

**CURRENT SITUATION AND SOME ELEMENTS RELATING
TO THE CONSERVATION ABILITY OF CHILDREN 5–6 YEARS OLD****Phan Trong Ngo***PhD in Pedagogy and Psychology, Lecturer,
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Abstract. The article mentions the organization of tests to detect the level of conservation ability of the quantity, material, length, and volume of objects of children 5 to 6 years old based on Piaget's arguments. The test results showed that about 26 % of the test subjects were able to preserve at different levels, of which about 10 % was sustainable and stable, especially in terms of conserving quantity and the length of objects. The level of conservation is significantly increased for children 5–6 years' old who live in urban environment and families with civil servants. Therefore, it means that they operate in the environment with advantages of family and school education.

Keywords: conservation; types of conservation; conservation ability; children of 5–6 years old; Vietnam.

1. Introduction

In psychology there are many studies on the ability of children's conservation, in which Piaget's studies are outstanding. According to Piaget, the capability of children's conservation is the ability to recognize the invariant of an object and phenomenon when its external manifestations change. Conservation is the key factor for children to move from the intellectual structure stage of pre-manipulation to the specific operation stage [1; 2; 3; 4; 5; 8]. According to Piaget, the development of conservation is a natural, inner process of the child follows in order and must reach a certain age [8].

2. Research methods, evaluation criteria, and research samples

Content of the study: surveying and evaluating 4 types of conservation of the experiment: Quantity conservation; Material conservation; Conservation of the length and volume of objects – are the conservations that are mentioned in Piaget's theory.

2.1. Research Methods

The used method is a multiple-choice test combine with in-depth interviews with parents/children and preschool teachers.

The used tests are the tests that were used by Piaget and his colleagues in the study of children's conservation: Testing of the flowers (conservation the quantity); Test of pouring water into different shaped cups (conservation the material); Experiment with the length of the piece of stringed wool (maintaining the length of the object) and testing of the cakes (conservation weight).

The tests were conducted according to the way of Piaget and his colleague's implementation [1; 6].

2.2. Criteria for determining the level of conservation ability and scale*** Criteria for determining the level of preservation**

The determination of the level of conservation ability of the testing's object could be based on three criteria: The level of correctness of the answer about conservation; explaining the answer and protecting the answer when the participant asks and turns over

the answer or when they are asked repeatedly; the independence of the answer does not need (or at least) the suggestion and support of the experimenter.

*** Scale assesses the level of preservation**

From the above criteria, the ability to preserve for one type of conservation is classified into 3 levels:

Level 1: *Able to conserve really, stably and firmly*: Children answer the right question of conservation; explaining and protecting the answer when the participant turns over the answer or when they are asked repeatedly. Children respond to questions that do not need the suggestion and support of the testers.

Level 2: *Able to conserve, but unstable, uncertain*: Children answer correctly and explain the result of conservation, but when the tester asks back or repeat, the child does not acknowledge or hesitates; or the child can only answer when there is a suggestion of the tester.

Level 3: *Unable to conserve*. Children answer incorrectly, do not acknowledge the conservation, and do not answer even when they received the suggestions from the testers, or the children answered correctly without explaining their answers; when the experimenter turns over the problem, the child answers incorrectly or denies his previous result.

To facilitate the examination of differences in conservation capacity between experimental groups by gender, by location of residence and by the parent's occupation, the conservative result of the treatments is attributed to the score. On a 3-level scale:

- Level 1: *Able to conserve really, stable and firm*: 3 points

- Level 2: *Able to conserve, but not stable, uncertain*: 2 points

- Level 3: *Unable to conserve*: 1 point
+ *Samples examine the conservation ability of children 6 years old.*

The group of samples that participates in the survey is 280 children from 5–6 years old who are studying at 10 kindergartens (each school is 28 children) in two areas, 5 schools for the urban area and 5 schools for the rural area belong to the Hanoi, Hai Duong, and Son La province. The structure of sample group: Female children are 141 (50.35 %), male children are 139 (49.65 %); Family's location: there are 137 families (48.92 %) in urban area, and there are 143 families (51.08 %) in rural area; Parents' occupation: Civil servants and officials: 80 (28.57 %), workers, armed forces: 89 (31.78 %), and farmers and unstable workers: 111 (39.64 %).

