

## A Study on the Stages in the Development of Geographic Concept: The Conception of 'Place'\*

Tae-Yeol Seo\*\*

**This paper examines the cross-sectional development of children's conception of place. Previous research by Piaget and Weil, Jahoda, Daggs has questioned how young children develop the ability to comprehend place. Oral interview and graphic test were made by the children at the age of 5-14, in order to attain information on their knowledge, understanding and feeling about place. These data were used to identify developmental stages through cluster analysis. The results suggest that young children's conception of place develops with an identifiable 4 stages. There is no significant difference in development of conception of place between the 2nd year of kindergarten and the 1st year of elementary school, or between the 5th, 6th year of elementary school and 1st, 2nd year of middle school. Rather, the 4th year of elementary school is an important and crucial turning point in the development of children's conception of place. It is concluded that children's conception of place develops in line with Piaget's general cognitive developmental theory in which the pre-conceptual stage ends at age 7 and the concrete-operation stage starts at age 11 to 12.**

**Key Words:** Cognitive Development Stage, Place Location, Place Preference, Place Attachment, Nested Relationship between Places.

---

### 1. Introduction

Studies on cognitive development in geographical education can be classified into two categories: The first is the study on spatial cognition, that is, on spatial perception and spatial representation ability through analysis of mental maps and cognitive maps. The second is the study on formation and development of various geographical concepts, which are being used in the geography classroom, through analysis of several characteristic aspects of understanding, verbal attainment and representation of geographical concepts. Particularly, the first sort

of study is concerned with spatial cognition and ability such as: spatial perception through pictures, figures, and maps; mapping and reading ability; spatial ability, for example, cognition of spatial pattern, orientation, and spatial visualization. Depending on Piaget's theory on stages of mental development and spatial perception, the first have been made mainstream in studies on cognitive development in geographical education, in and out of Korea.

According to this trend, approaches to concept development in geographical education, up to now, have focused on the first sort of study because spatial cognition and spatial learning is

---

\*This paper was supported by Non Directed Research Fund, Korea Research Foundation.

\*\*Assistant Professor, Department of Geography Education, College of Education, Korea University

thought of as unique and fundamental in geographical learning and teaching. However, studies on verbal attainment and representation of various concepts which facilitate to acquire knowledge, understanding, and thinking ability in geography are also necessary to sound geographical education as well. This can make it easier to comprehend how and what kind of knowledge and students can learn in the geography classroom, and to provide curriculum specialists with deeper understanding of cognitive development in general, as well as of spatial cognition.

On the one hand, geography itself has, for long time, been concerned with 'place' as an entity integrated with humans and their behaviors, and with relationships between places. On the other hand, 'place' has been an excellent element in learning and teaching which plays a significant role in children's experience and cognitive development in terms of successive growth of human life. In other words, places are important to children for a wide range of interrelated reasons (Spencer and Blades, 1993, p.367): personal identity can be achieved via place attachments; personal development and social integration can be gained via knowledgeable and effective use of the resources to be found locally; social and civic participation is dependent upon understanding how places work. In the U.K., as a result of the establishment of a National Curriculum for Geography, during the early years in the primary school, teachers in England and Wales are now required to develop children's 'knowledge and understanding of places' (Harwood and Mcshane, 1996, p.3)

In this regard, Piaget (1928; 1951) has shown his concern with how the child's cognition develops through the experience of space and place, and thus proposed a spatial stages theory which shows how the child is able to comprehend the various geographical units in which he lives and to gradually integrate these units into a logically correct and consistent hierarchy. He thought mental development occurred in line with cognitive deconcentration or spatial cognitive deconcentration. Catling (1986, p.11) said that children's growing experience of place is an element of themselves

which they bring into school and that as a growing and continuous aspect of their lives, the fundamental nature of place manifests itself in a number of clear and incontrovertible ways in children's experience. In terms of curriculum, a geography syllabus will be successful when it is willing to define basic concepts such as place and spatial relation, and to link them with apparent and deep understanding of children's concept development, as Catling (1978, p.27) argued.

The purpose of this paper is to examine the cross-sectional development of children's conception of place and whether young children's conception of place develops with identifiable stages. Hence, this study tries to illuminate how children develop their concept of place as a key concept in the subject of geography which plays a significant role in cognitive development. Particularly, this paper studies the longitudinal processes through which children develop their conception of place such as location of place, knowledge about place, place preference, curiosity about place, place attachment, nested relationships between places. This study will identify some stages in which children's conception of place including knowledge and feelings about place changes from kindergarten to middle school years. Partly this study represents a replication and extension of Piaget's work in examining a child's knowledge of the concepts of spatial and logical relationships among geographical units.

## **2. Theoretical Background and Research Design**

### **1) Theoretical Background**

Much research related to the development of children's conception of place as well as spatial cognition has been influenced by the ideas of Jean Piaget. Piaget's theory on human development offers a fairly detailed account of stages which children pass through. It indicates how and when children are ready to learn place and spatial relationships.

The child's conceptual development of home, town, and country was examined first by Piaget

and Weil(1951). They asked children aged 5 to 11 about their homeland and nationality. The analysis of children's understanding of relationship between city (Geneva) and nation (Switzerland), enabled them to identify tentative age-related stages:

- Stage 1 (5-7 years): Acquisition of verbal concept and expressing a preference for many countries by whim.
- Stage 2 (8-10 years): Expressing preference for their own country according to some personal criterion.
- Stage 3 (10-11 years): Expressing preference for their own country according to abstract and social criterion.

Their findings suggest an important notion that children aged 7 years will have difficulty in grasping the meaning of 'the nested hierarchy of places, unless the tasks are presented in a directly perceptual and concrete manner within a familiar geographical context (Harwood and Mcshane, 1996, p.6).

Jahoda (1963) has extended and supported Piaget and Weil's works on children's understanding of relationships between cities and countries. He interviewed 144 Glaswegian children aged 6 to 11 and questioned them upon the spatial relation of Glasgow, Scotland, and Britain. Analyzing the gradual emergence of concepts and relationships and offering tentative developmental ideas for children from contrasting socio-economic backgrounds, Jahoda categorized four stages as follows:

- Stage 1: No conception of Glasgow as a 'unitary whole'.
- Stage 2: Conception of Glasgow as a unitary whole, but no conception of it as part of Scotland
- Stage 3: Conception of Glasgow as part of Scotland, but no conception of Scotland as part of Britain
- Stage 4: The Glasgow-Scotland-Britain relationship was correctly expressed.

Carnie (1973), who has been profoundly

influenced by Jahoda, has revealed similiar difficulty with which children faced in their understanding of the relationships between places, like in the works of Piaget and Jahoda. Carnie commented that only exceptional 7-8 years old children are apparently able to achieve understanding of the place or spatial relationship between home, province, and country.

