A Study of Factors of Early Childhood's Five Minds for the Future
การศึกษาองค์ประกอบจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย

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Abstract

This research aimed to study of factors of early childhood's five minds for the future and to verify the consistency between factor structures of early childhood's five minds for the future with the empirical data based on Gardner's (2009) approach. The samples were 459 kindergarten students (5-6 years old) from schools under Nakhon Ratchasima Primary Education Service Area Office 1-7, 1st semester, the academic year 2014. The instrument was the scale of early childhood's five minds for the future with the inter-rater reliability of .98. The data was then analyzed by a confirmatory factor analysis (CFA).

The research results showed that:

1) Confirmatory factor analysis method revealed that five factors in the early childhood's five minds for the future due to the 45 observed variables were between .12-.85, and the statistical level of significance was at .05, positively. Ranking by the factor loading values of .96, .90, .82, .73, and .61, it was found that disciplined mind revealed the highest value of the entire factor, following by synthesizing mind, ethical mind, respectful mind, and creating mind, respectively. Also, each factor's covariance of early childhood's five minds for the future showed its percentage of 91, 81, 67, 53, and 37, respectively.

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2) The appropriate evaluation of the instructional model was revealed that the chi-square (χ^2) was at 653.78, and a degree of freedom (df) 597 was at .05 probability. Goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and comparative fit index (CFI) were .94, .90, and 1.00, respectively. The standard root mean square residual (SRMR) were .05, and the root of mean square error of approximation (RMSEA) was .01, which was closed to zero. This was indicated that the model was relevant to the empirical data.

Keywords : Early childhood's five minds for the future, Disciplined mind, Synthesizing mind, Creating mind, Respectful mind, Ethical mind

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาองค์ประกอบจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย และตรวจสอบความสอดคล้องระหว่างโครงสร้างองค์ประกอบจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย กับข้อมูลเชิงประจักษ์ โดยใช้แนวคิดจิตเบญจลักษณ์เพื่ออนาคตของ Gardner (2009) เป็นฐานในการวิจัย กลุ่มตัวอย่างที่ใช้คือ นักเรียนอนุบาล 2 (อายุ 5-6 ปี) โรงเรียนสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษานครราชสีมา เขต 1-7 ภาคเรียนที่ 1 ปีการศึกษา 2557 จำนวน 459 คน เครื่องมือที่ใช้คือแบบประเมินจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย ที่มีค่าความเที่ยง เท่ากับ .98 การวิเคราะห์ข้อมูลใช้การวิเคราะห์องค์ประกอบเชิงยืนยัน

ผลการวิจัยพบว่า

1. การวิเคราะห์องค์ประกอบเชิงยืนยัน พบว่าจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัยทั้ง 5 องค์ประกอบ มีค่าน้ำหนักองค์ประกอบของตัวแปรสังเกตได้ทั้ง 45 ตัวแปร อยู่ระหว่าง .12-.85 ซึ่งทั้งหมดมีค่าเป็นบวก และมีนัยสำคัญทางสถิติที่ระดับ .05 เมื่อจัดเรียงตามค่าน้ำหนักองค์ประกอบ พบว่าจิตแห่งวิทยาการมีค่าน้ำหนักองค์ประกอบมากที่สุด รองลงมาคือจิตแห่งการสังเคราะห์ จิตแห่งจริยธรรม จิตแห่งการเคารพ และจิตแห่งการสร้างสรรค์ โดยมีค่าน้ำหนักองค์ประกอบเท่ากับ .96, .90, .82, .73 และ .61 ตามลำดับ แต่ละองค์ประกอบมีความผันแปรร่วมกับองค์ประกอบรวมจิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย คิดเป็นร้อยละ 91, 81, 67, 53 และ 37 ตามลำดับ

