Modifying the Instrument of Self-Regulation in Early Childhood Assessment

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ABSTRACT: Self-regulation for pre-school children is very important to support children's adjustments in all situations and conditions. The current problem is the instrument of self-regulation is more focused on regulation in learning which is not suitable for young children. This study aims to examine the validity and reliability of Preschool Self-Regulation Assessment (PSRA) in Indonesia by modifying several children self-regulation theories. The instrument was translated from English into Indonesian and it retranslated into the native language by linguists. The questions, then, were validated through a process of professional judgment and cognitive debriefing. The study was carried out to 179 children aged 6 to 7 years old. Data were analyzed by using confirmatory factor analysis (CFA). It showed that there are 5 dimensions of children's self-regulation, namely: attentional focus, behavioral control, self-motivated, self-autonomy and emotional control. The result showed that the five-dimensional model is agreed with the data and prove to measure children's self-regulation. Cronbach's alpha coefficient value was 0.899, indicating high scale reliability. Thus, the pre-school children's self-regulation assessment has well psychometric for further use.

Keywords: Children's self-regulation, Confirmatory Factor Analysis, Construct validation, Pre-school self-regulation assessment, Reliability

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1 INTRODUCTION

The term of self-regulation, in general, is often associated with several other terms of self-skill, namely self-management, self-direction and self-control or self-monitoring. Some experts who formulate self-regulation argued that the notion of self-regulation is more comprehensive because it includes self-management and self-supervision (Blair & Diamond, 2008; Pino & Whitebread, 2010; Wang, Hamaker, & Bergeman, 2014). Self-regulation is defined as the ability to regulate a person's behavior, so as to hold impulses, maintainfocus, and do the work, even if there are other more interesting alternatives available. Children 3-6 years old can voluntarily internalize self-regulation and can show the self-awareness. Self regulation demands flexibilityand the ability to be patient forget the desired results, this is because when a child is very want to do something, the child will get it easily forget the rules there is. Children can just run to the middle the way to catch the ball or take it cakes are forbidden to themconsumption. In many children, development of full self regulation develop perfectly until it enters the age of the early child and spends at least three year.

Self regulation is the main basis socialization that can connect all developments, physical, cognitive, social, and emotional. For example, when a child tries to insert his finger into an electrical contact, then he remembered the cry of people his parents always forbid him put hands into electrical contacts, he immediately pulled his hand with spontaneous. The child stops himself do something he remembers not he should do. The child already showed self-regulation. To stop the child put his finger in in the contact, the child must conscious of understanding and remembering what is said his parents. Although thus, cognitive awareness alone is not enough, hold yourself too need emotional control. Before children can controlling their own behavior, children must be able to manage, or controlling, and regulating emotions negative by getting help from parents, through actions positives exemplified by parents. Like always giving a warning reasonable for children, and behave politely. Child will be with itself remembers and processes what done by parents. This is because of parents is the main educator and caregiver for children, educate children well and true means to develop totality of potential children old people will apply parenting according to him right so the child becomes smart and disciplined according to desire. Application of parenting important right in formation of child behavior. Parenting parents are the best way can be taken in educatin child as a manifestation of taste responsibility to children. Parents must apply the parenting pattern right and in accordance with the child to get it supporting the success of self regulation child.

Self-regulation of children can be interpreted as the capacity of the children to delay behavior, tendencies or desires, maintain attention, abide by social rules, control and regulate their emotion (Radiah Smith-Donald, Raver, Hayes, & Richardson, 2007). It includes the ability to control impulsive behavior and the ability to delay what the child wants now for future purposes. Smith-Donald also emphasized that the development of children's self-regulation follows the concept of maturity. Self-regulation develops based on the level of the child's age development. Grolnick & Farkas (2002) defined self-regulation as one's capacity to self-initiate cognitive, behavioral and emotional capacities to accomplish a task. Self-regulation also serves to reduce emotional and behavioral responses, facilitating the use of more effective coping skills that can moderate the relationship between household chaos and behavioral problems by reducing the experience of stress among children living in a chaotic home environment, allowing children to divert or focus their attention and energy in an adaptive way.

