

# The students' perception of the teacher's apperception and its influence on students' initial knowledge

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**Abstract.** The first minutes of the learning process is a very influential time for the next hour of the lesson. Motivating, arousing interest, and attracting attention of the students are the important things that must always be built upon existing knowledge. Apperception plays a very important role in the learning process. The aim of this research is to determine the influence of students' perceptions of the teacher's apperception on the students' initial knowledge. This research is a mix method sequential exploratory design conducted in the 10<sup>th</sup> grade of Science 2 class in MAN 1 Karanganyar at the time of learning the absolute value linear equations and inequalities. The data collection techniques used are quiz, questionnaire, and interview. The data analysis used is descriptive analysis supported by regression analysis results. The results showed that there was a significant influence of students' perception of the apperception that the teacher had on the students' initial knowledge.

## 1. Introduction

In principle, learning is an activity consciously done by someone resulting in behavior changes in him/her own self. In its implementation, learning is an individual's activity of acquiring knowledge, behavior, and skill by processing learning material. One of the changes in an individual as a result of learning is a continuous and dynamic change. A change occurring will result in other changes and it will occur continuously until that individual's capability is better and perfect.

Learning is an interaction process of the students with the teacher and the learning material in a learning environment. A learning can be conducted effectively in developing the intellectual ability appropriate with the student's development level. On the beginner learning level, it should be conveyed through meaningful ways and advancing toward the abstract ones. A meaningful learning process should be connected between new information and information [1]. The ways to develop an effective learning for the students is by coordinating the method of material presentation appropriate with the student's improvement level. The levels of student's improvement can be classified starting from sensation (enactive) representation level to concrete (iconic) representation level and finally to the abstract (symbolic) representation level [2].

Regarding the learning process, perception is also a factor influencing the process. The expression of recognizing other people is the initial study of perception. Physical objects generally give the same physical stimulus so that people simply make the same perception. Perception is what a person (student) feels about a particular thing both conscious and unconscious, whether visual or auditory and thoughts that are caused by the process going on the brain [3]. Perception is defined as a process of receiving,



selecting, organizing, interpreting, examining, and reacting to the five senses' stimulus or data [4]. In other word the students' perception can be interpreted as the thinking pattern influencing the students.

Different from perception, apperception is an important thing in the learning process. Streamlining apperception will influence the upcoming lesson hour. Apperception is a motivating activity, arousing the interest and attention of the students at the beginning of the lesson. Apperception is a process by which the new or the unknown experience is thus taken possession of, and translated into the terms of the old, or the known, experience [5]. That is how apperception plays a highly important role in the learning process. Understanding perception and apperception will be very useful in the learning process.

The lesson initiation or the introduction step so far is not paid attention by teachers because it is not easy to implement it in the practice. There are many difficulties faced by teachers, for instance the lack of teachers' mastery on apperception, and there are many teachers assuming that there is no influence of apperception on learning process. Thus, there not so few teachers directly teach the learning material or merely give quick questions related to the activities done in the previous meeting when entering the class. In fact, apperception plays an important role in the learning activity. The first minutes of the lesson is a highly important moment for the upcoming one lesson hour, in that first minutes is the moment when apperception activity can be implemented [6]. The students will have a positive perception if the lesson is started with a good apperception. If the students are convenient with the class condition and they feel that they can follow the initial stage of the lesson, they will perceive or feel that the upcoming lesson will be easier to be understood.

The mathematics teacher of the 10<sup>th</sup> grade in MAN 1 Karanganyar, stated

"All students had different characteristics from each other. Almost all classes could be conditioned during the learning process. When entering the lesson core, there were many students could not recall their memory about the previous material needed to help them learn the material which would be taught on that occasion. It resulted in the problems with the knowledge related to the material that would be learned on that occasion."

From the statement above, the efforts implemented by the teacher so far were given a structured task at the end of the learning process and discussing the task at the learning process beginning of the upcoming meeting. This activity was expected to be able to solve the problems faced by the students in facing the material which would be learned. Unfortunately, that effort was far from success because many students copied their friends' work, forgotten to do the task, and even working on it during the beginning of the lesson discussion. This problem was quite the problem requiring a problem solving.

The researcher conducted the research at the 10<sup>th</sup> grade of Science 2 class in MAN 1 Karanganyar when the learning material was absolute value linear equation and inequality. The researcher studies an intact cultural group in a natural setting over a prolonged period of time by collecting primarily observational and interview data [7]. The researcher observed how the apperception and the learning process were implemented by the teacher in the classroom.

Mathematics is a subject which is always considered difficult. This assumption makes the students feel that they will never master mathematics learning material. When the lesson started, the research found that the students' work related to the previous material had to be understood on the material of absolute value linear equation and inequality was the material of one variable linear equation and inequality system. Some students had incorrect solutions. The students were unable to recall the previous knowledge so that that they could not relate the taught knowledge in the 7<sup>th</sup> grade of junior high school level, namely one variable linear equation and inequality.