Daggs (1986) utilized three tests, namely a verbal test, a graphic test, and a test of a large scale physical model of a park, to examine the emergence of geographic hierarchy with U.S.A. children from Grades 1 (aged 6-7), 2 (aged 7-8) and 3 (aged 8-9). The verbal test assessed children's familiarity and understanding of relationships between place units. In the graphic test, children were asked to draw another circle to represent a town in Pennsylvania and to color Pennsylvania on a paper in which a circle was drawn to represent a geographic unit such as Pennsylvania. Finally, a large scale physical model of a park was introduced to ask whether it is possible for one place to be in the same place with a different hierarchy. The result was that Grades 1 and 2 had considerable difficulties with the verbal test and all three grades and problems with the graphic test (Downs et al., 1988, p. 697). In line with the results of Piaget & Weil (1951), Jahoda (1962, 1963), Carnie (1973), and Daggs (1988), Harwood and Mcshane's (1996) study showed that 11 out of 12 children in that age group (school year 3: 7-8 years old), including those of 'below average' ability, were at that stage or better.

The previous research does seem to indicate a strong consensus that children aged 7 have difficulty in understanding the 'nested hierarchy of places', unless the tasks are presented in a directly perceptual and concrete manner within a familiar geographical context. (Harwood and McShane, 1996, p. 6)

Nevertheless, none of the studies cited above make any reference to the contribution to comprehensive understanding of the development of children's conception of place itself. Hart (1979) studied how children use and value 'unofficial' places and how central these places are to the child's developing identity, and documented understanding of children's

everyday use of places, preference of places and place attachment. As Hart (1979) showed, to acquire more comprehensive understanding of children's conception of place, considering several aspects of concept is necessary.

On the other hand, little evidence has been found about which geographical concepts are acquired at various stages in our life, although some researches into cognitive development of the child like Piaget and Inhelder (1956) and Hart and Moore (1973) have revealed that the child develops a gradual understanding of spatial concepts. Vass (1960) tackled the question of whether it was possible to determine the age at which the teaching of physical geography could be fruitful because children had acquired many of the basic descriptive concepts. Vass found out that there was a steady growth in understanding of certain basic concepts of physical geography from 8 years to 15 years. Lunnon (1969) attempted to find out whether the growth in understanding of certain geographical concepts by primary school children was gradual and how far this growth was related to mental and chronological age and the socio-economic class to which the children's parents belonged. He showed that the growth in understanding of 10 concepts such as river, mountain, beach, farming, etc., occurred gradually, but was made most rapidly by children aged between five and eight, and was more related to chronological than mental age.

However, the cross-sectional research reported in this paper did not directly study the longitudinal processes through which the children developed their concepts of place.

## 2) Research Design

### (1) Premise

The meaning of a concept can be fully understood when it is considered in two attributive aspects: the fact-related aspect of concept and the value-related aspect of concept. As Slater (1982, p.90) notes that values are at the very center of what we consider to be important in human existence, each concept in geography is associated with the aspect of values, belief, attitude, opinions, and preferences. In other words, each concept has value-related aspects

which are learned predispositions.

Therefore, these two aspects provide us with a useful framework to investigate how children develop their understanding of the concept of 'place'. Catling (1986) proposed several aspects of sense of place, namely, conception of place such as location of place, knowledge about place, preference of place, curiosity about place, place attachment, nested relationships between places, etc. Among them, location of place, knowledge about place, nested relationship of places are associated with the fact-related aspect of the concept of place. On the other hand, preference of place, curiosity about place, and place attachment are associated with the value-related aspect of the concept of place. These 6 aspects of the concept of place were used to understand how children develop their concept of 'place'.

### (2) Methodology

The main procedure used here is an oral interview in order to investigate how the understanding of 5 aspects of the conception of place develops, namely, location of place, knowledge about place, preference of place, curiosity about place, place attachment. A short sequence of questions was used as the basis for flexible, semistructured interviews according to the standardized items in line with each aspect of the conception of place. The children were asked a series of questions: Locate your home with some reference; Locate your school with some reference; Locate your 'Dong' as village with some reference; What range does your dong have as a village using some reference places?; What places do you like best?; Why do you like those places?; What place do you dislike most?; Why do you dislike that place?; What is the place you want most to go?; Why do you want to go there?; Do you feel attached to your 'Dong'?; When do you feel like that?; Do you feel attached to the city of Seoul?; When do you feel like that?

200 urban children were interviewed who lived in apartment complexes in the city of Seoul, equally divided into age groups and sex groups between 5 and 14 years. For example, 10 boys and 10 girls were allocated equally to each

school age group and selected to exactly fit the biological age into school age. They were attending kindergarten, elementary schools and middle schools which are located in Nowon-Gu<sup>2)</sup>, Seoul, except for 9 children in another Gus adjacent to Nowon-Gu, Seoul.

In order to investigate how children understand 'nested relationships between places', a graphic test was introduced. Children were asked to represent wider places on a paper with a one-inch circle which represented the basic unit. Each child was provided with a blank sheet of paper, approximately 180 x 250 cm(B5) in size, which had a one-inch circle at the center meaning the basic unit of place.

In this study, three verbal concepts such as locating home, locating school(or kindergarten), locating 'dong' as a substitute for the concept of village in the urban area were tested since home, school, and village are the most important and basic places for the child to acquire knowledge about places and to understand place location. These three concepts were evaluated in terms of the children's ability to locate places and the number and form of referencing places. These was named variables  $X_1$ ,  $X_2$ , and  $X_3$ , which were measured according to the level of cognition of place.  $X_1$  (village-dong location cognition) was scored as follows: 1) can't recognize, 2) locating invalidly without landmark, 3) locating by using landmark or node or district, 4) can't locate but recognizing the range through landmarks or locating through several indices, 5) can't locate but recognize the range through nodes and districts, 6) locating and recognizing the range through landmarks, and 7) locating and recognizing the range through districts.  $X_2$  (School locating) and  $X_3$  (Home locating) were scored as follows: 1) can't locate, 2) locating using simple direction, 3) locating single landmark, 4) locating by using several landmarks or nodes, 5) locating through path, 6) locating through nodes or district, and 7) locating path and districts.

For the place preference, place likes (variable  $X_4$ ) and place dislikes (variable  $X_5$ ) are measured according to the level of cognition.  $X_4$ (Place preference-likes) and  $X_5$ (Place preference-dislikes) were scored as follows: 1)

no place, 2) (dis)like place without any index, 3) (dis)like place by recognizing place superficial characteristics, 4) (dis)like place by suggesting activities or things there, 5) (dis)like place by recognizing characteristics and images, 6) (dis)like place by recognizing place characteristics and place components, and 7) (dis)like place by recognizing characteristics and place components and its meaning.

