Development and application of early childhood forest-based creative and personality convergence program

Mi-Jin Kim¹, Jung-Ju Kim² and Byung-Man Kim³*

¹Dept. of Early childhood education
Pusan National University, Pusan, 46287, Republic of Korea
²Dept. of Early childhood education
Choonhae college of health sciences,
Ulsan, 44965, Republic of Korea
³Dept. of Early childhood education,
Kyungnam University,
Changwon, 51767, Republic of Korea

Abstract

The purpose of this study is to investigate the effect of this program on the happiness and prosociality of early childhood. In order to confirm the effectiveness of the program after the development of the forest-based creativity and personality convergence program. Experimental group The program developed for 25 weeks to 5-year-old early childhoods was developed for 20 weeks. The data collected in this study were analyzed using SPSS 23.0 statistical program for Window. Specific statistical analysis methods used independent sample t-tests to identify differences between experimental and control groups. The educational content of the forest-based early childhood creativity/personality convergence program consisted of contents of creativity, personality and happiness promotion. The teaching-learning
process of the program consisted of three stages of introduction, development, and finalization. In the introduction stage, we tried to spread the creative thinking of young children through the search of forests and natural objects as a step of ‘greeting the forest’. In the development stage, we tried to cultivate the personality that should be possessed in relation with others through group activities using natural materials as a stage of ‘grouping with natural objects’. At the finishing stage, we wanted to enhance the happiness by sharing the positive emotions felt through the activities. The results of post-test after 20 weeks of experiment showed that there was statistically significant difference between happiness and pro-sociality. The results of this study show that the forest-based early childhood creative and personality convergence program developed in this study has positive effects on early childhood’s happiness and prosociality.

**Key Words** : Forest-based, Creative and personality convergence program, Happiness, Prosociality, Early childhood

1 Introduction

Schwab, chairman of the World Economic Forum, said, "Today we stand at the door of revolution, which fundamentally changes the way we live, work and human relationships." In the era of the Fourth Industrial Revolution, and would completely change everything (Schwab, 2016). In addition to these changes in the times, it is necessary to redefine the talents required in the era of the Fourth Industrial Revolution, and to fundamentally reflect on the education as a whole, including goals, contents and methods of education.

In the era of the Fourth Industrial Revolution, the whole life situation including the professional situation is rapidly changing, so there is a need for talented people who can define new problems and solve them creatively so that future generations can cope with change situations successfully (Kim, 2017). In other words, creativity is required to adapt to change and to move in a new direction in order to live in a diverse and rapidly changing world. In accordance with this social change, education in our country is pursuing the development of ‘creative talents’ and emphasizing the basic person-
ality to live together as a part of the social community rather than alone (Kim & Lee, 2016). In other words, in the future society, a desirable human being with both creativity and personality to create new knowledge and value and to live with it is required (KEDI, 2010). In this way, Policy is also changing (Kang & Kim, 2017).

Creativity/Personality is a term that emerged in earnest through the 2009 revised curriculum of the Ministry of Education, Science and Technology and the 'Basic Plan for Creativity and Personality Education'. In the past, creativity and personality were considered to be independent, but now there is an overlap between creativity and personality, and there is a mutual similarity and completeness, so it is necessary to integrate creativity and personality and integrate creativity is dominant (Park, 2002; Park, 2010). In addition, the Ministry of Education, Science and Technology (2012) defines creativity and personality as organically linking or integrating them. This means that creativity education and personality education are combined organically through content sharing in any way to maximize mutual effectiveness.

Moon (2010) defines creative and personality education as an education that fosters creative talents with the right personality and moral judgment by fusing creativity education and personality education. In addition, according to Park (2001) creative personality means the tendency or personality seen in the process of creating and developing new ideas considering all conditions related to a certain situation.

In the Nuri course, which is a nation-level curriculum, creativity and personality are selected as the basic directions, and emphasis is placed on the importance of creativity and personality education by creating creativity and personality contents in planning educational activities (MEST, 2009). Furthermore, 3-5 years of age is a time when the frontal lobe is intensively developed, and the early childhood develops creativity and personality through experiences to see, feel and think about various objects and situations. Therefore, it is necessary to cultivate creativity and personality through interactions with diverse environments as an optimal time to develop creativity and personality in early childhood.

