Infant-mother Attachment Style and Play Characteristics

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Abstract: The purpose of this study is to investigate on the relationship between infant-mother attachment type and play characteristics. The subjects of the study were 125 five-year-old children, 60 of which are boys and 65 are girls. Research data were collected using the 'Attachment Story Completion Test' and the 'Child Play Scale', and were analyzed for correlation. The results of this study showed that when infants formed stable attachments with their mothers, they had a positive effect on play characteristics than infants who formed anxiety avoidance attachments and anxiety contradictory attachments. Therefore, when the infant-mother stable attachment is formed, the child's play ability will be active, and a variety of play behaviors to think and express appropriately to the situation can be promoted.

Keywords: Infant-Mother, Attachment Style, Characteristic of Play, Interaction, Attachment Story

1. Introduction

Since the term attachment was first used by Bowlby (1958)[1], it has become an important variable in human development. Attachment is an emotional bond that makes certain people stable and trustworthy and has been continuously studied as it provides the basis for emotional stability and the foundation necessary to successfully complete developmental tasks. Infants have a closed relationship with their mothers from birth, and their attachment is formed by interacting. The quality of attachment formed affects the overall development of the infant's self-esteem, social emotional development, and cognitive development. However, due to social conditions such as the nuclear family in modern society and the increase in the employment rate of mothers, infants are being raised by various parenting methods and people around them.

Parents, a crucial factor that directly helps infants adapt to society, have been important by many scholars. In particular, it is reported that mothers, who are human beings among many factors in the home environment, play an important role in influencing the character, attitude, and values of infants, and have a significant impact on the development of infants as familiar and special targets. Bowlby (1958)[1] attributed attachment to an ephemeral system of behavior, as defined as an ongoing emotional bond formed between certain objects. Parents' social and psychological responses to outgoing behavior such as crying of infants were considered important factors for attachment formation[2].

The attachment that infants form with their mother, their main caregiver, differs in their qualitative

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characteristics, with some infants looking quite comfortable around the caregiver and knowing how to wait when the caregiver is away, while others are very anxious and unsure of what will happen next. The quality of the infant's attachment is closely related to the mother's patterns of parenting behavior. In particular, the quality of attachment relationships formed by the experience of interaction with parents in childhood has a lasting effect on human behavior and relationship formation throughout their entire lives. This childhood attachment is important to human development, including not only the psychological development of individuals but also the interpersonal development of human behavior and relationships throughout their lives. Bowlby(1958)[1] also said that the attachment formed in the early stages of life influences not only the caregiver but also the relationship with others as it grows. In other words, attachment has characteristics that can be continuously seen throughout the entire life.

Attachment is a process of interaction between infants and care givers, which is the quality of a relationship that lasts for a person's life. Also, like Ainsworth, as children grow up, the roots of attachment may change in shape, but basically persist throughout life.

Bowlby divided the development stage of attachment into four stages centering on infancy, and explained the development of attachment after infancy as the concept of an inner working model.

The first stage is the "indiscriminate social reaction stage," which refers to the period between 2-3 months of age, not being able to distinguish between the target and stranger who formed the attachment and showing a social reaction to all people. In this period, infants who have not developed vision use hearing and smell to distinguish people, and when they feel that there is a person in close proximity, they respond to social signals that make a voice or smile.

The second stage is the 'discretionary social reaction stage', where attachments are not stably formed, so they do not show boundaries for unfamiliar attachments, but they are elaborate and active behaviors toward those who are more familiar with infants, from 3 months to 6-8. It is a period between months.

The third stage is 'maintaining proximity to a specific attachment object', which refers to the period when approaching and seeking contact with the attachment object begins actively and continues from 6-8 months to 1-3 years old. Infants at this stage have developed motor skills and mobility skills, and exhibit not only attachment behaviors such as smiling and making a sound, but also contact seeking behaviors approaching the attached object. In addition, infants in this period use the attachment object as a safe base to explore the surrounding environment, and as the attachment to the attachment object is strong, severe shyness toward other objects appears and object persistence is not formed, leading to separation anxiety . The fourth step is the 'goal modification cooperation relationship', which means that the behavior of the attachment target can be predicted in advance, so that the attachment behavior is refined and flexible, and corresponds to the period in infancy and early childhood.

