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Research paper

Analysis of Relationship Structure between Creativity and Character of Young Children

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Abstract

This study aims to provide basic data on the relationship between creativity and character education by examining the relationship structure between the sub-variables of creativity and character. For this, the creativity and character of 189 5-year-old children (98 boys, 90 girls) from eight classes in Chungcheongbuk-do, Korea were measured using the Creativity Measurement Scale and Character Measurement Scale for Teachers, and canonical correlation analysis was performed on the sub-variables of creativity and character. Prior to canonical correlation analysis, the assumption of normality and assumption of appropriateness of relationships were reviewed. As a result of this study, creativity and character showed a correlation, implying that the creativity and character development influence each other. Also, immersion in creativity and the basic life habits of character showed a strong influence in canonical correlation. This shows that immersion has a significant influence on character development, such as basic life habits, and a thorough observation and thinking process in problem situations is needed prior to habituation in terms of character education as well. The results of this study imply that creativity and character development may be complementary, and education that can develop both at the same time is necessary. Creativity-character education is a good start to develop these abilities.

Keywords: *canonical correlation analysis; character; creativity; creativity-character education; immersion*

1. Introduction

Since the appearance of a new educational term called creativity-character education, discussions have been continuing on ways to connect creativity and character. Education has had two great goals. One is to help children become smart, and the other is to help them become good [1]. Creativity, which pursues intellectual excellence, and character, which pursues ethical excellence, have been important intention points in education from ancient times, but have been discussed separately until now. Their importance has been recognized differently according to the needs of the times and society.

In particular, since industrialization, the development of science and technology has played a decisive role in national competitiveness, and as the cultivation of creative talents has become very important, each country has been devoted to the education of excellence for cultivating creative talents. However, education that pursues only competition reveals the dark side of creativity, and the criticism that it fosters human beings who can't live together with other people continues, and the demand for character education increases.

Creativity not only refers to developing products that have social values [1], but also includes the intellectual problem-solving ability to apply one's own experience to new problems [2] and the abilities of people with creative characteristics [3], [4], [5]. Creativity involves curiosity, willingness, open-mindedness and imagination. Sometimes it refers to flexibility, tolerance of uncertainty and perseverance. Various factors constitute creativity, and it is continuously being studied. The scope of creativity is expanding from cognitive ability to affective aspect, such as patience, achievement and reflective attitude [3], [4], and the motivational aspect that allows such abilities [6]. Sternberg and Lubart [1] have described creativity as the ability to tolerate ambiguity, persistence, openness to new experiences, risk tolerance, confidence and courage. Despite such various definitions, creativity can be considered as a general term for ability that solves a given problem in new and useful ways.

Various terms are used for character including human characteristic, human quality and temperament, and it is defined variously as a property that humans should primarily fulfill [7] or human temperament that can be learned or changed through education [8]. Cho et al.

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[9] defined the character that is necessary in the 21st century as such personality traits as self-directedness and tolerance, cognitive traits such as openness and flexible thinking, tolerance ability such as the understanding of other cultures, and creativity and problem-solving ability within the coexistence of what is traditionally sustained and changed in accordance with time. Therefore, character is a desirable trait that humans should pursue and possess, but such traits include all the abilities that individuals think, feel and behave with. Character also means various abilities and traits—it is a complex norm. Character education promotes core ethical values such as caring, honesty, fairness, and respect for self and others.

Education has taken creativity and character as the ultimate orientation since ancient times. However, from the time of Aristotle until now, creativity, intellectual excellence, and character, ethical excellence, are core competencies for holistic human resource cultivation. Therefore, in order to cultivate human resources that possess creativity and character at the same time, the necessity of creativity-character education that combines and allows the achievement of both at the same time has been raised [6].

Discussion on the combination of creativity and character is raised in the following two respects.