Place curiosity (variable  $X_6$ ) was measured, also, in the same manner. It was scored as follows: 1) none, 2) curious about certain place without recognizing any index, 3) curious about certain place by recognizing activities or things there, 4) curious about certain place by recognizing characteristics, 5) curious about place in foreign countries with simple information, 6) curious about places by recognizing characteristics and place components and its meaning, and 7) curious about foreign by recognizing characteristics and place components and its meaning

For measuring place attachment, the author selected two scales of places which have certain territory to facilitate emotional identity. Attachment to 'Dong' as village (variable  $X_7$ ), attachment to 'city' (variable  $X_8$ ) were scored according to level 5 of cognition.  $X_7$  (Dong attachment) and  $X_8$  (city attachment) were scored as follows: 1) not acquire verbal concept, 2) acquire verbal concept invalidly, 3) acquire verbal concept without attachment, 4) acquire verbal concept and feel attachment with invalid rationale, and 5) acquire verbal concept and feel attachment with clear rationale.

The understanding of territoriality or 'nested relationships between places' (variable  $T_e$ ) was measured according to level 11 of cognition of relationship between 'Dong', Gu, city, province, and nation.

Finally, the Cluster Analysis(Ward method) was conducted to explore the identifiable stages in children's conception of place, using above the 9 variables.

### 3. Formation and Development of Children's Conception of Place

#### 1) Knowledge on Location of Place and Locating Places

Most children aged 5 to 7 years failed to locate home with other referencing places. In contrast, half of the children aged 8 to 9 succeeded in locating home with other referencing places, and most of the children aged 10 or older also succeeded (Table 1).

Table 2 illustrates the number and form of places which was used in referencing for locating home.<sup>3)</sup> The frequency of referenced places is the highest in the form of districts such as 'district of apartment' and 'Dong'. However, districts are referenced as locating criteria only after 8 years of age, while districts are never

referenced between ages 5 to 7. This probably means that the children aged 5 to 7 fail to get the concept of surface beside line or point. According to Piaget, they are still in the intuitive stage or pre-operational stage.

Districts were followed by path, apartment, node, shopping building, administrative place, and places for education in order of frequency. Path was recognized through the main road, for example, Dongbu-Gansun Highway (means trunkline), Gyungchun Railroad, and Dongil-ro (Dongil Road). Node was recognized through main crossroads. Nodes such as crossroads are recognized exactly at comparatively early age of 6. Although path is also recognized early in age 5, it was not exactly named.

Major landmarks which were referenced in locating home are as follows: department store as shopping place; administrative Gu-district

**Table 1.** The Rate of Success in Locating Home and School (or kindergarten)

Age	5	6	7	8	9	10	11	12	13	14
home with referenced places	35%	20%	15%	50%	47%	90%	95%	80%	100%	95%
school or kindergarten with referenced places	30%	15%	30%	60%	85%	90%	100%	100%	95%	95%

**Table 2.** Frequency of Referenced Places in Locating Home and School (or kindergarten)

*Type of place	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Age															
5	1/							1/1**				3/2	2/3		
6								1/				3/1		1/	
7							1/1	1/2		1/		2/2			1/
8		1/		1/1								3/1	2/		4/10
9	1/	1/	3/									3/6	1/2	1/3	1/6
10			4/				1/1	1/1				1/2	2/2		9/13
11		1/		1/						1/		1/2	2/	8/5	6/12
12		1/1	1/				2/						1/	3/1	8/16
13		1/	2/2		1/2	1/	3/1	12/	1/			1/	1/2	1/	7/10
14			1/		2/1		1/	4/	2/1			1/	3/	1/	5/16
Total	2/0	5/1	11/3	1/1	2/3	1/0	7/3	8/7	5/2	1/0	0/0	15/15	16/10	12/10	40/85

\* 1 'physical thing' 2 'playing and recreation place' 3 'large shopping center' 4 'athletic'

5 'medical' 6 'sanitation' 7 'educational' 8 'administrational' 9 'transportation and parking' 10 'religious' 11 'dining' 12 'apartment and house' 13 'path' 14 'node' 15 'district'

\*\* locating home/locating school (or kindergarten)

office, and Dong office as administrative form; elementary school, middle school, and kindergarten as places for education. In terms of understanding locality, these referenced places in locating home are of particular interest to children. Siegel and White (1975) suggested some evidence that children remember landmarks that are of particular interest or importance to them in finding their way around their home area.

Big shopping buildings become distinctive landmarks after 9 years of age. The places related to administration and education become crucial references after the age of 12. Playing places appear to be recognized steadily from an early age. In the ages of 5 to 7, the landmarks are referenced more highly when they are compared with node, path, and district.

Children aged 5 to 7 still have difficulties in locating school (or kindergarten). From the age of 8, most children gradually succeeded in locating school (or kindergarten) with some

referenced places. As in locating home, districts are picked in the highest frequency for referenced places in locating school (or kindergarten), in particular after age 8. Districts were followed by apartments nodes, path, and places for administration, in frequency order. It is interesting that as in locating home, the apartment number is an important reference in locating school (or kindergarten). The variety of referenced places in locating school (or kindergarten), however, is not greater than that of locating home. Obviously, referenced places are concentrated in districts.

Locating Dong as a basic living unit of the city and ranging it with reference showed great difference between children aged 5 to 10 and those aged 11 to 14. After the age of 11, the rate of success in locating and ranging it with reference rapidly increases. Districts also are the major referenced places in locating and ranging Dong. It is characteristic that big shopping buildings are frequently used in locating and

**Table 3.** The Rate of Success in Locating Dong

Dong \ Age	5	6	7	8	9	10	11	12	13	14
locating with referenced places	0%	5.1%	0%	15.2%	0%	10.1%	70.7%	96%	100%	85.9%
ranging with referenced places	0%	0%	0%	10.1%	0%	10.1%	60.6%	50.5%	85.9%	75.8%

**Table 4.** Frequency of Referenced Places in Locating and Ranging Dong

Age \ *Type of place	1	3	4	5	7	10	12	13	14	15
5										
6									1/	
7										
8										3/1**
9										
10										2/2
11									1/	13/4
12									1/	18/4
13										20/15
14	/2	/6	/2	/1	/1	1/0	/1	/1		16/14
Total	0/2	0/6	0/2	0/1	0/1	1/0	0/1	0/1	3/0	72/40

\* the number indicates the same type of places in Table 2

\*\* locating/ranging

ranging Dong.

