Analysis of Science Learning Process by Using Learning Module of Character Education Oriented through Quantum Learning Approach

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Abstract

The process of science learning is very influential on students' understanding. Uncertainty of students on various materials of science can cause various obstacles, such as students' difficultyon understanding thelinkage material, as the result, unsuccesful on achieving the expected learning objectives. Efforts to improve the students' understanding in learning process in order to avoid poor performance of student learning by using learning modules character educationoriented through Quantum Learning approach. The purpose of this research is to know the process of science learning by using learningmodule of character educationoriented through quantum learning approach on digestive system course in grade 5 at one of primary school at Padang, Indonesia. The type of this research is descriptive research. Data related to the implementation of learning derived from the process of science learning in the form of recording the learning process, interview guides, questionnaires and observation sheet on the implementation of learning. Data collection techniques refer to teacher performance appraisal instrument-2 (IPKG-2). Based on the result of the research, it can be concluded that the implementation of learning has not been referring to IPKG-2, but it has reached very good criteria (3.61) in grade 5 at one of primary school at Padang, Indonesia

Keywords: Science Learning Process, IPKG-2, Science Learning Module

INTRODUCTION

Learning is essentially a process of communication and interaction between teachers and students or students and students, so that the meaningfulness of student learning is achieved. Sari (2017:53) states that learning is a process of changing one's behavior and attitude in maturity. It shows that the learning process must be held interactively, inspirational, fun, challenging, motivating students to participate actively and giving enough space for initiative, creativity and independence according to students' talents, interests and physical and psychological development (Sari, 2016: 162).

In the learning process, students should get the learning experience. Learning experience is all about the processes, events and activities that experienced by students to gain knowledge, skills and attitudes and values (Hamalik, 2008: 40, Maf'ula, 2017: 1, Sari, 2017: 56). Through the learning process, students are expected to gain knowledge. Knowledge cannot simply move from teacher to student, but the students themselves construct knowledge from their cognitive experiences while interacting with the environment in the learning process (Lufri, 2007: 34).

Teachers have a central role as agents of change in education. Teachers need to direct the students into meaningful learning process that they experienced themselves, thus as to apply their knowledge in everyday life (Sari, 2015: 210). This is in line with the opinion of Rakhmawati, et al (2016: 157) that the teacher's task is not only to convey information to students, but to give creative service and ease of learning *(Facilitate learning)* to all learners. Therefore, the teacher holds a strategic role in the learning process. A teacher must be able to plan and implement learning and use appropriate strategies in the learning process (Sari, 2017: 55).

Sari (2014: 93) states that science learning is a subject that develops analytical, inductive, and deductive thinking skills in order to solve problems related to natural events. In the science learning process, an approach, strategies, methods and learning media related to the real world are required so that students can understand a concept in science learning (Hanik and Haroson, 2016: 25). Lack of teaching methods and media provided by teachers' leads to a lack of student understanding of science learning, so students are saturated in the learning process. The teacher should become a facilitator who helps the learners to gain knowledge,

because the way of learning and the ability of teachers can affect the low learning outcomes of students (Hanik and Haroson, 2016: 25).

The low learning outcomes of students in understanding the science materials in general can be reviewed from three aspects: students as learners, teachers as educators, and the material being studied. In terms of students, causes the difficulty of students especially students in class 5 at one of elementary school in Tanmalaka Padang Indonesia in understanding the science material in learning is that students consider the science material as memorizing course. Rahmaniati (2016: 1) states that science is a boring subject for students because the material is very complex, many Latin words to be memorized. In addition, the ability of students to think and low motivationfor student in learning, and readiness to learn is lacking due to lack of supporting books. If viewed from the perspective of teachers, the problem lies in the methods and approaches used by teachers. In addition, the learning process that teachers perform is monotonous because they glued to the material contained in the book. In terms of material, conceptsof science material are abstract and complex along with too dense material. Specifically, the digestive system of food material contains the concepts, facts, principles, and procedures related to nutrients in food, how to test the content of food substances, the hazards of additives contained in the food, the structure of functions and process of food digestion tools in humans and involves abnormalities that occur in the digestive system. Therefore, students are required to be able to master the learning materials in a holistic manner and todevelop long-term memory.

To optimize the learning process as expected, the Government has mandated the standard of process stated in Permendiknas No. 41 2007 (Kemendiknas, 2007: 1-2). Standard of process is the national standard of education related to the implementation of learning in educational unit to achieve the competence of graduates covering planning, implementation, and evaluation of learning (teacher performance in learning process). Thus, we can see how the learning process of teachers using teacher performance appraisal instruments (IPKG).

The process of science learning is very influential on student understanding. Uncertainty of students on various science materials can cause various obstacles, such as students' difficultyon understandingthelinkage material, resulting in not achieving the expected learning objectives. In this

study, observations were limited to the teacher's aspect during the science-learning process. By observing the learning process, accurate information about the science learning process are expected to be obtained, especially in the digestive system by using a material science learning modules of character educationoriented through Quantum Learning approach.

