

# A New Approach for Assessment of Child Development in Vietnam : Developing Tools as Developmental Checklist for Children

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**Abstract** : This article discusses results of research on developing tools as developmental checklist for Vietnamese children. The research used a developmental checklist developed by a group of researchers at Ritsumeikan University in Japan and the Hanoi National University of Education in Vietnam to assess development of 184 children aging from 1 to 7 years old in Hanoi and Ho Chi Minh City (Vietnam). Results were analyzed in both quantitative and qualitative aspects while data were processed by the SPSS 21.0 software. Results revealed that the “Acquired” rate of all items checked among children was more than 50%, which proved the reliability and effectiveness of the new developmental checklist.

**Keywords** : developmental assessment, developmental checklist, young childhood, Vietnam

## I . INTRODUCTION

Assessment of children’s development is necessary when taking care of and educating children. This assessment helps educators understand the development of children and thereby build appropriate methods for taking care of and educating children.

It is known that since Alfred Binet (1857-1911) and Theodore Simon (1872-1961) introduced their theory on intelligence and measuring methods of intelligence in the early twentieth century, there have been many other valuable researches on developmental psychology and methods of checking children’s development.

At the end of the 1930s and in the early 1940s, methods for developmental assessment of children received attention from many psychologists worldwide. Some remarkable researches during this time included those by Arnold Gesell (1925 and 1938), Rachel Stutsman (1931 and 1948), Charlotte Bühler (1935), Edgar Doll (1935), and Raymond Cattell (1940).

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Thereafter, many researches on normal and abnormal development were conducted, and developmental assessment methods were continuously developed. In addition, many theories in developmental psychology were introduced, of which the Swiss psychologist Jean Piaget (1896-1980), his theory was particularly influential. Though less well-known than other theories due to language obstacles, theories on development psychology developed by Japanese psychologists, especially Tanaka Masato (1932-2005) contributed significantly to the development of educational psychology and special education in Japan in particular and the expansion of mankind's knowledge in general. The theory developed by Tanaka Masato has many points that are similar to those of Piaget's and also supplements and completes theories on human developmental stages. In his theory, Tanaka Masato identified three principles concerning human development and developmental disabilities.<sup>1</sup> This theory serves as a fundamental theoretic foundation for building developmental checklists.

In Vietnam, assessment on development of children received attention in the early 1980s. Nowadays, Vietnam has adjusted and studied several simple developmental assessment scales and tools such as: the Denver Developmental Screening test (DDST) conducted by Ha Vi and partners (1990); the test for measuring readiness for primary school of 6-year-old children by Nguyen Thi Hong Nga (1997); lessons for assessment of kindergarten children aging between 5 and 6 years old by The Department of Kindergarten Education (1997); the test for assessing development of children at the end of kindergarten age range (test TBT) by Ta Ngoc Thanh (2002); the standard developmental toolkit for 5-year-old children by Ministry of Education and Training (2009); and ASQ screening questionnaires by Department of Kindergarten education, Ministry of Education and Training (2011).

It can be seen that these above-mentioned assessment scales cannot meet current requirements for developmental assessment of children. First, these scales do not reveal typical abilities in each developmental stage. Most of the above tools are not able to assess and oversee children's development through different developmental stages because they were developed separately and independently. Some tools have been developed in order to evaluate education objectives, and therefore contain complicated content and various indexes (as in the case of the standard developmental toolkit for 5-year-old children). In the other hand, when using the ASQ screening questionnaires, results are not completely reliable because the assessment is made only on the basis of interviews with parents. It can be seen that since the above tools are not based on typical features of each developmental stage, they mainly show whether or not children have acquired the requirements of their ages while failing to identify children's developmental stages. Therefore, those tools do not help testers to grasp problems in children's development or to provide parents and teachers with appropriate advice.