2. การตรวจสอบความสอดคล้องกลมกลืนของโมเดล พบว่าค่าไคสแควร์ (χ^2) เท่ากับ 653.78 ที่องศาอิสระ (df) 597 มีค่าความน่าจะเป็นเท่ากับ .05 ค่าดัชนีวัดระดับความกลมกลืน (GFI) ค่าดัชนีวัดระดับความกลมกลืนที่ปรับแก้แล้ว (AGFI) และค่าดัชนีวัดระดับความกลมกลืนเปรียบเทียบ

(CFI) เท่ากับ .94, .90 และ 1.00 ตามลำดับ ค่ารากของค่าเฉลี่ยกำลังสองของเศษเหลือในรูปคะแนนมาตรฐาน (SRMR) เท่ากับ .05 และค่ารากของค่าเฉลี่ยกำลังสองของความคลาดเคลื่อนโดยประมาณ (RMSEA) เท่ากับ .01 ซึ่งมีค่าเข้าใกล้ศูนย์มาก แสดงว่าโมเดลมีความสอดคล้องกับข้อมูลเชิงประจักษ์

คำสำคัญ : จิตเบญจลักษณ์เพื่ออนาคตของเด็กปฐมวัย, จิตแห่งวิทยาการ, จิตแห่งการสังเคราะห์, จิตแห่งการสร้างสรรค์, จิตแห่งการเคารพ, จิตแห่งจริยธรรม

Introduction

Due to rapid changes of the economy, social, politics, administration, education, culture, environment, especially information technology and scientific advancements in 21st century, Gardner (2009), a psychologist who invented multiple intelligences theory, proposed his latest approach in his book, “Five minds for the future” mentioned herein. These vital minds must be instilled among people so that they could survive in modern world happily both in their daily lives and working lives. They consist of five minds, including disciplined mind, synthesizing mind, creating mind, respectful mind, and ethical mind.

Obviously, five minds for the future are the whole human development approach. Disciplined mind, synthesizing mind, and creating mind are cognitive development. Respectful mind and ethical mind are affective development that allows one to live in the society happily. Thus, this approach helps fulfill humanity, making ones become capable, good, and able to live in the society happily. Corresponding to 8th National Economic and Social Development Plan (1997-2001) to 11th National Economic and Social Development Plan (2012-2016), the focus is on “humans” as the center of development. This is to balance the dimensions of people, social, economy, and environment (Office of the National Economic and Social Development, 2011). Section 6 of National Education Act 1999 specifies that education must develop Thai people to become perfect humans regarding their physical, mental, intellectual, knowledge, and ethical aspects. They must follow ethics and cultures in their living and able to live with the others happily (Office of the Education Council, 1999). In addition, the first standard of national education aims to improve all Thai people to become “capable, good, and happy”. The development must be natural, corresponding with

age, and fully effective for their physical, mental, and intellectual aspects. They must have knowledge and skills necessary for their living and social development as well as virtue and desirable conscious to live in the society peacefully (Office of the Education Council, 2005).

Since five minds for the future are quite new for psychology and education, there are few researches about five minds for the future. The existing researches examine only some attributes. For example, Nualpang (2011) examined disciplined mind, synthesizing mind and creating mind of undergraduates at Faculty of Education, Burapha University. Boonyanusit (2011) examined respectful mind and ethical mind of undergraduates at College of Industrial Technology, King Mongkut's University of Technology North Bangkok. Therefore, researchers believe that these five minds should be comprehensively examined since those who lack these minds have problems in their lives and their works. In other words, persons without disciplined mind will never succeed in their jobs and limited to insignificant tasks. The persons without synthesizing mind will be overwhelmed by information and they are unable to make discreet decisions about people and work. The persons without creating mind will be replaced with a computer and more creative persons. The persons without respectful mind will not be respected by the others. They might even be a threat to their workplace and the public. The persons without ethical mind will cause the loss of the world’s honest workers and responsible citizens.