Sari (2015: 217), the quantum learning approach utilizes a wide variety of learning resources and learning activities. The primary principle used by the Quantum Learning approach is by bringing students to the world of teachers as well as delivering teachers to the world of students in order to make it easier to guide to the awarenessof learning process. The learning process undertaken relates to events, thoughts, or feelings gained from home, social, music, art, recreation, or academic life of the students. Once the link is established, the teacher can provide an understanding of the content of the world and apply it to the new site (DePorter, et al, 2010: 35). By Quantum Learning approach, teachers can always interact with students by providing motivation and facilitating it without dominating, providing opportunities for active participation and experiencing their own information acquisition, directing students to develop their abilities enthusiastically and able to embed the values of character in daily life.

Based on the background, it can be stated that the problems and focus of this research areabout how the quality of the materials on science learning process digestive system by using science-learning module of character education oriented through Quantum Learning approach at elementary school 05 Tan Malaka Padang. This study aims to determine the science learning process in the digestive system by using a material science learning modules of character educationoriented through Quantum Learningapproach at elementary school 05 Tan Malaka Padang.

METHOD

This research is part of a research learning modules development of character education-oriented through Quantum Learning approach using the method of 3-D (define-design-develop). At this stage aims to develop science-oriented learning module generates character education through Quantum Learning practical approach used by the teacher in the learning process. The module is arrangedby utilizing Ambak's strength and Tandur's principles in providing feedback to teachers in creating lessons that embed character

values and creating interactive, motivational moods for active participation, ample space for initiative, creativity, and independence according to the talents, interests, and physical development of learners.

Recordings of teacher learning process by using module are used as primary data in research. This study aims to reveal the science learning process on the digestive system material in grade 5. Therefore, the researchers chose to express the issue by using descriptive methods. This study was conducted by following the research steps developed by Miles, et al (2015: 14-15). The steps of this activity are data collection, data reduction, data presentation, and conclusion or verification. The research instrument used is the Learning Implementation Assessment Instrument (IPKG-2) which has tested the validity of its constructs by experts. The data obtained were analyzedinto the teacher performance appraisal instrument on the implementation of learning (IPKG-2), using the formula:

Teachers' Learning Process:

$$X = \frac{A + B + C + D + E}{5}$$

inspirational, fun, challenging and Information:

X =the value of the teachers' learning process

A =Appearance of teacher

B = Teacher activity (openingand closing learning activities)

C = Teacher activity (activity of learning variation)

D =Activity of teacher (ask skill)

E =Activity of teacher (verbal and nonverbal reinforcement)

The data analysis process of the teacher's learning process is converted into rubric as in Table 1 below (Widjajanti, 2008: 58).

Table 1. Criteria of Teachers' Learning Process

Range	Category
1.00 to 1.99	Not good
2.00 to 2.99	Medium
3.00 to 3.49	Good
3.50 to 4.00	Very good

RESULTS AND DISCUSSION

The Based on the results of research on the teachers' learning process on science material digestive system on grade 5 in one of elementary school at Tanmalaka, Padang, Indonesia by using science learning module characters education-oriented through Quantum Learning approach can be seen in Table 2.

Table 2. Results of IPKG-2 Assessment of Teacher Learning Process

Indicator	Average IPKG at Meeting 1	2	3	Average	Criteria
A. Teachers' appearance	3.44	3.33	3.85	3.54	Very good
B. Open and close learning activities	3.52	3.44	3.78	3.58	Very good
C. Learning variation activities	3.57	3.62	3.76	3.65	Very good
D. Questioning skill	3.39	3.56	3.78	3.58	Very good
E. Verbal and nonverbal reinforcement	3.48	3.67	4	3.72	Very good
Average	3.48	3.54	3.84	3.61	Very good
Criteria	Good	Very good	Very good	Very good	

Based on Table 2 can be seen that the learning process by usingscience learning module character education-oriented through the approach of Quantum Learning are very good with a value of 3.61. This is supported by the verbal and nonverbal reinforcement of teacherson very good criteria with a grade of 3.72. Values 3.54 and 3.58 were found on teacher performance, opening and closing learning activities, and questioning skills with very good criteria. Meanwhile, the value of learning variation activities conducted by teacher is in very good criteriawith a value of 3.65.

Although the learning process undertaken by the teacher at the first meeting is in good criteria with a value of 3.48 and the teacher's performance got the lowest score of 3.44; but the variation of learning activities got the highest score on with a value of 3.57 at that time. Meanwhile, at the second and third meeting, the average value of the learning process undertaken by the teacher are at very good criteria with a value of 3.54 for the second meeting and 3.84 for the third meeting. Surprisingly, at the third meeting, the activities of verbal and nonverbal reinforcement earned a score of 4.

The learning process carried out on the material digestive system implemented by teachers in grade V has been referring to IPKG-2. Based on Table 2, it can be seen that the performance of teachers in the learning process according to IPKG-2 has reached the criteria very well. In the process of opening learning teachers can provide very high motivation to students so that students are very excited in the learning process. This is in line with

Sagala (2009: 104) that the provision of appropriate motivation can enable the development of talents owned by students. If a person gets the right motivation, then he/she can have extraordinary power in order to achieve unexpected results originally. The process of giving motivation in learningsuits to the principles of Quantum Learning that create effective ways to increase students' participation, motivation and interest in learning; improve the sense of community; improve memory; and enhance subtlety of behavior (Sari, 2015: 216).