The developmental checklist developed through research collaboration between Ritsumeikan University (Japan) and the Hanoi National University of Education (Vietnam) eliminated the above shortcomings. This assessment checklist has a firm foundation within developmental psychology. Based on typical developmental ability of each developmental stage, the new checklist was developed to not only assess children's development in a comprehensive and scientific way but also as an advice tool for parents and effective individual educational planning.

## **II. RESEARCH CONTENT**

### **1. Research objectives**

To confirm the reliability and effectiveness of the scale when applied to Vietnamese children.

## 2. Subjects of the research

The research used a developmental checklist to assess 184 children from 12 months to 83 months old, studying in normal kindergarten schools in Ho Chi Minh City and Hanoi (*generally referred to as sample groups*).

## 3. Assessment tool

The assessment tool was the developmental checklist developed by Araki Hozumi and his partners in 2009 and modified for the second time in 2012 under the collaboration between Ritsumeikan University (Japan) and the Hanoi National University of Education (Vietnam).

This new developmental checklist is different from previous developmental checklists because it concentrates on stages in which children produce new developmental abilities. The checklist is used not to

**Table 1. Content of checklists**

Toddler Edition 0	
A	1. Switch in locomotion and posture 2. Standing position
B	3. Handkerchief test (baby holds building blocks in both hands while face is covered by handkerchief) 4. Pinching small objects
C	5. Building blocks and container
D	6. Imitate knocking of building blocks 7. Response to “give me” 8. Joint attention
Toddler Edition 1	
A	1. Walking 2. Switching direction of posture
B	3. Stacking building blocks
C	4. Rotating circular disc in fitting apertures 5. Scribbling circles 6. Distributing blocks in different plates
D	7. Words with meaning 8. Pointing in reverse
Toddler Edition 2	
A	1. Climbing stairs 2. Jumping off from steps
B	3. V sign
C	4. Truck building 5. Tracing circle 6. Comprehension of big and small size
D	7. Two phrases 8. Family name and first name
Toddler Edition 3	
A	1. Hopping
B	2. Alternating bimanual open-and-close motion 3. Gate building
C	4. Tracing square 5. Comparing heaviness
D	6. Reciting four numbers 7. Able to count up to 10 objects during one-on-one correspondence 8. Word comprehension I
Child Edition 4	
A	1. Skipping
B	None
C	2. Reproducing/toppling stairs through building blocks 3. Drawing circles in sequential order 4. Right and left side of self and other 5. Tracing diamond shape”
D	6. Addition problem of less than five 7. Concept of a word 8. Word comprehension II

A. Posture and Locomotion      B. Fine motor      C. Cognitive Development      D. Language and Social

identify which type and level of disabilities that children have or to assess all educational objectives of children but to discover development abilities in children and recommend education orientations that support children's development to the fullest.

Each checklist covers four aspects: Posture and Locomotion, Fine Motor, Cognitive development, and Language and Social with eight items in total. Each item assesses children in three levels: "Un-acquired," "Emerging," and "Acquired," from which we can foresee the children's developmental stage. At "Un-acquired" level, there is no presence of developmental abilities at the assessment period; at "Emerging" level, there are signs of presence of developmental abilities at the assessment period; and at "Acquired" level, new developmental abilities have been formed at the assessment period.

There are 5 toddler editions corresponding to 5 specific age groups:

- Toddler Edition 0. Checking ability of 10-month-old children
- Toddler Edition 1. Checking ability of 18-month-old children
- Toddler Edition 2. Checking ability of 2- and 3-year-old children
- Toddler Edition 3. Checking ability of 4-year-old children
- Child (Preschooler) Edition 4. Checking ability of 5- and 6-year-old children

In this research, we analyzed only toddler editions 1, 2, 3, and 4.

Table 1 is the content of checklists from Toddler Edition 0 to child (Preschooler) Edition 4 as above.

Criteria for evaluating reliability and effectiveness of the scale is that the "Acquired" rate for each item for each age group is 50%.

