Local Wisdom Based Practicum on Discovery Learning Model

Nira Listyawati[1,*], Miarti Khikmatun Nais[2], RizqaNurul Hidayanti[2], Yayuk Wulandari[2]
[1]SMK Negeri 1 Cangkringan
Sintokan, Wukirsari, Cangkringan, Sleman, Yogyakarta, *email: niralistya@gmail.com
[2]Program StudiPendidikan Kimia, Program Pascasarjana, UniversitasNegeri Yogyakarta

Abstract

Practicum is very important activity in science subjects, especially on chemistry. Practicum carried out in schools rarely take advantage of local genius. Whereas the potential of Sleman district especially in agriculture is very much. This study aims to determine the effectiveness of local genius based practicum on discovery learning in terms of vocational high school students' achievement. The form of this research is quasi experimental research with pretest-posttest control group design. This study consists of two stages including analysis of class conditions and implementation. The sample of research consisted of students of vocational high school majoring in chemical analysis of class X as much as two classes. The experimental class carried out the practicum using local genius materials in Sleman District with the discovery learning. While the control classes carry out practicum with commonly used materials. The data analysis technique used is t-test. Based on the results of data analysis, the application of local genius-based practicum on discovery learning is considered more effective seen from the learning achievement of students experimental class is better than the control class.

Key words: practicum, local genius, discovery learning

Introduction

Practicum is one of the most effective learning model to get all knowledge area simultaneously, among others, to train the theory to be applied to real problems (cognitive), to train the activity planning independently (affective), and to train the use of instruments (psychomotor) Rahayuningsih, 2005). One of the advantages of practicum is students can practice in trial and error, can repeat the same activities or actions until have completely skilled (Sumiatun, 2013). By practicum students gain experience and skill in doing practicum, enhancing the participation of students either individually or group, students learn to think through principles of scientific model or learn to work based on scientific model (Djamarah, 2010). Based on the observation, the implementation of the school practicum is not optimal. Innovation in practicum is still rare. Based on interviews, students want more innovative learning.

Local wisdom is a form of environmental wisdom that exists in social life in a area. Local wisdom is all forms of knowledge, belief, understanding or insight and

customs or ethics that guide human behavior in life in the ecological community (Keraf, 2002). Sleman has many potentials in agriculture such as cow's milk, soybean and green beans. Unfortunately, learning in schools especially in vocational school less attention to local potentials.

Bruner (Kemendikbud, 2013: 4) suggests that learning will work well and creatively if the teacher gives opportunity to discover a concept, theory, rule, or understanding through the examples encountered in students' life. The use of discovery learning, can change the passive conditions become active and creative learning, teacher oriented learning to student oriented learning, expository mode (students only receive the overall information from teacher) to discovery mode (students find information by self).

Vocational High School (SMK) is a level of education that aims to make students competent in their fields. In line with the purpose of education in SMK, this research tries to provide innovation on the implementation of practicum in SMK by integrating local genius with discovery learning. The purpose of this study is to know the effectiveness of local genius based practicum on discovery learning in terms of SMK students' achievement

Method

This study is a quasi-experimental model with pretest-posttest design. This research consists of two stages: analysis of class condition and implementation. The analysis of classroom conditions is done by observing the implementation of learning in classroom and interviewing the students. Implementation stage includes pretest, treatment, and posttest. Pretest is done at the beginning of the study to determine the early ability of students about the subject matter to be studied. Treatment in the form of learning with local genius based practicum on discovery learning. The steps of discovery learning are stimulation, problem statement, data collection, data processing, verification, and generalization (conclusions). Postest is done at the end of the study to determine the ability of students in mastering the material that has been studied.

This research conducted at SMK Negeri 1 Cangkringan on October 2016 until November 2016. The samples involved in the study: class X students of

Chemistry Analysis (XKA) as much as 2 classes (62 students) consisting of experimental class and control class. The experimental class use materials that potential local such as cow / goat, soy, and green beans. The model used is discovery learning that facilitate students to explore and find knowledge by self. While, the control class does the practicum with the usual procedures and the practicum implementation is directed by the teacher.

Instruments used in this study include observation and interview guidelines, and test to measure students' achievement. The data obtained in this study are pretest and posttest. The difference between the pretest and posttest results will be used to determine the improvement of students' achievement by determining N-Gain of each class. Furthermore, the obtained N-Gain values were analyzed using the t-test (independent sample t-test). The analysis is used to determine if there is a significant difference in the students' achievement on chemistry that apply local genius based practicum on discovery learning.

