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# Using experiential learning model (ELM) to slow learner students in the science lesson

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**Abstract.** The purpose of this research is to explore the use of experiential learning model (ELM) in a science lesson. The research method used is a case study involving seven (7) slow learner students and one science teacher. Data were collected using interviews, observations, field notes and multiple choice test. Data analysis using qualitative analysis data model consisting of 3 stages, namely (1) thematic analysis of all participant (2) within-participant thematic analysis (3) cross-participant analysis. The results showed that the learning outcome in science, as many as four students had exceeded the score of mastery learning, while one student who gets the same score as the mastery learning score, and two students who have not been able to exceed the mastery learning score. The conclusion of the research can be stated that ELM can improve student learning outcomes. Improved learning outcomes due to the show empathy, problem solving, learning experience, communication of the use of ELM in science learning.

## 1. Introduction

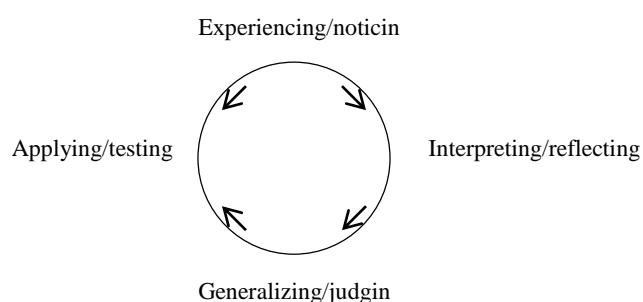
Science lessons are one of the lessons that are still considered difficult for some students. No exception students with special needs category of slow learner student (SLS). Based on various studies concluded that the learning done by the teacher still uses learning methods that rely on teacher-centered methods [1], the use of learning media that only use student textbooks [2] and assignments to students with a very large number. This condition makes students' learning comprehension of science lessons very low [3].

For SLS students who have limitations in learning, of course it is very difficult to learn science materials, because the methods do not vary and are not adjusted to the obstacles that SLS has. SLS is one category of students who have an IQ below normal students [4], which is between 85-90, has a very low learning motivation, difficult to understand new subject matter, and very low learning memory [5]. But if learning is carried out in accordance with obstacles by modifying the learning method by the teacher, SLS can easily understand the subject matter. Although it must be done repeatedly, but if you use learning methods that are appropriate to the characteristics of SLS, learning outcomes can be achieved well.



For this reason, it is necessary to have a learning model that can meet and match the characteristics and constraints of SLS. One learning model that can be used in science lessons in accordance with SLS is experiential learning model (ELM). ELM is a learning model that emphasizes students' learning experiences, by arousing students' activeness in learning, while teachers as facilitators. Students experience direct learning in a learning activity that has been prepared by the teacher [6][7].

The benefits of ELM use are expected to be able to improve learning outcomes, but can also increase students' self-confidence, learning experience, foster empathy among students, practice learning decision-making and problem solving[8].



**Figure 1.** Kolb's experiential learning cycle[9]

Figure 1 shows according to Kolb, that experiential learning is a learning model for students to be able to synchronize between subject matter with the world of work later. So that students are faced with learning experiences that will enhance understanding between the world of work that emphasizes the demands of work with the world of education with experience-based methods.

The purpose of this study is to know that the use of ELM can improve the learning outcome in the science lesson of slow learner students.

## 2. Methodology

The approach used in this research was a single case study research method. Single case study research methods have been used in a variety of disciplines, especially psychology, special education, school psychology, and physical therapy in which they are used to determine the effects of planned interventions [10]. A single case study is effective for research that includes special needs because it is focused on the individual. This method was used because the number of participants involved consisted of only seven (7) slow learner students. These students need deep attention and observation to get accurate data from the research. Participants involved in this study used an inclusive primary school in West Java Indonesia. Participants consist of 7 students with special needs with slow learner student category. Another participant involved is a 5th-grade science teacher. The lesson learned was about "changes in the properties of objects".

Data were collected using observations, interviews, field notes and written tests to determine the outcomes of science lesson. The type of test given to the students as much as 20 multiple choice test. Before the analysis, data from interviews and field notes were made transcripts, grouping phrases that fit the focus of the study, making coding and related categories. Data analysis was done using qualitative analysis data model [11], consisting of 3 steps: (1) thematic analysis of all participant (2) within-participant thematic analysis (3) cross-participant analysis.

**Table 1.** Qualitative analysis data model

Included Term	Semantic Relations	Cover Term
Understand the feelings of friends	is kind of	Empathy
Appreciate the friends' opinions		
Appreciate the lack of friends		

Give opinions Provide answers to questions	Is kind of	Problem solving
Sing with friends Ask the teacher Can answer teacher questions	Is kind of	Learning experience
Discussion with group friends Ask and answer	Is kind of	Communication

In Table 1, there are four categories found in ELM use, namely empathy, involvement in problem solving, learning and communication experiences. Feeling empathy is the same feeling that SLS has for other friends in learning. Problem solving is a skill that is expected to be owned by SLS in the face of ongoing learning activities, both in material and emotional in learning. Learning experience, is part of SLS behavior in learning and learning activities that can improve learning outcomes. Communicating is a way of interacting with SLS in learning between SLS and friends and between SLS and the teacher.

### 3. Result and Discussion

After doing the test on all the students, got the learning result counting that is in Table 1. The students' learning outcomes are measured based on the students' mastery learning scores, especially the learning outcome for the students with special needs that have been agreed by the science teacher with the principal. The score of students' mastery learning that has been set is 70.