#### **4. Conducting the research**

- Time of implementation: From August to September 2013.
- Selecting research subjects: as the research conditions did not allow studies on children of below age 1, we selected children of 12 to 83 months old studying in normal kindergarten schools.
- Making assessment: Testers used toddler editions to test developmental abilities of children within 40-60 minutes. Based on the children's ages, testers used toddler editions to check periods before, during and after child's developmental stages.
- Processing and analyzing data: Using SPSS 21.0 software.

#### **5. Research Findings**

##### ***5.1. Overview of sample groups***

The above figure shows that sample groups consisted of 29 children of 1 year old, 34 children of 2 years old, 40 children of 3 years old, 33 children of 4 years old, 28 children of 5 years old, and 20 children of 6 years old. In terms of gender, sample groups included 96 boys, accounting for 52.2% of total number of children and 88 girls, accounting for 47.8% of total children. Therefore, this percentage is reasonable and similar to population structure of Vietnam.

In each age group, the percentage between boys and girls was different. In the age 1 group, the percentage of boys was higher than girls (62% vs. 38%); in the age 2 group, the percentage between boys and girls was 52.9% vs. 47.1%. In the age 3 group, the percentage of boys was smaller than that of girls (45% vs. 55%). In the age 4 group, the number of boys accounted for 48.5% while that of girls made up 51.5%. This percentage was equal in the age 5 group. In the age 6 group, the percentage between boys and girls was 60% and 40% respectively.

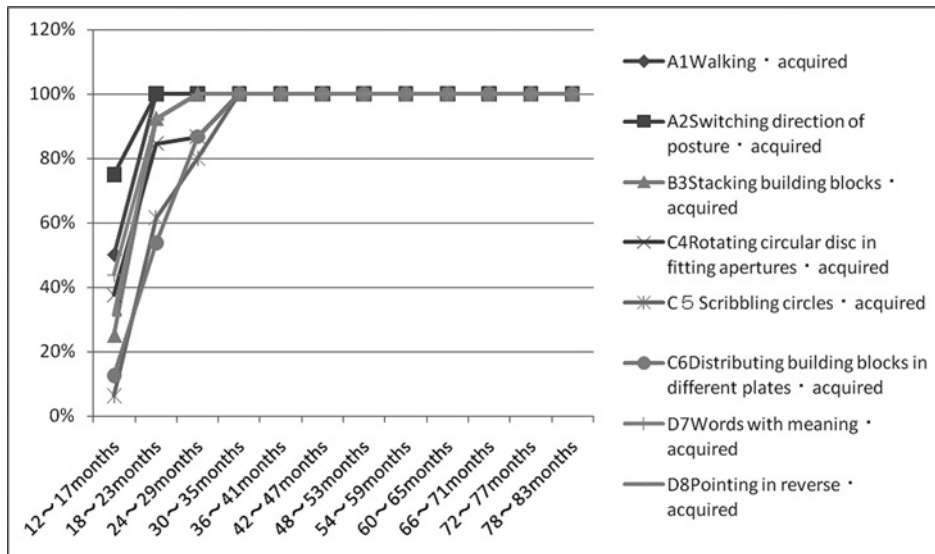
**Table 2. Correspondence of gender among age groups**

Age groups	Boy	Girl	Total
1-year old (12 ~ 23 months)	18 (62%)	11 (38%)	29 (100%)
2-years old (24 ~ 35 months)	18 (52.9%)	16 (47.1%)	34 (100%)
3-years old (36 ~ 47 months)	18 (45%)	22 (55%)	40 (100%)
4-years old (48 ~ 59 months)	16 (48.5%)	17 (51.5%)	33 (100%)
5-years old (60 ~ 71 months)	14 (50%)	14 (50%)	28 (100%)
6-years old (72 ~ 83 months)	12 (60%)	8 (40%)	20 (100%)
Total	96 (52.2%)	88 (47.8%)	184 (100%)

**5.2. “Acquired” rate of developmental checklists**

**Toddler Edition 1 – Checking abilities of children of 1 year 6 months (from 11 months to 1 year 6 months old)**

Toddler Edition 1 tests the stage of the reversible “One dimensional operation” (ability to switch direction by understanding type of action “not A but B”).