The problems mentioned above showed that the students were not able to correctly solve the initial problems given, whereas they had learned the basic competence related to one variable linear equation and inequality. In other words, the students did not remember the previous knowledge. This research examines something new about initial knowledge that is influenced by the students' perceptions. Many researchers have examined student learning outcomes, few of it have examined the learning process. This study discusses topics that rarely discussed before, namely about the analysis of the learning process related to the students' initial knowledge. The students' knowledge about the previous material could be reminded by the teacher through apperception. It could be assumed that there was a correlation

between the students' perception of the apperception implemented by the teacher and the students' mastery of initial knowledge. The students' perception about the apperception implemented by the teacher on the students' initial knowledge therefore, would be discussed in this research.

## 2. Methodology

This research is a mix method sequential exploratory design. The subjects of the research were a math teacher and the students of 10<sup>th</sup> grade Science class 2 in MAN 1 Karanganyar. This research uses interview, quiz, and questionnaire which each instrument has been validated by the expert. The research procedure conducted by the researcher was observation of the learning procedures in the classroom. The observation was conducted in several stages. Before the lesson begin, some students would be interviewed. The interview was conducted to determine the class condition and students' perception before the lesson began. Afterwards, the researcher observed the apperception activity at the first 15 minutes of the lesson by using the observation sheet. After the teacher gave the apperception activity, the researcher gave a quiz. The quiz showed the students' initial knowledge. The quiz was in the form of short answer questions related to the learning concept that given in apperception's activity. After the quiz had been administered, the researcher observed the correlation between the students' initial knowledge and the students' perception about the apperception implemented by the teacher through the questionnaire. After the questionnaire had been spread, the researcher chose several students to be interviewed to clarify the students' perception. After the data had been collected and separated into qualitative and quantitative data, the researcher would be analyzing the qualitative data by using descriptive analysis to descript students' perception of the teacher's apperception and the quantitative data will be analyzed by using simple regression to determine the result of the effect of students' perception about apperception implemented by the teacher on the students' initial knowledge.

## 3. Results and discussion

### 3.1. Students' Perception about Teacher's Apperception

Before starting the lesson, some students were interviewed related to the mathematics lesson. For the example when the researcher asked several questions:

"The researcher asked about how students feeling in the first lesson and the students' preparation for mathematics lesson. Some students felt bored and did not pay attention for the first lesson. This feeling was brought from the previous lesson. They thought that the mathematics lesson was not necessary for them. Some of them not ready for the lesson. The students stated that it was difficult to recall previous knowledge. The knowledge learned seemed just to be gone. There were many negative perceptions of mathematics lessons found before the lesson started."

The observation conducted by the researcher at the first 15 minutes of the lesson in 3 classroom meetings focused on how the apperception activity was implemented by the teacher and how the reaction, situation, and response of the students were. The activity conducted by the teacher was asking question as a form of reviewing the previous knowledge and reminding the previous material. This activity was conducted continuously with the same stage. First, the teacher asked questions, then the students responded to the questions. Afterwards, several students were chosen to solve the problems in front of the class. If the students faced any difficulty, the problem would be discussed together. Otherwise, the teacher would continue reminding the students about the previous material. The class condition was not fully conducive. Several students sitting on the back row were noisy and they did not pay attention to the teacher's explanation because most of them were bored and unable to understand the teacher's explanation. Unlike the noisy students, those sitting on the front row paid attention to and were interested in the lesson.

Apperception is an art of delivery that must be well mastered by teachers. The students perceived that the apperception activity conducted by the teacher was influential for them. After one lesson hour, the researcher asked the students to fill in the questionnaire. Almost all students in the class well responded related to the apperception conducted by the teacher. The apperception conducted by the

teacher helped the students to recall the previous material. Several students were then chosen to be interviewed. The example of the questions:

“The researcher asked about the influence of teacher’s apperception for the lesson. Compared to the questionnaire result, according to the first subject, the apperception conducted by the teacher was highly necessary and the students would face difficulties if the apperception activity was not conducted. The first subject confessed that the apperception conducted by the teacher could remind him of the previously learned knowledge. According to the second subject, the apperception conducted by the teacher was quite necessary to help students to recall the previous knowledge. However, according to the second subject, if the apperception activity was not conducted, it would not really influential on his knowledge.”

The questionnaire data given in 10th grade Science 2 class showed a quite high result on the questionnaire’s mean score which was 78.125. Compared to the mean score limit of the questionnaire, 62.5% of the students in the class obtained the questionnaire score above 78.125. This result referred to the students’ perception perceiving that apperception conducted by the teacher had positive impact, or in other words, it was positively influential on the learning process.