Furthermore, there is no comprehensive study on early childhood’s five minds for the future although these must be implanted in children. Early childhood is vital as the foundation of all developments. This period is the most important and essential for brain development. It is a sustainable human development that prevents social problems in long term. According to Bhanthumnavin (1996) stated that children aged between 3-8 years should be fostered to make them become good and capable persons when they grow up. It will prevent potential problems when they enter adolescence and adult age. Erikson (cited in Pinyoanuntapong, 2002) emphasized the importance of early childhood as the time for learning the surroundings. How well one’s personality is shaped depends on whether he or she has experienced desirable

things according to each step of his or her development. If the child is satisfied, he or she will have proper personality development.

The background and the importance mentioned above make us interested in examining factors of early childhood's five minds for the future. Attained information about five minds for the future will be a good starting point. It will be beneficial for teachers and interested persons as a basis for the development of early childhood's five minds for the future corresponding to Thai social and cultural context.

Objectives

1. To examine factors of early childhood's five minds for the future.
2. To investigate consistency between factors of early childhood's five minds for the future and empirical data.

Methodology

1. Population in the research includes 21,000 kindergarten students (5-6 years old) at schools under Nakhon Ratchasima Primary Educational Service Area Office 1-7, the academic year 2014 (Office of the Basic Education Commission, 2014, pp. 51-52), which are in similar context. In other words, they have the same coeducation environment. They have basic education arrangement in the way that early childhood are able to interact with their peers. The schools have variety in education level and economic and social status of the children's parents.

2. The samples used in the research are kindergarten students (5-6 years old) at schools under Nakhon Ratchasima Primary Educational Service Area Office 1-7, 1st semester, the academic year 2014. Researchers considered the rule of thumb, that means used 5 units of the samples for one factor (Hair et al., 2006). This research used 45 factors for the analysis. Thus, the number of samples must be at least 225 persons. However, Comrey and Lee (1992) suggested that factor analysis requires at least 300 samples in accordance with criteria. Therefore, this research set sample size at least 300 persons. Researchers performed simple random sampling on every educational service area and obtained 26 schools, used all students from sampled schools as the

sample group. After collecting and screening data, totally 459 samples for this research.

3. The research instrument was the scale of early childhood's five minds for the future (for teacher). It was created and developed with these following steps.

3.1 Create a basic framework to examine factors of early childhood's five minds for the future. Researchers studied related literature and used them, especially Gardner's (2009) approach of five minds for the future, as a guideline for this study.

3.2 Interview the experts about factors of early childhood's five minds for the future. Researchers interviewed 1 Buddhist monk, 2 psychologists, and 3 early childhood education experts. The main point of this interview includes factors, definitions, and attributes of early childhood's five minds for the future. It can be concluded as follows.

3.2.1 The experts thought that the classification of factors of early childhood's five minds for the future according to Gardner's (2009) approach was possible. All five minds could be seen among Thai early childhood. However, the distinctiveness of five minds among early childhood may vary in their degree. In Thai context, it is obvious that the teaching, even in early childhood, focuses on intellectual aspect. Thus, it is possible that disciplined mind among early childhood is more obvious than other minds. Nevertheless, other minds could be considered as tendency caused by observable behaviors.

3.2.2 Definition of early childhood's five minds for the future means minds related to working and living of early childhood. It consists of five minds as follows:

1) Disciplined mind is early childhood's mind that expresses continuous learning and ability to apply the lessons with their working and living. This behavior can be observed when the children pay attention in their class, being curious, and seeking for knowledge of what they are interested. They have self-discipline in their daily activities, such as brushing teeth, keeping toys or items after use, and doing housework routine.

2) Synthesizing mind is early childhood's mind that expresses the ability to understand information from different sources, evaluate them logically, and integrate them to create a new thing, which is meaningful for themselves and the others. This behavior can be observed when the children integrate information and

ideas and invent things based on their existing knowledge. They are even able to integrate different knowledge and create new things logically.

