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The Effect of Game with Rules on the Children Behavioral Self-Regulation

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Abstract:
The problem of low behavioral self-regulation can be related to several phenomena that occur in Indonesia. Where the number of cases of violence in Indonesian schools was higher when compared with Vietnam, Nepal, Cambodia and Pakistan. This study uses a literature study in which the researcher uses references or scientific literature relating to the influence of play game with rules on the children's behavioral self regulation. Reference sources use theories from books, research, and national and international journals, as well as articles from online media. The results of this study indicate that there is an influence of games with rules on the children's behavioral self regulation. The foundation of thinking that explains the relationship between playing games using rules and increasing children's behavioral self regulation is that playing games using rules are able to stimulate children's thinking processes that integrate the process among the three main components of executive functions, namely attention, working memory and inhibitory control to be able to lead to open behavioral responses in accordance with the goals and expectations of the child's social environment.

Keywords:*Games with Rules, behavioral self-regulation, self-regulation, executive functions*

Introduction

A child who moves from preschool or home care to kindergarten education or a child who enters early grades in primary school is more academically structured than in kindergarten, runs the risk of facing challenges in their self-regulation behavior (von Suchodoletz, et al., 2009). Children who have low self-regulation behavior are more at risk of experiencing social rejection by their peers and achieving low learning development competencies in kindergarten and early primary school classes (Broekhuizen, et al., 2016; Yoon, et al., 2017). Behavioral problems that are external can have an impact on the low involvement of children in the

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learning process and low cognitive development in middle age children (Turney & McLanahan, 2015).

The problem of low self-regulation behavior can be related to several phenomena that occur in Indonesia. KPAI (Indonesian Child Protection Commission) which cites the results of a survey from the International Center for Research on Women said that the number of cases of violence in Indonesian schools was higher compared to Vietnam, Nepal, Cambodia, and Pakistan (Mukhtar, 2017). Cases of violence in schools with a form of delinquency or aggressiveness in early adolescence were found to be related to low self-regulation when adolescents were in the early childhood stages (Lonigan, et al., 2017; Perry, et al., 2018). In addition to the problem of violence and aggressive behavior, children in Indonesia are currently experiencing problems of excessive addiction to the use of smartphones. CNN Indonesia news network reports that children aged 4 years have started to have their own smartphone devices without parental supervision (Fajrina, 2015).

Problems at the national level can also be seen in the symptoms that occur at the level of basic education units in the context of local culture. This is known through direct observation of children's behavior conducted by researchers in kindergartens in the city of Denpasar. Direct observation found several forms of behavior that are not yet fully developed. The form of behavior that is seen during the process of class activities is in the form of children who have not been able to maintain attention centrally to listen to the teacher's instructions. Some children are still often told by their teacher to listen quietly to instructions. Furthermore, when entering the question and answer process there are children who prefer to shout loudly the name of the teacher while raising his hand compared to just raising his hand to get a chance to answer the teacher's question. Then during free play some children suddenly snatch toys that are being played by their own friends, causing quarrels and ending with crying or emotional outbursts. Other events can be seen during the process of completing assignments so certain children are more interested in doing other things that are not related to the tasks instructed by the teacher, for example, preferring to run around or walk alone in class while their friends are doing assignments. When playing outside the classroom, it was found that certain children did not want to take turns or grabbed play facilities outside the classroom that were used by other children. In addition, when class time is over there are children who suddenly break through the queue to be made by the teacher so they can go home first, ignoring their friends who have lined up neatly. This form of behavior can indeed be overcome directly by the teacher by giving verbal warnings or directing the child consistently, but when this behavior often occurs again then a method is needed to improve it in the future through the development of internal behavior regulations that originate from the child's own initiative. Self-regulation that is internal or purely derived from the cognitive processes of children is needed to produce actions and behaviors that are more in line with the expectations or social norms of the child's environment (Ponitz, et al., 2008; Valiente, et al., 2011). Implementation of the ability to regulate self-behavior requires the integration of processes among the three main components of the executive function namely attention, working memory and inhibitorycontrol (McClelland & Cameron, 2012; McClelland, et al., 2007).