Other experts who also consistently examine self-regulation in children are (Smith-Donald et al., 2007; C Blair & Diamond, 2008; Raver et al., 2011) who focused their re-search on a psycho-biological perspective. Blair et al emphasized that self-regulation ability will not be separated from the executive function of the neuron system. Executive function will develop along with the maturity of the brain in the frontal lobe. Furthermore, C Blair & Diamond (2008) concluded the results of their observations on pre-school children that self-regulation developed along with the biological and psychological maturity stage of children. Clancy Blair & Raver (2015) continued their research related to children's self-regulation with readiness to attend school. The results conclude that there are important internal factors to identify children's school readiness, such as the existence of proper self-regulation to follow instructions, control emotions and ad-just the transition period. They even said that self-regulation ability is more important than intelligence capabilities measured through IQ.

Research from Eisenberg, Valiente, & D.Eggum (2010) and Bierman et al., (2008) tried to connect self-regulation that focused on children's emotional control to their school readiness. These experts agreed that the definition of self-regulation is varied but it can be emphasized as a process to manage and change emotional conditions due to their social expectations. Children who have good self-regulation are able to recognize their feelings and emotions that related to their learning motivation and how emotions affect their behavior (Eisenberg, Hofer, & Vaughan, 2007). Eisenberg et al added that emotional self-regulation is a regulatory process that can be controlled and influenced by external factors, such as parenting behavior. The other study from Bentley (2013) about children's self-regulation focused on the mediator functioning of school engagement. Parental involvement and parent-child warmth were also shown to have an indirect effect on school engagement by child's self-regulation. On the research which is titled The Contribution of Children's Self-regulation and Classroom Quality to children's Adaptive Behaviors in the Kindergarten Classroom, Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock (2009) concluded how important children self-regulation for successful adaptive in the transition period in kindergarten.

Children's Self-Regulation Theory Perspective

Social Cognitive Theory

This theory emphasizes the ability of children to perceive their environment and assess their ability to control their external environment (Bronson, 2000). Another expert, Zimmerman (2002) stated that children's self-regulation in specific learning leads to their ability to develop realistic goals in completing tasks, use effective strategies to focus on completing tasks and monitor themselves to assess their effectiveness in completing tasks. For example, a child aged 5-6 years who is still attending kindergarten, gets the task of coloring one page from a picture book. With his self-regulatory ability, he can plan how to complete the task quickly, to ignore interference from friends around him and to use experiences he had previously encountered to use effective ways to color the image.

b. Sociocultural Theory

The sociocultural perspective emphasizes the child's self-regulation skills that is shaped by the social and cultural environment. One of the theories that supports this perspective is Vygotsky's theory (Verenikina, 2010) which assumed that children are able to develop higher self-regulation abilities but their goals and strategies are determined by the culture of their social environment and facilitated by their supervisor (teacher or parent). For example, in the task of coloring the picture, children will be better in developing their own regulation if parents or teachers direct

effective ways of completing tasks quickly, giving examples of how to modify colors, keeping children away from disruption of the surrounding environment, and so forth.

c. Motivation Theory

Based on the perspective of motivation theory, there are three things from environmental factors that facilitate children's self-regulation, they are: 1) child autonomy support; 2) child competency support and 3) developing relationships with children (Grolnick & Farkas, 2002). Furthermore, this theory tries to trace from the theory of self-determination. Grolnick & Farkas explained that children would be better to manage themselves if their opinions were responded positively by parents or educators and they were given the opportunity to make their own decisions. To support their competence, parents and other educators must be able to provide clear instructions and consistent regulations. The third way is to form a positive environment. Parents and educators must be able to present warm relations, full attention and concern for the needs of children.

d. Biological Perspective

Based on a biological perspective, the child's internal characteristics are different from one child to another even though they are in the same age range. Various studies provide conclusions that temperament and genetic characteristics influence the development of children's self-regulation (Eisenberg et a. L, 2007).

Based on some of the theoretical backgrounds above, this research refers to motivation theory and socio-cultural theory that see children's self-regulation influenced by the surrounding social environment and individual maturity of children.