Attachment is divided into stable attachment and unstable attachment. Unstable attachments are classified into unstable-avoidant attachments and unstable-resistance attachments, and recent studies included unstable-confused attachments[3].

Secure attachment is a state in which attachment and search behaviors are balanced, and infants use their mother as a safety base in an unfamiliar situation, freely escape from the mother's side, actively explore the surrounding environment, and feel anxiety during the search. Use the mother's presence as a safety base, and explore a new environment again.

Stable attachment is closely related to social, emotional, and competence after infancy. Anxious-avoident attachment is a state in which attachment behavior and exploration activity are unbalanced, and because the desire to seek is stronger than the desire to seek contact, the mother cannot be used as a safe base in unfamiliar situations and avoids the mother even after reunion. This type is weak in coping with challenging tasks, is inexperienced in asking for help from others, and has low confidence in itself.

Anxious-resistant attachment is that infants have a stronger need for contact than a desire for

exploration, so they are anxious about strangers even if the mother is next to them, and they are anxious about being away from their mother for a while, so they are not easily calmed down even when the mother comes back, and anger. This is the case when expressing or resisting. Infants who have formed an unstable attachment to their mother are often rejected or isolated because they have negative feelings toward their peers, are aggressive, and show hostile behavior.

In disoriented attachment, an attached infant has a dual image of the mother, so the mother cannot be the object of comfort and cannot approach the mother. So, when they are separated from their mother, even if they strongly reject it, interest easily shifts to other areas. This is a case where attachment is formed unstable and it is difficult to belong to either avoidance or resistance.

On the other hand, the attitude of infants to play is called play ability, which is a form of quality characteristic of play by seeing how voluntarily infants participate in play.

Lieberman(1977)[4] defined play ability as behavior, quality, and style in play situations observed in infants, which can be considered as the characteristic of an individual closely related to subsequent development. Playfulness is a potential force that causes play. Infants develop potential possibilities through play activities and learn the basics of enabling cognitive, physical, social, and mental development. Play expands physical and social knowledge while inferring other people's thoughts. It is also said that sharing experiences with peers can be developed[5]. The play ability of children, which are proper characteristics to be formed in the healthy development of infants, varies depending on the individual internal characteristics of infants, and can also vary depending on the influence of external environmental factors. In summary, the infant's attachment type is closely related to the child's play ability. Therefore, this study is aimed to help determining the play characteristics of children related to infant-mother attachment type and infant play characteristics by considering the relationship between infant attachment type and play characteristics. Therefore, the following research questions are intended to be addressed in this study:

Research Question 1. What is the attachment type of infant-mother and the play characteristics of the child?

Research Question 2. What is the relationship between the attachment type of infant and mother and the play characteristics of the child?

2. Research Method

2.1 Research Subject

The subjects of this study were 125 children (60 boys and 65 girls) aged five among six classes in four kindergartens in G metropolitan city. The average age is 69.62 months, and its teachers graduated from the Department of Early Childhood Education at a four-year university and have more than three years of experience.

2.2 Research Tools

2.2.1 Infant Play Scale

A tool developed by Ji Sung-ae (2007)[6] was used to measure 'the infant play scale'. It consists of a total of 45 questions, including recognition game (8), language game (8), social game (8), emotion game (8), sports game (9), and without game (4).

This measure evaluates the characteristics of play by actively observing the children for a day by teachers. The five-point are "very not so"(1 point), "not so"(2 points), "normal"(3 points), "yes"(4 points) and "very yes"(5 points). The score ranges from 1 to 225 points. The higher the score, the more playable the infant is. The details of the questions for each subordinate score of the "infant play scale"

shall be as follows:

[Table 1] Composition of Questions by Sub-region of 'Children Play Scale

Sub -region	Main	Question
Recognition game	Cognitive behavior of children exploring playfulness and play situations and solving problems arising from the play process	8
Language game	The ability of children to express play situations and play roles in language and to express their feelings and to communicate.	8
Society game	The ability of children to share and exchange play and to keep playing by following the rules necessary for playing with peers.	8
Emotion game	The ability of children to recognize and control their emotions and to understand and sympathize with others during play.	8
Exercise game	The ability of children to freely express their thoughts and feelings and to use various rides in play.	9
Without game	Behavioral Characteristics of children Not Participating in Play	4
Total		45

2.2.2 A Story of Attachment Complete Test

The Attachment Story Completion Task (ASCT) was developed by Cassidy (1986), used by Chung Eui-young (2000) for Korean children, and modified by Joo Hyun-jung (2002)[7]. The test, which shows the natural thought process and specific expression process of children, provides specific mental representations related to attachment. Then, the infant's attachment type for a particular situation was classified based on the child's emotional response.

