions regarding the perfection scale, and the third part includes 13 questions for the commitment scale (Ricketts & Rudd, 2004). Pakmehr et al. (2013) conducted research aimed at validating and analyzing the factor structure of the Ricketts critical thinking disposition scale. The results confirmed the content validity of this scale by five professors and experts in the educational sciences and psychology group. Moreover, the construct validity and internal consistency of the critical thinking disposition questionnaire and its subscales were examined, indicating that all subscales had a significant relationship with the overall critical thinking disposition score, and overall, the pattern of correlation coefficients between subscales showed good internal relationships among the subscales. Additionally, to investigate the factor validity and

whether the three-factor structure of the critical thinking disposition questionnaire fits the Iranian community, the results of confirmatory factor analysis showed the goodness of fit index (GFI) and the adjusted goodness of fit index (AGFI) between 0.85 to 0.90, indicating model fit (Zulkifli & Hashim, 2020). In this study, the reliability of the critical thinking disposition scale was also examined using Cronbach's alpha and the split-half method, resulting in a reliability of 0.68, showing acceptable reliability.

2.2.2. Caring Thinking

The Caring Thinking Questionnaire was developed by Mehrnoush Hedayati, consisting of five subscales, including value-based thinking, emotional thinking, norm-based thinking, active thinking, and empathetic thinking. Based on data from Hedayati's research, the Caring Thinking Questionnaire, based on the educational approach of philosophy for children, is valid and reliable with five components. The content validity of the questionnaire was agreed upon both superficially and logically by most domestic and foreign experts, and the professors' corrective opinions were applied to the initial form. Exploratory factor analysis confirmed the construct validity of this questionnaire, and confirmatory factor analysis using Lisrel software was also used to examine the factor structure of the questionnaire, selecting five questions with higher factor loading in each factor, resulting in the final 25-item model being confirmed by factor analysis. Moreover, based on the fit indices, the model's fitness was confirmed. As a result, the research hypothesis was confirmed in this model. The Cronbach's alpha coefficient for the final questionnaire showed that the reliability of the Caring Thinking Questionnaire was 0.933, indicating that this questionnaire is a valid and reliable tool with reproducibility and repeatability. Furthermore, the examination of the correlation coefficient of the questions with the total score of the test indicated the acceptable acceptance coefficients of the questionnaire items.

2.3. Intervention

2.3.1. Philosophy Education for Children

The experimental group, after reading a story from classical Persian literature with the instruction of philosophy for children using the Wartenberg method, engaged in philosophical thinking, questioning, and discussion (Hosseiniamin et al., 2018; Mirzaei et al., 2024).

Session 1: Heavenly Food (Sindbadnameh)

In the first session, the pre-test is administered. The session begins with reading the story "Heavenly Food" from Sindbadnameh. After reading, children are encouraged to ask questions and engage in a discussion about the story. The primary focus is on critical thinking, helping children to analyze the story and its underlying themes critically.

Session 2: What Comes from Us (Nasir Khusraw)

This session involves reading a poem by Nasir Khusraw. The poem is then interpreted, with a focus on understanding its deeper meaning. Children are prompted to ask questions and discuss the content of the poem, fostering moral judgment as they explore ethical questions and implications presented in the poem.

Session 3: The Ringed Dove and Its Companions (Kalila and Dimna)

In this session, children read the story "The Ringed Dove and Its Companions" from Kalila and Dimna. After the reading, they ask questions and participate in a discussion about the story, emphasizing both critical and caring thinking. The story's themes are analyzed to understand the importance of empathy and critical analysis.

Session 4: The Inner Wolf (Fereydoun Moshiri)

This session includes reading a poem by Fereydoun Moshiri. The poem is interpreted and discussed, with children asking questions about its content. The discussion aims to enhance moral judgment and caring thinking by exploring the ethical dilemmas and emotional nuances within the poem.

Session 5: Two Pigeons (Kalila and Dimna)

Children read the story "Two Pigeons" from Kalila and Dimna in this session. After reading, they engage in a discussion, asking questions about the story. The session focuses on moral judgment and critical thinking, encouraging children to reflect on the ethical and logical aspects of the narrative.

Session 6: The Fox and the Rooster (Marzbannameh)

The story "The Fox and the Rooster" from Marzbannameh is read during this session. Children then discuss the story and ask questions, focusing on critical thinking. The goal is to analyze the story's logical structure and the behavior of its characters critically.

Session 7: The White Pigeon and the Kind Crow (Parvin Etesami)

In this session, a poem by Parvin Etesami is read. The poem is interpreted, and children engage in a discussion about its content. The session emphasizes moral judgment

and caring thinking, prompting children to consider the ethical and empathetic dimensions of the poem.

Session 8: The Strict Teacher (Masnavi)

This session involves reading a poem from the Masnavi. The poem is interpreted, and children ask questions about its meaning. The focus is on critical thinking, encouraging children to critically analyze the teacher's strictness and its implications within the poem.

Session 9: The Banquet (Parvin Etesami)

Children read a poem by Parvin Etesami in this session. The poem is interpreted, and a discussion follows, with children asking questions about its content. The session aims to enhance moral judgment, exploring the ethical themes presented in the poem.