First, creativity and character have not been suggested individually as the purpose of education, and both are needed for holistic human resource cultivation [10]. The human character that education should pursue suggests people with creativity and character [6], and education that reinforces creativity and character at the same time should take place for this. In other words, for the moral completion of an individual, creativity and character should be acknowledged for their complementary relationship and understood as a single process, rather than approaching them separately [10].

Second, the scopes of creativity and character have been extended in modern times and an overlap exists between the two, so attempts to connect one to the other are gradually increasing. Unlike the past, collective creative products based on mutual cooperation is emphasized rather than individual products, and the necessity of moral creativity or ethical creativity beyond creating something new is being raised [11]. Also, the social ability to solve problems collectively with other people is acknowledged as an important factor [12].

Whereas the initial discussion on creativity focused on divergent thinking, attempts to understand it from an integrated perspective that arises from complex interactions of considerations about affective domain and cognitive factors, and affective and environmental factors are increasing, as well as convergent thinking about pluralistic, multi-level domains.

Also, in terms of character, areas that have been implicitly acknowledged as involved in creativity such as self-directedness, tolerance, creativity and problem-solving ability are newly included as elements of character for future generations [8].
In other words, since there are elements of character that the 21st century demands of leaders who can think creatively and consider and communicate with others in an organization, rather than the virtue-oriented practice of the past, an overlap between creativity and character exists. Gardner [13] also stated that people should possess trained, integrated, creative, respectful and ethical minds to live in the 21st century. Therefore, arguments that creativity and character overlap in some parts, and educating them in connection is more effective are being more encouraged. Because creativity may include the ability to communicate and cooperate in problem solving and character include creativity and problem-solving ability.

The combination of creativity and character has been attempted more aggressively since 2010 with the proposal of the "Fundamental Scheme of Creativity-Character Education" [14]. The introduction of the term "creativity-character education" was a political attempt to aggressively promote the combination of creativity and character and satisfy them both at the same time in order to cultivate talents that can create new value and live together with others.
However, the grounds for the combination of creativity and character was not disclosed in such consideration, and comments on such were actually lacking, and confusion about creativity-character education in the education field continued. The relationship between creativity and character can be interpreted and explained in various ways based on how these two ideas are defined, but studies that insisted on the combination of creativity and character mostly discussed the proper ways to connect creativity and character, such as being focused on creativity and including character [1], connecting based on character [15], or organically combining creativity and character [16].

For the combination of creativity and character, not only is a normative approach to pursue them at the same time needed, but an understanding of their relationship and structures is also essential. In studying the relationship between these two, it can be analyzed by simply calculating the correlational coefficient between them, but it is a complex idea that includes sub-factors and needs to be understood in consideration of the complexity of their relationship. This study makes the following assumptions. First, creativity and character are complex concepts. They are composed of various factors. Second, creativity and character form relationships that interact with each other, and we need to look more closely at these relationships.

Therefore, this study intends to understand the complex relationship structure of creativity and character and examine which sub-factors affect one another to provide basic data in the combination of creativity and character. Research questions are as follows.

1. What is the relationship structure between creativity and character?
2. What are the sub-variables that have the greatest influence on the relationship between creativity and character?

2. Study Method

This study used a canonical correlational analysis to explain the relationship that exists between creativity and character more systematically.
Canonical correlational analysis is a statistical method that combines variables of groups linearly and analyzes the correlation of variable groups so the correlation between variable groups can be maximized. This is used to examine the mutual independence of two variable

groups that were measured on an identical subject or to analyze the degree of correlation between them [17]. In canonical correlation analysis, correlations between two sets of data are maximized. Let two sets of data be X_P, Y_Q. The canonical variate generated by a group of X variables and Y variables can be expressed by equation (1).

$$CV_{x1}=a_1X_1 + a_2X_2 +\ldots a_PX_P$$
$$CV_{y1}=a_1Y_1 + a_2Y_2 +\ldots a_QY_Q \quad (1)$$

An analyst can find the canonical relationship number that maximizes each canonical variate in the variable group.