## 2) Place Preference

Preference is an expression of human needs (Kaplan and Kaplan, 1978, p.148). In other words, preferred environments will, in general, be ones in which human abilities are more likely to be effective and needs are more likely to be met.

In this study, the type of preferred places is not diverse until age 6. After the age of 7, the type of preferred place becomes various. After the age of 9, place is proposed with abstract attribute or simple image.

The frequency of preferred places are in order as follows: playing and recreation places, natural places, foreign countries, athletic places, parks of museums, zoos, and botanical gardens. Particularly, playing and recreation places such as Lotte World, Dream Land, Seoul Land, are preferred throughout all age groups. This fact corresponds with the presentation of Goodey (1973, p.7), Hart (1979), and Matthew (1992, p.33-35). Moreover, children said that the more playing machines there are the more pleasure they feel. In this context, Goodey (1973) argued that children located in their own 'personal space' which they experience directly through play and interaction with their immediate

surroundings. It is particularly because environments that are likely to be preferred are those that permit "involvement" and "making sense" (Kaplan and Kaplan, 1978, p.148).

Children's preference for natural places such as the beach, seashore, and mountains, decreases in its frequency as their age increases. They have the feeling of images like 'clear', 'blue', 'fresh', 'cool' and 'comfortable' on the beach, seashore, and in the mountains.

In the case of foreign countries, the frequency of preference increases suddenly at the age of 7 and, particularly, increases sharply after the age of 12 (grade 5 of elementary school). The U.S.A., the Netherlands, Norway, Switzerland, India, and New Zealand were ranked highly and perceived as 'beautiful' due to those countries' natural beauty.

On the other hand, the variety of types of disliked places increase according to age. As the age increases, disliked places are become more abstract. The frequency of dislike to places appear in order as follows; places for medical care, places for sanitation, natural places, places for education, parks of museum, zoo, libraries, and botanical garden.

Particularly, dislikes of places for education, like school and educational institutes, and for medical care, like dental hospitals and

Table 5. Frequency of Place Preference

Age	*Type of place																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	2/1**	2/1	6/1		2/0			/1		/1	1/2	/1								
6	1/2	6/1	3/1	1/1		/2							1/							
7	1/	1/	1/		1/						2/	1/1		1/	3/3					
8	1/	1/	4/		1/		/1	/1		2/	1/2		1/							
9	3/3	1/	4/		3/	/1		1/1	/1		/2	/1								
10	2/1	1/	3/		1/	/1	/2	1/		2/		1/		1/		/1				
11	/2	5/			4/2	/1	/2	1/			3/	1/		1/	1/					
12	/2	1/2	2/		2/	/2					1/			1/	4/		1/1			
13	1/1	3/1	3/		1/2	/4	/2	1/1	/2	1/		4/			4/				1	1/1
14	3/1			2/2				/3	/3	1/	/2	6/								
Total	14/14	21/5	26/4	3/0	15/4	0/11	0/9	4/8	0/6	6/1	8/7	16/3	2/0	3/1	12/3	0/1	1/1	0/0	1/0	1/1

\* 1 'attribute only' 2 'physical' 3 'playing and recreation' 4 'shopping' 5 'athletic' 6 'medical' 7 'sanitation' 8 'educational' 9 'path' 10 'park' 11 'park of museum, zoo, botanical garden or remains' 12 'home and relatives' 13 'dining' 14 'remote place in Korea' 15 'foreign countries' 16 'theater' 17 'farming' 18 'exhibition' 19 'broadcasting' 20 'small market'

\*\* liked place/disliked place



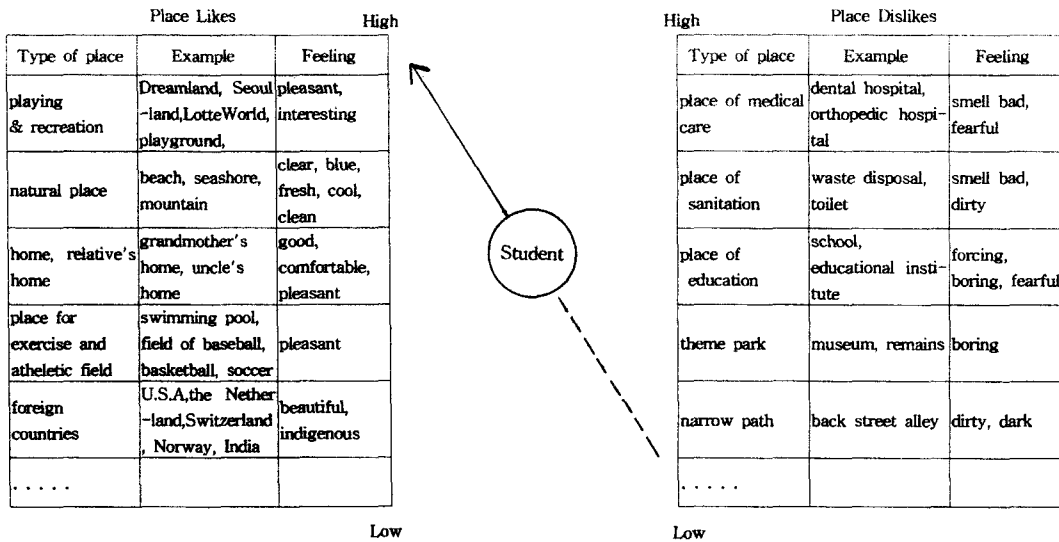


Figure 1. Place Likes and Dislikes

orthopedic hospitals, is getting stronger as the age increases (see Table 5 and Figure 1). The feeling and image about places for medical care is 'fearful' and 'smelling bad'. The feeling about sanitation is 'dirty' and 'disgusting'. The back street alley is also one of the disliked places because it is 'dark', 'without anyone', 'dirty.'

Natural places and the playing and recreation places are perceived as both liked places and disliked places. For example, the seashore is disliked because of the feeling of fear. Obviously, the places for education and studying are disliked because they feel forced only to study hard there. Playing and recreation places are also disliked because they feel fearful and noisy.

### 3) Curiosity about Place

Curiosity about places is part of the general curiosity about things, part of the need to label experiences so that they have a greater degree of performance and fit into some conceptual scheme (Tuan, 1977, p.29). In this investigation, curiosity about place does not show any distinctive changes throughout all ages from 5 to 14. In other words, students from all age groups tend to have curiosity to know any place unknown, in spite of differences in the recognition and type of places.

As mentioned in the case of liked place, it is clear that the younger students are, the more concern and curiosity they have about playing place. These concerns and curiosity about playing places decrease radically after the age of 10. In contrast, the curiosity about foreign countries rapidly increases after the age of 8. This reflects that children's concern is changing from the egocentric to the external.