3) Creating mind is early childhood's mind that expresses the ability to produce new and different ideas, methods, and questions that lead to unexpected answers. This behavior can be observed when the children pose questions or tell innovative stories, play imaginary roles, use things unconventionally, apply things as necessary, invent unexpected methods or works.

4) Respectful mind is early childhood's mind that expresses acceptance and understand the difference of people, groups, and places as well as seeking to work together friendly. This behavior can be observed when the children recognize and accept the difference between them and the others, listen to the others' positive and negative opinions, accept different reasons and practices, show generosity, know how to wait, being dedicated, and express properly in different situations and places.

5) Ethical mind is early childhood's mind that expresses self-control based on ethical practice considering the consequences on them and the public. This behavior can be observed when the children are responsible for their duties, actions, and words, being disciplined in cleaning, following rules, love their friends, their belongings, and public things, know how to held and forgive the others.

3.2.3 Important characteristics of early childhood's five minds for the future are as follows:

1) Disciplined mind of children at this age can be seen from their interest. However, such interest must be paid on the right thing that teacher wants it to happen. Such is considered as disciplined mind, for example, interest in doing something on one's own. This can be observed when the children try to disassemble and assemble their toys, pay attention to daily activities, and responsible for their duties.

2) Synthesizing mind of early childhood originates from their interest and their attempt to understand it, for example, answering about their favorite toys, explaining their merits, how to use them, and their basic problem-solving ability.

3) Creating mind rarely happens in early childhood. There are few children with outstanding creativity in certain class. However, if teacher poses the challenging question, these children can be identified.

4) Respectful mind basically originates from love. It is observable that if the children love their classes, friends, or places, they will show positive behaviors. However, it is possible that respectful mind can be noticed from the same behaviors of ethical mind, for example, the children follow their teachers' instructions, submit their homework on time. Their self-discipline is obvious. They love to do and collaborate.

5) Ethical mind: Based on basic virtue the children must practice in the school, there are quite distinct behaviors among early childhood since classroom's activities directly emphasize on improving the children in this area.

3.3 Focus group discussion with 26 kindergarten teachers to attain early childhood's behavioral information regarding five minds for the future. Researchers brought the data from item 3.1 and 3.2 to process and focused group discussion with kindergarten teachers on making the list of behaviors regarding early childhood's five minds for the future. Researchers attained 65 items of behavior list, including 13 items of disciplined mind, 10 items of synthesizing mind, 13 items of creating mind, 14 items of respectful mind, and 15 items of ethical mind.

3.4 Create the scale of early childhood's five minds for the future (for teacher). It is five rating scale, including never, few, sometimes, often, and always.

3.5 Submit the scale to 1 psychologist, 2 measurement and evaluation experts, and 2 kindergarten education experts to examine its content validity. Every item has acceptable item-objective congruence index (IOC ≥ .80).

3.6 Tryout the scale with 50 non-sample early childhood to analyze for discrimination power. It was found that 45 items of behavior list had acceptable discrimination power (r = .22-.85), including 9 items of disciplined mind, 7 items of synthesizing mind, 9 items of creating mind, 10 items of respectful mind, and 10 items of ethical mind.

3.7 Tryout the scale with 50 non-sample early childhood apart from those used for discrimination power analysis to find the reliability of the scale by using correlation analysis. Inter-rater reliability was at .98.

3.8 Use the scale to collect data from research samples.

4. Data collection: Researchers arranged the meeting with kindergarten teachers, who helped collect data for us, to explain the objectives and guidelines for collecting data from students at their own schools. Then kindergarten teachers helped collect data from students at their own schools. After all assessment forms were returned, counted them and verify obtained data before further analysis.

5. Data analysis: Researchers used second-order confirmatory factor analysis by applying LISREL to examine the validity of the latent variable measuring model of each factor.