Canonical correlation analysis tries to find basis vectors for two sets of multidimensional variables such that the linear correlations between the projections onto these basis vectors are mutually maximized. In the limit when the dimension of each set is 1, the canonical correlation coefficient reduces to the correlation coefficient.

Therefore, this study assumed that the two variable groups, creativity and character, will be correlated and established the following hypothesis to examine the relationship of their sub-variables more clearly. This can be mapped as in Figure 1. The subject, measurement tool, data collection and analysis method of this study are as follows.

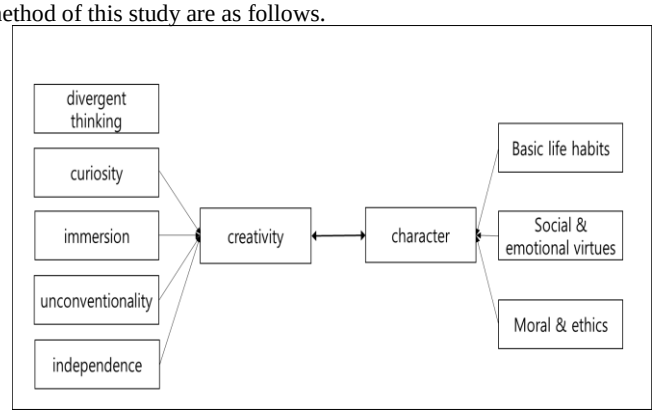


Fig. 1: Study Model

2.1. Study Subjects

The subjects of this study were 5-year-old children in eight classes of four public kindergartens in Chungcheongbuk-do and consisted of 98 boys and 90 girls for a total of 189 participants. The average age of the study subjects was 68.37 months for boys (standard deviation 3.57), and 68.39 months for girls (standard deviation 3.72). Table 1 shows the general background of the study subjects.

Table 1: General background of study subjects

Class	Boys		Girls	
	N	M (SD)	N	M (SD)
A	12	68.04 (3.53)	10	69.00 (3.78)
B	11	68.95 (3.87)	12	70.17 (3.88)
C	13	68.95 (3.26)	12	68.14 (3.34)
D	11	68.69 (3.69)	13	69.38 (3.23)
E	12	69.12 (3.72)	10	67.91 (3.11)
F	11	69.56 (3.41)	9	68.67 (3.73)
G	18	69.57 (3.61)	10	68.60 (3.23)
H	10	67.82 (3.58)	14	67.85 (3.68)
Total	98	68.37 (3.57)	90	68.39 (3.72)

Eight teachers in these classes had five to 17 years of teaching experience. The teachers are the main teacher of the classes who spend more than five hours a day with the children.

2.2. Measurement Tool

This study used the following tools to measure children's creativity and character.

First, the Early Childhood Creativity Measurement Scale for Teachers developed by Noh, Kim and Kim [18] was used to measure children's creativity. This test breaks down creativity into five sub-scales. These are divergent thinking, curiosity, immersion, unconventionality and independence. The test consists of 33 questions. In terms of reliability, *Cronbach α* is very high at .97, and it uses a five-point Likert scale ranging from "highly unlikely" (1 point) to "highly likely" (5 points).

Divergent thinking is a cognitive element that creates many unique ideas from various perspectives to solve problems, and includes fluency, originality and flexibility. An example of divergent thinking is to "find many ideas or solutions for a problem." Curiosity is the act of questioning about surrounding objects or phenomena. An example of curiosity is to "be interested in what happens around oneself. Immersion is the tendency to focus on given task for a long time and complete it. An example of immersion is "one's attention span is longer than peers." Unconventionality is the attitude or behavior of not being bound by a basic system or rules. An example of unconventionality is to "attempt dangerous behavior." Independence is the ability to work independently and not be concerned about other's thoughts or evaluations. An example of independence is, "the distinction between likes and dislikes is clear."