The researchers noted that research on children's self-regulation in Indonesia had not developed widely and was aimed more at other subjects, such as adolescents, students and adults. Likewise, with research relating to children's self-regulation, there are less specialized studies in Indonesia that use PSRA to measure children's self-regulation. Some studies that focus on self-regulation of children still use questionnaire method that given to parents or teacher in Kindergarten (Amanda, Antara, & Magta, 2016; Rochmah, 2017). Based on this background, the purpose of this study was to develop children's self-regulation instruments by modifying the Pre-school Self-Regulation Assessment instrument to be suitable for using in pre-school children in Indonesia.

Sub-dimensions of Children's Self-Regulation

According to the theoretical background, there are many different concepts about the sub-dimensions of self-regulation, Zimmerman (2002) who emphasizes the concept of self-regulation in self-regulated learning defines "goal-directed behavior" as a sub-dimension of self-regulation. Eisenberg et al., (2010) describe the sub-dimensions of children's self-regulation to be: (a) Self-control, (b) Attentional focused, (c) Self-directed and (d) Self-autonomy.

In several studies of children's self-regulation (Eisenberg, Spinrad, & Eggum, 2010) the self-directed sub-dimension is replaced by the term children's ability to self-motivated. Each sub-dimension can be described into several aspects that cover it.

In this study, the concept of children self-regulation is adopted from the theory of Smith-Donald et al., (2007) and Eisenberg, Valiente, et al., (2010). It has emphasized that sub-dimension of self-regulation covers; attentional focus, behavioral control, self-motivated, self-autonomy and emotional control. The self-regulation in sub-dimension develops and functions interdependently but influences each other as a system.

1) Attentional focus is a component of cognitive function. This refers to processes and abilities such as maintaining attention, ignoring annoying and irrelevant stimuli, staying alert for the purpose of the task and coordinating the attention during the task (Tanribuyurdu, Findik, Yildiz, & Guler, 2014).

2) Behavioral control can be interpreted in several different perspectives. In behavioristic theory, the development of the regulation of children's behavior is focused on learning strategies to control various impulses. While in the develop-mental perspective, regulation of behavior is a development process and there are different characteristics in each stage of development.

3) Self-Motivated. This third dimension is related to how children are able to moti-vate themselves to reach a goal. Furthermore, Eisenberg, Valiente, et al., (2010) describe that in pre-school children, this motivation might come from external factors which are going to become internal motivation.

4) Self-Autonomy. Children will be able to regulate themselves if their opinions are responded positively by parents or educators and they are given the opportunity to make their own decisions. To support their competence, parents and other educators must be able to provide clear instructions and consistent rules. The other way is to form a positive environment.

5) Emotional control is the capacity of children to be able to control their feeling and express their emotions in the right ways that are acceptable to their social environment. Further explained by Grolnick & Farkas (2002) that the regulation of children's emotions can be interpreted as the ability to adjust emotional conditions flexibly, yet it is not the ability to control his own emotions without determining by their environment.

2 METHODS

The methodology of this research was quantitative approach. It used hypothesis, a litera-ture review, and a quantitative data analysis. Creswell (2014) explains that quantitative research is "employing strategies of inquiry such as experimental and surveys, and col-lect data on predetermined instruments that yield statistical data".

Participants

Participants were 196 people included: (1) Three educational psychology and child development experts to acquire professional judgment, (2) Nine kindergarten teachers to follow cognitive debriefing process, (3) Five Psychologists whom participated in trial test for 179 pre-school children ages 6-7 years old in two provinces; Banten and West Java, Indonesia. Subjects were selected randomly in 6 kindergartens within two provinces.