**Figure 1. “Acquired” rate of Toddler Edition 1 (only acquired)**

Results of Figure 1 reveal that item A.1 – Figure 1, the “Acquired” rate is more than 50% while in all remaining items, the “Emerging” rate is more than 50%.

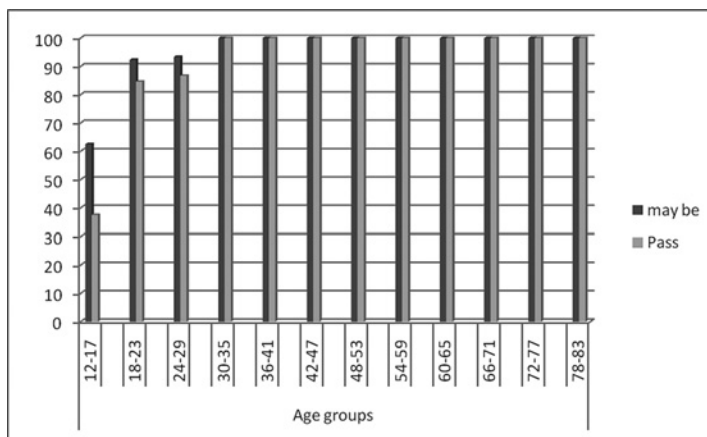


Figure 2. “Acquired” rate and “Emerging” rate of Toddler Edition 1: item C4

The correspondence between the “Emerging” and “Acquired” rate is shown in Figure 2 below when analyzing item C4.

Figure 2 shows that at the age group of 12-17 months old, the “Emerging” rate is 66.67%, and the “Acquired” rate is 33.33%. At the age group of 18 months old and above, the “Acquired” rate is more than 50%.

The above analysis reveals that developmental ability of children is directly proportional to their development age.

***Toddler Edition 2 – Checking abilities of children of 2-3 years old (From 1 year 11 months to 2 years 6 months old).***

Toddler Edition 2 tests the stage of the formative “Two dimensional operation” (ability to understand the early comparative concepts, for example bigger and smaller).

Figure 3 shows that most children of less than 1 year 6 months old do not acquire developmental abilities in Toddler Edition 2. (There is one child acquired item of “Two phrases,” the “Acquired” rate is 6.3%). The “Acquired” rate of items of the age group of 18-23 months old is less than 50% while the “Emerging” rate is more than 50%.

In the age group of 24-29 months old, items including *Climbing stairs*, *Jumping off from steps*, *V sign*, *Truck building*, *Tracing circle*, the “Acquired” rate is less than 50%; items checking Language and Social such as *Comprehension of big and small*, *Two phrases*, *Family name and first name*, the “Acquired” rate is more than 50%, of which the item *Two phrases* has a fairly high “Acquired” rate (86.7%).

The “Acquired” rate of children of over 30 months old for all items is more than 50%. Among which, the “Acquired” rate is 89.5% for the item *Climbing stairs*, 84.2% for the item *Jump off from steps*, 68.4% for the item *V sign*, 89.5% for the item *Truck building*, 52.6% for the item *Tracing circle*, 89.5% for the item *Comprehension of big and small*, 94.7% for the item *Two phrases*, and 73.7% for the item *Family name and first name*.

Correspondence between “Emerging” and “Acquired” rate of item C6 is shown in Figure 4 below:

Figure 4 shows that children of less than 1 year 6 months old do not acquire items of Toddler Edition 2. In the age group of 18-23 months old, 6.67% of the total number of children acquire “Emerging” and none of them reach “Acquired” level. In the age group of 24-29 months old, 68.4% of children acquire “Emerging” and 47.4% reach “Acquired” level.