Children's curiosity about places appear orderly in frequency as follows; foreign countries, remote places in Korea, playing and recreation places, physical places, places for exercise and athletic fields, and relative's homes. Among them, curiosity about foreign countries has differences, in that children aged 5 to 7 have curiosity without any concrete knowledge about place, on the contrary, children after age 8 have curiosity with some detailed knowledge about place.

In frequency of foreign countries, the U.S.A (31 times) was most spotlighted and followed by Japan(10), Swiss(6), Australia(5), France(3), India(2), Canada(2), and New Zealand(2). The U.S.A. was overwhelmingly mentioned, and also the children showed their concern and curiosity about more specific and concrete places such as Disneyland, the White house, Los Angeles, and Hawaii with the image of

Table 6. Places Received Curiosity

Age	*Type of place											
	1	2	3	4	5	10	11	12	14	15	16	
5	1	1	10			1		3		1		
6	1	2	7		1		1		2		1	
7	1	2	3		1		2	3	2	1		
8	2	1	1		2			1	2	6		
9			4		2		1	1	1	2		
10	2	2			1		1		2	8		
11	1				2		1		2	13	1	
12		2	1	1	1					12	1	
13	1	2							2	15		
14		1					1	1	5	10		
Total	9	13	26	1	10	1	7	9	18	69	2	

\* the number indicates the same type of places in Table 5.

'beautiful', 'rich', 'pleasant' and 'wide and big.' Japan, however, was attentioned owing to both the negative image of imperial invasion and plundering, and the positive image of scientific development and close relationship through parent's business trips. On the contrary, Switzerland had the image of 'clean' and 'beautiful.'

In children's curiosity about remote places in Korea, children want most to visit Cheju island and Mt. Halla because of their beautiful physical landscapes and Mt. Baikdu and Pyungyang as symbols of Korean unification. Along with Mt. Halla, Mt. Baikdu also attracted children's attention as a natural place.

#### 4) Place Attachment

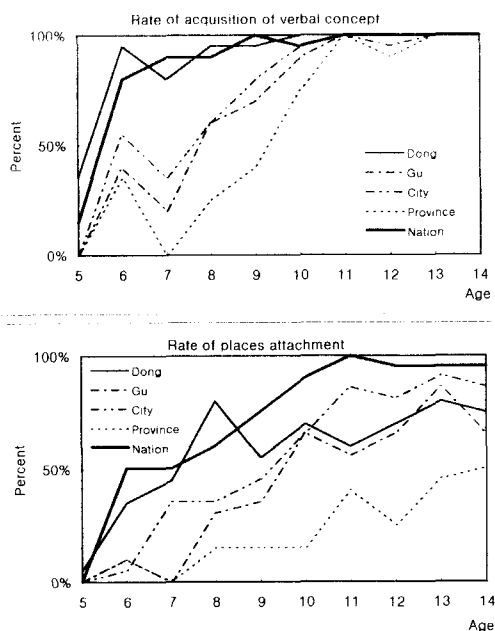
Place attachment in children can be linked to the concept of bonding, and of rootedness, which are necessarily needed aspects for the healthy development of the individual (Spencer and Blades, 1993, p.368). In this study, in order to investigate student's place attachment, five places; 1) Dong, 2) Gu, 3) the city of Seoul, 4) Province of Jungbu and 5) nation of Korea, were chosen according to five different scales.

Figure 2 illustrates considerable disparity between acquisition of verbal concept and place attachment when children are asked to make a rationale for place attachment. Among five places at different scales, Dong seems to be the most

familiar place to urban children. Children feel Dong attachment most when they move in and out of the Dong and when they read the address on the mail. Children acquire verbal concept of Dong at quite an early age, together with the concept of nation of Korea. The verbal concept of Dong was acquired by children aged 6 at 95 percent, and that of nation was acquired at 80 percent. In contrast, the verbal concept of Gu, city, and province was acquired slightly later.

In place attachment, Dong attachment appears in 80 percent of children aged 8, nation attachment reached 75.4 percent in children aged 9. As in the acquisition of verbal concept, Dong and nation attachment appear at an earlier age than Gu, city, and province attachment. The children aged 10 show Gu and City attachment at 90 percent and 95 percent respectively. Children feel Gu attachment most when they move in and out of the Gu and when they read the address on mail or they use some facilities in the Gu. Children feel city attachment most when they move in and out of a city, particularly when they see the symbol of the city or when they think of the characteristics of a city.

In the case of province, children aged 14 have attachment only at 0.5 percent. Children feel province attachment only when they think of weather. In contrast, children feel nation attachment most when meet foreigners or watching international games or events.



**Figure 2.** Rate of Acquisition of Verbal Concept and Place Attachment

### 5) Territoriality and Understanding Nested Hierarchies of Place Relationships

As in the investigation of place attachment, five places at different scales were chosen. Before analysis, the understanding of nested relationships between these five places was normatively categorized into level 11 which reflects children's cognition of hierarchical relationship as follows: level 1: unconscious. level 2: recognizing place relationships as parallel. level 3: understanding the relationship between two places hierarchically (II-1): the conception of Dong as part of Gu, but no conception of Gu as part of city. level 4: understanding the relationship between two places hierarchically (II-2): the conception of Dong as part of city, but no conception of Gu as part of province or nation. level 5: understanding the relationship between two places hierarchically (II-3): the conception of Gu or city or province as a part of nation, but no conception of Gu as part of city. level 6: understanding the relationship between three places hierarchically

(III-1): Dong, Gu, city relationships are correctly expressed, but no conception of city as part of province. level 7: understanding the relationship between three places hierarchically (III-2): Dong, Gu or city, province relationships are correctly expressed, but no conception of Gu or city as part of province. level 8: understanding the relationship between four places hierarchically (IV-1): Dong, city, province, nation relationships are correctly expressed, but no conception of Gu as part of city. level 9: understanding the relationship between four places hierarchically (IV-2): Dong, Gu, city, province relationships are correctly expressed, but no conception of province as part of nation. level 10: understanding the relationship between four places hierarchically (IV-3): Dong, Gu, city or province, nation relationships are correctly expressed, but no conception of city as part of province. level 11: understanding the relationship between five places hierarchically (V): Dong, Gu, city, province, and nation relationships are correctly expressed.

Most children, aged 5 to 7, remain in level 1 and 2 at 80 percent and 100 percent respectively (Table 7). As the level of children's understanding increases after age 8, the disparity of level between children manifests distinctively. 20 or 40 percent of children aged 8 to 9 years, still, cannot recognize the nested relationships between places at all. In contrast, another 30 to 40 percent of those children reached the level of 4 to 7 and another 30 percent of those children reached up to the level of 10 or 11. After the age of 10, there are no students who can't recognize the nested relationship between places. Among students aged 10 to 14, 85 percent student reached the level of 10 to 11.