Second, for children's character, the Preschooler Character Scale Rated by Teacher, developed by Lim [19] was used. This test breaks down character into basic life habits, social/emotional values and morals/ethics, and consists of a total of 28 questions. In terms of reliability, Cronbach α is .977, and it uses a five-point Likert scale ranging from "highly unlikely" (1 point) to "highly likely" (5 points).

Basic life habits include characteristics such as proprieties, order and conservation. An example of basic life habits is to "know and adhere to established rules anywhere at any time." Social/emotional virtues include gratitude, consideration, kindness, yielding and respect. An example of social/emotional virtues is to "help each other." Morals/ethics include fairness, honesty, patience, tolerance and faith. An example of morals/ethics is to "tolerate or forgive someone else's faults."

This study used a teacher's assessment as the tool to measure children's creativity and character because it is difficult to do this with tests due to developmental characteristics. There are many tools to measure the creativity and character of children. Teachers that observe them for a long time in a natural situation would assess children in comparison with others in terms of their thoughts, behavior, products and situations, allowing for more objective measurement than parents' assessments. Detailed information on the measurement scale for creativity and character is shown in Table 2. Teachers were briefed on the measurement scales in advance and checked one scale per child.

Table 2: Creativity and Character Measurement Scale

Variables	Sub-variables	Questions	*Cronbach α*
	Divergent thinking	8	.95
	Curiosity	9	.96
	Immersion	7	.93
Creativity	**Unconventionality**	6	.90
	Independence	3	.85
	Total	33	.97
Character	**Basic life habits** **Social/emotional virtues** **Moral & ethics**	6 11 11	.872 .960 .951
	Total	28	.977

2.3. Data Collection and Analysis

The collection of data took place from May 8 to June 15, 2017. The teachers in each class assessed the creativity and character of the children they are in charge of; creativity was evaluated first, followed by character evaluation 1 week later.

The collected data were analyzed using SPSS 21.0. Analysis of correlational structure was performed using canonical correlation analysis.

Canonical correlation analysis measures the strength of the association between two sets of variables [17]. It is the multivariate form of the general model [20]. It presumes that all analyses are correlated, weights are applied to the measured variables to derive estimates, and the effect size with variance is calculated.

Prior to performing canonical correlation analysis, assumptions of normality and assumptions of appropriateness of relationships were reviewed. The assumption of normality in a relationship between variables requires the existence of a relationship, yet one that is not too excessive at the same time. Descriptive statistics was used to examine the normality of data distribution, and the existence of relationships between variables was examined using a bivariate correlation matrix and factor's sphericity index. The existence of multicollinearity due to excessive correlation was examined through *VIF* index in the regression.

3. Study Results

3.1. Hypothesis Examination

To examine the normality of data distribution, skewness and kurtosis were reviewed based on the absolute value of 1. For the existence of correlation between variables, Bartlett's sphericity test was used. Appropriate correlations among variables were confirmed, with total variables $\chi 2 = 13864.403(p=.000)$, creativity $\chi 2 = 5700.924(p=.000)$, and character $\chi 2 = 7128.796(p=.000)$.

To examine the specific correlations between creativity and character, a correlation matrix between sub-variables of creativity and character was obtained. The correlations among sub-variables of creativity and character are as seen in Table 3.

A correlation matrix between variables was obtained to examine the specific correlations between creativity and character. Creativity and character showed .473 correlation, and sub-variables of creativity and character generally showed .3~.8 correlation. Except for the correlation of unconventionality in creativity with social/emotional virtues and morals/ethics in character, the correlations among other sub-variables were statistically significant and presumed that MANOVA was possible. In particular, immersion in creativity showed a strong correlation with sub-variables of character, and unconventionality and independence in creativity showed a negative correlation with sub-variables of character.

Table 3: Correlation between Sub-variables of Creativity and Character

Variables		Character		
		Basic life habits	**Social/ Emotional virtues**	**Morals/ Ethics**
	Divergent thinking	.369**	.467**	.468**
	Curiosity	.318**	.454**	.462**
Creativity	**Immersion**	.792**	.742**	.719**
	Unconventionality	-.323**	-.089	-.106
	Independence	-.505**	-.359**	-.381**

** p <.01

Next, the degree of existence of correlation among variables was examined with a sphericity test and correlation matrix analysis.

