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Active Learning Approach Question Students Have (Qsh) To Improve Student Learning Outcomes

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Abstract
This study is concerning the promotion of active learning by using Question Students Have (QSH) in teaching learning process of Metal Characterisation in second-year university student in Indonesia. QSH promotes recall and deeper understanding of material, as students are engaging with the content rather than simply listening to it. The research found that QSH approach increased student's involvement in the learning process by 27.17%, and increase students learning outcomes by mean 82.5. The more of student's involvement in the teaching learning process, the better the understanding to the lesson, thus learning outcomes improved.

Keywords: active learning, learning outcomes, students' involvement, learning process, question student have

Introduction

Active learning type Question Student Have (QSH) is a collaborative learning activity that can be used to avoid teaching learning process that is dominated by teachers. Through collaborative learning activities (collaboration) is expected learners will acquire knowledge, skills, and attitudes actively. (Isohätälä, Järvenoja, & Järvelä, 2017) [5]

Activity in this type of learning model Question Student Have (QSH) is one of the ways used to learn about the wishes and expectations of students as a basis to maximize their potential. (Manwaring, Larsen, Graham, Henrie, & Halverson, 2017) [11] This method uses a technique to gain learners' participation through writing, and is best used on learners who are less willing to express questions, wishes and expectations through conversation. (Bonwell, Charles C, & James A. Eison, 1991) [1] In teaching process of "Metal Characterizations" Question Student Have (QSH) was developed to train 35 students to have the skills and skills to ask questions, and is one effective and efficient way to enhance active learning.

The group process has characteristics or aspects of relationships, interactions, participation, contribution, affection and dynamics. Each individual relates to one another, contributes thoughts, interacts, participates actively, gets assigned tasks and develops personal-socio-moral traits and hence groups constantly change, evolve, which means dynamic, (Hamalik, Oemar, 2014) [4]. Cooperation through group learning where learners interact with questions and express opinions is the foundation of success in the future. Speaking (talk) is central to social development and intellectual growth. (Mecacci, 1993) [12]

The QSH procedures adopted as in literature (Melvin L. Silberman, 1996) [13]. It was aimed at training students 'ability to work together, listening to others' opinions, improving the memory of the material learned, exercising care and willingness to share, others, training emotional intelligence, sharpening interpersonal intelligence, improving motivation and learning atmosphere and speed and learning outcomes can be further improved. (Melvin L. Silberman, 1996) [13]

The lesson of Metal Characteristics is a preliminary topic in Advanced Inorganic Chemistry course. This topic consists of four sub topics which are General Properties of Metals, Energy Bonds and Structures, Bond Theory in Metal, and Alloy. Based on the experience of teaching this course, many students cannot answer the questions from this topic during the midterm exam due to lack of understanding of teaching materials. In the case of the lack of a preliminary topic on the subject of the metal characteristics will affect the lack of understanding of the next material which are the elements of metal. Students tend to be silent during the lecture and when asked to address question regarding the lesson after the lecturer's explanation was completed. When asked whether the teaching material is understood, some students do not respond. So the material passed in accordance with the schedule of meetings but the exam results show that the teaching materials are not understood. The test results obtained not satisfactory in accordance with the standards specified. That is why this QSH method needs to be applied to provide active learning environment to 35 students in Chemistry Education Study Program.

Methods

Based on the research objectives which is to see the improvement of students' learning outcomes, then the method used is quasi experiment. Experiment is a comparative type that compares the effect of a treatment on an object and see the effect of the treatment. One class is used as an experimental class and another class as a control class. In the experimental class will use the learning model of Active Learning Type Question Student Have (QSH) while the control class using explanation model or lecture which known as conventional model. Research Design is known as One Group Pretest-Postest Design (Nana Syaodih Sukmadinata., 2013) [15]

Group Pre-test Treatment Post-test Experiment Q1 T Q2

Experiment is the classroom or group of students to which learning model Active Learning Question Student Have

Type (QSH) applied. Q1 is the initial test (pre-test). T is the using of Active Learning Type learning model Question Student Have (QSH). T2 is the final test (post-test) which was performed after treatment was given.

Finding

The observation of students' activities was conducted on 35 students who joint lecturer on metal characterization lesson. Table 1 below shows that students' learning activeness using learning model increased by 27.16%. The activity of the students giving attention to the lecturer's explanation of the teaching materials without using the SQH model is 62.86%, and with QSH 88.57%, it means there is an increase of 25.71%, While student activeness addressing questions increased by 42.86%, responding to questions asked by participants increased by 22.86%, and student activity pay attention to lecturers' explanation increased by 17.14%.

