

CHAPTER 2 LITERATURE REVIEW

It is well known that children's artistic ability reflects mainly two factors: physical growth and cognitive development. Without understanding both growth and development, it would be difficult to analyze and interpret the process of humans' artistic development. Thinking about how humans grow up and how they then start to perceive the world is essential before discussing the relationship between generalized growth and development and artistic development. Generally, both words -- "growth" and "development" -- tend to be used similarly. In developmental psychology, growth indicates quantitative changes in the process of physical growth. Development means the process in which the function and the construction of mind change qualitatively with age. On the one hand, physical growth is fixed, and changes in physical size, structure, and capacities appear with the age. The characteristics of physical growth are genetically handed down from parents rather than being the result of cultural influence. There is a concrete theory and pattern of physical growth, although they are affected by environmental factors - diet, schedule, health care. On the other hand, there are diverse theories in cognitive developmental psychology.

Many researchers succeed in explaining how children's artistic ability develops with the characteristics of universality and cultural and social influences by the concept of cognitive developmental theory. However, they have not described the causality of cultural and social influences that emerge in children's artistic development. No researcher proves why children from certain cultures draw in a particular way. The influence of culture and technology, especially at elementary school, starts to emerge in characteristics in children's drawing patterns with socialization depending upon the cultural and technological context. It is time to search for the concrete characteristics of artistic development that each culture has rather than the universality of patterns. Finding the difference that each culture and society produce and the causality are also essential in the study of artistic development.

This chapter is divided into two parts. One describes the main cognitive developmental theories that influenced theories of children's artistic development including theoretical and historical background, and the methodology of research. Understanding the relationship between those theories and artistic developmental theory is indispensable in discussing the factor of universality and non-universality (socio-cultural factors) which appears in children's drawings. The second part is how those theories are adopted into understanding the artistic developmental theory and then especially the development of spatial treatment in children's drawings as one of the artistic abilities.

Herein, I would like to first start to discuss the main theory of the important factors for cognitive development and the theory of developmental stages in cognitive development, and then the influence on children's artistic development. In addition to the cognitive developmental theory, which focuses on how and why human cognition

develops, universal to unique theory will be discussed to describe how one phenomenon which appears in a particular culture develops into a universal tendency.

Implications of Cognitive Developmental Theories for Children's Artistic Development

Since the eighteenth and nineteenth centuries, the relative importance of “heredity (nature)” versus “environment (nurture)” has been a divisive issue in understanding the cognitive development of human beings. This debate also includes two other theories: “Nativism (the rationalist view)” which focuses on the innate factors of heredity, proposed by Descartes and Kant; and “Empiricism (the materialist view)” which implies that structures are acquired through experience, a theory favored by Berkeley and Hume. The preference has changed from one view to the other and researchers have looked at the interaction of nature and nurture, and how both factors play a role in cognitive development.

In general, the pattern of development seems to be individually different; however, there is a general principle in the process of cognitive development. Yamamoto (1990) describes nine principles that operate in children's cognitive development:

1. The order of development: development occurs based on regular order, such as the development of movement, language, problem solving, and social activity.
2. The direction of development: development has regular direction and previous stages contribute to the following stages.
3. The continuity and discontinuity of development: the function of cognition is continuously developed, but the construction itself (stage or period) is discontinuous, which means that each stage has characteristics that indicate specific periods of development.
4. The rhythm of development: development changes from stage to stage, and the speed differs in each stage with different rhythms.
5. The correlation between intelligence and physical growth, and intelligence and social development.
6. The individual difference of development: development occurs equally for all children with the developmental stages, but not everyone develops at the same rate.
7. The interaction of individual and the environment: development occurs based on the interaction of innate factors and environmental factors.
8. The process of differentiation and integration: during development the cycle of differentiation and integration is repeated.
9. The critical period in development: there is a critical period in development, which means that some stimuli and experiences importantly influence development in a certain period.

Piaget and Post-Piagetian Views of Cognitive Development

Many scholars in cognitive developmental theories believe that cognitive structures -- the perception of depth, size, and shape and cognition of language, number, and physical reasoning -- are guided by innate structures. These structures develop through the interaction between "heredity" and "environment." However, ideas about the process of emergence in development differ, although many scholars believe that the structures do exist.