**Table 2.** The score of students' learning outcome

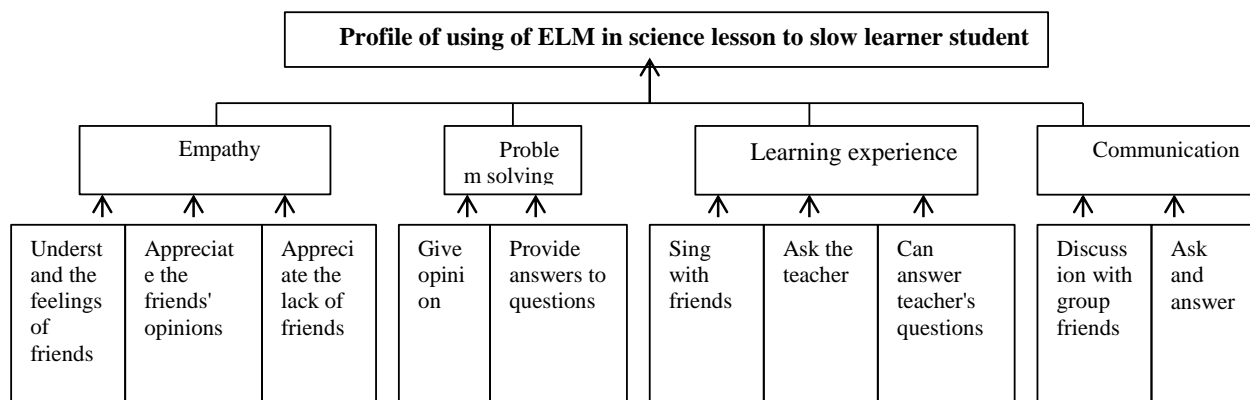
Number of student	Mastery learning score	Score before using	Score
Student 1	70	50	80
Student 2	70	50	75
Student 3	70	55	70
Student 4	70	60	85
Student 5	70	60	85
Student 6	70	40	60
Student 7	70	55	65

In Table 2, as many as 4 students or have passed the value of mastery learning, one student gets the same score as the mastery learning, while two students still have not achieved the mastery learning. Some students who successfully complete learning outcomes are a tangible form of success in using ELM. The use of ELM has succeeded in providing alternative learning models that are in line with the characteristics of SLS. 4 SLS that have values that go beyond the results of learning completeness, have a higher learning spirit, high self-confidence, so that they get a deep learning experience. The impact is that the four students have higher grades than other students.

Meanwhile, one student who gets the same score as the learning completeness value, still needs strong encouragement and needs to be motivated to learn, so that learning outcomes should be able to exceed learning outcomes. Whereas two students who have not been able to exceed the value of learning completeness, still need repetitive repetition of learning. This is indeed very related, besides having the lowest IQ among the other 5 SLS, they also have very low learning motivation. In addition, it still needs to be encouraged by activeness and student involvement so that interaction and communication as an indicator of students' achievement of subject matter can be identified. Difficulties, the obstacles faced by students naturally

become the basis for teachers to be able to increase the frequency of repetitions both in the form of repeated and remedial explanations in solving problems. So that in the end it can exceed the value of learning completeness.

Besides, the results of data analysis conducted on observation and interview data generated ELM use the profile to slow learner students in Figure 2. Profile of ELM use to slow learner students consists of 4 categories, namely: (1) showing empathy (2) problem solving 3) learning experience 4) communication.



**Figure 2.** Profile of using of ELM to slow learner students

Figure 2 shows that the successful use of ELM to slow learner students, is closely related to the instructional process undertaken between teacher and students together. Some activities that show empathy, problem solving, learning experience, communication are indicators that can accelerate slow learner students to easily learn in sciences lesson.

The feeling of empathy that arises in the learning process between students shows that each student feels the same for the emotions that occur when learning. Students are trained to be able to respect and respect the opinions of others without downplaying the opinions or process of understanding that they want to achieve. The teacher provides an affective side opportunity to students so as not to exclude each other, help each other and understand the feelings of others in a group. Empathy is very important to be developed in SLS because it is closely related to the emotions of SLS which tend to be closed with other students[12].

Problem solving skills for SLS are also very important for SLS, because so far SLS always depends on the decision of the special teacher who guides learning. Providing opportunities to be able to solve problems can hone the cognitive side of students to be more developed which can be done in learning activities such as giving opinions [13], or being able to provide answers asked by the teacher. The teacher also provides an opportunity for SLS to be independent in learning. So that the results of science learning for SLS can be achieved in accordance with the agreed learning objectives.

The learning experience of stale SLS as a result of the ELM use process obtained SLS from activities experienced directly in an experiment in learning. Students know, ask, observe, solve problems that are directly carried out in learning activities. This process is expected in the future, can provide a real process for SLS to have experience and achieve more meaningful learning [14]. SLS is expected not only to fulfill competencies from the cognitive side, but from the affective side can provide a definition of learning as a fun and joyful activity [15]. Other things also included in the psychomotor aspect which provide opportunities for SLS to develop motor skills that can increase learning enthusiasm.

Improved communication for SLS is very important in the learning process, because during this SLS interaction with friends and teachers usually has to be encouraged by the special teacher [16][17]. SLS communication with other students, especially in group activities, communication is a way for

SLS to make learning understanding easy to achieve. In addition, it can be an indication for teachers to see the extent of the difficulties and progress achieved by SLS.

#### 4. Conclusion

The results of this study can be concluded that the ELM can improve the learning outcome in science lesson. Improved learning outcomes are shown from: 1) students' empathy in respecting and give opinions; 2) problem solving skills shown by SLS in giving opinions and giving answers in a question; 3) learning experiences conducted through learning activities in accordance with the real world that will be faced in the future and 4) communication which is a way for SLS to be able to find out the difficulties, obstacles and achievements in learning in accordance with the learning objectives that have been set.

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