Table 1: Observation on Students Activity

No	Students Activity	Percentage (%)	
		Without QSH	With QSH
1	Pay attention to lecturer explanation	62.86	88.57
2	Addressing questions regarding the lesson	42.86	85.72
3	Responding questions asked by the participant	54.29	77.15
4	Paying attention on lecturer's answer regarding the lesson	65.72	82.86
	Mean	56.43	83.56

The criteria of student learning activities categorized as good if the percentage of students' learning activity is 76%-100% (Ngalim Purwanto, 2008) [16]. As can be seen from the percentage of student learning activity of students of Chemistry Education Study Program, it is classified as less because the learning activity percentage less than 76% of the total number of students, which was only 56.43%. So it was necessary to further improve the implementation of learning methods with expectations can maximize the achievement of student learning outcomes. The selection of the learning model of course affects the success of lecturer in teaching and students' success in learning. After being treated by Active Learning Type learning model Question Student Have (QSH) the achievement of learning outcomes on aspects students affective in the learning of Metal Characterisation then the percentage of students' active learning increased to 83.56%. In accordance with the criteria of student learning achievement of the percentage, student learning activity was said to be good because it reaches above 76%.

Table 2: Students Learning Outcomes

Learning outcomes score	Treatment	
	Without QSH	With QSH
Highest Score	84.22	94.74
Lowest Score	57.90	78.95
Mean	71.06.	86.845

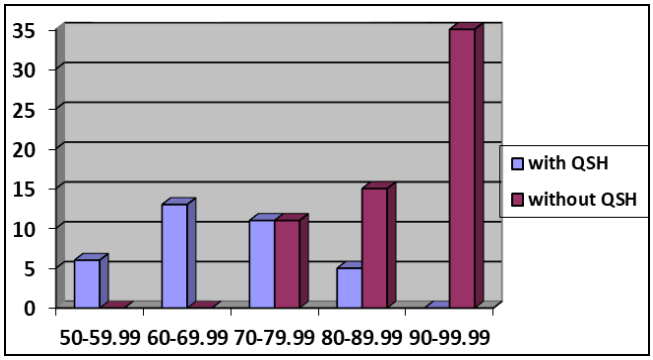
The data in Table 2 shows the different learning outcomes without the QSH learning model and with the application of the QSH learning model. The average scores obtained were 71.06 with the highest score of 84.22 and the lowest score of 57.90 without using QSH learning model. On the other hand, the average score with the use of QSH learning model was 86.845 with the highest score of 94.74 and the lowest score of 78.95. These data indicate a significant difference between learning outcomes by using QSH learning models and without QSH. The average increase in learning outcomes is 15.79 of the maximum score is 100.

Table 3: Frequencies Distribution of Students' Learning Outcomes

No	Score Interval	Without QSH		With QSH	
		Absolute Frequencies	Relative Freq. %	Absolute Frequencies	Relative Freq. %
1	50-59.99	6	17.14	0	0
2	60-69.99	13	37.14	0	0
3	70-79.99	11	31.43	11	31.43
4	80-89.99	5	14.29	15	42.86
5	90-99.99	0	0	9	25.71
Total		35	100	35	100

The frequency distribution of student learning outcomes without the application of QSH and with QSH's outlook is presented in Table 3 above. It shows the absolute and relatively high frequencies of the 60-69.99 interval class with a frequency of 13 and its relative frequency of 37.14 in a control class or class that does not use the QSH learning model. While in the experimental class is the class that uses the highest frequency QSH learning model that is in the interval class 80-89.99 is 15 with a relative frequency of 42.86.

Students' learning outcomes before the application of QSH and after the implementation of QSH also showed in Graphic 1. It was indicated a very significant difference. In learning without QSH the learning results distributed from the 50-59.99 to 80-89.99 interval scores, and the highest student scores at 60-69.99 intervals. After the application of the QSH learning model, the student score interval was dominated by 90-90.99, and no students scored in the 50-59.99 and 60-69.99 on the learning of metal characteristics.