Research procedure

The study was conducted in three stages: (1) Researchers adapted the Pre-School Self-Regulation Assessment (PSRA) developed by Smith-Donald et al., (2007). The manual instrument and observation guideline were translated from English into Indonesian and then re-translated to the native language by experts. The researcher also added self-motivated and self-autonomy dimensions based on the theory of Eisenberg, Valiente, et al., (2010). (2) Validation of the content is conducted through professional judgment by discussion and interview the Educational Psychology and Child Development experts from Gadjah Mada University and State Islamic Institute of Surakarta. While cognitive debriefing process is conducted through focus group discussions in

two groups of kindergarten teachers. (3) Try Out. The instrument that has been prepared was tested to kindergarten students in South Tangerang, Banten and Cipadung, Bandung, West Java. In this trial, the kindergarten teacher provided assessment task instructions to the chil-dren, while the psychologists acted as observers in those assessment processes. Before conducting the instruction of assessment, all kindergarten teachers were given a briefing first. Each teacher gave instructions for one group of children consists about 5-6 children. Each of Psychologist observed 2 children. This process evaluated behavior of students in self-regulation dimensions with a range of values from 0 to 3 on each behavior indicator.

Validity and Reliability Test

The data obtained then tested construct validity using Confirmatory Factor Analysis and reliability test by using Cronbach's Alpha approach.

3 RESULT AND DISCUSSION

3.1 *Content Validity*

3.1.1 *Professional Judgement*

Table 1. Recommendations of the Results of Expert Judgment

Number	Type of assignment	Sub dimensions measured	Experts Recommendation
1	Balance Beam	Attentional Focus	Can be used
		Behavioral Control	
		Self-Motivated	
		Self-autonomy	
		Emotional Control	
2	Tower Task	Attentional Focus	Can be used
		Behavioral Control	
		Self-Motivated	
		Self-autonomy	
		Emotional Control	
3	Tower Cleanup	Attentional Focus	Can be used
		Behavioral Control	
		Self-Motivated	
		Self-autonomy	
		Emotional Control	
4	Toy Sorting	Attentional Focus	Can be used
		Behavioral Control	
		Self-Motivated	
		Self-autonomy	
		Emotional Control	
5	Toy Return	Attentional Focus	Can be used
		Behavioral Control	
		Self-Motivated	
		Self-autonomy	
		Emotional Control	
6	Pencil Tap	Self-Motivated	Can be used

No		Dimension	Sub-dimension	Score
			Self-autonomy	
			Emotional Control	
			Attentional Focus	
			Behavioral Control	
7	Toy wrap		Emotional Control	Not recommended
			Behavioral Control	
8	Snack delay		Emotional Control	Not recommended
			Behavioral Control	
9	Tongue Task		Emotional Control	Not recommended
			Behavioral Control	

The professional judgement process involves 3 Psychologists of Child Development. The results of this assessment recommend several things related to the development of the Pre-school Self-regulation instrument. First, a number of children's play tasks are linked first to the assessment of the observed behavioral indicators. In the original manual of PSRA compiled by Smith-Donald et al., (2007) and Goyette et al., (2006) there are 9 sets of children's play tasks. Based on the assessment of the development psychologist team, there are 6 tasks that fully assess all dimensions of a child's self-regulation. Three other tasks only assess the two dimensions of self-regulation. With this consideration, the researchers tried to use 6 sets of play assignments that assessed all dimensions of children's self-regulation. The results are described in table 1 above.

The second step related to the observation assessment sheet. The PSRA recommends several indicators that can be used to assess children's self-regulation based on a series of tasks mentioned above. Of the 18 assessment indicators, psychologists agreed to categorize them based on the dimensions of children's regulation to facilitate data input. The results of the observation indicators are listed in table 2 below.

Table 2. Indicators of Pre-School Children Self-Observation Assessment

No	Dimension	Sub-dimension	Score
1	Attentional Focus	Attention	0-3
		accuracy	0-3
		concentration	0-3
		not easily disturbed	0-3
2	Behavioral Control	thinking and planning	0-3
		refrain	0-3
		willingness to wait	0-3
		waiting for the transition	0-3
3	Self-Motivated	interactive	0-3
		Cooperate	0-3
		Active	0-3
		comfortable	0-3
4	Self-Autonomy	self confidence	0-3
		obedience	0-3
		self-control	0-3
5	Emotional Control	Positive emotions	0-3
		Negative emotions	0-3
		Intentional	0-3