Synoptically, Table 7 illustrates that children's understanding of nested relationship between places develops through the developmental stage:

Stage 1 (age 5 to 7): Children cannot understand the nested relationship or understand only the relationship between places as parallel.

Stage 2 (age 8 to 9): This stage shows the transitional phase. In this age group, some children still, can't understand the nested relationship, other children reached the level of 4

**Table 7.** Age and Level of Children's Understanding of Nested Relationship

Age \ Level	1	2	3	4	5	6	7	8	9	10	11
5	90%	10%									
6	45%	35%		15%		5%					
7	10%	90%									
8	20%	20%		15%		5%	10%			25%	5%
9	5%	15%		10%	15%	5%	10%			35%	5%
10				5%			10%			50%	35%
11										5%	95%
12										15%	85%
13											100%
14										20%	80%

to 7 which shows exact understanding the nested relationship, but only three different kinds of places in scale. Other children reached the level of 10 to 11 which shows the understanding of the nested relationship between more than four different kinds of places in scale.

Stage 3 (age 10 to 14): Most students understand the nested relationship between more than four different kinds of places in scale.

This result is similar with the result in the study of Piaget and Weil (1951) because the age group 10 in this study can also be classified as stage 3, as it was in the study of Piaget & Weil. However, many more numbers of Korean children than Swiss children reach the higher level early. There is a possibility that this difference comes from the time gap of 30 years between the two studies.

On the other hand, according to Jahoda (1963)'s, 87 percent of the children aged 6 to 7, and 60 percent of the children aged 8 to 9, remain in the stage of Piaget. In the case of age 11, only 65 percent of children reached stage 3 of Piaget. Compared with this result, more Korean children than Scottish children reach the higher stage more early. In this study, already 40 percent of the children aged 9 and 80 percent of the children aged 10 reach the stage of 3 of Piaget.

### 5. Developmental Stages of Children's Conception of Place

First of all, the author tried to find the cluster

which reflect a certain cognitive situation in understanding the concept of place, by Cluster Analysis, Ward Method, widely accepted in geographical research in the SAS statistical package. In other words, the author tackled the problem of how many groups of common characteristic cognition can be identifiable

In the SAS package, the most proper number of Clusters are determined by CCC (Cubic Clustering Criterion)(Kiyong Kim and Myungshik Chun, 1994, p.57). The proper number of clusters could range from 2 to N (the number of case)/10. Figure 3 illustrates the relationship between CCC and NCL (Number of Cluster). When NCL is 3, CCC have the local peak point.

Moreover, there is no possibility of more subdivided clusters here because CCC doesn't have any higher local peak point after the 3 of NCL. Therefore the proper number of a cluster is 3. This means that a three group with characteristic cognition can be identifiable.

Table 8 shows the means of 9 variables in each cluster. In cluster 1, most of 9 variables have means which have a lower score than 2 of cognition level. In cluster 2, all variables except  $X_1$  (locating home) and  $X_5$  (place dislikes) have higher means value than those in cluster 1. Particularly,  $X_2$  (locating school) and  $T_e$  (understanding nested relationship between places) give distinctively higher value than those in cluster 1. In addition,  $X_3$  (locating Dong) and  $X_8$  (city attachment) give some distinction to

cluster 2. In cluster 3, variable  $X_1$ ,  $X_6$ ,  $X_5$ ,  $X_3$  show differences in value with cluster 2. Among them,  $X_1$  is the most important variable in differentiating clusters 2 and 3.

These three clusters provide us with a useful index for understanding the development of children's conception of place. Figure 4 illustrates how the cluster to which students belong changes according to age. In terms of the structure of cluster distribution, we can identify 4 different stages of development in Figure 4:

Stage I (age 5 to 7): Almost all children belong exclusively to cluster 1, except for one child. It means that children in this stage show very poor development in the concept of place,

such as location of place, knowledge of place, place preference, place attachment, and understanding of nested relationship between places.

Stage II (age 8 to 9): Children in this age group belong to cluster 1 and 2 in same proportion. In this age group, half of the children achieve a higher level of conception, particularly in locating home and Dong, place preference-likes, attachment to Dong and city than those in stage I.

Stage III (age 10): This stage is a transitional one. Almost student, however, belong to cluster 2. It means that almost all student in this stage achieve higher level of conception particularly in locating home and Dong, place preference-likes, attachment to Dong and city than stage I

Stage IV (age 11 to 14): In this study, more than 85 percent of students aged 11 to 14 belong to cluster 3. Although slightly low, the students aged 12 also belong to cluster 3. It can be said that cluster 3 explains the characteristics of Stage III. It means that almost all children aged 12 to 14 acquire a higher level of conception of place than children in stages I, and II, particularly in locating home and Dong, place preference-dislikes, and place curiosity.

Consequently, these identified developmental stages indicate that there is no significant difference in development of the conception of place between the 2nd year of kindergarten and the 1st year of elementary school, and between the 5th and 6th years of elementary school and the 1st and 2nd years of middle school. Rather, the 4th year of elementary school is an important and crucial turning point in the development of children's conception of place.

According to these results, it is concluded that children's conception of place develops in line with Piaget's general cognitive developmental

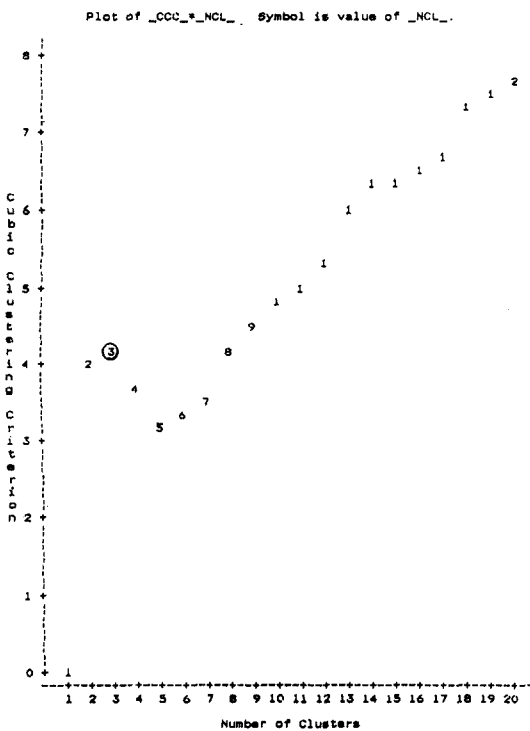


Figure 3. Plot of CCC and NCL

Table 8. Cluster Means

Cluster	Variable								
	Te	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$
1	1.9375	1.2152	1.9125	1.8250	1.9375	1.7625	2.3375	2.3750	1.6875
2	9.9444	1.7037	5.1111	3.5926	2.5556	1.7593	3.2407	3.6296	3.5185
3	10.8182	5.7385	5.9848	4.9091	3.0152	2.3939	5.1212	4.0909	4.5156