Graphic 1: Diagram of Students' Learning Outcome with QSH and without QSH

Discussion

Student activity marked by student's attention to lecturer's explanation can be caused by several factors including learning method and instructional media. Visibility media influence on student's attention where the more visible / clear the learning media the higher the student's attention to the explanation of the lecturer (Korving, Hernández, & De Groot, 2016) [8]. Asking is a way to express a sense of curiosity for answers that are not or are not yet known (Morgan, N., & Saxton, J., 2006) [14]. Curiosity is an effective stimulus or stimulus for learning and seeking answers (Kawamoto, Ura, & Hiraki, 2017) [6]. Activity in class is an important activity in teaching and learning process. Not only for teachers, but also for students. Classroom activity is a sign that teaching and learning activities within the classroom exist. But the fact that happens is still a lot of students who just shut up when the teacher asked or gave a chance to ask in class. Students being reluctant or afraid to ask because she or he has the personal pressure. Students feel pressured by themselves when the question is often scorned, underestimated and considered ignorant by the environment (Morgan, N., & Saxton, J., 2006) [14]. Responding to questions with questions provides several advantages. First, to train students' independence to get answers from a question. Here, students are required to find, collect, and summarize the various information it obtains from reading various sources to gain an understanding. Thus, classroom learning no longer places students as objects that must be fed with a variety of sciences, but now students are the subject of learning. School-age children exhibit respond to questions less often and are slower than adults (Stivers, Sidnell, & Bergen, 2018) [19].

The assessment of learning outcomes by using a web based portfolio represented a comprehensive instrument for learning outcome and learning process (Lile & Bran, 2014) [9]. The successful of the students in lesson influenced bythe encouraging of the students in taking active part to the course, their motivation, their activities, and the learning strategy that can improve the understanding of the topics (Schmidt, Cohen-Schotanus, & Arends, 2009) [17]. Another factor that influences the learning outcomes is the students' orientation for reaching the goals (Malmberg, 2008) [10]. It was showed that students' orientation to be is changed during their study. The learning goals analyzes the students' problem solving, the critical thinking, communication, behaviour, communication, motivation, and social responsibility (Lile & Bran, 2014) [9].

Based on these criteria of student achievement (Ngalim Purwanto, 2008) [16], students who joint the lecture on "Metallic Characteristic" are classified as "less" or fail. With the implementation of QSH, the criteria of learner activity are classified "Excellent" because it reached to 83.56%, an increase of 27.13%. The application of the QSH learning model involves the students actively through questions and group discussions, thus enabling the students' active role to develop during the learning process. The effectiveness of teaching methods for developing students' problem solving skill has showed that students perceive simulation as the most effective teaching method for developing their interpersonal skills (Farashahi & Tajeddin, 2018) [2].

The average student learning outcomes without the application of QSH model was 71.06, of which 17.14% or 6 out of 35 students reached a score of 50-59.99. This score is a score that does not meet the student's grade passing. ("Statuta Universitas Tadulako," 2015) [18] However with the application of QSH learning model, learning score for metal characteristic is 70-79.99, which it means that learning QSH model greatly influences the learning outcomes to an average increase of 15,785. The increased learning outcomes is certainly very influenced learning atmosphere that is activity during learning. With QSH learning, learners are more active than teachers. In contrast to the learning model without QSH which is dominated by the teacher such as the using of lecture method, noting on the board, and the learners are passive. The lack of activity owned by the students can result in less understanding of the students about the material presented and tend to the students less courageous in expressing the question, so that the achievement of less learning outcomes. Learning process with QSH method is able to generate activeness, participation, motivation and independence of students in following teaching and learning activities so as to provide maximum learning outcomes. (Kent, Laslo, & Rafaeli, 2016) [7]

Student learning activity is an effort made in the interaction of educators and learners in order to achieve learning objectives. Active learning can be seen from the student activity in the learning process. Student learning activities affect the learning outcomes achieved by students.(Walters, Potetz, & Fedesco, 2017) [21] If the learning takes place effectively and actively then the learning process can be more meaningful and learning outcomes achieved more leverage. In addition, achievement of learning outcomes is said to succeed if there is a combination of cognitive, affective, and psychomotor aspects. (Van Gasse, Vanlommel, Vanhoof, & Van Petegem, 2016) [20]

Conclusion

The application of QSH learning model has a good or positive contribution to the increase of student activity in the learning process, and also improves student learning outcomes in metallic characteristic material. The QSH model is one of the effective ways of learning to support the achievement of learning outcomes. This QSH learning model divides learners into groups so that with group learners it is almost impossible that one of the learners will be ignored and difficult for learners to be inactive, so with a small group expected learners can participate and play an active role. Observation of students 'learning activeness applied to conventional learning or before treatment and after treatment using Active Learning Learning Model Question Student Have (QSH). The aspects include students'

activeness in paying attention to teacher explanation, ask questions, respond to questions, and pay attention to teacher's answers.

