Journal of Teaching and Learning in Elementary Education (JTLEE)
Vol. 1 No. 2 August 2018

Printed in Indonesia

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

Collaborative Reflection to Enhance Teachers' Teaching Ability Utilized Inquiry Model

Richa Widya Tani[1*], M. Jaya Adi Putra[1], Hendri Marhadi[1]
[1]PGSD, Universitas Riau, Indonesia
*richawidya17@gmail.com

Abstract

This research aims to explore the prospective teachers activities to enhance teachers' teaching skills utilized inquiry by perform reflective collaborative activities between teachers, coaches and prospective teachers. Activities reflection helps prospective teachers make improvements in the implementation of tasks so that for further learning meetings prospective teachers can improve teaching skills. Improved teaching ability to give impact on teacher activities and students who experience improvement at each meeting so that it has an influence on student learning outcomes. In understanding the concept of students' average heat energy increased from the average base score of 64.91 to 76.22. In understanding the concept of average student sound energy from the basic score to 81.72. The increase of learning result can be seen from the average of N-Gain on the understanding of the concept of heat energy of 0.32 medium categories and on the understanding of energy concept of 0.47 medium categories. This study concluded that the application of inquiry learning model can improve science learning outcomes based on reflection by prospective teachers.

Keywords: collaborative reflection, Inquiry learning model, teaching ability

1. INTRODUCTION

Science for students is to invite students learn to reveal natural phenomena by following scientific rules so that science is needed in everyday life in order to meet human beings through various problems solving that can be identified. Science learning is not only memorizing concept but also the students are trying to find the concept. The science learning process should be implemented scientifically to foster the ability to think, work and be scientific and communicate it as an important aspect in life.

Science education in primary schools is generally associated with experiments that require skills, crafts, ways of thinking, how to solve and discover problems. Science is considered an accumulation of various knowledge that has been discovered since ancient times until the discovery of a very new knowledge. Knowledge in the form of facts, concepts, theories, and generalizations that explain about nature (Sumaji, 2003).

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

Science education should be directed to find out and do so that students gain direct experience and a good understanding of the natural around. Given the importance of science education objectives, the quality of the results should be improved. However, to obtain improvement in learning outcomes is not easy because many factors that affect it, both internal and external factors.

Based on the students' learning outcomes of science in identifying solid, liquid and gases have certain properties, indicating a low average score of 64.91. This score indicates that the average score of the students is included in the lower class, indicating that the concept understanding is only well understood by some students

One of the teacher's efforts to improve the quality of learning is through reflection on the relevance of the design and learning process that has been done. If the lessons developed are more oriented toward the achievement of the objectives, then the substance of reflection tends to be oriented to it, so the problems related to process diversity, obstacles, and learning paths of students may not be the main substance of the reflection (Suryadi, 2010).

Reflection is an attempt to assess what has happened and does not happen, what has been produced or has not been successfully completed with the corrective action that has been done. From the results of reflection, the teacher can note the various deficiencies that need to be improved, so that can be used as a basis in the preparation of a re-plan (Sanjaya, 2013). Reflexology by studying, viewing and considering the results or impacts and actions, weaknesses and lack of results or data obtained for analysis which is then used as a reference to improve action in the next cycle (Lazim, Aldriyanti, Alpusari, Hermita, & Mahbubah, 2018).

The results of reflection were used to establish further steps, efforts to achieve learning objectives. In other words reflection is an assessment of the success or failure in achieving goals and to determine follow-up in order to achieve various other objectives. The purpose of reflection is to examine, reflect again, to see whether the learning process and learning outcomes in the first cycle have the same expectations. If anything is not appropriate, what activities should be improved (Sanjaya, 2013).

These problems can be addressed through a learning activities that positions the teacher only as a facilitator, namely the condition where the role of teachers is limited to directing students to follow activities in accordance with the planning to achieve learning objectives. This will condition students more actively in seeking information to gain an understanding of their own concepts. The lesson used should also be able to overcome the problem where the student is difficult to express the problem in understanding a matter or issue to the teacher. The results of the review will provide an overview to find various issues that require further action (Sanjaya, 2013).