Jean Piaget (1952) is well known as a distinguished twentieth century psychologist who constructed the most comprehensive theory of the development of cognition and intelligence. There are some characteristics in Piaget's cognitive developmental theory. A primary characteristic of Piaget's theory is the definition of knowledge or the intelligence of human beings. He grasps the development of intelligence as the changing process of cognitive construction. To know is to act upon the object by either physical activity, intellectual activity, or both. According to Piaget, the development of intelligence is not a record of knowledge, but the process of acting on objects.

In addition, Piaget states that the process of development is the same regardless of culture, and he did not have to think about the strong influence of external factors, such as culture including race, gender, society, language, and so on. These external factors just influence human cognitive development quantitatively, but not qualitatively. Although the developmental speed of intelligence might be different depending on what kind of environment the infant is in, the process of development must not differ due to external factors. In short, Piaget believed in the universality of development, which is that development occurs over time regardless of culture and society, and parallel development occurs in all areas, that is, development occurs spontaneously through all areas of cognition and perception, such as depth, time, number, volume, and so on.

One of the traditional debates in developmental psychology is how development occurs, whether it continuously develops with small changes, or develops step by step. Piaget favors the latter idea. According to Piaget, development does not proceed rapidly, but develops gradually. The developmental curve gradually rises and maintains equilibrium until it reaches the perfection of a stage, then it again starts to rise to construct the next stage. Furthermore, each stage has distinct characteristics which define the period.

It is well known that Piaget divided the process of cognitive development into four periods and subordinate stages: the period of sensory-motor intelligence (ages 0-2), preoperational period (ages 2-7), concrete operational period (ages 7-12), and formal operational period (ages 12-14) (Piaget, 1952, 1969; Piaget & Inhelder, 1969). He clearly characterized each stage. This stage theory was universal and indicated a direction: one stage always precedes the other to support its development and this relation never changes.

In the sensory-motor period from birth to two years old, the style of children's thinking is based on sensory motor intelligence. One of the most important concepts

achieved in this period is “object permanence;” the child come realizes that the object continues to exist even though the object does not appear in front of the eyes. Children in this period can use “thinking” based on their action by reacting to the outer world, which means that physical activity toward the outside world is an important method for them to confirm and develop their cognition through the discovery of reality.

In the pre-operational period, children who have acquired the concept of object permanence develop the ability of “representation.” With this ability, children start to think about an object and a situation without contacting the outer world directly. Generally “thinking” appears in this period from two to seven or eight years old. However, in this period, there are some limitations, such as “egocentrism” and “the limitation of conservation.” Egocentrism means that children cannot fully understand the differences of point of view between themselves and others. Children cannot objectively see and think from other people’s perspective. Children believe that others must see what they see.

In concrete and formal operational periods, children can overcome these problems and they start to understand the concept of conservation. However, children in the concrete operational period have not yet reached a perfect level of cognitive development. Though they can understand the relationship of concrete phenomena in the environment with some assumptions, they cannot understand abstract phenomena. In the formal operational period for the first time children can think about and solve a problem with their assumptions based on concrete phenomena in the environment.

According to Piaget, the approximate age in which each stage occurs is just a standard, but the order of occurrence of each stage is regular and has a direction. For example, the sensory-motor period prepares the child to move to the preoperational period through the six subordinated stages; however, the sensory-motor period never directly leads to the concrete operational period. The construction of cognitive development is qualitatively universal even though it is not quantitatively universal. This means that even though the speed of developing from one stage to the other might be different due to the different ethnic and cultural background children have, the direction of development is the same regardless of the background. Hardiman and Zernich (1988) claim that not many art educators adopt Piaget’s developmental stage theory besides Arnheim (1954) and Lowenfeld (1957) who believe stage theory provides an adequate interpretation of artistic growth. However, it cannot be ignored that many art teachers in practice seem to use this theory as the standard to judge children’s artistic ability and activity.

Piaget’s theory has influenced many scholars to think of how cognition and intelligence develop. However, many psychologists and researchers also disagree with Piaget, partly due to limitations of Piaget’s method of experimentation from which he draws his theory. These people are called post-Piagetian.