2.2. Research results

2.2.1. Results of surveying the conservation ability of children 5–6 years old through testing

The task for children 5- 6 years old who involved in this study is that they observe testers who conduct actions on conservation on certain materials; Answering the questions of the testers and explaining the answers. Thereby, the experimenter determines the conservation ability of the participants according to the prescribed levels. Test results are compiled in Table 1.

Table 1

Conservation ability of surveyed children of 5–6 years' old

No	Types of conservation	Level of sample's preservation (n=280)					
		Level 1		Level 2		Level 3	
		Quantity	Rate %	Quantity	Rate %	Quantity	Rate %
1	Quantity	62	22,14	72	25,71	146	52,15
2	Material	24	8,57	43	15,36	213	76,07
3	Length	37	13,21	52	18,57	191	68,22

4	Mass	10	3,57	15	5,35	255	91,08
Summary of preserving types		Level I		Level II		Level III	
		30	10,71	47	16,79	203	72,50

There is a certain percentage of children aged 5–6 years who can preserve one or several types of protection that are surveyed at a certain and stable level. In particular, up to 22.14 % of children at level 1, that is at a stable and certain level of conservation ability of quantity; More than 13.21 % of conserving ability of the length at level 1 and 8.57 % of conserving ability of the material at level 1. Meanwhile, almost children 5–6 years old, who are tested about the volume conservation, seem difficult. There are only 10/280 children who got at level 1, accounting for 3.57 %.

Comparing with the conservation ability at level 1, the number of children 5–6 years old can be preserved at level 2 much more than in all three types of preservation: Conserving the quantity (25.71 %); preserving the material (15.36 %) and preserving the length of the object (18.57 %). These are children who can preserve but not yet really sure and stable. They answered correctly and explained the conservative results, but when the experimenter asked back or repeated, they often hesitate; they only answer when there is a suggestion of the testers.

A large number of children 5–6 years old have not been able to preserve the volume (91.08 %), preserve the material (76.07 %) and the length of the object (68.22 %), and especially preserve the volume of the object. Most of these subjects did not respond correctly to the request of the experimenter. Some correct answers are by chance, not based on understanding the problem. Many children answered incorrectly even having the suggestion of the tester. Many children in this group are shy, passive, limited language, hesitate to discuss with testers during the test.

On the other hand, among tests, the results are not the same. The test preserves the number of flowers with many possible tests reaching the level 1 (22.14 %); then preserv-

ing the length of the rulers (13.21 %); preserving the materials (8.57 %); lastly, preserving the volume of cakes with the lowest rate (only 3.57 %). This was also predicted in Piaget's studies (1950). Mass conservation occurs when children reach 9–10 years old.

If all four types of conservation of each object are synthesized, it is generally seen that about 10 % of children 5–6 years old are able to secure at a stable and certain level from 2 to 3 types of quantity, length or material conservation of the object (level I) and about 17% are capable of conservation but at an uncertain, unstable level (Level II). The rest, about 72.5 %, cannot be preserved. This shows that children 5-6 years old are not able to preserve the types of conservation corresponding to the age of 7–8 years old according to the research of Piaget and colleagues (Piaget, 1950). And, the types of conservation are difficult as preserving the mass, that almost does not appear in the almost of children aged 5–6 years old. However, with the rate of about 27 % of 5–6-year-olds having the conservation ability at an uncertain and stable level (Level I and Level II), showing potential for early emergence of conservation ability children's versus ages in Piaget's theory. This is a positive signal.

2.2.2. Preserving the ability of children 5–6 years old is analyzed by some comparative parameters.

The analysis of the conserving ability of object follows to some comparative parameters: gender, habitat and occupational composition of the parents to determine the difference in the conservation ability between objects, thereby assessing the relevance of cultural, social and educational factors to the conservation of children.

a) Conservation ability of children 5–6 years old is analyzed by the gender of the object.