References

1. Bonwell Charles C, James A Eison. Active Learning: Creating Excitement in the Classroom (Vols. 1–1). DC: The George Washington University, 1991
2. Farashahi M, Tajeddin M. Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures, case studies and simulations. The International Journal of Management Education. 2018; 16(1):131-142. https://doi.org/10.1016/j.ijme.2018.01.003
3. Hamaik Oemar. Proses Belajar Mengajar. Jakarta: Jakarta Bumi Aksara, 2010.
4. Hamalik, Oemar. Psikologi Belajar Mengajar (9th ed.). Bandung: Sinar Baru Algensindo, 2014.
5. Isohätälä J, Järvenoja H, Järvelä S. socially shared regulation of learning and participation in social interaction in collaborative learning. International Journal of Educational Research. 2017; 81:11-24. https://doi.org/10.1016/j.ijer.2016.10.006
6. Kawamoto T, Ura M, Hiraki K. Curious people are less affected by social rejection. Personality and Individual Differences. 2017; 105:264-267. https://doi.org/10.1016/j.paid.2016.10.006
7. Kent C, Laslo E, Rafaeli S. Interactivity in online discussions and learning outcomes. Computers & Education. 2016; 97:116-128. https://doi.org/10.1016/j.compedu.2016.03.002
8. Korving H, Hernández M, De Groot E. Look at me and pay attention! A study on the relation between visibility and attention in weblectures. Computers & Education. 2016; 94:151-161. https://doi.org/10.1016/j.compedu.2015.11.011
9. Lile R, Bran C. The Assessment of Learning Outcomes. Procedia - Social and Behavioral Sciences. 2014; 163:125-131. https://doi.org/10.1016/j.sbspro.2014.12.297
10. Malmberg LE. Student teachers' achievement goal orientations during teacher studies: Antecedents, correlates and outcomes. Learning and Instruction. 2008; 18(5):438-452. https://doi.org/10.1016/j.learninstruc.2008.06.003
11. Manwaring KC, Larsen R, Graham CR, Henrie CR, Halverson LR. Investigating student engagement in blended learning settings using experience sampling and structural equation modeling. The Internet and Higher Education. 2017 35:21-33. https://doi.org/10.1016/j.iheduc.2017.06.002
12. Mecacci L. On Spatial Frequencies and Cerebral Hemispheres: Some Remarks from the Electrophysiological and Neuropsychological Points of View. Brain and Cognition. 1993; 22(2):199-212. https://doi.org/10.1006/brcg.1993.1034
13. Melvin L Silberman. 101 Strategies to Teach Any Subject. Allyn and Bacon, 1996.
14. Morgan N, Saxton J. Asking Better Questions (2nd ed.). Canada: Pembroke Publishers Limited, 2006.
15. Nana Syaodih Sukmadinata. Metode Penelitian Pendidikan. Bandung: PT. Remaja Rosdakarya, 2013
16. Ngalim Purwanto. Prinsip-prinsip dan Teknik Evaluasi Pengajaran. Bandung: PT. Remaja Rosdakarya, 2008.
17. Schmidt HG, Cohen-Schotanus J, Arends LR. Impact of problem-based, active learning on graduation rates for 10 generations of Dutch medical students. Medical Education. 2009; 43(3):211-218. https://doi.org/10.1111/j.1365-2923.2008.03287.x
18. Statuta Universitas Tadulako. Kemenristekdikti, 2015.
19. Stivers T, Sidnell J, Bergen C. Children's responses to questions in peer interaction: A window into the ontogenesis of interactional competence. Journal of Pragmatics. 2018; 124:14-30. https://doi.org/10.1016/j.pragma.2017.11.013
20. Van Gasse R, Vanlommel K, Vanhoof J, Van Petegem P. Teacher collaboration on the use of pupil learning outcome data: A rich environment for professional learning? Teaching and Teacher Education. 2016; 60:387-397. https://doi.org/10.1016/j.tate.2016.07.004
21. Walters B, Potetz J, Fedesco HN. Simulations in the Classroom: An Innovative Active Learning Experience. Clinical Simulation in Nursing. 2017; 13(12):609-615. https://doi.org/10.1016/j.ecns.2017.07.009