Results

Confirmatory factor analysis method revealed that five factors in the early childhood's five minds for the future due to the 45 observed variables were between .12-.85, and the statistical level of significance was at .05, positively. Ranking by the factor loading values of .96, .90, .82, .73, and .61, it was found that disciplined mind revealed the highest value of the entire factor, following by synthesizing mind, ethical mind, respectful mind, and creating mind, respectively. Also, each factor's covariance of early childhood's five minds for the future showed its percentage of 91, 81, 67, 53, and 37, respectively.

The appropriate evaluation of the instructional model was revealed that the chi-square (χ^2) was at 653.78, and a degree of freedom (df) 597 was at .05 probability. Goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and comparative fit index (CFI) were .94, .90, and 1.00, respectively. The standard root mean square residual (SRMR) were .05, and the root of mean square error of approximation (RMSEA) was .01, which was closed to zero. This was indicated that the model was relevant to the empirical data and there are 5 factors and 45 observable variables as shown in Table 1 and Figure 1.

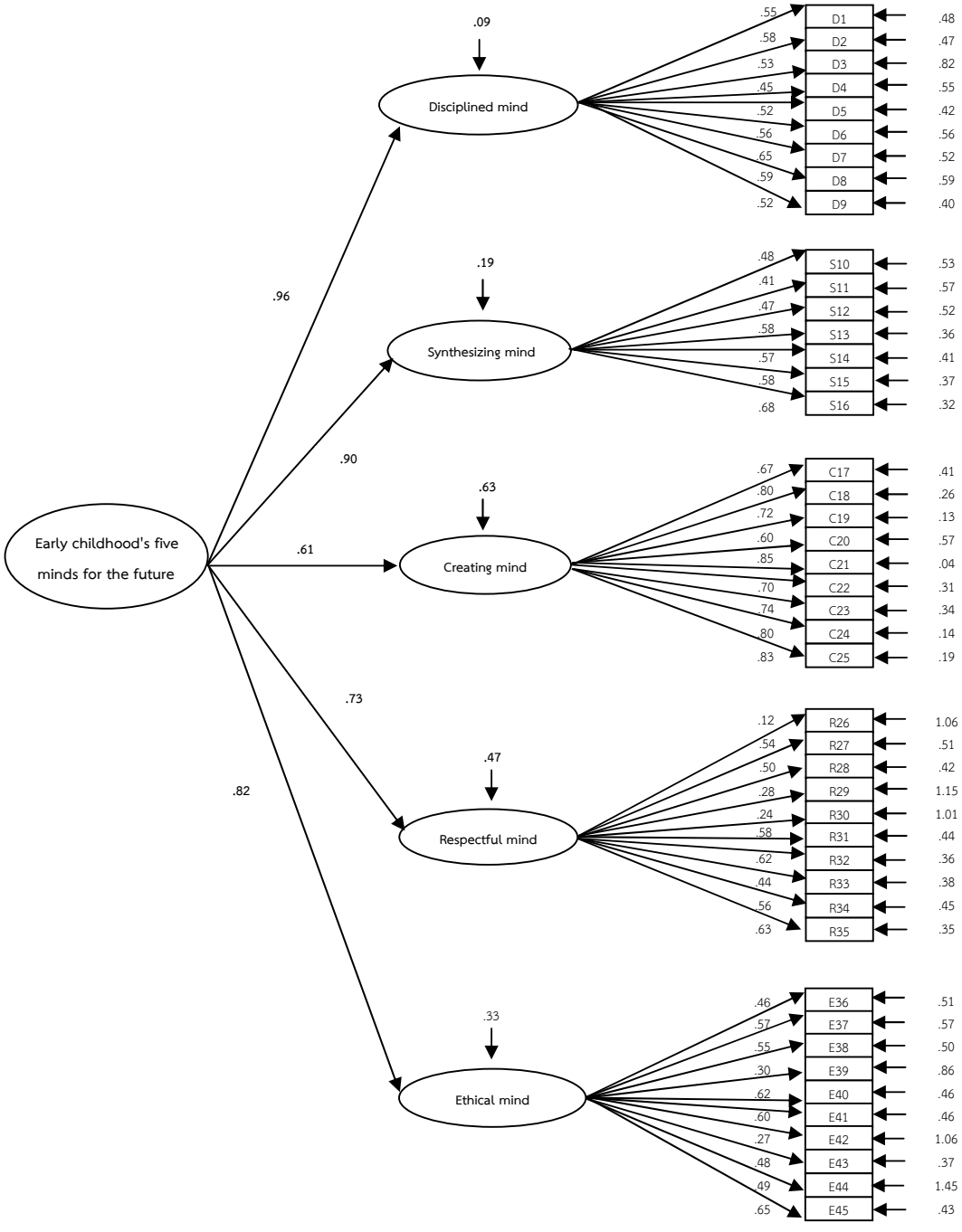
Table 1 Results of second-order confirmatory factor analysis on early childhood's five minds for the future