Table 2

The level of conservation ability of the samples that were analyzed by gender

Type of conservation	Conservation ability of samples (n = 280)										P
	Male children (139)					Female children (141)					
	Score		Rate of levels			Score		Rate of levels			
	Average score	Standard deviation	Level 1	Level 2	Level 3	Average score	Standard deviation	Level 1	Level 2	Level 3	
Quantity	1,79	0,84	23,7	24,	51,8	1,76	0,80	20,6	26,8	52,6	0,95
Material	1,28	0,73	10,8	12,	76,9	1,30	0,67	6,4	18,4	75,2	0,84
Length	1,58	0,82	15,8	20,	63,3	1,38	0,75	10,6	16,3	73,1	0,055
Volume	1,03	0,40	3,6	5,0	91,4	1,03	0,39	3,6	5,7	90,7	0,81
Total	1,42	0,41	11,5	8,0	70,5	1,37	0,38	9,9	15,6	74,5	0,40

The determination of the level of conservation ability by gender was done through the percentage of achieved subjects at different levels and the average of the conservation capacity. In terms of the percentage of conservation capacity, the group of male subjects achieved level 1 and level 2 more than female subjects in the same level; the number of male subjects without conservation is slightly lower than the number of female subjects. In terms of the average score of conservation ability, the male subject group had a higher average score in the tests as well as in the combination of the tests compared to the female subject group (1.42 points/3 and 1.37 points/3), proving that male children have a higher conservation ability than female children. However, the test results show that the P values are large ($P > 0.05$). This

proves that the difference in average scores is not statistically significant. In other words, although there is a difference in the level of sex preservation in the sample of children aged 5–6 years of age, it is unclear, not large. Sex factors are not related to the level of conservation ability of children 5–6 years old, expressed through tests.

b) Preserving the ability of children 5–6 years old according to the location of children living.

The living area of the family is the social and cultural environment in which children live and operate. At the same time, children also enjoy the care and education in kindergartens with different conditions. The difference from such habitat may be related to a child's ability to preservation.

Table 3

Conservation capacity of the 5–6-year-old experiment was analyzed by the living area

Types of preservation	Conservation level of objects (n = 280)				P
	Urban (137)		Rural (143)		
	Score	Rate of levels	Score	Rate of levels	

	Average score	Standard deviation	Level 1	Level 2	Level 3	Average score	Standard deviation	Level 1	Level 2	Level 3	
Quantity	1,90	0,84	26,3	24,8	48,9	1,66	0,80	18,2	26,6	55,2	0,04
Material	1,43	0,78	11,7	17,5	70,8	1,16	0,60	5,6	13,3	81,1	0,00
Length	1,64	0,83	16,8	16,1	67,3	1,32	0,74	9,8	20,9	69,3	0,00
Volume	1,09	0,44	4,1	6,1	89,8	1,01	0,35	3,1	4,6	92,3	0,11
Total	1,51	0,40	13,9	19,0	67,1	1,30	0,38	7,7	14,7	77,6	0,00

Considering both indicators: Average score of conservation ability and percentage of subjects at conservative levels, 5–6-years-old experimental groups living in urban areas have superior conservation ability compared to children same age living in rural areas. The average score for conservation in each test, as well as the combination of tests of living conditions in urban areas, is higher than in rural areas. Excluding the average score for conserving the mass of both groups of samples, the difference is not statistically significant, but in other types of conservation and the combination of conservation types, the average point of conservation of experimental subjects who live in urban area, it was significantly higher ($P < 0.05$) than in the rural experimental subject. The rate of percentages of conservation levels for both groups of the sample also showed this difference. The urban living group is more likely to preserve at level I than that of the rural experimental group (13.9 % compared to 7.7 %); the number of experimental objects, who have able to preserve but they are not yet stable (level II) in urban areas is higher than in the rural areas

(19.0 % compared to 14.7 %); The number of experimental subjects who are not able to preserve in urban areas is lower (67.1 % and 77.6 %).

c) Conservation ability of children 5–6 years old according to the career of parents

The determination of the career of the parent examines the relationship between the specific occupational characteristics of the parent to the development of the child. In this study, the occupation of the probable parent is defined by occupational groups: officials, civil servants and public officials (collectively referred to as civil servants); Workers, services, armed forces (collectively referred to as workers) and farmers and workers who are free and unstable (collectively referred to as farmers). In families, where the father and mother work not in the same profession, the career determination of the parent is followed by the mother's occupation, due to the dominant influence of the mother in childcare and education before school. The problem is that children 5-6 years old with different parents whether do the conservation ability different or not?