Forms of behavioral self-regulation have behavioral indicators that can be observed in the classroom by teachers (Dawson & Guare, 2010; McClelland & Tominey, 2016). Behavioral indicators on each aspect of executive function include: a) aspects of attention or cognitive flexibility can be seen in the behavior of

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paying attention, listening and following orders, switching focus from one task to another and ignoring distractions, b) aspects of working memory can be seen in the behavior of short-term memory use, remembering one-step or multi-stage instructions, conveying and re-recognizing facts, learning or instructions, c) aspects of inhibition control can be seen in controlling impulsive behavior, stopping a behavior and choosing a more acceptable behavior, calming down when feeling disappointed, taking turns and waiting or delaying satisfaction (McClelland & Tominey, 2016).

Whereas Dawson and Guare (2010) state that the low attention behavior can be seen through: a) failure to complete work or tasks on time, b) stop before work is finished, c) often move between activities, including play activities, and) is distracted by things that happen around him when completing work. While low working memory have indicators including: a) forgetting the assignments or stages, b) forgetting to bring study material to or from school, c) losing or misplacing items such as school books, assignments or writing instruments, d) forgetting some or all of the verbal instructions for the task, e) remembering the last piece of information but losing information that came earlier in sequence (or remember information that came earlier but lost the last information). The latter is a low inhibitory response indicated by: a) speaking without raising hands, b) interrupting the conversation, c) making unnecessary comments, d) difficult to wait for their turn, e) trying to start the task without listening to all instructions, f) give up quickly on challenging tasks, g) answer questions without thinking.

The period of children from 3 to 7 years is a very important period for the development of behavioral self-regulation because it is the initial period for children to be directly in the situation in the classroom and begin to learn to develop the ability to regulate self-behavior to be appropriate and in line with school rules and regulations (Blair & Diamond, 2008; Edossa, et al., 2018; Phillips, et al., 2006; Wang & Karen, 2017). Recent research has shown that the ability to regulate self-behavior is an important predictor of children's school readiness and achievement of children's academic achievement in early grades (Blair & Raver, 2015; Eisenberg et al., 2010; Ivrendi, 2011; McClelland & Cameron, 2011; Ursache , et al., 2012; Wanless, et al., 2016). The ability to regulate self-behavior is important to be taught because it can help children focus attention, remember instructions and maintain focus on the task even though they are in an environment full of various disorders (McClelland, et al., 2007; Ponitz, et al., 2008). The effective behavioral self regulation in the classroom requires coordination in cognitive processes through controlling the main components of the executive function consisting of attention, working memory and inhibition control (Nesbitt, Farran, & Fuhs, 2015). Thus, studies on the role of behavioral self regulation in the educational context focus on the development behavioral self regulation that supports the success of learning activities in the classroom (McClelland & Cameron, 2012; Nesbitt, et al., 2015).

The results of the study have predicted the long and short-term impact of mastering the behavioral self regulation towards several aspects such as child prosocial behavior (Williams & Berthelsen, 2017), attainment of further education in adulthood, feelings of higher self-esteem, better ability to deal with stress , and lower risk of experiencing narcotics abuse or violating the law (McClelland, et al., 2013; Mischel, et al., 2011) and the introduction of numbers by children (Ivrendi, 2011). Students who have high self-regulation regulation especially in preschool years will have better expectations to develop their mastery skills in mathematics, literacy and vocabulary when taking education in elementary school (Birgisdóttir, et al., 2015; Gestsdottir, et al., 2014; Suchodoletz, et al.,

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2013). As part of the development process the achievement of behavioral self regulation capabilities has a relationship with the cultural context which is the scope of the child's social environment. Research from various cultures has shown that the behavioral self regulation is related to the successful adjustment of students in schools (Blair & Razza, 2007; Ponitz et al., 2009; Wanless et al., 2013). Most cross-cultural research on the ability to regulate such behavior uses cross-cultural differences between countries or between nations. Related to this, research on the construct of child behavior regulation based on cross-cultural differences between ethnic or ethnic groups in Indonesia, especially in regions that have ethnic diversity has never been done. Cross-cultural differences in the regulation of self-behavior is an informative part because it is able to provide information about the diversity of the development of self-behavior regulation. Cultural influences can be found at the level of mastery of aspects of executive function (attention, control of inhibition and working memory) in the regulation of children's self-behavior from different ethnicities (Caughy, Mills, Owen, & Hurst, 2013). This opinion is supported by the results of research into the influence of culture on the cognitive development of Canadian and Japanese children (Moriguchi et al., 2012), as well as between Japanese and American children (Kuwabara & Smith, 2012, 2016) which are specifically described as a comparison between Western culture and Asian culture.