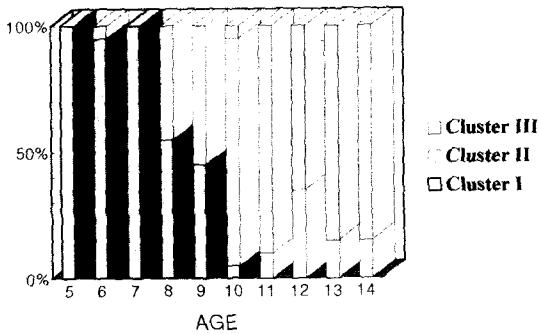


Figure 4. Age and Cluster

theory in which the pre-conceptual stage ends at age 7 and the concrete-operation stage starts around 11 to 12 year of age.

## 6. Summary and Conclusion

This study attempts to identify some ways in which children's conception of place including knowledge and feelings about place changes from kindergarten to middle school years. The literature in this field is complex

Much research related to the development of children's concept on place and spatial cognition has been influenced by the ideas of Jean Piaget. His theory on human development and on the understanding of nested relationship between places offers a fairly detailed account of stages through which children pass. And the theory indicates how and when children are 'ready' to learn place and spatial relationships. The method used here conforms partly to the guideline as reported in Piaget's (1951) and Jahoda's (1963) work.

In this study, 4 developmental stages in children's understanding of the conception of place are identified. In stage I (age 5 to 7), almost all children show very poor development in the concept of place. In stage II (age 8 to 9), children have some progress in understanding the concept of place, so half of the children in this age group achieve a higher level of conception, particularly in locating home and Dong, place preference-likes, attachment to Dong and city than those in stage I. Stage III (age 10) is a transitional one in which almost all students in this stage achieve a higher level of conception than stage I. In stage

IV (age 11 to 14), almost all children acquire a higher level of conception of place than children in stages I, and II, particularly in locating home and Dong, place preference-dislikes, and place curiosity.

This study identified that there is no significant difference in development of the conception of place between the 2nd year of kindergarten and the 1st year of elementary school, and between year 5 and 6 of elementary school and the 1st, and 2nds year of middle school. Rather, the 4th year of elementary school is an important and crucial turning point in the development of children's conception of place.

According to these results, it is concluded that children's conception of place develops in line with Piaget's general cognitive developmental theory in which the pre-conceptual stage ends at age 7 and the concrete-operation stage starts at around 11 to 12 years of age.

## Acknowledgement:

The author appreciates the following persons who gave assistance in collecting data through interview, graphic test and other things: Sungju Ko, the vice-principal of Junghyun elementary school, Hyunho Park, teacher at Nowon middle school, Insook Choi, the principal of Sopa kindergarten, Kyungmi-Kim, teacher at Kyunghee elementary school, and Dr. Youngmin Lee.

## Notes

- 1) In this paper, conception designates a conceptual jungle of meaning including its verbal, explicit concept itself and attached, implicit meaning together.
- 2) Gu is a kind of administrative district in large cities in Korea.
- 3) Criteria or forms of referenced places of locating were classified into four categories after the work of Lynch (1960): landmark, node, path, and district. Discussing the "legibility" of cityscape, Lynch proposed five formal types of image elements such as landmarks, nodes, edge, path, and district. Among them, the concept of edge was excepted because it cannot be directly used in children's

locating. Landmark was classified in detail.

### References

- Broek, J. O. M. et al., 1980, *The Study and Teaching of Geography*, Charles E. Merrill Publishing Co.
- Bruner, J. S., 1960, *The Process of Education*, Harvard University Press.
- Carnie, J., 1973, "The development of National Concepts in Junior School Children," in J. Bale, N. J. Graves and R. Walford (eds.), 1973, *Perspectives in Geographical Education*, Oliver and Boyd, pp.101-118.
- Catling, S., 1978, "The Child's Spatial Conception and Geographic Education," *Journal of Geography*, Vol.77, No.1, pp.24-29.
- Catling, S., 1986, "Children and Geography," in Mills, D. (ed.), *Geographical Work in Primary and Middle Schools*, The Geographical Association, pp.9-18.
- Daggs, D., 1986, "Pyramid of Places: Children's Understanding of Geographic Hierarchy," M. S. Thesis, The Pennsylvania State University. cited in Downs et. al., 1988, p.696.
- Darvizeh, Z and Spencer, C. P. (1984) "How do young children learn novel routes ? The importance of landmarks in the child's retracing of routes through the large scale environment," *Environment Education and Information*, Vol.3, pp.97-105.
- DES, 1990, *Geography for Ages 5 to 16*, London, HMSO.
- Downs, R. M., Liben, L. S. and Daggs D. B., 1988. "On Education and Geographers: The Role of Cognitive Developmental Theory in Geographic Education," *Annals of A. A. G.*, Vol. 78, No.4, pp.680-700.
- Goodey, B. (1973), *Perception of the Environment: An Introduction to the Literature*, Occasional Paper No.17. Birmingham University of Birmingham Centre for Urban and Regional Studies, p.7. cited in Wiegand(1992), p.7.
- Graves, N. J., 1984, *Geography in Education*, 3rd. ed., London, Heineman Educational Books.
- Harwood, D. and J. McShane, 1996, "Young Children's Understanding of Nested Hierarchies of Place Relationships," *International Research in Geographical and Environmental Education*, Vol.5, No.1, pp.3-30.
- Hart, Roger, 1979, *Children's Experience of Place*, New York, Halstead Press.
- Hart, Roger A. and Gary T. Moore. "The Development of Spatial Cognition: A Review," in Roger M. Downs and David Stea (eds.), *Image and Environment*, Chicago, Aldine, pp.246-288.
- Hongwoo Lee, 1985, *Theory in cognitive learning*, Gyoyuk Publishing Co.
- Jahoda, G., 1963, "The Development of Children's Ideas about Country and Nationality," *British Journal of Educational Psychology*, Vol.33, pp.47-60.
- Kaplan, S and R. Kaplan (eds.), 1978, *Humanscape: Environments for People*, Duxbury Press.
- Langford, P., 1987, *Concept Development in the Secondary School*, London: Croom Helm.
- Linch, K., 1960, *The Image of City*, The MIT Press.
- Lunnon, A. J., 1969, "The Understanding of Certain Geographical Concepts by Primary School Children," unpublished M. Ed. Thesis, University of Birmingham. in N. J. Graves, 1984, pp.167.
- Matthews, M., 1992, *Making sense of Place*, Oxford, Harvester Wheatsheaf.
- McGurk, H. (ed.), 1978, *Issues in Childhood Social Development*, London :Methuen.
- Milburn, D., 1972, "Children's Vocabulary," in Graves, N. J. (ed.), *New Movements in the Study and Teaching of Geography*, London: Temple Smith, pp. 107-120.
- Mischel, T.(ed.), 1971, *Cognitive Development and Epistemology*, New York and London: Academic Press.
- Moss, R. H., 1976, *The Human Context: Environmental Determinants of Behavior*, New York: Wiley.
- Overton, W. F.(ed.), 1983, *The Relationship between Social and Cognitive Development*, London: Lawrence Erlbaum Associates, Publishers.
- Piaget, J., 1924, *Judgement and Reasoning in the*