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

The inquiry learning model is a cycle of learning activities that emphasize the critical and analytical thinking process to seek and find the answer to a question in question (Hamdayama, 2016). Science learning with inquiry learning model can bring learners to realize what has been gained after study because inquiry is basically a way of realizing what has been experienced so as to require learners to think analytically and critically.

Inquiry learning model in principle emphasizes that the students will be directly involved in the teaching and learning process, so that the learning process will be centered on the students. Students should be given the motivation to start the inquiry process while the teacher can position himself as the creator of the problem situation and respond to the inquiry process shown by the students and expand the student inquiry process by developing the type of information obtained by the students. Implementing inquiry learning model can help students to integrate prior knowledge concepts with events they observe and can change the misconceptions that students experience into scientific concepts (Mustachfidoh, Private, & Manik, 2013).

Implementing inquiry learning model will take place the students with the activity that is in the form of motion and communication. Learning activities are activities that are physical and mental. The activities that are in inquiry learning in science are orientation, formulate problems, propose hypotheses, collect data, test hypotheses, and formulate conclusions.

In doing the action, the teacher reflects to see the shortcomings in the learning process. Teaching reflection by teachers through a series of integrated activities and in other programs is a heart for learning improvement (Putra & Hermita, 2018). As research conducted by some researchers as an effort to improve the quality of learning. Among others, using mentoring methods to teachers as stated by Appleton (2008), Hanucsin (2011) and See (2014) all show satisfactory results, as well as those studied by Hudson (2013) which makes prospective teachers as subject satisfactory result.

According to Korthagen (2001) emphasizes the importance of promoting the ability of reflective thinking teachers in teachers' education programs, because reflective thinking helps to prevent pre service from settling on traditional education patterns in schools (Putra & Hermita, 2018). Because doing reflection at each meeting when the assessment of the learning process can make changes for the better.

This research aims to explore the prospective teachers activities to enhance teachers' teaching skills utilized inquiry by perform reflective collaborative activities between teachers, coaches and prospective teachers.

2. METHOD

This research used qualitative research method and descriptive research type. Qualitative research is a study to understand the phenomenon

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

of what is experienced by the subject of research by way of description in the form of words and language based on observations, and qualitative research is more descriptive in which the data collected in the form of words or images, so as not to emphasize the number (Sugiyono, 2014).

This research uses qualitative research method and descriptive research type. Qualitative research is a study to understand the phenomenon of what is experienced by the subject of research by way of description in the form of words and language based on observations, and qualitative research is more descriptive in which the data collected in the form of words or images, so as not to emphasize the number Sugiyono, 2014).

This research was conducted in one of elementary school in Pekanbaru on April-May 2018. To know how the students' level of understanding on on heat concept that exist in the environment around and its properties through experiment. Subjects in this study were students of one primary school in Pekanbaru which amounted to 22 students, consisting of 13 girls students and 9 boys students.

Technique of collecting data in this research is by using video teaching and observation sheet. In this research, researcher implemented inquiry learning model. This study process done through learning pre service elementary school teacher and during the learning process recorded video from beginning until the end of learning. For reflection with coach 1 is done after the lesson ends. Next reflection with coach 2 is done by viewing the teaching video. For the observation sheet used as data collection is filled by coach 1 during the learning process takes place.

3. RESULT AND DISCUSSION

Based on the results of the research with coach 1 and coach 2, after the learning process at the first meeting, there are shortcomings in terms of both teachers and students. When the learning took place coach1 observed that at this first meeting the teacher was still lacking in learning activity and not optimal yet because there are many students who pay less attention to the teacher and at the time of teaching and experimenting. "The mastery of the class is still lacking because the children like not focus on teaching learning activity. And not all children participate in doing group work. "said observer. Then according to coach 2 that at the first meeting," Should formulate the problem is students, teachers only show images and students who formulate the problem. "Said coach 2. Coach2 said again, "The image media is less effective if only one is held by the teacher, too much time to devote the students' seats for group experiments, the students do not focus in the learning because of the intonation of the voice, the movement is still relaxed and only focus in front class without seeing and approaching table s students and must respond to students who present their group work."