The "Attachment Story Completion Examination" consists of six stories. Stories 1 and 2 measure the relationship and interaction between child and its mother. Stories 3 and 4 measure the degree of successful conflict resolution through interaction with the mother in conflict situations within the family. Stories 5 and 6 measure the ability to resolve conflicts outside the family (especially with the mother). The specific story is shown in [Table 2].

[Table 2] Attachment Story Completion Test

Number	Substance
Story 1	The child gives a present to the mother.
Story 2	The child approaches her mother and says, "Mom, I'm sorry."
Story 3	Children do not want to eat dinner.
Story 4	Children should do what they hate the most.
Story 5	Watching a strange child stealing a bicycle and running away.
Story 6	Waking up in the middle of the night because of the noisy.

Through this test, the infant-mother attachment are classified into three types. First, the stable-attached type is a stable and normal attachment that considers itself to be loved and has a healthy ego that believes it can be helped by someone close to you when you are in danger, has high self-esteem,

care for others, and love properly. Second, unstable-avoid attachment types tend to reject or avoid interpersonal or intimate attachments because they are afraid of being rejected by others. Because self-respect is low and they do not believe they are loved, they often try to avoid attachment and maintain some distance from others. Third, the unstable-moral attachment type shows a stalker disposition. He is obsessed with his lover and shows symptoms of obsessing over it (though people do not like him inside but pretend to be close on the outside). He is obsessed with his opponent in order not to miss an unstable and incredible attachment. The criteria for classification of attachment types are shown in [Table 3].

[Table 3] Attachment Type Classification Criteria

	Stable attachment	Anxiety avoidance attachment	Anxiety contradiction attachment
Characteristics	Positive, organizational, supportive interaction with the mother.	Very little interaction with the mother.	Unorganized, violent, hostile interactions with the mother.
Story1	A gift to my mom is a good thing and she is happy to receive it, appreciate it, or show favor.	My mom does not thank me or show favor to me as a gift. Also, children cannot think about what type of interaction will occur with their mothers	A gift to my mom is not a good thing, and she wants to get it and throw it away, reject it, or give it a better gift.
Story2	The child admits Its fault, and the mother forgives or lightly scolds the child.	The children denies his fault, and cannot think of what type of interaction with the mother will occur. In addition, the mother did not respond to the child's fault.	The child denies its fault, and the mother acts violently against the child's fault.
Story 3	The child asks the mom to help without hesitation and the solution to solving difficult situations comes from active, positive, and organizational interactions with mothers.	The children solve difficult situations by themselves. They avoid interaction with their mom. They also do not think about what type of interaction they will have with their mothers.	Mom's violent, hostile, and unorganized behaviors are mentioned. Mom helps in a way that does not help at all.
Story 4	The child asks the mom to help without hesitation. The solution to solving difficult situations comes from active, positive, and organizational interactions with mothers.	The children solve difficult situations alone or avoid interaction with their mothers. They also do not think about what type of interaction they will have with their mothers.	Mom's violent, hostile, and unorganized behaviors are mentioned. Mom helps in a way that does not help at all.
Story 5	To find the bicycle, the child asks her mother for help without hesitation.	They try to solve the problem alone or give up looking for a bicycle.	It refers to a mother's violent, hostile, unorganized behavior or words. Mom helps in a way that does not help at all.
Story 6	The mother comforts the child or the child goes to be mother to be comforted.	No one comes into his room, and he says he will stay in the room alone	The person who will protect him/her speaks as a non-parent existence (dolls, kindergarten teachers, etc.), or even if he/she goes to his/her mother, the mother refuses the child.