Result and Discussion

This research is about the implementation of practicum in SMK on microbiology subjects with discovery learning by integrating local genius. This study was conducted to consider the effectiveness of local genius based practicum on discovery learning model in terms of students' achievement, from the value of pretest and posttest. The test is done by giving 20 items of multiple choice questions. Implementation of local genius based practicum on discovery learning is considered effective if there are significant differences of students' achievement. This research uses XKA 1 class as control class and XKA 2 as experiment class in SMK Negeri 1 Cangkringan. The experimental class uses discovery learning based on local genius, which is a practicum using materials that become local potency in Sleman as the material of making yogurt that is soybean, green bean and cow milk. While in the control class carry out practicum with materials commonly used to product yogurt cow's milk.

Based on the result of research there are significant difference between control class and experiment class seen from pretest and posttest score. The average in the control class before treatment 60.32 increased to 76.12 after treatment. While the

average in the experimental class before treatment 60.16 increased to 81.61 after treatment. The average N-Gain value for the control class is 0.39, while for the experimental class 0.54. The value of N-Gain obtained in the analysis using t-test (independent sample t-test) with significance level of 5%.
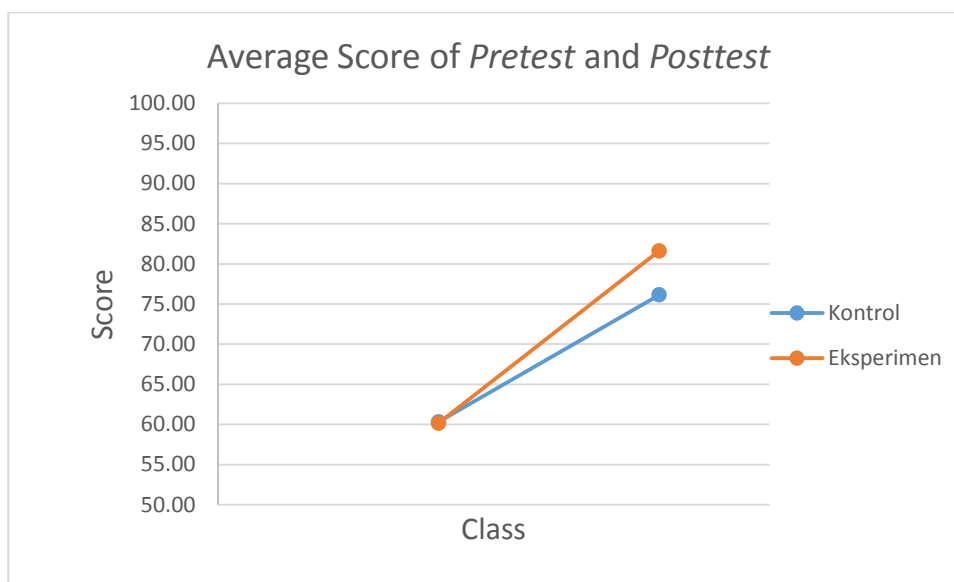

Fig. 1. Average Score of Pretest dan Postest

Based on the results of the analysis using the t-test obtained value significance (2-tailed) of 0.014. The sig. (2-tailed) value is smaller than the level of significance, so there is a significant N-Gain difference between control class and experimental class. Therefore, local genius based practicum on discovery learning is effective in learning. It is based from students' achievement.

Implementation of local genius based practicum on discovery learning gives a positive effect on the improvement of students' achievement. Practicum that integrate local potentials can enhance students' enthusiasm in learning because the materials used are the materials they often meet. Utilization of local potential in practicum also raises awareness of students that the surrounding materials can be processed into products that have value to sell. In addition, discovery learning requires students to actively find concepts or materials by self. Students can do the practicum with different materials and variables, discover concept of the results from their work. This process provides a more memorable experience so

knowledge that they find will be stored longer. Therefore, students' achievement can increase.

Conclusion

Based on the results, implementation local genius based practicum on l discovery learning and data, can be concluded that there are differences in students' achievement between class X KA 1 and X KA 2 SMK Negeri 1 Cangkringan. From the results of hypothesis testing obtained value significance (2-tailed) is smaller than the level of significance. So practicum with discovery learning model is considered effective than the practicum done in general, it is seen from the average value of students' achievement that more than the minimum mastery criteria.

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