The existence of multicollinearity due to excessive correlations among variables of the matrix was examined using a VIF index. The VIF index for sub-variables of creativity did not show any issues, but social/emotional virtues in character showed high VIF and multicollinearity was re-measured after excluding question 8 and 9 in social/emotional virtues, for which the kurtosis was close to 1, because its VIF was high. In the case of high multicollinearity, the way to solve this problem is to eliminate the independent variable with high multicollinearity, but since it is difficult to eliminate an entire sub-variable with high multicollinearity, the variable with an insufficient assumption of normal distribution was eliminated. After eliminating these questions, no problems were discovered with the re-measurement of multicollinearity. Detailed information on VIF of variables is shown in Table 4.

Table 4: *VIF* of Variables

Variables	Sub-variables	*VIF*
Creativity	**Divergent thinking**	2.714
	Curiosity	3.292
	Immersion	1.878
	Unconventionality	1.735
	Independence	1.563
Character	**Basic life habits**	3.832
	Social/ Emotional virtues	8.729
	Morals/ Ethics	7.840

3.2. Correlation Structure of Creativity and Character

With 5 sub-variables of creativity and 3 sub-variables of character, total canonical functions were calculated 3. Table 5 shows calculated functions and significant level. MANOVA was performed to determine whether one of the canonical functions was significant. With Wilks' lambda value at .209($\chi2 = 287.261$, p=.000) and .789($\chi2 = 43.565$, p=.000), there were two significant canonical functions.

Table 5: Canonical Functions and Significance Level

Canonical Functions	Canonical Correlation	Wilk's	χ^2	*df*	sig.
1	.857	.209	287.261	15.0	.000
2	.439	.789	43.565	8.0	.000

When canonical correlation is statistically significant, canonical function is examined to determine the relevant significance of each variable that was used in the analysis. The choice of the canonical function that can be interpreted significantly is based on the point where the canonical redundancy value drops sharply. This is because canonical redundancy means the proportion of variance explained by opposite canonical variables. Table 5 shows the canonical redundancy of canonical functions.

As shown in Table 6, the canonical redundancy value of the second function dropped sharply compared to the value of the first function. In the case of canonical function 1, canonical redundancy was .247 for creativity and .606 for character, whereas in canonical function 2, creativity was .076 and character was .029, showing a rapid decrease in the canonical redundancy value. The second function was statistically significant, but it was judged that there is no practically significance. So, of the two canonical functions, the one that can be interpreted significantly was function 1. Therefore, the relation structure of creativity and character was grasped by canonical function 1.

Therefore, the standardized correlation coefficient, canonical loading and canonical cross-loading by function 1 were analyzed.

Table 6: Canonical Redundancy of Canonical Functions

Variables	Canonical Functions	
	1	**2**
Creativity	.247	.076
Character	.606	.029

Table 7 shows the canonical correlation between creativity and character, which was .857, and the canonical correlation square was .734, both very high. This means that variable groups of creativity and character affect each other a lot. Based on the canonical coefficients, immersion contributed largely to the formation of canonical variables of creativity, and basic life habits contributed largely to the formation of canonical variables of character. Based on canonical loadings, all five sub-variables of creativity had influence, in which immersion had the greatest influence, followed by independence and divergent thinking. Meanwhile, three sub-variables had a great influence on character. Therefore, the covariance of creativity and character were high as well.