2.3 Research Procedure

2.3.1. Preliminary Research and Inspector Training

Prior to this study, the researcher conducted a test on six children who were not subjects of the study for two days to find out the time required to measure the completion of the attached story and the possible problems to encounter. Although there were no major problems, it was judged that it was appropriate to record all the children's answers and classify them according to the type of attachment

to reduce confusion when interpreting them after hearing their answers.

The inspector training was conducted with the researcher on two subjects majoring in early childhood education. In order for the evaluation among the inspectors to be consistent, repeated training was conducted on the contents of the "Attachment Story Completion Examination", interview methods, and recording methods.

The Infant Play Scale explained the composition and evaluation of inspection tools to the teachers in charge of the children in the study twice, and understood the test contents and evaluation methods.

2.3.2 This Study

The "infant play scale" inspection was commissioned by each of the six classes from September 16 to 27, 2019 to observe and evaluate children for a day.

The infant's "Attachment Story Completion Examination" was measured at four kindergartens from September 16 to 25, 2019. This method presents picture cards to the children corresponding to six situations, tells the story, and asks questions such as "What will happen next?" In each picture situation, the child was encouraged to complete the back story. After recording and analyzing the child's response, it was classified into three types of attachment: stable attachment, anxiety avoidance attachment, and anxiety contradiction attachment. Among the six situations, the corresponding attachment type is selected as the attachment type of the child.

2.4 Data Analysis

The data collected in this study were calculated as the correlation coefficient between the child's score and the compliance score, and Pearson's aptitude correlation analysis was used to identify the relationship between each variable associated with the attachment type.

3. Research Results and Interpretation

3.1 What is the Relationship between Infant-mother Attachment Type and Child Play Characteristics?

In order to find out the type of attachment between infants and mothers, the type of attachment was classified according to the criteria for attachment, and the average and standard deviation were identified to find out the play characteristics of children. The results of calculating the frequency and percentage of infant-mother attachment types are as shown in [Table 4], and the average and standard deviation of child play characteristics are as shown in [Table 5].

[Table 4] Frequency and Percentage of Infant-mother Attachment Types

Attachment types	N	%
Stable attachment	66	52.8
Anxiety avoidance attachment	33	26.4
Anxiety contradiction attachment	26	20.8
Total	125	100

As shown in [Table 4], 66 children (52.8%) were classified as stable attachments, followed by 33(26.4%) and 26 (20.8%) as anxious contradictory attachments. In other words, the largest number of infants formed stable attachments with their mothers, followed by anxiety-avoiding attachments and anxiety-contradictory attachments.

[Table 5] Average Play Characteristics and Standard Deviation of Children

Play Characteristics Sub-factor	M	SD
Recognition game	3.63	.57
Language game	3.56	.62
Society game	3.70	.49
Emotion game	3.62	.47
Exercise game	3.83	.56
Without game	2.23	.68
Total	3.43	.56

As shown in [Table 5], the highest average of child play characteristics was sports, followed by social game, recognition game, emotional game, language game, and without game.

3.2 Relationship between attachment type and play characteristics of children and mothers.

The results of the analysis of the relationship between the attachment type and play characteristics of children and mothers are as shown in [Table 6].

[Table 6] Correlation between the Attachment Type and Play Characteristics of Infants-Mothers

Play type Attachment type	Recognition game	Language game	Social game	Emotion game	Exercise game	without game
Stable attachment	.35**	.38**	.28**	.31**	.28**	-.16
Anxiety avoidance attachment	-.37**	-.39**	-.30**	-.28**	-.26**	.17*
Anxiety contradiction attachment	.03	-.01	.04	-.07	-.07	-.84

*p<.05 **p<.01

As shown in [Table 6], stable attachment types such as recognition game ($r=.35$, $p<.01$), language game ($r=.38$, $p<.01$), social game ($r=.28$, $p<.01$), emotional game ($r=.31$, $p<.01$), and athletic game ($r=.28$, $p<.01$) were significantly related and without game ($r=-.16$, $p>.05$) had a talismanic relation. Types of anxiety avoidance attachment and cognitive play ($r=-.37$, $p<.01$), language game ($r=-.39$, $p<.01$), social game ($r=-.30$, $p<.01$), emotional game ($r=-.28$, $p<.01$), and playing sports ($r=-.26$, $p<.01$) had an amulet correlation, and without game ($r=-.36$, $p<.01$) had a significant correlation. The type of anxiety contradiction attachment did not appear to be significantly related to all sub-factors of child play characteristics. The more stable the attachment to the mother, the more significant the play characteristics and the more significant the correlation.