On the other hand, it is reported that play in the forest is closely related to early childhood and personality (Kim, 2013; Kwak, 2011). All the natural things in the forest can be toys for children. Natural
things in the forest have no limit in how they function or function. The children can experiment with various things in the forest and feel the joy of immersion by creating new and novel things. Imagination and creativity are raised. Forests also help young children grow up physically and mentally. Activities in the forests help young children recognize the organic relationship between nature and human beings and cultivate an attitude to pursue harmonious coexistence (Kwak, 2011).

Therefore, this study aims to develop a forest-based infant creative and personality convergence program as part of the process of building a children's ecological education system. The forest-based infant creative and personality convergence program focuses on the transformation of education paradigm from 'knowledge-based memorization education' to 'happiness education to enjoy learning' and direction of reviving infant life. The purpose of this study is to investigate the effect of this program on the happiness and prosociality of early childhood. In order to achieve the purpose of this study, selected research contents are as follows:

Research content 1. Develop a forest-based early childhood creative and personality convergence program.

Research content 2. The effect of forest-based infant creative/personality convergence program on early childhood's happiness and prosociality is confirmed.

2 Materials and Methods

The research method of this study is as follows.

A. Subject

In order to confirm the effectiveness of the program after the development of the forest-based creativity and personality convergence program, 50 children aged 5 yrs in kindergarten in Republic of Korea were selected. 50 subjects consisted of 25 experimental group and 25 comparison group. The experimental group and the comparative group were selected at the same age in the same kindergarten.

B. Research design

The experimental design of this study is an independent group
pre-post design. After conducting the pre-test for the experimental group and the comparative group, the program was developed 20 times in the experimental group for 20 weeks and then the difference between the two groups was verified on the post-test.

C. Research Tools

In order to confirm the effectiveness of the program after the development of the forest-based creativity and personality convergence program, 50 children aged 5 years in kindergarten in Republic of Korea were selected. 50 subjects consisted of 25 experimental group and 25 comparison group. The experimental group and the comparative group were selected at the same age in the same kindergarten.

a. Early childhood happiness test tool

In this study, we used the early childhood happiness scale developed by Lee (2010) to measure the happiness of early childhoods. This test is composed of 3 sub-factors and total 15 items. The three sub-factors consist of five items of personal emotion regulation ability, five items of interpersonal ability, and five items of ability to adapt to kindergarten.

b. Early childhood pro-sociality test tool

In this study, we used the prosocial behavior test tool of the early childhood used by Kim (2011) to examine the prosocial nature of early childhoods. This instrument is composed of 9 sub-factors in total 36 items. The nine sub-factors consisted of 3 items of parent relationship, 5 items of teacher relationship, 4 items of peer relationship, 5 items of cognition and achievement, 4 items of immersion, 5 items of spirituality, 4 items of emotion, 4 items of health and 2 items of life satisfaction.

D. Research procedure

a. Forest-based creative/personality convergence program planning and activities

In order to develop forest-based creativity and personality convergence program, data on forest experience program and ecological program dissertation, data on creativity and personality dis-
sertation, data on fusion theory were collected and the draft of the program was composed. The program was finalized through two focus group interviews with six early childhood education specialists (two early childhood education professors, two kindergarten directors and two kindergarten teachers).

b. Preliminary Application and Appropriateness Test
To examine the appropriateness of the developed program, the program was administered twice to 22 early childhoods in the same kindergarten as the experimental group and the control group. The time required to move the place was needed through the preliminary application of the program, and the final program was confirmed by adjusting it.

c. Pre-Examination
In order to examine the appropriateness of this study tool, we conducted the early childhood happiness test and early childhoods’ sociability test for 25 days in experimental group and 25 in comparison group for 2 days before the program.

d. Conducting a program of creativity and personality convergence
Experimental group The program developed for 25 weeks to 5-year-old early childhoods was developed for 20 weeks. The forest-based creativity/personality convergence program developed in this study is presented in the research results.

E. Data analysis
The data collected in this study were analyzed using SPSS 23.0 statistical program for Window. Specific statistical analysis methods used independent sample t-tests to identify differences between experimental and control groups.