Table 7: Canonical Correlation between Creativity and Character

Variables	Sub-variables	Canonical Coefficients	Canonical Loading	Canonical Cross-Loading
Creativity	**Divergent thinking**	-.030	.442	.379
	Curiosity	.104	.385	.330
	Immersion	.797	.927	.795
	Unconventionality	-.201	-.365	-.313
	Independence	-.274	-.586	-.503
				Covariance=.336 **Canonical Redundancy**=.247
Character	**Basic life habits**	.948	.999	.857
	Social/ Emotional virtues	-.028	.864	.741
	Morals/ Ethics	.090	.855	.733
				Covariance=.325

Canonical Redundancy=.606
Canonical Correlation = .857
Canonical Correlation Square = .734

Covariance means the proportion of variance explained by its own canonical variable.
Generally speaking, canonical cross-loading explains the relationship between the independent variable and overall sub-variables of dependent variables, and many researchers recommend the use of canonical cross-loading [20]. The sign of canonical cross-loading refers to the direction of relationship and the value refers to the degree of relationship, where an absolute value over .3 is considered an important factor that explains canonical variables [21]. Therefore, the average correlation can be determined through canonical redundancy by examining the individual degree of correlation of canonical factors of character with each sub-factor of creativity and the individual degree of correlation of canonical factors of character with each sub-factor of creativity.

Canonical redundancy is the average value of the squared value of canonical cross-loading and signifies the average explanatory power of a canonical variable on each sub-variable. In terms of the individual correlation of sub-variables of creativity with canonical variables of character, canonical cross-loadings of sub-variables of creativity were all high with values of .3 or higher, with immersion at .795, showing a very high correlation with the sub-variables of character.

Canonical redundancy, which indicates the explanatory power of sub-variables of creativity on canonical variables of character, was .247, implying that sub-variables of creativity explain about 24.7% of the canonical variables of character, on average. Also, in terms of the individual correlation of canonical values of creativity on sub-variables of character, the canonical cross-loadings of all three sub-variables were very high, over .7. The high correlation between sub-variables of character and canonical variables of creativity can be seen in the canonical redundancy of .606. This means that canonical variables of creativity explain about 60.6% of the sub-variables of character, on average.

Therefore, immersion and independence in creativity have a great influence on each sub-variable of character, and all sub-variables of character have a great influence on immersion and independence in creativity.

4. Conclusion and Discussion

This study was conducted to determine the correlation structure between creativity and character through canonical correlation analysis. The results are as follows.

First, there is a correlation between five sub-variables of creativity and three sub-variables of character.
Divergent thinking, curiosity and immersion showed comparatively high correlation with character. In particular, immersion had a strong correlation with character.

In particular, based on canonical redundancy, 24.7% of creativity was explained by character, and 60.6% of character was explained by creativity. More specifically, the cross-loadings, canonical loadings and canonical correlation coefficients of immersion and independence were higher than other sub-variables, signifying that they have a great correlation with character. In character, all sub-variables showed high levels of canonical cross-loadings, canonical loadings and standardized canonical correlation coefficient that they have a close relationship with creativity. This means that immersion and independence have a great influence on canonical correlation.

Such results are similar to the results of a study conducted by Kim and Na [22], which stated that children's character and creativity have a positive correlation where a higher character score led to higher creativity score, and scores of personal value characteristics such as self-establishment, positive life attitude, aesthetic refinement and ethical responsibility, have significant positive correlations with creativity. This means that a child with self-establishment, positive life attitude and emotional elements such as self-control and efforts have higher creativity. In this study, creativity and character were found to have a positive correlation (r=.473). However, when we looked at the correlation between creativity and sub-variables of character, it was found that the unconventionality and independence of creativity were negatively correlated with subordinate factors of character. Despite these negative correlations, the correlation between immersion and sub-variables of character was very high, which could be regarded as having a great influence on total correlation.

Creativity and character were correlated, and relationships between sub-variables showed a mixture of positive and negative correlations. In order to determine the relationship structure between two complex variables, canonical correlation analysis was performed. Based on canonical redundancy, 24.7% of creativity was explained by character, and 60.6% of character was explained by creativity. Canonical coefficients, canonical loadings and canonical cross-loading of immersion were much higher than those of other sub-variables, and it was found that immersion had a close relationship with character. Canonical coefficients, canonical loadings and canonical cross-loading of sub-variables of character were high; all sub-variables of character had a great influence on canonical correlation.