Teacher’s perception was seen to be influential during the apperception presentation at the initial learning activity. Teacher expectations constitute one potentially important, but relatively understudied. Students can interpret according to the perceptions of each individual. Students like teachers who had good teaching performance, provide good explanations and facilitated students to understand the material [8]. Students’ perceptions related to teacher learning styles significantly and positively affect learning outcomes. If the students’ perceptions were good, the student outcomes were good [9]. Teachers must not only have the time to study classroom practices but also confront their perceptions of their students’ academic ability [10]. Perception may be influenced by both the present and past experiences, the individual attitude at a particular moment, the physical state of the sense organ, the interest of the person, the level of attention, and the interpretation given to the perception [11]. It has been concluded that there is a significant correlation between what teachers perceived they know and what they teach, so there is an influence between the students’ perception of the teacher’s apperception [12]. Based on the results above, we know that even the teacher’s apperception is influenced by the students’ perceptions. A bit of advice for teachers, we must provide the best delivery topics to the students. Because what teacher’s perceived to students will be influenced by their perceptions.

**Table 1.** Descriptive statistics

	Mean	Std. Deviation	N
Initial Knowledge	62.7083	28.08511	40
Students’ Perception	78.1250	14.70114	40

### 3.2. Initial Knowledge

In this part, the quiz was given to the students. The quiz was administered to the students after the apperception activity. The quiz was administered to measure the students’ initial knowledge because the quiz had been administered before the main activity started. The quiz administered was in the form of short answer questions related to the knowledge concepts of equation and inequality. This concept was the material previously learned by the students given in the apperception activity. The students had 10 minutes to finish the quiz. The result of the quiz showed the students’ initial knowledge. The initial knowledge is important to measure the students’ preparation who depend on modules or presentations received previously [13]. A good initial understanding will make it easier for students to construct and strengthen their mastery of concepts through classroom learning [14]. The data result obtained showed that the class mean score was 62.7. Compared to the minimum passing grade of 70, 50% of the students obtained the quiz score above 70. Two subjects chosen by the researcher had a contrastive score. The first subject had the score above average and above the minimum passing grade while the second subject had the score below the average and below the minimum passing grade. The subjects were chosen

randomly because every student has more potentials than most people has assumed without any gap [15]. Those data can be seen in the following table:

**Table 2.** Residuals statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	43.3308	77.7798	62.7083	10.1288	40
Residual	-66.2968	45.18623	0.00000	26.19505	40
Std. Predicted Value	-1.913	1.488	0.000	1	40
Std. Residual	-2.498	1.703	0.000	0.987	40

<sup>a</sup> Dependent Variable: Initial Knowledge

### 3.3. *The Influence of Students' Perception about Apperception on Initial Knowledge*

The effect of the students' perception of the apperception conducted by the teacher on the students' initial knowledge was significant or truly influential with an effect of 0.130 or 13%. On the other hand, the rest was influenced by other factors or variables. The effect of students' perceptions of apperception on the initial knowledge is based on the learning process that students have experienced. The assimilation process is the merging of information, perceptions, concepts and new experiences into a mindset. Children will not automatically improve in understanding or gain new skills by an accumulation of experiences alone. To be able to learn, children must have the capacity to respond to a new experience or concept [16]. Through the assimilation process, the students seek to understand the new things by applying the existing pattern [17].

**Table 3.** Model summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.361 <sup>a</sup>	0.130	0.107	26.53748

<sup>a</sup> Predictors: (Constant), Students' Perception

<sup>b</sup> Dependent Variable: Initial Knowledge

In the summary model table, the R column showed the value of the correlation/relationship of 0.361 and it was explained that the percentage of the independent variable's influence on the dependent variable was called as determination coefficient which was the result of squaring R.

**Table 4.** Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	66.287	5.430		12.206	0.000
Quiz	0.189	0.079	0.361	2.384	0.022

<sup>a</sup> Dependent Variable: Students' Perception

The coefficient table displays the coefficient quiz. Based on the output table above, it can be concluded that there was a significant effect (Sig. value  $0.022 < 0.05$ ).

## 4. Conclusion

The Students' perception is a view giving full suggestion to the students for the upcoming one lesson hour. A good perception will have a positive effect on learning activities. Apperception is an activity building motivation, interest, and attention aiming to remind about the previous knowledge. Apperception conducted by the teacher in initiating the lesson was highly necessary to determine the

continuity of the lesson because it built the students' good perception so that it influenced the students' initial knowledge. The result indicated that there was a significant effect on the descriptive analysis from the linear regression data. The effect was obvious in the determination coefficient output of 0.130 meant that the effect of the students' perception on the apperception conducted by the teacher on the students' initial knowledge mastery was 13%, while the rest was influenced by other variables.

In the previous case, it was proven that students' apperception influences the students' knowledge [18][19][20]. Negative perception about mathematics could be changed in the apperception activity conducted by the teacher before entering the lesson core activity. The students' knowledge was well improved when the lesson could be well received. In other words, the students' perception of apperception conducted by the teacher was significantly influential on the students' initial knowledge. This research can be developed to find out the right variation of apperception to improve the quality of the learning process. The limitation of this research is the effectiveness of the time. In the lesson initiation, needed a new strategy to find the variations of the apperception that can consider the effectiveness of the time

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