3 Results and Discussion
The results of this study are as follows.

A. Developed forest-based early childhood creative and personality convergence program
a. Purpose and Goal
The purpose of this program is to cultivate early childhood creativity, personality and happiness through forest based early childhood creative and personality convergence program.

b. Educational content
The educational content of the forest-based early childhood creativity/personality convergence program consisted of contents of creativity, personality and happiness promotion.

c. Teaching-Learning Method
The teaching-learning process of the program consisted of three stages of introduction, development, and finalization. In the introduction stage, we tried to spread the creative thinking of young children through the search of forests and natural objects as a step of ‘greeting the forest’. In the development stage, we tried to cultivate the personality that should be possessed in relation with others through group activities using natural materials as a stage of ‘grouping with natural objects’. At the finishing stage, we wanted to enhance the happiness by sharing the positive emotions felt through the activities. The concrete teaching-learning method is shown in Table I, and the activities are shown in Table II.

<table>
<thead>
<tr>
<th>Step</th>
<th>Activities</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Greet the forest</td>
<td>Spread creative thinking through exploring forests and natural objects</td>
</tr>
<tr>
<td>development</td>
<td>Collaborate with nature</td>
<td>Cultivating personality attitudes toward others while organizing natural objects in groups</td>
</tr>
<tr>
<td>Wrap-up</td>
<td>Feeling happiness</td>
<td>Feeling happiness by discussing positive feelings about activities</td>
</tr>
</tbody>
</table>

TABLE I
Teaching-Learning Method
<table>
<thead>
<tr>
<th>Activity name</th>
<th>Personality virtue</th>
<th>Creativity factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life of Ants</td>
<td>collaboration</td>
<td>Fluency</td>
</tr>
<tr>
<td>Various leaves</td>
<td>Honest</td>
<td>Elasticity</td>
</tr>
<tr>
<td>The fruit that animals eat</td>
<td>Responsibility</td>
<td>Originality</td>
</tr>
<tr>
<td>Animals and we are friends</td>
<td>Respect</td>
<td>Elaboration</td>
</tr>
<tr>
<td>Insect needing water</td>
<td>Care</td>
<td>Elasticity</td>
</tr>
<tr>
<td>How will the tree stand?</td>
<td>Communication</td>
<td>Fluency</td>
</tr>
<tr>
<td>Building a stone pagoda</td>
<td>collaboration</td>
<td>Elaboration</td>
</tr>
<tr>
<td>Change of Forest</td>
<td>Honest</td>
<td>Fluency</td>
</tr>
<tr>
<td>Making my forest</td>
<td>Responsibility</td>
<td>Originality</td>
</tr>
<tr>
<td>Falling leaves</td>
<td>Respect</td>
<td>Elasticity</td>
</tr>
<tr>
<td>Windy pine seeds</td>
<td>Care</td>
<td>Elaboration</td>
</tr>
<tr>
<td>Ants and helpless nymphs</td>
<td>Communication</td>
<td>Originality</td>
</tr>
<tr>
<td>Sand casting</td>
<td>collaboration</td>
<td>Elaboration</td>
</tr>
<tr>
<td>Leaves game</td>
<td>Honest</td>
<td>Fluency</td>
</tr>
<tr>
<td>Raising a Baby in the Mountain</td>
<td>Responsibility</td>
<td>Originality</td>
</tr>
</tbody>
</table>
B. Effects of forest-based early childhood creative and personality convergence program on early childhood’s happiness and prosociality.

a. Pre-test result

Table III shows the results of confirming the similarity between the experimental group and the control group early childhoods’ happiness and prosociality before confirming the effects of the forest-based early childhood creative and personality convergence program activities on the early childhood’s happiness and prosociality.

As shown in Table III, the pre-test results of the experimental group before experiencing forest-based early childhood creativity/personality convergence program activities showed happiness 2.89 (SD=.44) and prosociality 2.85 (.55). Pre-test results of group children showed happiness 2.91 (SD=.48) and pro-sociality 2.81 (.58). The happiness and prosocial nature of the two groups of children were similar because the happiness \( t = -.13, p > .05 \) and

<table>
<thead>
<tr>
<th>Division</th>
<th>Experimental group (M(SD))</th>
<th>Comparison group (M(SD))</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>2.89(.44)</td>
<td>2.91(.48)</td>
<td>-.13</td>
</tr>
<tr>
<td>Pro-sociality</td>
<td>2.85(.55)</td>
<td>2.81(.58)</td>
<td>.27</td>
</tr>
</tbody>
</table>
pro-sociality ($t=.27$, $p>.05$) of the experimental group and the control group did not show any statistically significant difference.

b. Post-test result

The results of the post-test results of the happiness and pro-sociality of the experimental group and the control group early childhood are shown in Table IV to confirm the effects of the forest-based early childhood creative and personality convergence program activities on the early childhood’s happiness and prosociality.