Cross-cultural differences in the development of behavioral regulation show differences in the assessment specifically based on culture in an area of the level of ability to regulate children's behavior. This is supported through research on children in China that shows their self-regulatory abilities are more adaptive when compared to children in America and New Zealand, but conversely the superiority of children in Asia is not proven in children in Japan (Jose & Bellamy, 2012). In a study that uses direct measurements of aspects of behavior regulation found an almost equal degree of correlation between aspects of working memory and attention in the United States and China but the correlation between aspects of inhibition response and attention was much stronger found in China than in the United States (Lan, et al., 2011). In addition to cross-cultural differences, gender differences also have a relationship with the regulation of children's self-behavior.

Previous studies have shown that girls have stronger behavioral self regulation abilities while in the classroom than boys (Gagne & Hill Goldsmith, 2011; Ponitz et al., 2008). Most studies using a sample of children in the United States found that girls had a higher level of self-regulation than boys in kindergarten and elementary school (DiPrete & Jennings, 2012; Matthews, et al., 2009; Wanless et al. , 2013). Based on literature searches, only a few studies have examined the effect of sex differences in behavioral self regulation using a sample of children in the Asian region (Senzaki, et al., 2018; Son, et al., 2013). This is important because gender differences in the behavioral self regulation can also be influenced by cultural contexts (Gestsdottir et al., 2014). For example if there are differences in each culture regarding the expectation of mastering self-regulation in boys and girls or if each gender gets socialized with processes in different cultures then the development of the process of self-regulation will also not be the same between boys and girls. This opinion is reinforced by research conducted in the European continent with a sample of French children (Guimard et al., 2012), Dutch children (Broekhuizen, et al., 2015) and German children (Suchodoletz et al., 2013). The results of research in the three countries found that girls were higher than boys in measuring the regulation of self-behavior. In addition, research in Australia also found that girls had higher concentrations of attention than boys (Williams, et al.,

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2016). However, research in the Asian region using a sample of children from Taiwan, South Korea and China found that there was no difference in the ability to regulate behavior between boys and girls (Wanless et al., 2013). This condition shows the different patterns of mastery of behavior regulation in different cultures, especially in terms of gender differences. Thus, if cultural influences are linked to conditions in Indonesia that have ethnic or ethnic diversity, they can provide a new understanding of cross-cultural influences on the development of child behavior regulation.

Previous research has shown that the environment around children can influence the development of self-regulation (Blair, 2010). One of the factors in a child's immediate environment that can influence the development of self-regulation is the mother's education level (Gunzenhauser & von Suchodoletz, 2015; Sektnan et al., 2010). A low level of maternal education has a relationship with lower socioeconomic resource capacity and higher stress levels, consequently this condition can affect children who are developing neuroendocrine processes in the brain's nervous system (Harmeyer et al., 2016). Neuroendocrine processes directly contribute to the development of patterns of self-regulation behavior (Blair & Raver, 2015). The level of mother's education is also related to the care profile which includes warmth by the mother, the speed of response in children, the use of rich language variations, and the ability to maintain the attention of their children (Guttentag, et al., 2006) Thus the level of mother's education can be a distinguishing indicator which is valid in the process of developing children's self-regulation abilities (Montroy, et al., 2016).

Some research results have shown that the behavioral self regulation can be shaped and taught in childhood (Blair & Raver, 2015; Denham, et al., 2012; Tominey & McClelland, 2011), so that the application of special methods to train and shape the regulation of self-behavior can be done to improve children's readiness to attend school at the next level (Berkeley & Larsen, 2018; Duncan, et al., 2018; Howard, et al., 2018). Through the application of this special method the child is able to show significant progress in the ability to behavioral self regulation (Allan, et al., 2014; Liu, et al., 2015), and be able to provide better attitudes of attention after participating in the learning process for behavioral self regulation in schools (Rueda, et al., 2010; Spruijt, et al., 2018). Most of the behavioral self regulation learning programs that have been implemented in situations in the classroom are in a broader construct area that is social emotional capability and more combined with academic interventions rather than special emphasis on developing the construct of self-regulation behavior (Raver et al., 2012).