Presentation of learning is done after the selection of approaches in accordance with learning objectives and material characteristics have been discussed. One approach proposed by educational experts and educational psychologists is Quantum Learning (Sagala, 2009: 105). In principle, this approach believes that persuasion can influence learning outcomes. Students are conditioned in a comfortable environment and fun learning. Values of character applied in accordance with the characteristics of students and the concept of afun and comfortable learning environment for students make breakthroughs in learning.

At the time of learning, teachers must have mastered the learning materials, so the teacher can explain the material clearly and systematically. Teachers must have four teacher competencies, namely pedagogic, personality, social and professional competencies (Rasmawan, 2016: 1, Rusman, 2010: 12). The four competencies, professional competence plays a quite important role because each teacher must be able to master the learning materials widely and deeply that enables them to guide students meet the established standardcompetencies. In addition, the presentation of teaching materials delivered by teachers in the learning process has been in accordance with the objectives of learning. Learning outcomes are related to achievement in acquiring skills with specific objectives that have been planned (Pratiwi, 2017: 33, Sanjaya, 2011: 13, Sari, 2014: 94). Therefore, students can implement values of characters contained in the material delivered by teachers in everyday life. It can be concluded that learning by using learning module science-oriented character education through Quantum Learning approach can improve students' understanding of the material and can also be applied in other materials.

Meanwhile, in the learning process the teacher facilitates and composes the students' learning environment so that the learning atmosphere is exciting and dynamic. A

supportive classroom environment affects the student's ability to focus and absorb as much information as possible. Sa'ud (2010: 130) states that the classroom atmosphere is the main determinant of psychological students in learning. Classroom is a learning arena that is influenced by emotions. Therefore, teachers should be able to organize student learning environment, to support the learning situation by organizing and utilizing the surrounding environment; Using tools that represent one idea, arrangement of student formation, music playback in accordance with learning conditions (Silberman, 2002: 12).

In the variation of learning activities, teachers make use of student learning styles, prime circumstances for learning, organizing information, and generating great potential students. The main principle of Quantum Learning is "Bring Their World to Our World and Take Our World toThem". This principle is the basis behind all the strategies, models, and the belief Quantum Teaching. This reminded the importance of teachers to enter the world of students as a first step. Understanding the world of students becomes a license for teachers to lead, guide, and facilitate student travel in achieving optimal learning outcomes (DePorter, et al, 2010: 34). Learning is a full-contact activity that involves all aspects of the human personality, thoughts, feelings, and body language, as well as knowledge, attitudes, and beliefs of previous and future perception. When a teacher has entered the world of students, students have felt treated according to their level of development, so that learning will be harmonious like an interlocked and complementary orchestration. Once the links between students and their lives are formed, students can be brought into the world of teachers, and give students an understanding of the content of learning (Sa'ud, 2010: 128).

The process of science learning by using learning module character education -oriented through Quantum Learning approach on the digestive system material on grade 5 improve student activeness in asking and answering questions given by the teacher. This is because in the process of learning teachers always encourage students to think and ask, so many students who want to dig more information or confirm what he already knew by way of asking. This is in line with the opinion of Nafila (2016: 138); Ramadan (2017: 11) that the skill of asking is also very important for a student because by asking will add more knowledge of the students in obtaining information and by asking this can

improve critical thinking skills. Knowledge possessed by a person starts from asking (Nafila, 2016: 138, Trianto (2009, 115). Questioning in learning is seen as a teacher activity to encourage, guide and assess students' thinking ability. For students, the questioning activity is an important part of the learning process to explore information, confirm what have already known, and lead to aspects that are unknown yet (Ramadan, 2017: 13).

In addition, in the process of learning the teacher is able to create a very pleasant learning atmosphere through using acronim on the concept of the material and celebrate the success in the group. DePorter, et al (2010: 14) adds to the more detailed description that Quantum Learning strategy is the ability to transform into a learning community to increase awareness, the power to hear, participation, feedback, and growth, where emotions are appreciated. Opinion is interpreted that if the teacher is able to create a fun learning atmosphere, will have a positive impact on improving the effectiveness of learning. Furthermore, such interactions can transform students' natural abilities and talents into "light" that will benefit students and others (DePorter, et al, 2010: 33, Wena, 2009: 160).

CONCLUSION

Based on the result of the research, it can be concluded that the implementation of learning has not been referring to IPKG-2, but it has reached very good criteria (3.61) in class 5. This is supported by the verbal and nonverbal reinforcement of teachers with a grade of 3.72 is on very good criteria. Values 3.54 and 3.58 were found by indicators of teacher performance, opening and closing learning activities, and questioning skills with very good criteria. Meanwhile, the value of learning variation activities conducted by teacher 3.65 is in very good criteria.

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