<table>
<thead>
<tr>
<th>Division</th>
<th>Experimental group</th>
<th>Comparison group</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>3.72(0.27)</td>
<td>3.17(0.38)</td>
<td>5.84***</td>
</tr>
<tr>
<td>Pro-sociality</td>
<td>4.00(0.39)</td>
<td>3.32(0.59)</td>
<td>4.75***</td>
</tr>
</tbody>
</table>

***$P<.001$

As shown in Table IV, the results of post-test after 20 weeks of experiment showed that there was statistically significant difference between happiness ($t=5.84$, $p<.001$) and pro-sociality ($t=4.75$, $p<.001$). The results of this study show that the forest-based early childhood creative and personality convergence program developed in this study has positive effects on early childhood’s happiness and prosociality.

4 Conclusion and Discussion

This study aims to develop a forest-based early childhood creative-personality convergence program as part of the process of building a children’s ecological education system. The results of this study are as follows.

First, this study is a study that developed a forest-based early childhood creative and personality convergence program. The program was developed through literature review on early childhood forest education, creativity, personality and happiness education, and focus group interview with experts. Through the process of
reviewing the appropriateness of the program for provisionally designed programs, the program was revised and supplemented with the advice of early childhood education theorists and early childhood education specialists. In the program development process, many experts were involved in applying various methodologies, so that the reliability and validity of contents and method of program development were secured. Through this process, the 20th forest-based creativity/personality convergence program was developed and confirmed in this study.

Second, forest-based early childhood creativity/personality convergence program developed in this study was applied to early childhoods, and it was found that forest-based early childhood creativity/personality convergence program improved early childhood’s happiness. This supports the research result of the previous research that children interact with nature through the forest-based creative-personality convergence program and they have provided the opportunity to enjoy the freedom and peace for themselves and others (Kim, 2013). In addition, the result of supporting the research that free play in the forest promotes freedom and happiness (Choi & Seok, 2013), preliminary result that voluntary and active happiness learning is achieved in meeting with nature (Seo & Park, 2006). In addition, forests have a context with the result of previous studies that expose themselves quickly and make them look positively in hope (Yang, Cha, Kim, Hong & Choi, 2011). This result can be concluded that the forest-based early childhood creative and personality convergence program developed in this study provides overall happiness to early childhoods.

Third, the forest-based early childhood creativity/personality convergence program developed in this study was applied to early childhoods, and the results showed that forest-based early childhood creativity/personality convergence program promoted early childhood’s prosociality. This can be interpreted in the same way as Park (2011), that the forest activity experience of early childhoods affected the development of natural affinity. In addition, through the nature-friendly educational activities, the children are encouraged to develop emotional stability and contribute to the enhancement of intimacy with their families and peers (Jung & Kim, 2011). In addition, it supports the results of previous studies that young children were able to take a walk in the woods and learn
about the positive interest in oneself through meeting with various objects in nature (Kim, 2005). Through this study, it can be concluded that the forest-based creativity/personality convergence program developed in this study will enhance the prosociality of early childhoods.

Based on the results of this study, it is suggested that early childhoods can improve their happiness and prosociality by sharing familiarity with nature and sharing their sympathy by expanding the horizons of understanding and getting acquainted with nature through the forest-based creativity and personality convergence program. And it can be confirmed that the program is educationally valuable.

Based on the discussion and conclusions presented above, suggestions for future research are as follows.

First, in this study, forest-based early childhood creative and personality convergence program is limited to a limited group. Further research is needed to confirm the effectiveness of the program after applying it to multiple early childhoods of various ages.

Second, in this study, there was a limit in controlling the extrinsic variables in the forest-based early childhood creative/personality convergence program. We suggest that in-depth research will be carried out to implement forest-based early childhood creative and personality convergence program by controlling the extra variables more appropriately.

Third, the forest-based early childhood creativity/personality convergence program presented in this study was a study conducted on early childhoods, but it was confirmed that they provide many changes to the teachers as well as the early childhoods. In the following study, we propose to investigate the effect of teachers on their perceptions, attitudes, and educational attitudes.

**References**