The results of evaluations of intervention programs such as PATHS (Promoting Alternative Thinking Strategies) and ToM require a program that is able to overcome weaknesses in the program. To help the development of an intervention program that is more suitable for early childhood application of the concept of play while learning, some previous research has explained the concept of playing using games with rules or "games with rules" (DeVries, 2015; Savina, 2014; Winther-Lindqvist, 2018; Zhao & Kushnir, 2018). The concept of a game with proper rules is used as a basis for developing play activities in the program of developing self-regulation capability because it is in accordance with the characteristics of learning in kindergarten, namely playing while learning (Frost et al., 2012; Siraj-Blatchford, 2009; Weisberg, et al. , 2013).

When compared with pretend play, games with rules are more structured and require more mastery in aspects of cognitive abilities and behavioral self regulation of children's (Vygotsky, 1967, 1978).

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Games with rules help children begin to understand not only the achievement of the results of following a play activity, but also begin to understand how the strategy to achieve these results through a series of methods of action. Using the term contemporary psychology, children have used procedural knowledge related to their actions. Children practice adjustment or adherence to group norms while also dealing with a set of rules in play and the consequences of violating the rules of play (Piaget, 1962, 2013).

Several studies on the regulation of self-behavior have used games with these rules as intervention programs for children aged from 4 years (Schmitt, et al., 2015; Sezgin & Demiriz, 2017; Tominey & McClelland, 2011). There are several types of popular children's games from the American and European regions that require children to hold, delay, curb and initiate behavioral responses based on special signs, codes or signs in the game. The use of codes, signs or special signs to direct children to adjust or harmonize the physical movements of the motor while playing to conform to the rules in the game. The results of measurements and observations after giving interventions with this kind of game show an improvement in the attitude of restraint on spontaneous behavior due to automatic motor responses in children who are still less skilled in mastering the regulation of self-behavior (Duncan, et al., 2018; Tominey & McClelland, 2013; Healey & Halperin, 2015).

The advantages of using games with rules when compared to using the PATHS and ToM programs are: a) the implementation process uses simple exercises for teachers and children, play materials that are easily modified and adapted to school environment conditions such as colored paper, children's song music, and musical instruments (Duncan, et al., 2018; Schmitt, et al., 2015; Sezgin & Demiriz, 2017), b) game programs with rules do not require large costs because they are not special programs that are paid licensing rights related to copyrights a product, c) the type of game used can be more universal in the socio-cultural context so that the process of adapting the playing material is more easily adapted to the socio-cultural diversity in a particular region, d) easily integrated with a curriculum program that has been running for a long time because it can function as a program additional special, and e) implementation procedures in schools can be adjusted to the level of cognitive abilities and children's learning readiness.

Researchers have developed a program to develop self-regulation capability through the integration of games and rules into the daily activities program in kindergarten. Previous studies used games adapted from traditional games in Western culture known by popular names such as "Freeze Time", "Green Light-Red Light" and "Simon Says ". These games contain cognitive processes that are needed in the regulation of self-behavior namely attention, working memory, and inhibitory responses to hold and control impulsive responses (Duncan, et al., 2018; Healey & Halperin, 2015; Savina, 2014; Schmitt, et al., 2015; Tominey & McClelland, 2011).

Research on methods for developing behavioral regulation in the Asian region that uses game programs is more likely to adapt games from Western culture to later be applied in the local environment. Several studies in the Asian region are known to use game adaptations from the West such as red light green lights, Simon Say and Freeze Time through integration in kindergarten daily activities such as in South Korea (Shiu et al., 2018) and Turkey (Sezgin & Demiriz, 2017). This shows that research in the Asian region has never used traditional children's games from the local area as a medium for developing children's behavioral regulation capabilities. Traditional games which are traced from certain regional cultures can be combined with games from

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other cultures to make it more varied. Based on the results of scientific literature search there is no research that specifically examines the application of this cross-cultural game combination. So to expand the types of methods for developing child behavior regulation, this study uses the concept of integration of cross-cultural games by combining the application of games originating from Western culture with games originating from Indonesian culture, especially from Bali. Some traditional games from Bali were chosen to be used interchangeably with games adapted from Western culture in the program to develop self-regulation skills. The results of a literature review of traditional forms of children's play in Bali found several games that can be used because they contain several aspects of behavior regulation.