What are some similarities and differences between Piagetian and post-Piagetian ideas about cognitive development? According to Piaget, all infants are born with mental

structures which develop through their interactions with the environment. Most researchers agree with this idea. The problem with Piaget's theory is that it does not fully explain the assumption of developmental stages within the fixed and universal system: such as universality, invariance, and the parallel development of all areas, including depth, matter, number, volume, and so on. Post-Piagetians argue that Piaget's theory is good at describing development, but not at explaining the reasons for development (Gelman & Baillargeon, 1983).

Another problem with Piaget is in the interpretation of the developmental stage theory. According to the issue of readiness in Piaget's theory, early education will not be effective until the child has reached a certain stage of development. Likewise, if Piaget's stage theory is correct, the idea of life-long education after the schooling period cannot be effective if the external factors do not influence to develop human intelligence. Post-Piagetians totally disagree with this concept of Piaget's stage theory. Unlike Piaget who called the process of thinking domain-general, claiming that "one's competence in problem solving and knowledge acquisition is determined by one's structures of thinking, which are applicable across domains," Post-Piagetians call development domain-specific, acknowledging that "competence may vary from domain to domain... acquired domain-specific knowledge serves as a constraint in solving problems there" (Inagaki, 1992, p.120). In other words, if Piaget's theory of development is limited to a certain time of period, post-Piagetian' theory must be life-long developmental theory.

Contrary to cognitive developmental theory based on genetic epistemology, other theories take a different stance toward the development of human beings. Among those theories, I would like to briefly talk about the following: Vygotsky's theory to see the relationship of learning and development (1962) and universal-unique theory of depict a big map of how a particular culture develops a universal tendency (Feldman, 1980).

Vygotsky's Views of Cognitive Development

Lev Semenovich Vygotsky was a Russian psychologist. He believed that human knowledge and thinking are not inherent, which means that thinking patterns and developmental stages are influenced by society and culture.

In his early research, Vygotsky (1936, 1962) made a principal distinction between 1) lower -- natural mental functions, such as elementary perception, memory, attention, and will, and 2) higher -- cultural functions of the transformation from the lower functions. Then he developed the initial concept that there are two different levels in children's development including 1) innate (present) level -- children can develop by themselves depending on their own innate individual ability without any interaction through society, and 2) social (future) level -- children can develop through the interaction with others, such as peers and adults. Particularly, he called the latter level of development the "zone of proximal development (ZPD)." According to Vygotsky's view, ZPD is the place at which children can develop their ability by meeting the systematic logic of adult reasoning, since children's abilities are empirically rich, but disorganized and spontaneous by themselves. Based on the concept of ZPD, he states that education

works well only when it is prior to development since children's development in ZPD is encouraged by education (Shibata, 1962).

Contrary to Piaget, Vygotsky believed that learning is prior to development. In particular, he focused on researching the interaction of "thought" and "language (speech)" and concluded that the development of thinking is related to the development of language (speech) and these interact in the process of development (e.g., Kozulin, 1986; Luria, 1976, 1971; Minick, 1989). According to Vygotsky, speech and thinking originally start to develop separately as "nonconceptual language" and "nonverbal thought" like separate circles. Then these two circles gradually start to overlap with the development of verbal thought; the circles of language and thinking will never perfectly overlap, although the amount of overlap will increase with the age (Shibata, 1971). For example, people sing a song that they sang when they were children; people recite a poem in their mind; and people repeat telephone numbers that they remember.

In the development of speech, Vygotsky (1962) describes four stages: the primitive stage (ages 0-2), naive psychological stage (ages 2-5), egocentric speech stage (ages 5-6), and ingrowth stage, which is a level of speech with thoughts (ages 7-8). One of the characteristics of the primitive stage is the emergence of an infant's emotional release that expresses their pain, frustration, satisfaction, and so on. Then, with the arrival of the naive psychological stage, children start to learn that objects and others have names; as a result, their vocabulary rapidly increases. Through the second stage, children start to show their egocentric speech, which means that children are talking to themselves without expecting others to listen. Vygotsky believed that egocentric speech is an essential process for children to learn how to solve some kinds of problems by themselves. This egocentric speech decreases with age, but never completely disappears. Through this stage, children learn how to operate language as nonverbal speech in their mind. After this stage, in the ingrowth stage, children start to use both inner and outer speech as methods of conceptual and verbal thought. By exposure to social life (school/society), children's verbal language skills have developed as a tool of communication and thinking process through four stages by the ages of seven or eight.