Session 10: Blind Imitation (Masnavi)

In this session, a poem from the Masnavi is read and interpreted. Children engage in a discussion, asking questions about the poem's content. The focus is on critical thinking, analyzing the concept of blind imitation and its consequences.

Session 11: Zahhak the Serpent King (Shahnameh)

The story "Zahhak the Serpent King" from Shahnameh is read during this session. Children discuss the story and ask questions, focusing on critical thinking, caring thinking, and moral judgment. The session explores the complex themes of power, morality, and empathy within the story.

Session 12: The Merchant's Slave (Marzbannameh)

In the final session, the story "The Merchant's Slave" from Marzbannameh is read. Children engage in a discussion, asking questions about the story. The session concludes with the post-test, measuring the impact of the program on critical thinking.

2.4. Data analysis

Data analysis in this study was conducted at both descriptive and inferential levels using SPSS software. One-way and multivariate covariance analysis were used to test the research questions.

3. Findings and Results

As seen in Table 1, the descriptive statistics (including mean and standard deviation) for the experimental and control groups at two measurement intervals (pre-test and post-test) for the variables of critical thinking and caring thinking are presented. It was found that there is a difference in the mean post-test scores of the variables mentioned compared to the pre-test scores in the experimental group.

Table 1

Mean (M) and Standard Deviation (SD) of Research Variables

Variable	Time	Philosophy Education Group	Control Group
Caring Thinking	Pre-test	88.25 (14.79)	90.75 (12.27)
	Post-test	96.083 (12.17)	90.75 (12.27)
Critical Thinking	Pre-test	102.08 (25.45)	99.92 (14.09)
	Post-test	117.92 (23.3)	102.33 (14.99)

As shown in Table 2, the pre-test effect with $P < 0.03$ is significant. Therefore, there is a relationship between the post-test and the pre-test. Additionally, after removing the pre-test effect between groups, with $F(1,24)=15.449$ $p < 0.03$, a significant difference was observed; the difference in the mean post-test scores of critical thinking between the philosophy education group and the control group (13.715)

showed that the mean scores of critical thinking for children in residential care centers in the philosophy education group were higher than in the control group ($p < 0.03$). Therefore, it can be asserted that the philosophy education program for children based on the Wartenberg approach had a favorable effect on critical thinking.

Table 2

Analysis of Covariance for Examining the Impact of Philosophy Education on Adolescents' Critical Thinking

Source	Sum of Squares	df	Mean Square	F	p	Eta Squared
Pre-test Effect	6916.003	1	6916.003	94.952	0.0001	0.819
Groups	1125.281	1	1125.281	15.449	0.001	0.424
Within Groups	1529.581	21	72.837			
Total	300963	24				

As shown in Table 3, the pre-test effect with $P < 0.05$ is significant. Therefore, there is a relationship between the post-test and the pre-test. Additionally, after removing the pre-test effect between groups, with $F(1,24)=22.222$ $p < 0.05$, a significant difference was observed; the difference in the mean post-test scores of caring thinking between the philosophy education group and the control group (5.907)

showed that the mean scores of caring thinking for children in residential care centers in the philosophy education group were higher than in the control group ($p < 0.05$). Therefore, it can be asserted that the philosophy education program for children based on the Wartenberg approach had a favorable effect on caring thinking.

Table 3

Analysis of Covariance for Examining the Impact of Philosophy Education on Adolescents' Caring Thinking

Source	Sum of Squares	df	Mean Square	F	p	Eta Squared
Pre-test Effect	3087.466	1	3087.466	327.954	0.0001	0.94
Groups	209.205	1	209.205	22.222	0.0001	0.514
Within Groups	197.701	21	9.414			
Total	212896	24				

4. Discussion and Conclusion

This study aimed to determine the effectiveness of philosophy education based on the Wartenberg approach on adolescents' critical thinking and caring thinking. The first result of the study indicated that the mean critical thinking scores of children in residential care centers in the

philosophy education group were higher than those in the control group. Therefore, it can be asserted that philosophy education based on the Wartenberg approach improved children's critical thinking levels. No study was found to be entirely consistent with this hypothesis; however, the results of this study are somewhat consistent with the findings of prior studies (Cassidy et al., 2018; Ding et al., 2024;

Duytschaever & Conradie, 2016; Farkhondeh Nejad, 2018; Hosseiniamin et al., 2018; Lipman, 1998; Michaud, 2020; Mirzaei et al., 2024; Shi, 2023; Siddiqui et al., 2019; Zarraili Zavaraki et al., 2021; Zulkifli & Hashim, 2020).