Games from the Bali area that can be used include: a) chain secret message games, in Bali the area is called "Masepion-sepionan" which means to act like a spy. Sepion is a term that emerged in rural areas at the time of the independence war around 1945. The history of the game begins with the involvement of children as agents of liaison between freedom fighters through the delivery of secret messages. Children practice memorizing a secret message that must be delivered in a chain and should not be leaked to the enemy. The ability to remember messages without being written is the core of the game (Windhu, 1992), b) the game bale bunder, bale bunder means it is a round or round hall. The hall is used as a seat for several people who meet, but in this game the hall is replaced by a circle marked on the floor. In this game the child tries to catch the child who is in the circle without crossing the marked circle (Taro, 2018), and c) the name guessing game or in Bali is called a '‘*masuruk-surukan*” game which assigns a child to guess the name of another child in the condition of the eyes closed (Windhu, 1992).

The three types of traditional games were chosen not only because they contain one aspect of behavior regulation but also because they are easy to do in the classroom or outside the classroom, the tools needed are simple and not too difficult for children aged 5 to 7 years in kindergarten. The combination of games from Western culture with traditional Balinese culture has become an integration of cross-cultural games to develop regulation of children's behavior. Application of the game program with rules for children will improve the ability to regulate the child's self-behavior when in the classroom or outside the classroom. Through this special play program in preschool, the development of self-regulation of behavior in early childhood will get more significant support. Based on the description of the behavioral self-regulation of children and games with rules, this study aims to determine the effect of games with rules to develop the ability ofbehavioral self-regulation.

Research Methods

In this study, researchers used a literature study where library studies are theoretical studies, where researchers use references or scientific literature relating to culture, values and norms that develop in the social situation under study (Sugiyono, 2012). In this case the researchers used references related to the Effects of Games with rules on children's behavioral self-regulation. Researchers use literature studies from theories from books, research from national and international journals, articles from online media.

Results and Discussion

Behavioral self-regulation ability

Behavioral self-regulation has the longest period of development due to its dependence on the part of the brain, the prefrontal cortex region that has not developed optimally until around 20 years of age (Fjell et al., 2012). The ability of self-behavior regulation is the ability of individuals to master the process of integration between three main aspects of executive function which include aspects of attention, working

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memory and control of inhibition to regulate and control open motor responses into an adaptive behavior with demands and norms that support the goals of the individual learning process . (McClelland & Cameron, 2012; Cadima, et al., 2015; Drake, et al., 2014; Webb, et al., 2017; McClelland, et al., 2013; McClelland & Cameron, 2011; Rimm-Kaufman, et al., 2009; Leventon, et al., 2014; Zhang, et al., 2017).

Aspects of Behavioral self-regulation

The main component of self-regulation that emphasizes behavioral aspects based on cognitive perspectives is the executive function (EF). The first aspect of the executive function is attention, which acts as a primary regulator of the flow of information that is connected to the working memory process. Attention flexibility is the ability to consciously give attention and focus to a task and be able to change or switch attention when this is needed to complete the next task (McClelland & Tominey, 2016; Rueda, et al., 2005).

The second aspect of executive function is working memory, which is the ability to temporarily store information and change that information to support other cognitive functions (Andrade, 2014). Working memory functions to keep a number of information items active in the memory system and then perform several operations on the information item. Work memory is a structure that is used as a temporary storage area and as a process of manipulating information (Cowan, 2014, 2017; Miller, 2013).The third aspect of executive function is inhibition control, defined as the ability to ignore irrelevant information when individuals are pursuing expected goals (Oeri, et al., 2018; Simpson, et al., 2007). Inhibitory control leads to the ability to suppress or support responses based on the level of suitability of the response to the environment (Bryce et al., 2011). Inhibition as a basic executive function skill is the ability to refrain from doing automatic or habitual behavioral responses.

That the ability to control inhibition as an aspect of executive function in the regulation of self-behavior is the ability to curb and hold dominant responses that are automatic or impulsive in order to choose alternative responses that are more appropriate and appropriate to social demands and norms while ignoring irrelevant information when is pursuing the goals set by the individual and the environment.

Stages of Development of Self Behavior Regulation

Most development theories argue that intentional behavioral control only appears in the latter part of the first year of life and is largely expressed in the form of infant compliance with the caregiver's request (Rothbart et al., 2011; Ruff & Rothbart, 2001). During the second year of life, babies begin to show more direct signs of self-control as they wish and the ability to monitor their behavior in several ways. During this phase, the baby begins to realize the social demands and duties of the caregiver and can react according to social demands (Kopp, 1982, p. 204). An interesting neuroscience perspective related to the limited self-regulation capacity of children in the first 3 years of life states that children exhibit symptoms that can be described as behavioral and cognitive disorders that are very similar to those experienced by patients with neurological damage in the prefrontal cortex (PFC) in human brain. This erratic behavior or in other terms referred to as "uncontrolled cognition" occurs because PFC which is part of the brain responsible for human ability to regulate thoughts and behavior is the last part in the human brain that reaches synaptic maturity between neuronal cells. This condition lasts until around the end of the fourth year of life (Thompson-Schill, et al., 2009)