Observable variables	Factor loading (b)	R^2	Coefficient of factor score
Disciplined mind			
D1 Concentrate on class activities.	.55*	.39	.12
D2 Apply knowledge for assignment.	.58*	.42	.04
D3 Perform activities personally.	.53*	.26	.00
D4 Keep toys after use without being told by the teacher.	.45*	.27	.15
D5 Research/try/play with one's interested things on free time.	.52*	.39	.17
D6 Try to complete the assignment on one's own.	.56*	.36	.11
D7 Complete the assignment without being told by the teacher.	.65*	.45	.15
D8 Dare to ask the teacher about a certain issue.	.59*	.37	.18
D9 Try to search for information from various sources.	.52*	.40	.10
Synthesizing mind			
S10 Tell benefits of things in daily life.	.48*	.30	.07
S11 Choose appropriate toy for oneself.	.41*	.23	.10
S12 Choose utensil to replace the old one.	.47*	.30	.04
S13 Make a reasonable decision when working with friends.	.58*	.49	.21
S14 Predict future situation reasonably.	.57*	.45	.09
S15 Role Playing under given condition or situation.	.58*	.47	.15
S16 Express opinions reasonably.	.68*	.60	.39
Creating mind			
C17 Always question when seeing new things.	.67*	.52	.55
C18 Role Play according to one's own imagination.	.80*	.71	.55
C19 Modify things as necessary for use.	.72*	.80	.52
C20 Play toy in different ways.	.60*	.39	-.12
C21 Use various materials for creating artwork.	.85*	.95	.79
C22 Pose an unexpected creative question.	.70*	.62	.13
C23 Reply with an unexpected creative answer.	.74*	.62	-.03
C24 Give unexpected creative solution.	.80*	.82	.48
C25 Use things in unexpected ways.	.83*	.78	.28

Table 1 (continue)

Observable variables	Factor loading (b)	R^2	Coefficient of factor score
Respectful mind			
R26 Do not quarrel with friends.	.12*	.01	-.08
R27 Show appreciation or apology depending on the situation.	.54*	.36	.06
R28 Follow the class's agreement.	.50*	.37	.12
R29 Do not interfere while his friend or teacher is talking.	.28*	.06	-.02
R30 Do not disturb the others in the class.	.24*	.06	.11
R31 Show respect to the seniors.	.58*	.43	.06
R32 Congratulate with the other's success.	.62*	.51	.16
R33 Accept different opinion of his friend.	.44*	.34	.12
R34 Play with others or play in group happily.	.56*	.41	.06
R35 Attend group activities in different contexts.	.63*	.53	.25
Ethical mind			
E36 Accept one's own action.	.46*	.30	.16
E37 Submit one's assignment on time.	.57*	.37	.05
E38 Do a favor for the others without being asked.	.55*	.38	.11
E39 Do not bully the weak.	.30*	.09	.03
E40 Being a good leader and follower when doing group activities.	.62*	.46	.22
E41 Forgive his friend when conflict arises.	.60*	.44	.03
E42 Do not lie.	.27*	.06	.05
E43 Accept one's own words.	.48*	.38	.08
E44 Spend things prudently.	.49*	.14	-.02
E45 Committed to working to achieve success.	.65*	.49	.37
Second-order confirmatory factor of early childhood's five minds for the future			
Disciplined mind	.96*	.91	
Synthesizing mind	.90*	.81	
Creating mind	.61*	.37	
Respectful mind	.73*	.53	
Ethical mind	.82*	.67	
χ^2 = 653.78, df = 597, p = .05, GFI = .94, AGFI = .90			
CFI = 1.00, SRMR = .05, RMSEA = .01			