At the second meeting the activities of teachers have started to increase from previous meetings with

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

good category where class satisfaction has started good from previous meetings, but there are still shortcomings such as when children answer questions from teachers cultivated one-on-one not simultaneously, when students correctly answer the teacher should give the reaction of expression by saying good, body language in delivering lesson lesson, in adjustment of classroom arrangement when student group discussion, giving responses to the students who presented the result of group work in front of the class, giving the result of the assessment to the student work and giving the reinforcement and conclusion. Student activity also increases with good category. But there are still deficiencies that students are less able to find the problems in accordance with the material and level of knowledge, then in expressing the findings, presenting the results of group work and in concluding the learning.

At the first meeting understanding on heat concept have been able to do orientation well and the implementation of learning by teachers more freely and has run smoothly compared with the learning process activities on the understanding of the concept of heat energy. According to the coach 2 "the teacher has wide ranging movement in teaching because it is more familiar and the students are more orderly than previous meetings because they already know." Although in the process of learning there are obstacles that come from outside the classroom is the sound of music that slightly disrupt the learning process but teachers have been able to implement the learning well. This can be seen from the teacher and student observation sheet. Students can follow the learning well, can present their group results well and make the conclusion of the lesson through an image that describes the learning.

The improvement of the first meeting reflection on the understanding of the concept of sound energy for subsequent meetings is from the Student Worksheet that has been improved for a lesson that can be better than before.

At the second meeting the results of the reflection of the two meetings have been good, this can be seen from the observation sheet of teachers and students who have been implemented on learning understanding the concept of sound energy. Teachers are able to master the class well viewed from the interaction of teachers with students while teaching and feedback given teachers while teaching. The teacher has performed well with the improvements that were given while teaching. Students are more active and can be arranged in the learning process, student cooperation in the group improved and dared to present the results of group work in front of the class.

Judging from the above reflection that the researcher did not continue in the next cycle, this is because student learning outcomes have increased so that no more improvements that must be improved because the teacher has done the action well.

Printed in Indonesia
ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

1. Teacher Activity

Based on the reflexes made by prospective teachers to give impact on teacher activity that can be seen from the observation data observation of teacher activity during the learning process understanding the concept of heat energy and sound energy with the application of inquiry learning model in class IV. To see the increase in teacher activity can be seen in Fig 1.

Based on Fig 1. it can be seen that the heat concept concept of heat at the first meeting, the activity of teachers gained 58.3%. At the second meeting it increased to 66.6%. According to prospective teachers who do research the learning process that has been done in the class is good but according to coach 1 it is still lacking. In understanding the concept of energy sound the first meeting of teacher activity to 75% with. The second meeting increased to 87.5%. So the activity of teachers during the learning process takes place from the understanding of the concept of heat energy and sound energy has increased. This is an improvement because teachers make mistakes during learning through reflection in every meeting.

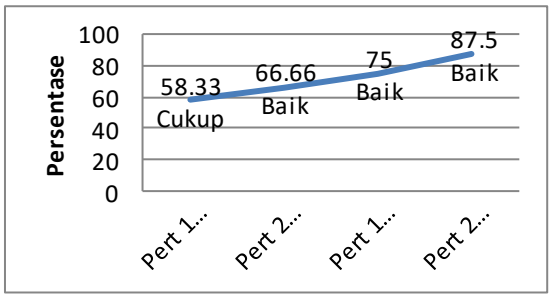

Fig 1.The Result of Observation of Master Activity

2. Student Activity

Students' activities during the learning process take place through the inquiry learning model can be seen in graphs such as the following:

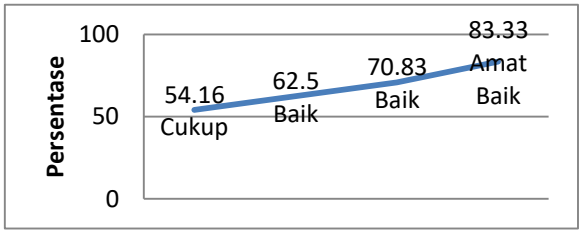

Fig 2. Result of Student Activity Observation Sheet

Based on figure 2.dapat seen dampaak given during the reflection on student activities during the learning process has increased. In understanding the concept of heat energy the first encounter of student activity is 54.16%. Furthermore, at the second meeting to 62.5%. In

Printed in Indonesia
ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

understanding the concept of sound energy, the first meeting of student activity increased to 70.83%. At the second meeting the student activity increased to 83.33%. This is because the application of inquiry learning model gives students the opportunity to formulate the problem of planning data to make an explanation and communicate the results of his observations. Of these activities students will be more daring, because it grows own curiosity problems that exist.

3. Student Learning Results

Understanding of students on science lessons improves because of direct activities, this is in accordance with the opinion of Suryono Subroto learning outcomes pursued by learning activities (in Novi Iryani, et al (2014)). Here is a comparison of student learning outcomes on science learning before and after action using inquiry learning model, the results can be seen from the graphic image below:

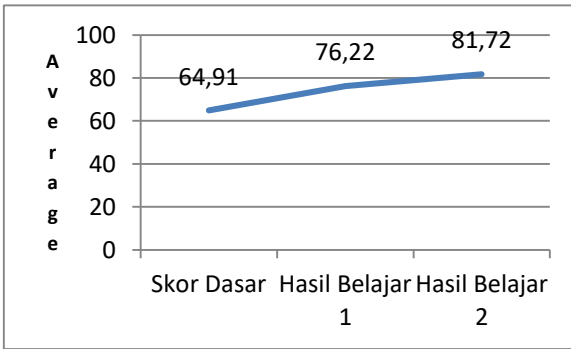

Fig 3. Data of Student Science Learning Result

Judging from the score of learning outcomes on the understanding of the concept of heat energy and understanding the concept of sound eergy has increased where the average base score of 64.91 is categorized enough, there is an increase in learning outcomes understanding the concept of heat energy to be 76.22 is categorized well. From the average of learning outcomes understanding the concept of heat energy to understanding the concept of sound energy also increased. The learning result of understanding the concept of sound energy by obtaining the average value of 81.72 is categorized very well.

1. Conclusion and Recommendation

Based on the results and discussion, it can be concluded that the reflection conducted in this study is more to the pedagogy of the classroom management rather than understanding the concept by students. Through good classroom management will have an impact on the students in understanding the concept well this is evidenced by the increase of students' science learning outcomes as well as teacher activities and student activities

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

in lessons learned at every meeting. Due to the reflection made by prospective teachers, prospective teachers will always improve themselves at every meeting and the quality of education can be increased from before.

Based on the results of research conducted the researcher gave suggestions for during the learning process in the management of students prospective teachers can accept criticism and suggestions and reflect themselves what is the deficiency in the learning process so that the ability to teach can increase for each meeting. Implementation of the inquiry model in the actual learning of the teacher already understand and understand well the concept of inquiry model itself so that the classroom management in teaching which is the main thing in improving the ability of teaching prospective teachers.

REFERENCES

Aho, L., Huopio, J., & Huttunen, S. (1993). Learning science by practical work in Finnish primary schools using materials familiar from the environment: A pilot study. International Journal of Science Education, 15(5), 497–507.