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Measurement of Self Behavior Regulation towards children

The initial assessment of the self-behavior regulation is largely based on behavior ratings by parents and teachers who are prone to cause perception bias (McClelland & Cameron, 2012). Although most behavioral regulation measurement instruments have been developed for clinical or administrative purposes, measurements are carried out in a laboratory environment (Blair, et al., 2005; Smith-Donald, et al., 2007) but such measurements tend to require lengthy processes, requiring special material and intensive training (Schmitt, et al., 2014).

Some behavioral regulation measurement instruments are actually not suitable for early childhood use, some of which are well known are delayed gratification and Stroop or Stroop task tests with a focus on the aspect of inhibition response (Bryce et al., 2011; Gagne, 2017 ; Ikeda, et al., 2014; Montgomery & Koeltzow, 2010). The weaknesses of these tests mostly measure only one component, namely inhibition control and do not assess other important aspects of behavioral regulation such as attention shifting or attention shifting. This condition is contrary to the opinion that early childhood often integrates aspects of behavioral regulation capabilities such as attention, work memory and inhibition control to solve the problem at hand (Wiebe, et al., 2008; Zhou, et al., 2012).

An individual measuring instrument called HTKS or Head-Toes-Knees-Shoulders was later developed as a more integrative instrument to facilitate measuring the ability of self-regulation behavior (McClelland & Cameron, 2012). HTKS is easier to use because it does not need to require coordination of children's fine motor skills that may not have fully developed in some early childhood (Ponitz et al., 2008). HTKS is a short game designed to be used with children aged four to six years, the advantage of HTKS is that it does not require long training for test instructors and simple test instruction material in the form of individual games. The instructions in HTKS consist of four types of physical or behavioral commands that are verbally conveyed by the tester to the child namely: "hold your head!", "Hold your toes !," hold your shoulders! "And" hold your knees! ". first asked to respond to commands naturally as they are and then afterwards directed to make movements that are different from what was ordered (for example the child holds the knee when instructed to "hold the shoulder"). In this phase of the task it will require a lot of involvement of the behavior regulation ability self because it directs children to pay attention to instructions, use memory to recall task rules when carrying out motor responses, and use inhibition control to refrain from impulse dominant response is automatic or spontaneous so that it can display the correct response according to the rules of task instructions (McClelland & Cameron, 2012; McClelland et al ..., 2014; Ponitz, et al., 2 009; Wanless, et al., 2011).

Factors That Influence Regulation of Self-Behavior

The first factor is gender differences, the results of the study found gender differences affect the level of variation in the ability to regulate self-behavior, in this case girls have the ability to regulate self-behavior better than boys (Broekhuizen, et al., 2015; Hill et al. ., 2006; Magnuson, et al., 2016; Yamamoto & Imai-Matsumura, 2017). Girls are considered more capable of showing inhibitory control than boys (Gestsdottir, et al., 2014; Wanless, et al., 2013). Research in Taiwan, China and South Korea shows that girls are rated significantly higher than boys in mastering the regulation of self-behavior while studying in the classroom (Liu, et al., 2011).

The second factor is the level of parental education, especially in mothers. Low levels of education among

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mothers are related to parents' poor assessment of children's behavioral regulation capabilities (Bernier, et al., 2010; Sektnan, et al., 2010) Children who come from families with relatively low levels of parental education tend to have the ability lower self-regulation and less able to catch up than children with higher levels of parental education (Gunzenhauser & von Suchodoletz, 2015).

The third factor is the cultural differences between ethnic or ethnic groups that are explained through their relationship to the mastery of the abilities of aspects of executive function that play a role in the regulation of children's self-behavior. Cultural understanding is a unique meaning and information system, shared by groups and transmitted across generations, which enables a group to meet basic needs for survival, pursue happiness and well-being, and get meaning from life (Matsumoto & Juang, 2013). Variations in cultural values that are correlated with ethnic or ethnic backgrounds have different effects on ability in aspects of executive functioning (Alotaibi, et al., 2017; Qi & Roberts, 2019; Ready & Reid, 2019).