Note: *$p < .05$



χ^2= 653.78, df = 597, p = .05

Figure 1 The model of confirmatory factor of early childhood's five minds for the future

Discussions

1. In result of the study on early childhood's five minds for the future, 5 factors were found, namely disciplined mind, synthesizing mind, creating mind, respectful mind, and ethical mind. Those factors correspond with Gardner's (2009) approach.

2. In result of congruence test between factors of early childhood's five minds for the future and empirical data, they are consistent according to research framework as follows:

2.1 Disciplined mind expresses continuous learning tendency and the ability to apply the lesson with work and living. It is the most important factor among five minds for the future (factor loading value is .96). The most obvious behavior in early childhood with disciplined mind is doing something without being told by the teacher and being brave to question (factor loading values are .65 and .59, respectively). Such characteristics correspond with Gardner's (2009) approach, and Chang and Lee (2008), which concludes that disciplined mind expresses long-term learning. Such learning tells us how to do things. It is skill combined with understanding. This also corresponds with the interview with the experts, who suggested that disciplined mind basically originates from interest and concentration. These results correspond with the studies of Nualpang (2011), whose disciplined mind development process focuses on reflection. Sataporn (1997) found that discipline consists of 6 factors, including compliance to social rules, self-confidence, responsibility, commitment, leadership, and endurance. Also, Palintorn (2011) developed PICC instructional model to promote early childhood's learning skill. The instructional model relies on the approach that allows the learner to plan, search, manage, and conclude the knowledge.

2.2 Synthesizing mind expresses the ability to understand information from different sources and evaluate them reasonably. This is another important factor next to disciplined mind (factor loading value is .90). The list of behaviors with the highest factor loading value includes expressing reasonable opinions and being able to role play according to given condition (factor loading values are .68 and .58, respectively). These results correspond with Gardner's (2009) approach that valued

the combination of different information due to the accumulation of knowledge. In addition, Chang and Lee (2008) concluded that synthesizing mind is the integration of ideas. Unlike disciplined mind, it connects all information together. Corresponding to the studies of Ge and Land (2004) found that synthesizing mind's person able to analyze and identify problems, organize those thoughts and sort out the problem into a small step. Also, Katunuti (2014) developed B-R-A-I-N learning model to promote early childhood's cognitive ability. Such model consists of 5 steps of learning, namely boosting, remarking and relating, acquiring, inferring, and notifying. Such steps for early childhood development correspond with early childhood's synthesizing mind. After analysis, the children will eventually present the information derived from the analysis.

2.3 Ethical mind expresses self-control that conforms to ethical norms by considering the consequences on oneself and the public. This is an important factor next to synthesizing mind (factor loading value is .82). Observable factors that clearly indicate ethical mind are a commitment in working to achieve success and being good leader and follower in the activity (factor loading values are .65 and .62, respectively). These results correspond with Gardner's (2009) approach that ethical mind is abstract attribute regarding role, work, and citizenship. Therefore, behaviors in term of work and being leader and follower clearly indicate ethical mind. Ethical mind is necessary for early childhood. This can be seen in the studies of Seider, Davis, and Gardner (2009) found that ethical mind's children will be a member of the community, local and global citizenship, as well as to consider the impact of their work and to behave in a different way. Also, Reamsakul (2007) examined parents' needs about ethical attributes of early childhood, found that important and desirable factors about early childhood's ethical attribute are integrity, discipline, responsibility, considerateness, mercy, generosity, and dedication, which correspond with important behaviors of early childhood's ethical mind in this study.