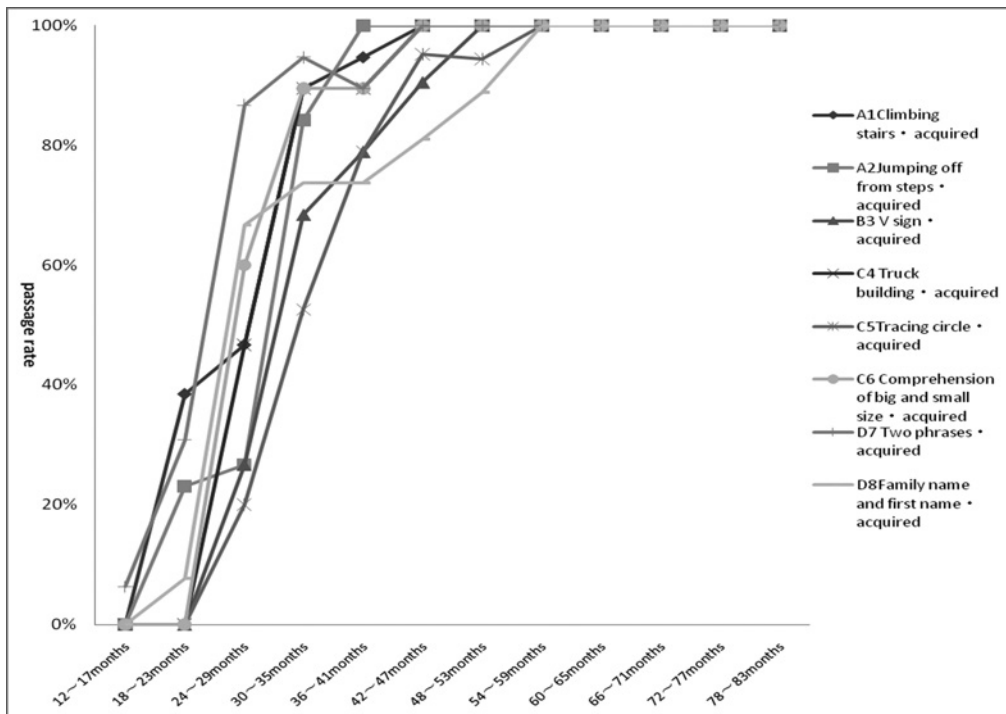


Figure 3. Passage rate of Toddler Edition 2 (only acquired)

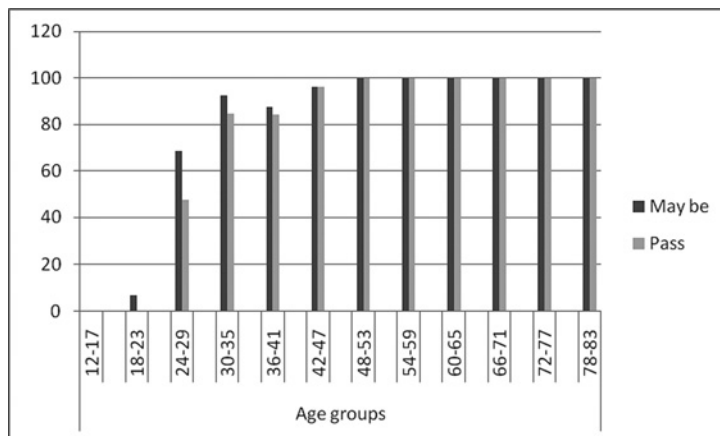


Figure 4. "Acquired" rate and "Emerging" rate of Toddler Edition 2: item C6

Most children in the age group of over 30 months old acquire all items of Toddler Edition 2. Of which, in the age group of 30-35 months old and 36-41 months old the "Acquired" rate is over 80%, in the age group of 42-47 months old the "Acquired" rate is over 90% and in the age group of 48-53 months old and upwards the "Acquired" rate is 100%.