On the other hand, Vygotsky finds three main developmental stages of conceptual thought. Conceptual thought is the construction or organization of one's environment by abstracting or determining the similarities of more than two phenomena or objects. The developmental stages are: 1) the stage of unorganized congeries or heaps where children organize phenomena and objects, categorizing into groups by accidental intellectual connection; 2) stage of thinking in the complex, where children start to categorize phenomena and objects not only by subjective impression, but also by concrete relationships which exist among them; 3) the stage of thinking in concepts where children start to analyze and integrate phenomena and objects correctly by using both concrete and abstract concepts. According to Vygotsky, thought and language do not develop in parallel, but these growth curves sometimes cross, line up, and overlap each other without perfect overlapping (Vygotsky, 1962, 1978).

In the concept of language (speech) development, Piaget and Vygotsky have different points of view. In the preoperational period, Piaget generally identified infant's limited views as egocentrism which prevents the child from seeing/thinking about what and how others see/think of as things different from the infant's self. He also called children's self-speech egocentric speech or non-social speech since this speech does not act to influence others, but acts to influence the child him/herself. According to Piaget's definition of intelligent development, the action of self-speech without acting on others cannot be assumed as a process of acquisition of language; rather the egocentric speech disturbs children's proper cognitive development. For Piaget, verbal language (speech) has to be developed through dialogue with others as the process of acquisition of intelligence. Piaget thought that the period of egocentric speech was located between autistic thought and social thought, which is isolated from the process of learning knowledge. Piaget did not accept egocentric speech as a result of learning. Vygotsky disagreed with Piaget's thought about egocentric speech and analyzed the differences between Piaget's and his own point of view on egocentric speech clearly in Thought and Language (pp. 12-57). Vygotsky thought that self-speech is indispensable to the middle of acquisition of one's language to develop social speech to communicate with others. According to Vygotsky, the thought (intelligence) always develops not by learning process through acting to objects or environment, but by reacting to the society. In short, intelligence (thought) is developed not by one's need, but by one's need produced by reacting to the social need.

Walsh (1997) depicted the difference of developmental theory between Piaget and Vygotsky in one word phrases: "inside-out" for Piaget and "outside-in" for Vygotsky's theory. On one hand, Piaget hypothesized the developmental theory of intelligence as a result of a learning process by interacting with objects or environment based on one's need. On the other hand, Vygotsky assumed that thought was always developed by reacting toward social necessity. Therefore, for Piaget, egocentric speech, in which the child addresses only him/herself, does not contribute to the learning process to develop intelligence. Also, for Vygotsky, the self-speech (inner speech) does not communicate with others directly; however, it is assumed to be an important practical situation in developing social speech.

Thus, the difference of interpretation for those stances drawn from each concept of developmental theory is avoidable. Both Piaget and Vygotsky observed the same phenomenon of self-speech and came to different conclusions based on their own concepts and the interpretations of self-speech (egocentric speech) never deviate from those concepts. In practice, each researcher has different precepts and adapts his theory to different situations.

Furthermore, the different direction of approach toward the relationship between "thought" and "language" depending on the researcher was quite interesting to me. For example, Piaget believed that "thought" was prior to "language;" on the contrary, Vygotsky thought about "language (speech)" was prior to "thought." According to the principles of each developmental theory, it is easy to understand the different directions toward the relationship of these two things. In brief, for Piaget, speech is always just a

method of expression of thinking; therefore, “thought” has to be always predominant on “language (speech).” On the other hand, Vygotsky grasped “thought” as “non-verbal speech,” which means that infants’ speech starts to develop by copying adults’ words in terms of the social need to communicate with them. According to Vygotsky, language (speech) and thought are originally independent and develop separately. However, these two are gradually interwoven and reach higher status with age.