- Child*, London, Routledge and Kegan Paul.
- Piaget, J., 1974, *The Child and Reality*, New York, Viking Compass Edition.
- Piaget, J. and Inhelder, B., *The Child's conception of space*, New York, Norton Library.
- Piaget, J. and A. Weil, 1951, "The Development in Children of the Idea of the Homeland and of Relationships with Other Countries," *International Social Science Bulletin*, Vol.53, pp.556-578.
- Rice, F., 1984, *The Adolescent: Development, Relationships and Culture*, Boston: Allyn & Bacon.
- Scafe, N. V., 1951, *A Handbook of Suggestions on the Teaching of Geography towards World Understanding*, Paris, UNESCO.
- Siegel, D. G and White, S., 1975, "The Development of Spatial Representation of Large Scale Environments" in Reese, H. W. (ed.) *Advances in Child Development and Behavior*, Vol.10, New York, Academic Press.
- Smart, R. C. and M. S. Smart (eds.), 1977, *Readings in Child Development and Relationships*, New York: McMillan.
- Spencer, C. and M. Blades, 1993, "Children's Understanding of Places: The World at Hand," *Geography*, 78(4), PP.367-373.
- Stoltman, J. P., 1976, "Children's Conception of Territory: The United States," in J. P. Stoltman (ed.), *Spatial Stages Development in Children and Teacher Classroom Style in Geography*, Western Michigan University, Department of Geography, pp.39-56.
- Towler, J. and Price, D., 1976, "The Development of Nationality and Spatial Relationship Concepts in Children," in J. P. Stoltman (ed.), *Spatial Stages Development in Children and Teacher Classroom Style in Geography*, Western Michigan University, Department of Geography, pp.79-87.
- Tuan, Yi Fu, 1977, *Space and Place: The Perspective of Experience*, Minneapolis, University of Minnesota Press.
- Vass, E. J., 1960, "An Investigation into Development of a Concept of Physical Geography," unpublished dissertation for diploma of child psychology, University of Birmingham. in N. J. Graves, pp.167-168.
- Vygotsky, L. S., 1974, *Thought and Language*, The M.I.T. Press.
- Wiegand, P., 1992, *Places in the primary school*, The Falmer Press.

## 지리개념의 발달단계에 대한 연구: '장소' 개념을 중심으로

서 태 열\*

이 연구는 지리의 기본개념중의 하나인 '장소' 개념을 중심으로 하여, 이 개념의 사실인지측면과 가치판단측면이 어떻게 형성되는지 그리고 그것이 질적으로 구분되는 인지단계를 가지고 있는지를 밝히려 하였다. 연구대상은 5세에서 14세에 이르는 도시 아동 및 학생으로 연령별로 남·여 각각 100명, 총 200명이 선정되었다.

먼저 '장소' 개념의 사실인지측면은 입지감, 장소에 대한 지식, 지리적 영역감으로 3구분하고, 가치판단측면에서는 장소에 대

한 감정, 장소에 대한 호기심, 장소에의 소속감으로 3구분하여 6가지의 하위내용영역을 중심으로 개념의 형성과정을 살펴보았다. 이후 장소 개념의 6가지 측면을 바탕으로 개념발달과정을 설명할 9개의 변수(준거이용 집, 학교, 동 입지시키기, 장소선호, 장소혐오, 장소호기심, 동 및 시 소속감, 장소포섭관계인식)를 사용하여 군집분석(Cluster analysis)을 실시하였다.

그 결과 본 연구에서는 장소개념의 발달과정이 다음과 같은 4단계로 나타남을 확인

\*고려대학교 사범대학 지리교육과 조교수



하였다.

1단계(5-7세): 장소개념의 6가지 측면 모두에서 낮은 수준을 보이는 학생들(군집 I)만이 있는 단계이다.

2단계(8-9세): 1단계의 주를 이루었던 모든 측면에서 낮은 인식수준을 보이는 학생들(군집 II)과 장소의 포섭관계, 집입지, 학교입지, 시에 대한 소속감, 장소에 대한 호기심의 측면에서 1단계의 학생집단보다 높은 수준을 보이는 학생들(군집 II)이 같은 비율로 나타나는 단계이다.

3단계(10세): 점이적인 단계로서 장소의 포섭관계, 집입지, 학교입지, 시에 대한 소속감, 장소에 대한 호기심의 측면에서 1단계의 학생보다 높은 수준을 보이는 학생들(집단 III)이 거의 대부분을 차지하는 단계이다.

4단계(11-14세): 군집 II에 속하는 학생들이 일부가 있으나, 동입지 및 범위인지, 학교입지, 장소에 대한 선호, 장소호기심의 측면에서 군집 II보다 장소개념에 대한 인지

수준이 높은 군집 III에 속하는 학생들이 대부분을 차지하는 단계이다.

이를 통해볼 때, 유치원 2학년과 초등학교 1학년간에는 차이가 없으며, 더욱이 초등학교 5, 6학년과 중학교 1, 2학년간에는 차이가 거의 없는 것을 알 수 있다. 오히려 장소 개념의 발달에 있어서 중요한 변화를 가져오는 시기는 초등학교 2학년(8세), 4학년(10세), 5학년(11세)라고 할 수 있다.

결국 이 연구에서 확인된 5세-14세의 한국 도시 아동 및 학생에 있어서 장소 개념의 발달은 Piaget가 제시한 인지발달단계론에 따라 나타나고 있다고 하겠다. 즉 5세에서 7세에 이르는 전조작기의 전개념기와 7세-11.5세의 구체적 조작기, 그리고 11.5세의 형식적 조작기로 나아가면서 인지발달의 변화를 보이고 있다.

주요어: 인지발달단계, 장소입지, 장소선호, 장소소속감, 장소포섭관계