Within the scope of educational institutions, schools in areas with high urbanization rates have students from various ethnic and ethnic groups. The diversity of ethnic compositions in schools also influences the development of executive functions between the ages of children and the level of skills mastered by children (Ready & Reid, 2019). One aspect of executive function that is affected is the memory aspect because socio-cultural background influences the types and types of information that children pay attention to and remember, including how children manage and recall their memories (Qi & Roberts, 2019). The aspect of attention also gets influence from culture based on the results of research which found that individualist culture shows better efficiency values during the process of visually searching for information to solve problems while collectivist culture shows greater variation in eye movements in the visual process when the behavior of paying attention (Alotaibi et al., 2017). In addition to aspects of memory and attention, cultural background in ethnic groups also contributes to variations in the ability to control the inhibition of children at the age of 4 to 6 years based on the results of research on Chinese ethnic children (Ng et al., 2015). Chinese children are able to outperform other ethnic groups in assessing the ability to control inhibition and early mathematical abilities at the age of 4 years and when they reach the age of 6 years.

Game with Rules

Game with rules is a way for children to play based on the stages of the game that use rules clearly or explicitly in the activities of the game process. The rules of the game are a child's agreement with the environment and become part of the child's learning process to practice mastering and regulating self-behavior through learning initiatives to obey the rules of the game. (Karl Groos (1861-1946); Frost et al., 2012; Vygotsky (1967); Bodrova, 2011, 2013; Bodrova & Leong, 2009, 2018).

Play Psychology

The development of a significant psychological dimension in play occurs when children move from understanding an object to play to the development of play ideas and then to the formation of play concepts (Moore et al., 2014). This development is also seen when children can show behavior in accordance with the rules that must be followed in the game by the rules. Psychological development in play is also evident when awareness of a role played by a child in role playing such as pretending to be a mother, turns into an increased focus on the rules while playing, especially later when children explore games with rules (Frost et al., 2012). When games with rules are

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played, higher moral values, such as fairness or cheating while playing, are discussed and this directs the thinking and decision making of children while playing. The important thing is the contradiction in playing when the child's willingness and freedom to play increasingly focuses children's thinking on the demands to understand the rules and roles that apply in a society, this actively supports the development of higher forms of play and becomes an ideal form of play. because it includes a moral understanding of an action or behavior (Fleer, 2013; Elkonin (2005a); Vygotsky (2005); Frost et al., 2012; Vygotsky, 2005).

Play Procedure using Games with Rules

There are six games that are used and are divided into two types, namely three games adapted from traditional Balinese games and three types of games adapted from the literature review on intervention programs for developing children's self-regulation ability (Duncan et al., 2018; Healey & Halperin, 2015; Schmitt, et al., 2015; Sezgin & Demiriz, 2017; Shiu, et al., 2018; Tominey & McClelland, 2011). The games adapted from previous researches have undergone name adjustments to make it easier for teachers to understand in kindergarten, the names of the games are: a) Red Light Green Light game, b) Freeze Time game and c) Simon says game. While the game from the area of Bali that is used, among others, are: a) chain secret message games, in the Bali area called by the name "Masepion-sepionan (Windhu, 1992), b) the guessing game name or in Bali is called the game 'masuruk-surukan" (Windhu, 1992) and c) the game "Bale Bunder" or Balai Bundar game (Taro, 2018).

These games can be added to the learning plan as part of daily activities by including them in core activities to support core competencies or they can be included in daily closing activities as additional support activities (Duncan et al., 2018). Procedures or ways to play the game with modified rules to be able to involve three components in executive functions that play a dominant role in the regulation of self-behavior are the components of attention, working memory and inhibitory control. The three components of executive function are accommodated through rules and play procedures that demand maximum performance from the three components in the cognitive process of children. The end result of the cognitive process is an open response in the form of a child's behavior which is shown during the play process.