Vygotsky’s theory focuses on not only the relationship between mind and language, but also on the relationship between mind and society/culture in the process of making sense. Language is also a part of society and culture. Looking at the process of acquisition of language skills to communicate with others is key in realizing how one adjusts oneself to the society/culture. However, his theory seemingly is not enough to explain how language acquisition develops on specific social or cultural levels. By showing the developmental framework of the interaction between thought and language, he was successful in inspiring contemporary researchers to start thinking about this relationship; however, it is time to move on to emphasizing how the different factors/regulations/constraints in society/culture work to develop human beings to make sense (See, for example, Bruner, 1990, 1996; Hatano & Inagaki, 1992; Hatano & Miyake, 1991; Sameroff, 1989).

In the study of artistic development, it is also well known that verbal communication (even in egocentric speech according to Vygotsky) supports the development of children’s artistic ability/activity (Thompson, 1995; Thompson & Bales, 1991). By exchanging their ideas with peers, children are able to figure out how to draw faster than working alone. By using Vygotsky’s theory (ZPD), it is possible to describe the process of solving problems when children are drawing, but it may be difficult to explain how language acquisition interacts with children’s artistic ability/activity in the process of adjusting to a particular society/culture.

Feldman’s Views of Developmental Theory

David Henry Feldman (1980) is a contemporary cognitive theorist whose new concept of cognitive development is quite different from other cognitive developmental theories. Feldman grasps human cognitive development as a developmental phenomenon in a history of developmental processes over time. His theory is called the “universal-unique” developmental theory. Feldman characterized the traditional cognitive developmental theory as having four assumptions: sequentiality, hierarchical integration, universality, and spontaneity. He adopted the first two assumptions of sequentiality and hierarchical integration; however, he rejected the idea of developmental stages of understanding for human cognition and perception. Instead, he suggests five developmental domains: universal, culture, discipline-based, idiosyncratic, and unique, to interpret the process of cognitive development of human beings.

In this theory, as in Piaget’s developmental theory, the universal domain is interpreted as the basic domain that all have as an innate ability. However, this does not mean the universality of cognitive development itself, but the core domain of

developmental phenomena that continue to advanced domains. Secondly, the cultural domain develops based on the universal domain since the innate structure is strongly influenced by each culture and develops in society. As examples of cultural domains, Feldman suggests reading, writing and doing arithmetic, understanding and drawing maps, and understanding one's political and economic systems. Children are expected to learn the cultural domain to survive in a particular culture and society. However, the cultural domain varies from culture to culture. The third developmental domain is called the discipline-based domain which is based on mastery of a particular discipline in the culture and society. In other words, individuals have a chance or right to learn a particular discipline, such as medicine, carpentry, or political leadership. As a result, one can have different levels depending on the mastery of a skill or technique. Feldman explains this domain: "one difference between cultural and discipline-based bodies of knowledge is that fewer people learn discipline-based domains than cultural ones (1980, p.11)."

The discipline-based domain develops into the fourth domain, the idiosyncratic. When knowledge of a particular discipline reaches an expert level, it is called an idiosyncratic domain. Not all people reach the expert level. As an example of this domain, Feldman mentions the child prodigy. Finally, the developmental domain reaches a region of unique developmental phenomena. This domain may be described as human creativity. Through the previous four developmental domains, humans reorganize the domains into their knowledge and finally create new order within domains.

A major characteristic of Feldman's theory is the construction of the developmental phenomenon. Obviously, this developmental phenomenon of knowledge moves from domain to domain through a continuum from universal to unique. At the same time, these domains have a possibility of achieving the core domain of universal over a long time span. For example, at the beginning of human history, we did not have the knowledge of the use of fire. It was one of the unique, idiosyncratic, discipline-based, or cultural domains depending on the place where the human lives. However, over time, knowledge of fire and its use became one of the universal domains which everyone must know. Thus, Feldman creates and interprets the developmental phenomenon of knowledge in the sequential and hierarchical integration through transition rules. This approach to interpretation of human cognitive development is quite different from other developmental theories.