Second, immersion in creativity had the greatest influence on the relationship between creativity and character. Immersion is essential in the manifestation of creativity, and immersion is a high level of intellectual concentration and is reported to have a positive influence on the development of creativity [4].

Immersion means a perfect combination with concentration on an activity or the purpose of an activity [23]. This implies that the person observes a given problem carefully and solves it autonomously with an awareness of the problem. It is reported that immersion is a self-directed act of seeking self-pleasure and has a positive correlation with autonomous motivation. Autonomous motivation refers to the case where an actor chooses and controls his/her free will, regardless of whether it is the internal factor for his/her own pleasure or satisfaction, or the external factor for meeting social expectations. Thus, in the case of children with good character who follow rules well and maintain good social relations in the classroom, they can be guessed to have high self-control ability to concentrate and perform their own actions rather than act by external pressure.

The results of this study show that the relationship between immersion and character is strong, and that immersion has a positive effect on both creativity and character. Therefore, with these research results, it can be said that it is necessary to help children develop both creativity and character by having immersive experiences. However, in this study, the relationship between immersion and character can't be precisely explained because there are no mediating variables that influence the relationship. Therefore, it is necessary to investigate more closely the variables that influence the relationship between immersion and character in subsequent research.

Basic life habits in character had the greatest influence on the relationship between creativity and character. Basic life habits include habits in daily life, and they also refer to behaving according to traditional social norms, helping to adjust to various lifestyles of modern times, and helping to cultivate the ability to manage one's character [24]. Therefore, the proper formation of basic life habits can enable smooth adaptation to social activities and amicable relationships with others. These basic life habits are essential for children's holistic growth and development and signify the process of learning social norms naturally and internalizing morality [25].

Basic life habits such as order, etiquette and self-control require the ability to control one's emotions and behaviors appropriately, think about a given problem according to a situation, and solve it autonomously. Therefore, in order for such basic life habits to form in early childhood, children need to observe the surrounding people and situations carefully with an awareness of problems and think about them. If a given situation is not considered thoroughly without an awareness of problems, it is difficult to develop basic life habits well, and the tendency to think thoroughly is needed. Therefore, children who frequently display an immersive attitude in daily life may be able to observe surrounding situations thoroughly and internalize them, where the development of their character takes place. The results of this study, which show that immersion and basic life habits have a strong influence on each other, implies that creativity and character development may be complementary, and that education that can develop both at the same time is necessary.

Based on such results, children's creativity and character are related to each other and influence each other. Therefore, combining these two and helping them develop both at the same time may develop children's creativity and character effectively, and ways to connect them can be considered more aggressively for more effective creativity education and character education.

In modern society, creativity and character provide the ability needed to live as human beings. They are already emphasized as two goals of education. So, we have been wondering how children can develop these two abilities effectively. We already know that these two are different. However, as in the present study, it is necessary to continue to link them. The abilities to act creatively and live with others are more necessary than ever. Modern society is fraught with complex problems and wants more talented people to solve these problems creatively than ever before. But we have already experienced the dark side of creative talents in society. Therefore, character education is regarded as important. In order to teach future talents, it is necessary to help them develop these together. We have tried to separate them and raise each one. However, the results of this study show that they are correlated with each other, and it is necessary to approach one framework within human ability. And they suggest that it is necessary to make various attempts to educate them. It is another matter to look at the factors of creativity and character and to develop them. This task requires more consideration and effort. Teachers do this every day in the field. Therefore, various studies to help teachers' implementation should be done.

The results of this study are based on the assumption that creativity and character are composed of the sub-variables presented in this study. Therefore, if the sub-variables of creativity and character are changed, their relationship may also be changed.
So, more research on the sub-variables that constitute creativity and character is needed.

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