Appleton (2008) Developing Science Pedagogical Content Knowledge Through Mentoring Elementary Teachers Jurnal Science Teacher Education http://people.stfx.ca/x2011/x2011tqj/Appleton2008*PCK*.pdf

Beerer, K., & Bodzin, A.M. (2004, January). Promoting inquiry-based science instruction: The validation of the science teacher inquiry rubric (STIR). Paper presented at the 2004 Association for the Education of Teachers of Science (AETS) Annual Meeting, Nashville, TN. Retrieved from http://www.lehigh.edu/~amb4/stir/aets2004.pdf

Campbell, D.T., & Stanley, J.C. (1963). Experimental and quasi-experimental designs for research. London: Houghton Mifflin Company Boston.

Chang, C-Y., & Mao, S-L. (1998, April). The effects of an inquiry-based instructional method on earth science students' achievement. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA. Retrieved (ERIC Document Reproduction Service No. ED418858)

Chin, C., & Kayalvizhi, G. (2005). What do pupils think of open science investigations? A study of Singaporean primary 6 pupils. Educational Research, 47(1), 107–126

Fraenkel, J.R., & Wallen, N.E. (2005). How to design and evaluate research in education (6th ed.). Milan: McGraw-Hill.

Hamdayama, Jumanta. (2016). *Metodologi Pengajaran*. Bumi Aksara. Jakarta

ISSN (Print) : 2615-4528
ISSN (Online) : 2622-3023

Hanuscin D.L., Menon, D., Lee. E J, dan Cite, S. (2011) Developing *PCK* Teaching Teacher Through a Mentored Internship in Teacher Professional Development *The2011 Meeting of The Association For Science Teacher Educational*

Hudson, P. (2013). Strategies for mentoring pedagogical knowledge. Teachers and Teaching: Theory and Practice.

Jumiati, dkk (2011). *Peningkatan Hasil Belajar Siswa Dengan Menggunakan Model Numbereds Heads Together (NHT) Pada Materi Gerak Tumbuhan Di Kelas VIII SMP Sei Putih Kampar*. Jurnal Lectura. Vol 02

Korthagen, F. (2001). Linking practice and theory: The pedagogy of realistic teacher education. New Jersey: Routledge.

Lazim, Aldriyanti, Novi, Alpusari, Mahmud. (2018). *Utilizing Cooperative Learning Model Types Make A Match To Promote Primary Students Achievement In Science.* Journal of Teaching and Learning in Elementary Education.

Mustachfidoh, Swasta, Widyanti. (2013). *Pengaruh Model Pembelajaran Inkuiri Terhadap Prestasi Belajar Biologi Ditinjau Dari Intelegensi Siswa SMA Negeri 1 Srono.* Vol 3. E-Journal Program Pascasarjana Universitas Pendidikan Ganesha.

Novi Iryani, Alpusari, Munjiatun. (2014). *Penerapan Model Pembelajaran Inquiri Untuk Meningkatkan Hasil Belajar IPA Siswa Kelas III SDN 013 Basilam Baru.* Jurnal Pendidikan Dasar. FKIP. Universitas Riau

Putra dan Hermita. (2018). *Refleksi : Upaya Peningkatan Kemampuan Mengajar Calon Guru.* Jurnal Pendidikan Dasar. FKIP Universitas Riau.

Sanjaya, Wina. (2013). *Penelitian Tindakan Kelas*. Kencana Prenada Media. Jakarta.

See N. L. M, (2013) Mentoring And Developing Pedagogical Content Knowledge in Begining Teachers *Procedia - Social and Behavioral Sciences 123* (2014) 53 – 62 1877-0428 Published by Elsevier Ltd.

Sugiyono. (2014). *Metode Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung :Alfabeta

Sumaji, dkk. (2003). *Pendidikan Sains Yang Humanistis.* Yogyajakarta. Kanisius

Suryadi, D. (2010). *Penelitian Pembelajaran Matematika Untuk Pembentukan Karakter Bangsa.* Makalah dipresentasikan pada Seminar Nasional Matematika dan Pendidikan Matematika.

Suryadi, D. (2010). *Penelitian Pembelajaran Matematika Untuk Pembentukan Karakter Bangsa.* Makalah dipersentasikan pada Seminar Nasional Matematika dan Pendidikan Matematika