How should I adopt this universal-unique theory to understand the development of children's artistic ability/ activity? By using Feldman's theory, it is possible to describe the process of transition from a social-cultural to a universal and also from a universal to a social-cultural phenomenon in artistic development. For example, through the pilot study of cross-cultural analysis of children's drawings (Toku, 1997), I found some unique patterns in Japanese children's spatial treatment in their drawings. One possible reason for why Japanese children use such particular ways when they create space on two-dimensional surfaces is the influence of "Manga" (which means cartoons in Japanese). The influence of Manga seems to appear only in Japanese children's drawings at present. However, the influence may emerge in other Asian children's drawings, perhaps in Korea, Hong Kong, or other countries sooner or later since Japanese Manga

exports are rapidly spreading all over Asia at present. It may not be hard to imagine the influence of Japanese Manga as a part of other Asian cultures as a universal phenomenon in Asia. Thus, Feldman's theory allows us to depict a big map of how and why a characteristic phenomenon which occurred in a particular culture could be spread all over the world.

Through the historical study of cognitive development, we realize that assumptions for each form of development have changed. In the field of developmental psychology, the debate over the effects of universality and non-universality (cultural influence) in cognitive development shifts to the debate over the interaction of these two factors and the time span of the development. This means that both factors of universality and cultural influence appear in cognitive development. More importantly, the debate becomes when society and culture start to influence development, and how cultural influences affect development based on universal innate cognitive ability.

-----Place Table 1 about here-----
(Comparison of Cognitive Developmental Theories)

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Implications of Contemporary Issues for Children's Artistic Development

It is a well known fact that children's pictorial presentation starts from a toddler's scribble and develops to concrete and complex shapes with refinement of motor activity, experience, and cognitive development. This tendency is universal; however, the patterns of representation in children's drawings are not always universal. Furthermore, the period of occurrence of the specific representation differs from researcher to researcher according to the approach used to find the characteristics of graphic forms.

For example, Piaget and Inhelder (1956, p.77) define the development of children's drawing with a time span related to Piaget's theory of cognitive development. According to Piaget, children's artistic ability also has constant regularity and direction. He divided the children's developmental progression of drawing into four stages. The first stage is characterized by topological relations of proximity and separation, of order, enclosure, and continuity. In this stage, children cannot discern the size and shape of objects and cannot differentiate these dimensions in drawing. The first presentation in the drawing is the closed shape, the circle. At this stage, children cannot yet draw or copy a square or a triangle. In the second stage, children of three and four tend to ignore the proper proportion, length, distance, and shape. In this stage, they cannot create space in

the pictorial world nor do they try to produce it on the two-dimensional drawing surface, although they recognize depth and space in their cognition. G.H. Luquet (1913, 1927) called this lack of ability “synthetic incapacity,” a term Piaget adopted. The next stage, from ages four to seven or eight years, is characterized by Piaget as “intellectual realism,” also a borrowed term. Goodenough (1926) says that children tend to draw what they know rather than what they see. In this stage, children can draw more details in their drawings. However, topological principals still predominate in children’s representation of complex objects. They still ignore the object’s true shape, size, and proportion. In the case of simple shapes, Piaget observes the emergence of Euclidean and projective relations; for example, in the copying of a square at four years, a triangle at five years, and a diamond at the age of six or seven years. In addition, children in this stage fail to use “occlusion” to indicate that one object stands behind another one that partially obscures its view. Visual realism is the final stage discussed by Piaget, and it emerges during the concrete operational stage from approximately eight to twelve years. Projective and Euclidean relations develop from the earlier topological ones and begin to be organized according to a coordinate point of view. Relations of left and right, of in-front and behind, can now be represented. From now on, the viewpoint of the observer is respected and from age nine years on the child begins to draw objects in correct perspective. Thus, Piaget analyzes the presentation of children’s artistic development in their drawing with his theory of cognitive development. Seemingly, there is some universality.