The above analysis reveals that the developmental ability of children is directly proportional to their development age.

**Toddler Edition 3 – Checking abilities of children of 4 years old (From 3 years 5 months to 4 years old).**

Toddler Edition 3 tests the stage of the reversible “Two dimensional operation” (ability to be aware in form of “while doing this, doing that”).

Figure 5 shows that most children of less than 3 years old do not acquire developmental ability in Toddler Edition 3. The “Acquired” rate of items of the age group of 42-47 months old less than 40%, without A4: Hopping, while the “Emerging” rate is more than 60%.

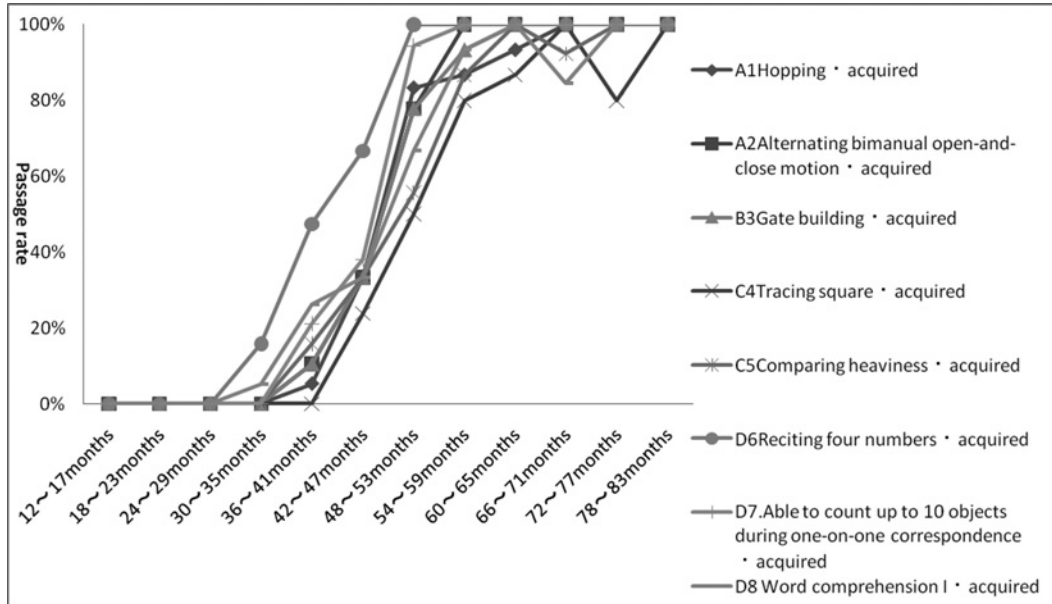


Figure 5. Passage rate of Toddler Edition 3 (only acquired)

Figure 6 shows the corresponding rate between “Emerging” and “Acquired” rate of item D8.

Figure 6 shows that the “Acquired” rates of the age group of less than 48 months old (12-47 months