Table 4

Conservation potential of analytical tests according to the profession of the parent

Types of preservation	Conservation level of objects (n= 280)														
	Officials (n= 80)					Workers (n= 89)					Farmers (n= 111)				
	Score		Rate of levels			Score		Rate of levels			Score		Rate of levels		
	Average score	Standard deviation	Level 1	Level 2	Level 3	Average score	Standard deviation	Level 1	Level 2	Level 3	Average score	Standard deviation	Level 1	Level 2	Level 3
Quantity	1,94	0,81	30,0	25,0	45,0	1,72	0,84	20,2	21,3	58,5	1,70	0,80	18,0	29,7	52,3
Material	1,41	0,80	13,8	17,5	68,7	1,23	0,67	6,7	11,2	82,1	1,26	0,66	6,3	17,1	76,6
Length	1,60	0,86	21,2	17,5	61,3	1,42	0,79	11,2	14,6	74,2	1,41	0,73	9,0	22,5	68,5
Volume	1,06	0,43	3,2	8,7	91,2	1,01	0,33	2,2	3,4	95,5	1,02	0,41	3,6	4,5	92,8
Total	1,52	0,40	16,2	30,0	53,8	1,33	0,37	8,9	10,1	81,0	1,36	0,39	8,1	12,6	79,3

Analysis of the conservation capacity of children 5-6 years old according to the profession of parents shows that the experimental group has a parent who is a civil servant, who has better conservation ability than the other two groups. Expression of the average score of the preserving ability in each type of conservation as well as in the synthe-

sis of the types of conservation of the experimental group with a parent who is a civil servant, a higher officer than the average of the two test groups can remain. Meanwhile, the average score of the conservation ability of the experimental group who has parents who are workers and farmers is nearly equal.

Table 5

Results of testing the difference of average score in conservation ability between experimental groups

Parents' occupation		P				
		Quantity	Material	Length	Volume	Summary
Civil servants and officials	Workers	0,26	0,27	0,39	1,00	0,02**
	Farmers	0,15	0,40	0,31	1,00	0,03**
Workers	Civil servants	0,26	0,27	0,39	1,00	0,02**
	Farmers	1,00	0,98	1,00	1,00	1,00
Farmers	Civil servants	0,15	0,40	0,31	1,00	0,03**
	Workers	1,0	0,98	1,00	1,00	1,00

One-way ANOVA test values for the difference in mean score of the preserving ability between a parent group with a different occupation show that, in each test, there is no significant difference. The statistical meaning of the average point of conservation of children with a parent who is a civil servant or an employee compared to a group of workers with a parent is a worker and a farmer. However, the average score of the conservation capabilities of children with a parent who is a civil servant or a civil servant is statistically significantly different from that of the experimental group of workers and farmers. The average difference between the experimental group with workers and farmers is negligible. This shows that there is a certain correlation between the professional conditions of the parents to the conservation ability of children 5–6-year-olds participating in the test.

3. Conclusion

In this study, with tests of Piaget's repeated materials, over 280 children 5–6 years old, discovered about 26 % of the subjects were able to preserve at different levels, in which there are about 10 % at a steady, stable level, especially in terms of quantity and length conservations of objects. The conservation ability is significantly increased for objects that are living in the urban environment and in families with parents who are civil servants and officials. It means that they are being life and operate in the environment with advantages of family and school education. This contributes to confirming the early emergence of conservation in children 5–6 years old; at the same time forecasting the relationship between the factors of the cultural and social environment and the positive

impact of family education, the school to the appearance rate and the level of conservation ability of children. These are also good suggestions for effective educational measures in developing cognitive and intellectual structures of preschool children.

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