Kellogg is well known for analyzing children’s scribble patterns in artistic developmental schema (1969). Based on the Kellogg’s research (1969) on the beginning of children’s artistic development, a Japanese researcher, Nagasaka (1989) constructed the development of children’s drawing in four stages within different periods. Nagasaka divided the four periods into scribble period (ages 1- 2 1/2), symbolic activity period (ages 2-3), early schematic presentational period (ages 3- 4 and 5), and schematic presentational period (ages 4 and 5 - 7 and 8). According to Nagasaka, children start to scribble with horizontal lines and finally change to a closed-form, the circle, in the scribble stage. In the symbolic period, the delineated form starts to have some kind of meaning where circles mean everything. Through both presentational periods, children can draw geometric shapes such as squares, triangles, and diamond shapes with growing control of motor activity, until they can draw a pictorial world of unified meaning. This means that children have an ability to depict the symbolized picture as a method of communication. After these periods, Lowenfeld and Brittain (1970) add three additional stages: an early realistic period (ages 9-12), realistic period (ages 12-14) and adolescent art period (ages 14-17).

The common thread of these developmental theories in children’s graphic representation is that there is a progressive direction and children’s artistic ability develops with age, although the period of occurrence of the specific representation differs depending on each researcher. Unlike these artistic developmental theories which indicate a progressive direction, there is another conventional theory that children’s artistic development temporarily declines in the middle childhood (for example, Arnheim, 1981; Burt, 1921; Read, 1958).

For example, Read (1958, p.118-119) constructed categories of children's drawing into seven periods on Burt's developmental scheme (1921). The first period is also called the scribble period (ages 2-4). The second is the period of line with circle (age 4). The third period is a symbolic period with geometric symbolic patterns (ages 5-6). The fourth is the period of realism where children tend to draw what they know rather than what they see (ages 7-8). The fifth is the period of visual realism where children start to draw in a visually realistic manner such as aerial and linear perspectives (ages 9-10). The sixth period is a characteristic period that Read constructed, the so-called period of oppression, which is a period where children's artistic abilities regress (ages 11-14). The reason children regress in such a period is the lack of skill in realistic approach. In spite of the fact that children start to draw as realistically as possible, they face difficulty; as a result, they lose their interest in drawing. The last period is adolescent art (artistic restoration) after fourteen years old.

Gardner (1980) explains that this developmental direction in children's graphic representation is in a "U" curve where middle childhood drawings have been regarded as the trough of a "U" curve when children's artistic development is concerned with a longer-term perspective (Duncum, 1986, p.43). He describes that the period of middle childhood dominated by the "pursuit of the realistic and literally true," which is manifest in graphic terms as a desire for "photographic realism" (Gardner, 1980, p.142).

Thus, there are two types of traditional artistic developmental theories: one is a linear progressive direction, and another is a regressive "U" curved direction. However, there is a universal and constant direction and order, even though the length of time attributed to each period is different with each researcher according to their observation and interpretation of artistic development. But is there truly a universal tendency in the pictorial world without considering the influence of society and culture?

Contrary to such research, Luquet (1913, 1927) mentions that artistic development never develops in one direction or in a constant order either qualitatively or quantitatively. Artistic development also has some kinds of regression phenomena depending on cultural/social differences and differences in mental and physical growth. Therefore, even adults tend to draw in primitive ways in spite of the fact that they recognize reality. There are some examples in children's basic scribble patterns to support Luquet's idea in the research of Harris (1971). In 1969, Kellogg described twenty basic scribble patterns. Through these scribble patterns, Kellogg describes a universal propensity in scribble patterns with the growth of children's motor skills. However, Harris found that tendencies differ depending on culture and society, and not incidentally, drawing experience. According to Harris, some native people (the South American Andes Indian, Bedouins from the Sinai peninsula, and Kenyan children) tend to skip to drawing figures without the process of diverse scribble patterns. These are not children who have grown up in highly developed societies with technology and science. They seldom use pencil and paper to draw something, rather they use natural materials, such as sand, rock, and sticks. Golomb (1992) speculated that differences of representation in children's drawings (such as their presentation of figures and spatial treatment) may come from the

difference of aesthetic to which children are accustomed. Aesthetic is strongly influenced by the society and culture.

It is time to search for the concrete characteristics of artistic development that each culture has rather than the universality of patterns. Finding the difference that each culture and society produce is also essential in the study of artistic development for visual art research.

