Building children’s learning motivation through positive reinforcement in science and math classroom

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Abstract. This research is based on how the teacher builds a learning motivation of 5-6 years old children. In the classroom, sometimes children’s motivation decrease, there is one way to build learning motivation on children, it is called positive reinforcement. This research aims to determine the learning motivation of 5-6 years old children by giving positive reinforcement in the math and science subject. The method of this research was qualitative descriptive with the sample was six students of B2 class around 5-6 years old at the kindergarten in the Purwakarta, Indonesia. The instrument of the research was an observation sheet of students and teachers’ activities and the interview. The result of the data analysis on teacher’s observation was a positive reinforcement from the teacher by giving children praise; nonverbal reinforcement was delivered by smiling at children, showing a cheerful face and thumbs. Moreover, the result of observation also showed that children more like if the teacher gives praise in words forming for what they are doing, so the good behavior will continuous appear.

1. Introduction
Motivation is really important because it is a complex part of human psychology and behavior that influences how individuals live and have an important influence on a learner’s attitude and learning behavior [1-6]. Students with no motivation to learn, possibly cannot follow the learning instruction properly, because motivation is the desire to enable, activate, channeling and directing the behavior of individuals in carrying learning attitude. Early childhood education is a level that is now seen as important in the learning process of children before entering into other secondary and advanced education levels. Early childhood education is not required to be able to study academically, regularly and systematically. However, it is directed to do the learning process while playing because kindergarten education is learning by playing. Teachers should also be able to provide learning that is fun for children. Teachers also should able to create conditions that are not rigid, conducive and friendly with children so that it can motivate children to learn new things. In the classroom, the motivation of children is an important aspect especially for early childhood, because motivation is something that can provide a stimulus and enthusiasm for an individual while they do the learning process.

Motivation has two types; that are intrinsic motivation and extrinsic motivation [7]. Intrinsic motivation is a motivation that becomes active in someone whose function is not stimulated from the outside but it is already in itself, based on the desire of self and not from others. Intrinsic motivation is
a natural motivational tendency and is a critical element in cognitive, social, and physical development [7]. Whereas extrinsic motivation is an active motif and function are stimulated from outside. Usually extrinsic motivation is used to attain outcomes that a person wouldn't get from intrinsic motivation [8]. Without high motivation in learning, students face various learning challenges such as lack of interest and easily feel discouraged [9]. A teacher has to motivate and make students happy in learning mathematics, by giving positive reinforcement in order to build children's enthusiasm for learning [10]. To make the teaching and learning process effective, the teacher must know about the types of reinforcement that will be given to the child so that the child has high motivation in the learning process. This type of reinforcement / reinforcement is positive reinforcement is the provision of reinforcement of actions that are considered positive when a person shows the positive behavior needed. While negative reinforcement is to provide reinforcement to leave actions that are negative or inappropriate that aim to prevent the child from doing things that are prohibited by the teacher because they are not good for the child. Positive reinforceers are those desired, sought-after stimuli, such as food, praise and money that we ordinarily call rewards [11,12]. The reinforcement given can be verbal by giving words of praise, support, and recognition that the teacher gives to his students. While strengthening thumbs nonverbal include the provision of thumb, a smile, a cheerful countenance and symbols in the form of stars and gifts.

However, based on observations in math and science class that carried out at one of the kindergartens in Purwakarta it was known that the teacher does not impose on the group B in the learning process, but the children are invited to answer a question in a specific time, so the learning process has seen bored and also unmotivated. Even more, a lot of students cannot complete their assignments, this research intends to give the child positive reinforcement and describe how to build learning motivation to children by the presence of the stimulus provided a fun way by giving positive reinforcement.

2. Research methods
The research method is using a qualitative approach. This study focuses on the purpose of getting a detailed description of the number of positive reinforcement that is done to see the learning motivation of children aged 5-6 years. Qualitative research is steps to explore and understand the meaning of a number of individuals or groups of people who are thought to originate from social or humanitarian problems so that it is easier to make adjustments to the actual situation so that it is easier to directly present the relationship between the researcher and the research subject [13]. While the design used to provide an overview found in the field based on the research problem, which tries to describe the research subject in the overall behavior.

The instrument used with qualitative data was obtained from the teacher, child and educational observation sheets and interviews conducted with the teacher by asking several questions about the learning motivation of students in the class. Data collection used in this study uses observation, interview and documentation techniques compiled on research instruments and also uses data triangulation techniques which are defined as combining data collection techniques from various data collection techniques that have been taken as well as existing data sources. The instrument is in the form of qualitative descriptive so that it is easy to know the motivation of learning, the description of observations made using a Likert scale for the relationship of narrative descriptions and interpreted qualitatively based on field notes during observations.

3. Result and discussion
The observations conducted to children age 5-6 years in one kindergarten in Purwakarta Indonesia show that few students already have their learning motivation. Some of the students no need for external stimuli and reinforcement from the teacher. But there still a lot of students who do not have the motivation and could not accomplish their task what became his task and responsible without being forced. When there are some children who still seem less motivated to learn, teachers provide positive reinforcement so that the learning motivation of children who are down or not even there will come back
again. The reinforcement given is an effort to build learning motivation and important prerequisites in achieving learning success.

Positive reinforcement is often misunderstood because it is rarely associated with discipline. Instead, many teachers and parents wrongly assume the terms "discipline" and "punishment" are synonymous [14]. Skinner introduced the theory of operant conditioning a system of learning that occurs through the association of rewards and punishments through the use of reinforcement. With operant conditioning, good behavior is associated with positive or negative reinforcements, and bad behavior is associated with positive or negative punishment [15].