2.4 Respectful mind expresses acceptance and understanding in the difference between people, groups, and places, and seeking to work together friendly. This is an important factor next to ethical mind (factor loading value is .73). Observable variables with the highest factor loading include attending group activities

in different contexts and congratulating the others (factor loading values are .63 and .62, respectively). These results correspond with Gardner's (2009) approach that respectful mind is the response towards person or group of persons. In addition, the interview with the experts suggested that respectful mind basically originates from love. Corresponding to the studies of Smith (2008) found that respect mind's person wish to contribute to respect for others, using interpersonal communication skills with individuals to understand others. Also, Munsettavith (2014) examined factors and enhancement desirable characteristic of living together with peace and happiness appropriate for preschool in three southern border provinces through SANTISUK experiential learning model. It was found that important indicators of peaceful cohabitation include 5 areas and 18 indicators. The areas with the highest correlation are friendship, self-sufficiency, tolerance, forgiveness, and acceptance in personal difference. Such factors correspond to the definition of respectful mind. Important behaviors include working with the others happily, sharing to the others, empathizing the others, helping the others willingly, not bothering parents to buy useless things, being responsible for assigned duty, being able to wait in queue, not using violence, accepting one's own action, asking for forgiveness sincerely, able to forgive the others, accepting one's own uniqueness, accepting different opinions, and accepting one's own religious and cultural practice.

2.5 Creating mind expresses the ability to produce novel ideas, methods, and questions. It has the least factor loading value from the analysis on early childhood's five minds for the future (factor loading value is .61). Observable factors with the highest factor loading include creating artwork from various materials and role playing (factor loading values are .85 and .80, respectively). These results correspond with the study of Chang and Lee (2008) concluded that creating mind is the ability to produce new ideas, questions, and methods. Corresponding to the studies of Lee (2005) and Yoosook (2012) found that such creativity could be noticed from the ability to imagine and apply things, solving problems with insight, innovative solution based on prior knowledge and experience.

Suggestions

1. Suggestions for the application of results:

1.1 This research discovered that early childhood's five minds for the future consists of 5 factors, including disciplined mind, synthesizing mind, creating mind, respectful mind, and ethical mind. Thus, this information is beneficial for early childhood development. To promote five minds for the future among early childhood, the executives and teachers should have a plan on experience learning that focuses on improving all 5 factors simultaneously in order to foster five minds for the future completely.

1.2 Disciplined mind is the most important factor of five minds for the future. The most obvious behaviors include doing something without being told by the teacher, being brave to question. This is certainly beneficial information to further improve early childhood.

1.3 Synthesizing mind and ethical mind are next important factors. Important behaviors include being reasonable, role play according to given condition, commitment in working to achieve success, able to be leader and follower in doing the activity. This is considered beneficial information to improve early childhood whether these behaviors occur or not and how to reinforce these behaviors that lead towards such mind.

1.4 Respectful mind and creating mind are two last important factors. However, having these two minds is considered having complete five minds for the future. To promote this, the teachers must encourage the children to create their artworks on their own, play their own imaginary roles, work with their peers, congratulate the others, and play with the others happily.

2. Suggestions for further study:

2.1 Five minds for the future should be examined among learners at other education levels. The consistency of the model should be checked to confirm such minds in Thai context.

2.2 There should be a study to promote or improve early childhood's five minds for the future, for example, the study on development model, development

innovation, or development evaluation by using different innovations or teachings in order to attain information for further promotion and development.

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