Effects of Games with Rules on Behavioral Regulation

For Vygotsky, an important characteristic of children's play activities is self-control. When playing, children have a strong desire to play a role. Children can show their own will to follow the rules set in an imaginary game, this then allows them to follow the rules in real life (Bodrova, et al., 2013; Bodrova & Leong, 2009, 2018). Vygotsky's opinion is firm about the relationship between self-control behavior, rules in play against children's play activities are reflected in statements that read:

> *Play continually places demands on the child to act against immediate impulse. ... A child's greatest self-control occurs in play. He achieves the maximum display of willpower...Ordinarily a child experiences subordination to rules in the renunciation of something he wants, but here subordination to a rule and renunciation of action on immediate impulse are the means to maximum pleasure.*(Vygotsky, 1978, page.99)

The sentence quoted based on the opinion of Vygotsky (1978) illustrates that continuous play has placed children to act against impulsive impulses that come suddenly. So that the momentum of the child's biggest self-control actually occurs while playing. In

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this condition the child has shown the maximum strength of his will to suppress his impulsive response. Usually the child does not want to obey the rules that require him to ignore or rule out something he really wants, but when playing children try to inhibit or curb behavioral actions on the basis of automatic responses, this becomes a form of maximum pleasure for children. Vygotsky's explanation has a strong connection with the inhibitory response process which is an important aspect of executive function.

Based on the cognitive view of self-regulation of behavior that places the executive function as a regulator of the ability to regulate self-behavior, children can be trained to integrate aspects of executive functions such as attention, working memory, and inhibition control so that children are better able to determine response behavior in accordance with regulations or agreements (McClelland, et al., 2007). To be able to train children well, we need an activity program that contains learning based on the main aspects of executive function that play a role in the process of regulation of individual behavior. Based on the views expressed by child development experts such as Vgotsky, Piaget, Elkonin and Smilansky regarding the importance of play for young children (Elkonin & Stone, 2005; Piaget, 1962, 2013; Vygotsky, 1978), the game program with rules can be used as a basic foundation for learning and play activities that best suits the concept of the role of executive functions in the regulation of children's self-behavior.

To further strengthen the effect of interventions on the ability to regulate self-behavior leading to the development of executive functions through processes that involve three components in the executive function, namely the components of attention, working memory and inhibition, the concept of the game with the rules is seen to have compatibility with the three components of the executive function. This concept is in line with the stages of the development of play presented by Piaget and Vgotsky namely the stages of the game with the rules (Bodrova & Leong, 2018; Piaget, 1962, 2013; Vygotsky, 1978).

The use of the concept of this game is based on several assumptions that state that the game with rules can facilitate the process of regulation of behavior (Savina, 2014). First, through playing with rules, children will learn to control their impulsive behavior and get used to following the rules so that they can eventually change their impulsive and spontaneous behaviors to become calmer without feeling forced or pressured. Then the second is to be able to free children from situations that are full of compulsion or pressure because children start their actions in accordance with their meaning of objects that can encourage their internal motivation. Third is children learn to develop internal images that will guide their behavior, so that they will support verbal regulation of behavior as an initial process of regulation of behavior seen when children engage in conversation together with their play partners in order to resolve differences of opinion and reach agreement on rules as well as applying rules of play (Savina, 2014). In games with rules the children are introduced to the explicit aspects of play rules which must be followed by full self-awareness. According to Vygotsky, when a child is playing, the child actually has shown the ability to regulate his behavior to the maximum because he must behave in accordance with the rules of the game and the child must curb or refrain from acting in accordance with his dominant response (Vygotsky, 1978).

Games with rules require children to pay attention while keeping the mind focused when delivering the rules of play by the teacher (the aspect of attention), then stimulates the child's working memory capacity when recalling the rules of play that have been given previously (aspects of working memory) and ultimately strengthen the ability of children's inhibition when the child must be able to control

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themselves or hold back to control the dominant response that is impulsive or automatic and then think quickly to choose an alternative response to match the rules of play that have been remembered by the child (aspect of inhibition).

Thus in broad outline, it can be concluded that the foundation of thinking that explains the relationship between play using rules and increasing the ability to regulate children's behavior is the activity of playing games using rules capable of stimulating children's thought processes that integrate the process among the three main components of executive function namely attention, work memory and response inhibition to be able to cause an open behavioral response in accordance with the goals and expectations of the child's social environment. Objectives and expectations in the context of playing games with rules is that children are expected to be able to play by showing appropriate behavioral responses to the rules of play. After the child can understand the meaning of playing with the rules, the child can practice applying it in everyday life.

Conclusion

There is an influence of games with rules on the ability to behavioral self-regulation. The foundation of thinking that explains the relationship between playing games using rules and increasing the ability to behavioral self-regulation is that playing games using rules are able to stimulate children's thinking processes that integrate the process among the three main components of executive functions, namely attention, working memories and inhibition control to be able to lead to open behavioral responses in accordance with the goals and expectations of the child's social environment.

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