In the observations process, the researcher observes how learning is done in the classroom, then find out how the characteristics of children who will be the subject of research. In the fourth day of study the teaching and learning activities were not conducted in the classroom or school; learning activities while playing was done at one of the shopping centers with the aim of introducing the children to how to make pizza, how to make bread and introduce what was available inside a shopping center.

From the observations made, the teacher never forgets to give praise for what children say or do. When a child behaves well the teacher gives the word "great" or the word "you are good" to build good behavior over and over again. The teacher also does not forget to give thumbs up and smiles to students who are active in the classroom, want to ask questions, happy to answer when the teacher asks questions and the teacher also always gives a star symbol for the tasks they have completed.

The observations day 2 to the tenth day show that some children already have a good motivation to learn math and science. But, it is not uncommon that motivation could go down at any time. The children show that they do happy and eager to accomplish the tasks assigned by the teacher. But, there are also some children with low motivation to learn show that they do not like to participate in a questioning process and sleepy in class.

Furthermore, the results of interviews conducted by the researchers to teachers show that some children already have their motivation to learn. The students know what task to do and accomplish. Children also with confidence to answer the questions the teacher gives, dare to appear in front of the class to tell stories and dare to answer what he believes even though it is not right.

The motivation to students conducted by providing positive reinforcement, using verbal reinforcement in the form of words of praise, support, and recognition as well as by nonverbal reinforcement given in the form of a smile, expressing the face cheerful, clapping, thumbs and star symbols or gifts like stationery. This reinforcement is not only given to students who are lack of learning motivation, but children who already have good motivation are also given the positive reinforcement to make their motivation much better. The concept of reinforcement is identical to the presentation of a reward a reinforce is the stimulus the presentation or removal of which increases the probability of a response being repeated [16].

The observations have shown good results, but the teacher is not always giving positive reinforcement every day to every child, because once the response was dominated, better; reinforcement alternately [17]. By giving it randomly, students will not expect to be always given the positive reinforcement. However, the provision of positive reinforcement can be given when the child is seen unmotivated in the learning process so that the child's motivation will re-emerge and the students can return to their enthusiasm to learn. Giving reinforcement meant the teacher's behavior in responding positively to a person's particular behavior that allowed the behavior to arise again [18].

Thus it can be concluded that there is positive reinforcement in building a child's motivation to learn. When children lack motivation in carrying learning or decline in motivation to learn, teachers can immediately give a smile while giving the words the form of support to achieve the goal of learning so that children can come to life again. Whereas when students who already have a good motivation, then naturally they will also have good learning skills, and the teacher can also provide reinforcement so that the success of his learning will increase even more.
4. Conclusion

Based on the results of research conducted in the field, it can be concluded that the learning motivation of children with the provision of positive reinforcement can wake up their learning motivation even better. Building children's learning motivation with positive reinforcement is proven to be able to build children's learning motivation, because when reinforcement is given to the child who has seen his learning motivation go down he is again excited about his learning and he also feels confident to show his learning results, so that the child will get praise and the learning outcomes will be even better. The results of observations and interviews that have been carried out have already been seen as indeed the child's motivation is already in itself: the motivation arises with the child's desire to succeed in learning. Children have a sense of responsibility to complete the assignment.

With the results of the observations and analyzes that have been done by giving reinforcement that children like is by giving praise given by the teacher in the form of words such as "good" or "you are great", this word is often spoken and given when children are able to complete the task well given, self-confidence to answer questions, behave well, and also when children are active in the teaching and learning process in the classroom.

References
[1] Bakar R 2014 *International Journal of Asian Social Science* **4** (6) 722-732
[2] Panisoaraa G, Dutaan N and Panisoaraa I-O 2015 *Procedia - Social and Behavioral Sciences* **197** 1215-1222
[3] Iskandar 2009 *Psikologi Pendidikan (Sebuah Orientasi Baru)* (Jakarta: Gaung Persada (GP) Press)
[4] Dimyati D and Mudijono D 2015 *Belajar & Pemelajaran* (Jakarta: PT Rineka Cipta)
[5] Vero E and Puka E 2017 *Formazione & Insegnamento* XV-1 57-66
[6] Amirkhanova K M, Ageevab A V and Fakhretdinove R M 2016 *International Forum on Teacher Education* 14-18
[7] Ryan R M and Deci E L 2000 Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions *Contemporary Educational Psychology* **25** 54–67
[8] Ryan R M and Deci E L 2000 Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being *American Psychologist* **55** 68–78
[9] Hamjah S H, Ismail Z, Rasit R M and Rozali E A 2011 Methods of Increasing Learning Motivation among Students *Procedia Social and Behavioral Sciences* **18** 138-147
[10] Khisty L L and Chval K B 2002 *Mathematics Education Research Journal* **14** (3) 4-18
[11] Dad H, Ali R, Muhammad Z Q, Saqib S and Muhammad S 2010 *Contemporary Issues In Education Research* **3** (1) 127-136
[12] Feldman R S 2012 *Pengantar Psikologi* (Jakarta: Salemba Humanika)
[13] Creswell J 2017 *Research Design Pendekatan Metode Kualitatif, Kuantitatif, dan Campuran* (Yogyakarta: Pustaka Pelajaran)
[14] John W 2001 *The Council for Exceptional Children* **67** (2) 173-186
[15] Kelly J and Pohl B 2018 *Journal for Education Social and Technological Science* **5** (1) 17-29
[16] Hoque R 2013 *Journal Of Humanities And Social Science* **7** (1) 13-16
[17] Mahmud D 2017 *Psikologi Pendidikan* (Yogyakarta: Penerbit Andi)
[18] Hasibuan and Moedjiono 2012 *Proses Belajar Mengajar* (Bandung: Remaja Rosdakarya)