3.2 Cognitive Debriefing

Cognitive debriefing process was conducted through focus group discussions by kindergarten teachers, who will act as the instructor in the assessment process. The main purpose of focus group is to get the respondent's validation on a series of children's play tasks that have been approved in advance in the professional assessment process. Validation is taken by asking the respondent to understand the manual procedure of the task and conducting a trial of the series of tasks. The result showed that some task equipment can be adjusted, such as on the balance beam, tape is replaced by a rope and the tower is replaced by a beam in kindergarten. Some tasks are also adjusted to the routine activities of children's play, such as cleaning up the game tools after they play and change the type of game to adjust the child's activities. This series of tasks is also recommended to be done classically to shorten time.

3.3 Construct Validity and Reliability

Based on the output of the CFA (in figure 1), it can be seen that each dimension has a loading factor with a value above 0.50. The overall model assessment based on the model compatibility index taht also concludes the appropriate results.
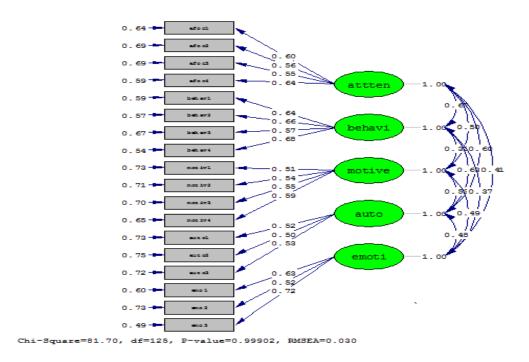

Figure 1. Output of Confirmatory Factor Analysis Results of Pre-School Children's Self-Regulation Assessment Tests

The following are the CFA calculation results in the table 3.

Table 3. The Confirmatory Factor Analysis Result

Overall Size of Model Match Test	Benchmark Value for Match Model (rule of thumb)	Value of Model	Model Match to Data
Absolute Fit Measure			
Probability from χ^2_{count}	$\geq 0{,}05$	0.99902	Good
$\dfrac{\chi^2_{count}}{Df}$	$\chi^2_{count}/df<2$	0,6536	Good
Goodness of Fit Index (GFI)	$\geq 0{,}9$	0.94	Good
Adjusted Goodness of Fit Index (AGFI)	$0{,}8 \leq AGFI$	0.97	Good
Root Mean Square Residual (RMR)	$RMR \leq 0{,}05$	0.036	Good
Standardized Root Mean Square Residual (SRMR)	$SRMR \leq 0{,}05$	0.047	Good
Root Mean Square Error Of Approxima-tion (RMSEA)	$RMSEA \leq 0{,}08$	0.030	Good
Incremental fit Measure			
Normed Fit Index (NFI)	$\geq 0{,}9$	0,92	Good
Non-normed fit index NNFI	$\geq 0{,}9$	1,05	Good
Comparative fit index (CFI)	$\geq 0{,}90$	0,94	Good
Incremental fit index (IFI)	$\geq 0{,}9$	1,04	Good
Relative fit index (RFI)	$\geq 0{,}9$	0.91	Good

Based on the data listed in table 3 above, the overall assessment of the child's self-regulation measurement model is declared fit, with a 0.099 Chi-Square value (p-value> 0.05) and the Goodness of fit statistics index produced by LISREL; NFI=0.92, NNFI=1.05 , CFI=0.94, IFI= 1.04 and RFI=0.91 all is fit. Of the twelve parameters of goodness of fit compared, all values are fit. Therefore, it can be concluded that the measurement model of self-regulation of children proved to be fit with empirical data. The child's self-regulation measurement model consisting of 16 assessment indicators was valid (with a loading factor value above 0.5) and fit to be used as a measure of children's self-regulation.

The following table 4 consist of the values of validity and reliability on each of the assessment indicators. In 4 items that measure attentional focus, the value of Cronbancha's alpha ranging from 0.94.7 as well as in the 4 items that measure the behavioral control of the value of Cronbanch's alpha ranging from 0.94.8. In line with the 3 items that measure self-autonomy is also has the value of Cronbanch alpha ranging from 0.94.8. Likewise, with the 4 self-motivation items and 3 emotional control items that have an average cronbanch alpha value of 0.948.