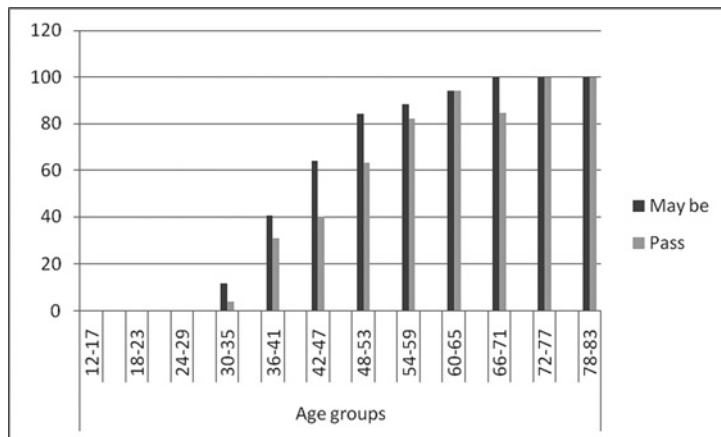


Figure 6. “Acquired” rate and “Emerging” rate of Toddler Edition 3: item D8



old) are less than 50%. In the age group of 48-53 months old, the “Acquired” rate is 63.1%. In the age groups of 42-47 months old, 48-53 months old, 54-59 months old, 60-65 months old, 66-71 months old, and 72-77 months old, the “Emerging” rate is 64%, 84.2%, 88.2%, 94.1%, 100%, and 100% respectively while the “Acquired” rate is 40%, 63.1%, 82.3%, 94.1%, 84.6%, and 100% respectively.

**Child (Preschooler) Edition 4 – Checking abilities of children of 5-6 years old (from 4 years 11 months to 6 years old).**

In this Child (Preschooler) Edition 4, we test whether or not awareness of the formative “Three dimensional operation” basing on the formation of definitions such as “big-medium-small” has been formed in children.

Research findings of Child (Preschooler) Edition 4 are shown in Figure 7 below.

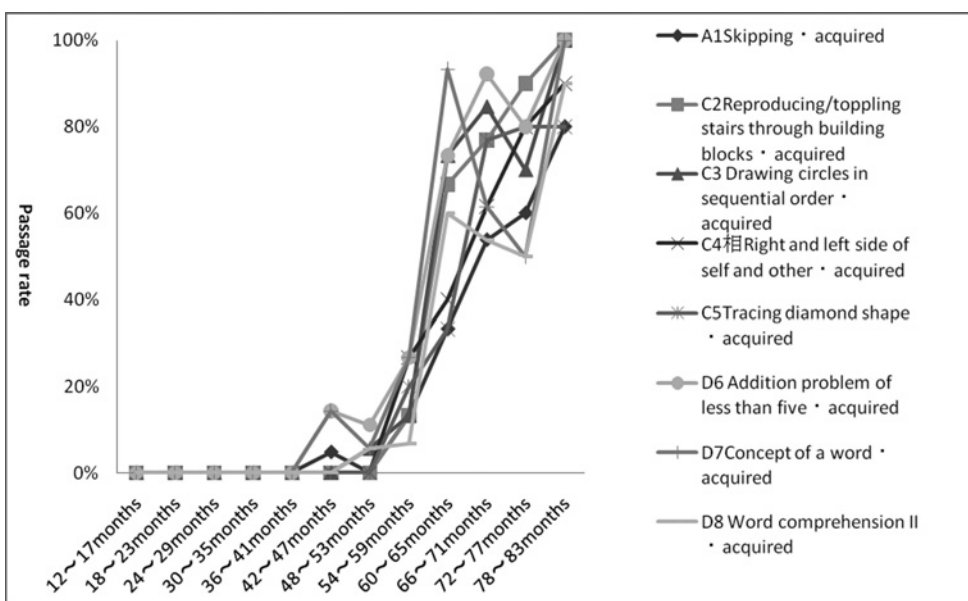


Figure 7. Passage rate of Child (Preschooler) Edition 4 (only acquired)

Results of statistics reveal that in the age group of less than 5 years old, the “Acquired” rate of all items is less than 50%.

In the age group of 60-66 months old, items having “Acquired” rate of more than 50% include: C2: 66.7%, C3: 73.3%), D6: 73.3%, D7: 93.3%), D8: 60%). Items having “Acquired” rate of less than 50% include: A1: 33.3%, C4: 40%, C5: 33.3%).

In the age group of 5.5-6 years old (66-71 months old), “Acquired” rate of all items is more than 50% include: A1. 53.8%; C2: 76.9%; C3: 84.6%; C4: 61.5%; C5: 76.9%; D6: 92.3%; D7: 61.5%; D8: 53.8%.