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(Comparison of Artistic Developmental Theories)

Implications of the Theory of Spatial Presentation

How children start to create space and develop drawing techniques of spatial representation owes to their cognitive development, since children first perceive space and then transfer it onto flat surfaces as a spatial representation. The development of spatial presentation in children's drawing is often used to prove the developmental stages of cognition since pictorial representation appearing in children's drawing is known as a mirror of their mind (Piaget, 1957). In the study of artistic development, the stages of spatial presentation in children's drawing are often constructed with the concept of cognitive developmental stage to determine children's artistic ability.

Research on spatial development might be divided into two types: between objects studies (which investigate the representation of the spatial relationship between objects), and within object studies (which investigate the representation of structure within an object) (I, 1995). The present study belongs to the between object studies based on the relationship between figures and the ground.

In "within object" studies, researchers approach the development of creating an object (such as cube, table, and house) in a realistic manner. For example, Willats (1985) describes the developmental theory of drawing a cube where the final stage is to create a cube by using the technique of linear perspective from simple to complex in a geometric shape (for example, Arnheim, 1974; Dubery & Willats, 1972; Hagen, 1976; I, 1995; Lewis, 1963; Lewis & Livson, 1967, 1985; Mitchelmore, 1978; Nicholls & Kennedy, 1992; Willats, 1985).

In "between objects" studies, there are two main approaches: that of Eisner (1967, 1972) and that of Golomb et.al (1983). On the one hand, Eisner constructed fourteen spatial categories based on the relationship between figures and the ground, and the appearance of overlapping. Eisner's categories are divided into five realms: (1) floating figures, in which figures float across the page (category one); (2) no horizon line, in which figures stand on the bottom-edge of paper and some float in space (categories two and three); (3) horizon line, in which there are one or two horizon lines and figures stand on the horizon line or float above the horizon line (categories three to ten); (4) overlapping, in which figures/things overlap each other and the horizon line (categories eleven and twelve); and (5) unclassifiable, which is the final category of pictures which could not be classified into the prior thirteen categories. These fourteen categories were

created in 1967 to determine the differences in the developmental stages of spatial treatment between culturally advantaged and disadvantaged children. On the other hand, Golomb created five categories of spatial presentation with the strategy of alignment of figures as a result of analyzing drawings: (1) Early compositions, in which figures are dispersed across the page and there is a tendency to draw items in close proximity to each other which yields clusters of indeterminate orientation; (2) partial alignment of figures, in which figures are placed unevenly and appear to be floating in a space whose coordinates are indeterminate; (3) simple alignments, in which objects are lined up along the bottom edge of the paper which substitutes for a baseline; (4) alignments, in which similar figures are evenly spaced, and (5) advanced alignments (the items constitute a unit either in nature or merely in the drawing). This research was implemented based on several themes (such as the Family, a Birthday Party, Children Playing, a Garden with Trees, Flowers, and a Pond). According to Golomb, children's manner of creating space differs depending on the subject matter of their drawings.

In addition, Lowenfeld and Brittain (1987) mention a universality which appears in the space schema of children's drawings where the appearance of ground line in children's drawing is universal tendency. The emergence of the concept of a ground line regardless of appearance of the ground line in the drawing shows that children have awareness of the relationship between objects and space. Even though there is no ground line in children's drawings, it can be assumed that there is a concept of space, if objects or figures are drawn standing on the edge of drawing paper or aligning in the drawing. In addition, the principle of "folding over" or "up-side down" is often used in children's drawings as a universal tendency when children try to create a space in their drawings. Instead of using a ground line, children put an object or person in a circle, such as around on square playground. The edges of this playground square could be understood as a substitute for a ground line. In the early stages of artistic development, such as in the floating/mapping period of drawing, children cannot think about the relationship of object in space. In such a period of early childhood, if children are given the subject of a playground scene, they will try to draw as many playground things as possible based on their knowledge and memory, such as slides, swings, jungle gyms, monkey bars and so on. Then after drawing, they will say that this is a swing, this is a slide, and so on; however, they will not say that this swing is located here and that slide is located by this swing, and so on since there is no concept of relationship between far and close at this stage.

----- Place Table 3 about here -----
 (Comparison of Spatial Categories)