Table 4. Reliability and Validity of Self- Regulation

Scale Mean	: 58,8379
Variance	: 98,3824
Scale Std	: 9,9188
Alpha	: ,9542
Max	: 72,0000
Min	: 32,0000
Cron. Alpha	: ,9507

	Mean	Var	Std	Alpha	Item	Validity
1	55,506	87,072	9,331	0,947	ATTEN-TIONAL FO-CUS1	Valid
2	55,597	87,047	9,330	0,947	ATTEN-TIONAL FO-CUS2	Valid
3	55,672	87,343	9,346	0,947	ATTEN-TIONAL FO-CUS3	Valid
4	55,747	87,596	9,359	0,949	ATTEN-TIONAL FO-CUS4	Valid
5	55,526	88,186	9,391	0,948	BEHAV-IORAL CON-TROL1	Valid
6	55,640	87,685	9,364	0,949	BEHAV-IORAL CON-TROL2	Valid
7	55,474	88,518	9,408	0,947	BEHAV-IORAL CON-TROL3	Valid
8	55,577	86,829	9,318	0,948	BEHAV-IORAL CON-TROL4	Valid
9	55,486	89,633	9,467	0,948	SELF MOTI-VATED1	Valid
10	55,320	88,826	9,425	0,947	SELF MOTI-VATED2	valid
11	56,154	88,565	9,411	0,950	SELF MOTI-VATED3	valid
12	55,775	84,570	9,196	0,948	SELF MOTI-VATED4	valid
13	55,818	86,291	9,289	0,948	SELF AU-TONOMY1	valid
14	55,387	88,443	9,404	0,948	SELF AU-TONOMY2	valid
15	55,213	89,283	9,449	0,947	SELF AU-TONOMY3	valid
16	55,269	87,588	9,359	0,948	EMOTIONAL CONTROL1	valid
17	55,233	90,021	9,488	0,948	EMOTIONAL CONTROL2	valid
18	55,850	84,404	9,187	0,949	EMOTIONAL CONTROL3	valid

Discussion

Developing self-regulation in early childhood is very important. Self-regulation is the ability to control emotions, interact positively with people others, avoid actions that are not appropriate or aggressive, and directed become an independent learner. To support the development of children's self-regulation, these skills need to be assessed and evaluated. Based on these reasons, a valid and reliable instrument is needed to measure the self-regulation of pre-school children. The purpose of this study was to develop a self-regulation instrument for pre-school children by modifying the PSRA (Pre-School Self-Regulation Assessment) instrument from Smith-Donald et al., (2007). Pre-School Self-Regulation Assessment consists of a series of tasks consisting of: 1) Balance Beam; 2) Pencil Tap; 3) Tower Task; 4) Tower Clean-up; 5) Toy Sorting; 6) Toy Return; 7) Snack delay; 8) Toy wrap; 9) Tongue task.

The development of the PSRA instrument begins with the process of translating the task manual and observation guidelines from English to Indonesian. The process of retranslating to the original language (backward forward) is also passed to ensure the similarity of meaning. Based on the study of the theory, the researchers further added the dimensions of self-motivation and self-autonomy based on Eisenberg's theory, Eisenberg, Valiente, et al., (2010) to better measure self-regulation comprehensively.

Based on the adaptation process, there are 9 child assignments in the assessment process. Furthermore, in the professional judgment process, there are only 6 sets of tasks that assess all dimensions or aspects of a child's self-regulation. Three other tasks, namely wrapping toys, delaying snacks and the task of using tongues, only assess the two dimensions of children's self-regulation. Wrapping a toy is the task where children are asked to close their eyes when the assessor pretended to wrap a toy as a gift, further measuring the child's emotional control when he patiently waits and adjusts his behavior to remain silent while closing his eyes. Another task is to delay snacks. Children are asked to wait for the distribution of snacks to be slowed down without doing any tasks. The third task suggested by experts not to be included is using the tongue. In this task the child is asked to put candy on his tongue and show for 3 seconds to the assessor.