4. Discussion and Conclusion

The attachment between an infant and a mother is the source of an internally representative model of herself and others. In other words, children are significantly influenced by their relationships with others, their access to the environment, and their developmental task[8]. Summarizing and discussing the results of the relationship between the attachment type of the infant and the play characteristics of the child are as follows.

First, if you look at the tendency of infant-mother attachment types, 52.8% of stable attachment types, followed by 26.4% of anxiety-avoiding attachment types and 20.8% of anxiety-contradictory attachment types. In other words, the largest number of infants formed stable attachments with their mothers, followed by anxiety-avoiding attachments and anxiety-contradictory attachments.

Next, if you look at the play characteristics trends of children, sports games appeared the highest, followed by social play, cognitive play, emotional play, language play, and rain play. Sports games appeared the most common, and the second most social games appeared because the age of the study was five years old, when children were physically active, and because they spent half of their daily lives together, many characteristics of this period were likely to affect the type of physical and social play.

Second, infants who formed stable attachments with their mothers showed more play characteristics than infants who formed anxiety avoidance and anxiety contradiction attachments. Infants who formed stable attachments with their mothers showed static correlations that increased recognition game, language game, social game, emotional game, and athletic game, while infants who formed anxiety-avoiding attachments with their mothers showed amulets that lowered cognitive play, language game, social game, emotional game, and athletic game.

In addition, infants of stable attachment and mother do not have a connection in the baby's game, but infants of anxiety-avoiding attachment are highly related. In other words, infants with stable attachment to their mothers had a high score of play ability. This is partly consistent with Kwon Yeon-hee's(2002)[9] study, which states that children experiencing positive interactions with parents have high social, cognitive, and physical spontaneity, and that mother's appropriate participation in play is needed to form a stable attachment, which supports the study[10-12].

A study by Jang Eun-jung (2001)[13] found that the more affectionate and autonomous the mother is, the higher the play ability of the child later and the higher the satisfaction level during play. On the other hand, the less affectionate, the more repulsive, and controlling they were, the less playable they were able to participate in social play behavior. Therefore, stable attachment formation in the attachment relationship between an infant and a mother during infancy has a positive effect on child's play later.

Shin Ji-yeon (2004)[14] argued that infants and toddlers who formed stable attachments showed positive social behavior. This stable attachment means that infants can have a positive attitude toward their play relationship with their peers because their relationship with their mothers is positive.

Children with higher play characteristics scores showed behaviors that conform to rules or instructions, knowing how to properly present their thoughts, and participating in activities or groups on their own. It can also be seen that they can claim other people's actions and react appropriately in conflict with others, showing a lot of active play behavior.

Kim So-jin (2006)[15] said that stable infants develop positive relationships through active movement and interaction with others by performing prosocial behaviors in relationships with others, but unstable infants may have insufficient interpersonal relationships as a result of inconsistent and confusing parenting. These results indicate that stable attachment with the caregiver in infants is an important factor in forming play relationships between children and peers, whether individual or social. It is also consistent with the results of a prior study[16-18], which showed that children who

were stably attached were more positive and less negative in their interactions with peers.

Lieberman (1977)[4] also reported that unstable attached children perform more negative behaviors than stable attached children, such as physical attacks and verbal threats against their peers. This result is interpreted as the attachment to the mother influences the response to others. In other words, infants who have formed an unstable attachment with their mothers are expected to be rejected by their peers, showing the characteristics of non-play because they are less likely to participate in or fail to participate in play in peer groups.

The results of this study suggest that infant-mother attachment formation is important in the process required in the play characteristics of early childhood education institutions and play in relationships with peers. In other words, when the stable attachment between the infant and the mother is formed, the play ability of the children later will be active, and various play behaviors that think, express, and interact with the situation will be increased. Therefore, when the infant-mother stable attachment is formed, the child's play ability will be active, and a variety of play behaviors to think and express appropriately to the situation can be promoted.

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