We also analyzed the correspondence between the “Emerging” rate and “Acquired” rate of item C2 through Figure 8.

Figure 8 shows that the “Emerging” and “Acquired” rate increase according to age. In the age group of less than 5 years old (less than 60 months old) these two rates are less than 50%, but from 5 years old upwards, these two rates are more than 50%.

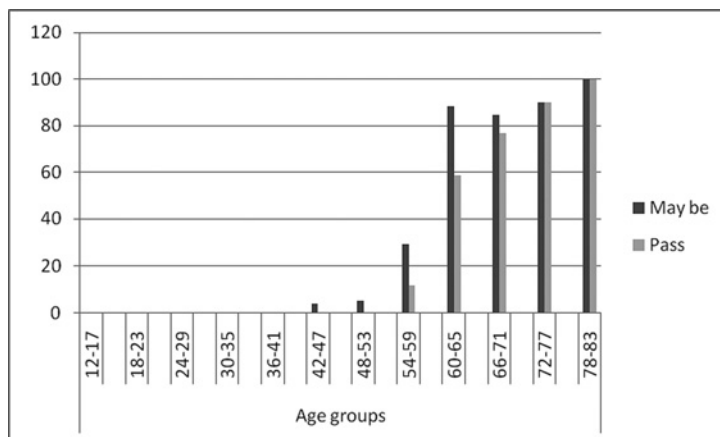


Figure 8. “Acquired” rate and “Emerging” rate of Child (Preschool) Edition 4: item C2

### 5.3. Discussion

**Conformity:** When applied to Vietnamese children, developmental checklists are completely suitable with psychological development process of children. Implementation of developmental checklists did not face any issues of cultural conflicts.

**Reliability:** Results of the checklist reveal specific developmental problems that children have. Children who received the rating of “Un-acquired” from the developmental checklist of their age when being tested in depth by other scales also obtained the same results, which proves the reliability of the developmental checklists.

**Utility:** Assessment findings produced by checklists serve as reliable foundation for provision of advice and recommendations for children, their parents, and teachers.

**Popularity:** Developmental checklists are user-friendly, especially for teachers and parents in regions having cultural similarity.

## III. CONCLUSION

Research findings show that developmental checklists have been designed scientifically based on Tanaka Masato’s theory<sup>2</sup> on developmental psychology. Developmental checklists produce reliable findings and provide a scientific basis for explaining developmental problems of children. Results of developmental checklists are reliable and have high validity. Especially, they can be used in regions having cultural similarity, at low costs.

Research findings will create a basis for conducting other comparative researches in this field among countries within and outside of the region. This is evidence showing that collaboration between scientists and experts of countries within the region will bring about achievements that can be applied not only in the region but in an international scope as well.

**This research was conducted within the frame of the topic “Researches on developmental assessment program for Vietnamese children” (NAFOSTED-code V12.99.2011.08**

### Notes

- 1 Tanaka's three principles for human's development and developmental disabilities: all people whether having disabilities or not experience the same developmental process; all people have to cope with difficulties during their developmental process; there is no limit to the development of human beings and personal values of human individuals should be respected.
- 2 Tanaka Masato (1932-2005). *Theory of hierarchies and stages on the reversible operations in human development*.

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# ベトナムにおける子どもの発達評価に対する 新しいアプローチ

## —子どもの発達チェックリストの開発—

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本研究は、子どもの「発達チェックリスト」(ベトナム版)の開発と研究結果について報告するものである。この発達チェックリストは、日本の立命館大学とベトナムのハノイ師範大学の共同研究グループによって推進されてきた。本研究ではハノイ市とホーチミン市に居住する1～7歳までの184名の子どもを対象に実施された。その結果は、量的かつ質的に分析された。データ分析にはSPSS21.0が使用された。結果の分析から、新しい発達チェックリストの信頼性および有効性があることがしめされた。

キーワード：発達評価，発達チェックリスト，幼児期，ベトナム

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