This study attempts to measure self-regulation by combining several theories. With these considerations, researchers try to use only 6 sets of play tasks that assess the full dimensions of children's self-regulation, namely: 1) Balance Beam; It is a task that children are asked to walk on tape which is analogous to a balance beam. The running time of the child will be slowed from one stage to the next. 2) Pencil Tap. It is the task that children to be asked to follow the pencil knock rules. when the assessor taps the pencil once, the child is asked to respond twice. Conversely, when the assessor taps the pencil twice, the child must respond once. 3) Tower Task. The instruction of that task is; children and the assessor build a tower together with the blocks. They will take turns adding blocks to the tower. First children put one on, and then the assessor will put one on. And so on until it's finished. 4) Tower Clean-up. The assessors ask the children to clean up all the blocks. 5) Toy Sorting; Assessors mix toys into one box and ask children to sort them according to certain categories, for example toy vehicles are made into one place, toy animals become one, and so forth and 6) Toy Return; The assessor ask the children for returning all the toys that has been used in all activities.

The other result from professional judgement process is eighteen behavioral indicators declared valid. These eighteen behavioral indicators are taken from 28 report assessment items that adapted from the Leiter-R Socio-emotional rating scale. Measure the five dimensions of the pre-school children's self-regulation, namely attentional focused, behavioral control, self-motivated, self-

autonomy and emotional control. The self-regulation sub-dimension develops and functions interdependently, but each other's influence as a system.

The second process of the modification stage of preschool children's self-regulation measuring instruments is cognitive de briefing. This process was conducted through focus group discussion. The main purpose is to get the respondent's validation on a series of children's play tasks, that have been approved in last process. The result of the focus group discussions is some task equipment can be adjusted. Ten kindergarten teachers also recommended that some tasks are also adjusted to the routine activities of children's play. This series of tasks is also recommended to be done classically to avoid wasting too much time.

The next step is measuring instruments to the field that is involved five (5) psychologists as assessors and kindergarten teachers to assess 179 pre-school children aged 6-7 years. This trial was conducted in two province, Banten and West Java. Before taking an assessment and giving instructions, a team of psychologists and kindergarten teachers is briefed by the researcher. The trial process of this instrument evaluates student behavior in the self-regulation dimension, with a range of values from 0 to 3 on each behavioral indicator. In general, the trial process went well and smoothly. Kindergarten teachers, kindergarten students and assessors work actively together. However, there were 7 children could not participate because they were absent on the day of the assessment and 5 children could not be included because they were not 6 years old yet.

After the instrument testing process has been completed, the next step is calculating the validity and reliability of the instrument. The researcher used a factor analysis test procedure with a confirmatory approach with LISREL software. The measurements taken are a test of the model of self-regulation measurement of pre-school children. Based on the CFA output, each dimension has a high enough loading factor to measure its latent factor, with values above 0.50. Thus, the indicators used are good enough in measuring the conception of self-regulation of pre-school children. Overall model assessment based on the model compatibility index also concludes the appropriate results. (Chi-square value = 81.70; df = 125 with p value = 0.99 and RMSEA = 0.03; CFI = 0.94; AGFI = 0.97; GFI = 0.94; NFI = 0.92).

The reliability approach used in this study is Cronbach alpha internal consistency. Calculation of PSRA modification reliability produces a value of $\alpha = 0.873$. Value result of discrimination items ranged from 0.598 to 0.893 and there were no negative items. In general, the reliability of PSRA has been tested by R Smith-Donald et al. (2006) indicated the value of Cronbach alpha which is quite high, which ranges from 0.81 to 1.00. This coefficient showed that self-regulation tests have good reliability and can be trusted.

4 CONCLUSION

The purpose of this study was to modify the children's self-regulation instrument at the pre-school age level in Indonesia. The results of the study showed that the five-dimensional model of childrne's self-regulation is in accordance with the data in the field. It can be interpreted that these five dimensions are proven to measure one construct: children's self-regulation. With a high value of construct validity and reliability, this self-regulation instrument for pre-school children aged 5 to 6 years old has good psychometric properties and can be used further.

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