In explaining the results, it can be said that philosophy for children is an educational approach that includes various goals, and its practice and implementation can lead to the development of cognitive skills, which are also effective in employing critical thinking skills by children and adolescents (Mirzaei et al., 2024). Lipman, the founder of philosophy for children, considers the main goal of this program to be the cultivation of individuals' reasoning power, enabling them to think independently and apply correct standards in their judgments. In this program, students actively engage with information rather than passively accepting it, analyzing and examining the necessary information and knowledge (Lipman, 1998). Through the philosophy education program, children and adolescents gain the ability to explore different aspects of issues, understand the connections between them, and pay attention to the consequences of these connections. Therefore, the philosophy education program familiarizes individuals with thinking, questioning, inquiry, and criticism. Moreover, through dialogue, it helps individuals refine their thoughts, provide reasons for their beliefs, express vague ideas clearly, understand others' viewpoints, and thereby enhance their understanding and ability to solve social life issues and behaviors (Cassidy et al., 2018). Thus, the goal of the philosophy for children program is to turn individuals into thinkers who are flexible, logical, and inquisitive, where being inquisitive means being an active searcher and persistent questioner, always alert to observe connections and differences, and always ready to compare, contrast, and analyze hypotheses, and to observe, measure, and test (Lipman, 1998). According to Lipman's approach, the philosophical thinking program focuses on self-correction, having reasonable sensitivity to context, and making judgments based on reliable criteria (Lipman, 1998). As a result, philosophy education for children can be considered an effective method for improving critical thinking. This thinking allows individuals to critically view their own issues and the world around them, think independently, dismantle reactionary thought and social systems, and use these skills to bring about profound changes in their own and others' lives (Ding et al., 2024; Duytschaever & Conradie, 2016).

The next result of the study showed that the mean caring thinking scores of children in residential care centers in the

philosophy education group were higher than those in the control group. Therefore, it can be asserted that philosophy education based on the Wartenberg approach improved children's caring thinking levels. No study was found to be entirely consistent with this hypothesis; however, the results of this study are somewhat consistent with the findings of prior studies (Lipman, 1998; Mirzaei et al., 2024; Shi, 2023; Zulkifli & Hashim, 2020), which showed that philosophy education positively and significantly impacts individuals' thinking growth.

In explaining the results, it can be said that philosophy education for children introduces children to duty-based and consequentialist ethics, making their thinking more socially oriented (Cassidy et al., 2018). In philosophy education for children, they are given the opportunity to participate in dialogues within a research community. In the research community, which is a special educational environment in the classroom, children are motivated to trust others, engage with their wonders comfortably, share their beliefs and discoveries, and examine each other's arguments and propositions. In fact, the research community provides an emotionally safe environment for children to engage in cognitive exchanges and, therefore, serves as a foundation for children's emotional development (Shi, 2023; Siddiqui et al., 2019). Therefore, it can be concluded that care in the philosophy for children program is more of a cognitive-emotional element than just an emotional state (Lipman, 2003). As individuals can learn to distinguish between reasonable and unreasonable inferences, they can also learn to differentiate between rational and irrational forms of feeling. As rational beings, children can evaluate what is valuable in the realm of emotions, provided they are given the opportunity to do so in the right time and place and with the right method (Michaud, 2020).

In the research community, which plays an important role in teaching the nature of emotions, all emotional dimensions of philosophical work are in complete connection with the cognitive process. Children learn to master their emotions, disappointment, and embarrassment through the experiences of wonder, curiosity, the joy of agreement, or frustration from disagreement, confusion, ambiguity, conflict, and discouragement. These emotions occur in intellectual and psychological situations, which are distinct aspects of the philosophical inquiry process (Zulkifli & Hashim, 2020).

Among these, caring thinking, as a thought that pays attention to the values inherent in all matters and considers why something is valuable and the impact of these values on human moral judgments and decisions, guides individuals

towards caring for others based on interest and respect, considering personal beliefs, valuing their opinions and values, and pursuing justice. Thus, caring thinking provides individuals with the ability to form a structured value system that leads to judgments based on reliable criteria. When children's judgments are based on such reliable criteria, they see themselves and others as deserving of no injustice (Shi, 2023).

5. Limitations & Suggestions

The use of non-random sampling in the initial phase of the research was the most significant limitation because the research results were based on a questionnaire, and other methods such as interviews and observations were not used simultaneously with the questionnaire. Therefore, the possibility of responses being subject to social limitations and bias existed. Another limitation was that the experimental interventions were conducted on boys; hence, caution should be exercised when generalizing the results to girls. Due to time constraints, it was not possible to conduct the follow-up phase. Therefore, conducting research that considers the long-term effects of philosophy education and De Bono's six thinking hats program is necessary. Based on the results and limitations of the research, it is suggested that future studies use random sampling methods to examine the impact of philosophy education for children. Future researchers are also encouraged to investigate the effectiveness of philosophy education for children on children's relationships with their instructors and constructive interactions with peers. In future research on the psychological issues of children in residential care centers, it is desirable to consider the reason for their presence in these centers as an intervening variable that could influence the results. It is also recommended to the educational administrators of children's residential care centers to consider the importance of philosophy education for children and its positive impacts on their future and society, and to pay attention to the fact that philosophy education differs from other conventional teachings and children should be able to see each other comfortably and participate in discussions. The philosophy education program encourages children and adolescents to think and reflect, helping them make appropriate and correct decisions. Individuals learn to think at life crossroads and choose the right path. This method can reform the new generation, so it is suggested that the philosophy education program be

implemented and considered at all educational levels for students.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

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