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Implementation of the Experiential Learning Model: an Alternative Solution to Improve Chemistry Learning Outcomes of Vocational Students

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Abstract: Implementation of experiential learning model: an alternative solutions to improve chemistry learning outcomes in the vocational field. **Objectives:** This classroom action research was aimed to improve students' chemistry learning result through experiential learning model. **Methods:** The study was conducted in two cycles, each cycle consisting of two meetings. **Findings:** Improvement of student learning outcomes can be seen from the mean score of student learning outcomes before the action done (T_0) of 71,23 with mastery learning 42,86%, an increase in 1st cycle (T_1) to 77,74 with mastery learning 62.86% and in 2nd cycle (T_2) increased to 84,23 with learning mastery 85.71%. **Conclusion:** The experiential learning model had a positive impact if it was implemented in classroom learning activities. The experiential learning model could be an alternative solution to improve the quality of learning and school quality.

Keywords: Classroom action research, experiential model, chemistry learning outcomes.

Abstrak: Implementasi model pembelajaran ekperiensial: sebuah solusi alternative untuk meningkatkan hasil belajar kimia siswa kejuruan. ***Tujuan:*** *Penelitian tindakan kelas ini bertujuan untuk meningkatkan hasil belajar kimia siswa dengan menerapkan model pembelajaran eksperiensial.* ***Metode:*** *Penelitian dilaksanakan dalam dua siklus, masing-masing siklus terdiri dari dua kali pertemuan.* ***Temuan:*** *Peningkatan hasil belajar siswa dapat dilihat dari rata-rata hasil belajar siswa sebelum dilakukan tindakan (T_0) 71,23 dan ketuntasan hasil belajar siswa 42,86%. Terjadi Peningkatan siklus I (T_1) skor hasil belajar 77,74 dengan ketuntasan siswa sebesar 62,86%. Siklus II skor hasil belajar 84,23 dengan ketuntasan hasil belajar siswa meningkat menjadi 85,71%.* ***Kesimpulan:*** *Model pembelajaran eksperiensial berdampak positif jika diimplementasikan pada kegiatan pembelajaran di kelas. Model pembelajaran eksperiensial dapat menjadi solusi alternatif untuk meningkatkan kualitas pembelajaran dan mutu sekolah.*

Kata kunci: *Penelitian tindakan kelas, model pembelajaran eksperiensial, hasil belajar kimia.*

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INTRODUCTION

Application of Experiential Learning Models: Alternative Solutions for Improving Learning Outcomes of Chemistry Learners in the Field of Vocational Interest in important students is improved. Budi, Yamtinah & Redjeki (2013) argue that interest is directly proportional to student learning outcomes, learning outcomes are high if accompanied by high interest. Interest is similar to intelligence and motivation because it influences the learning activities of students (Cleary & Kitsantas, 2017; Renninger, Hidi, Krapp, & Renninger, 2014; Baharuddin & Wahyuni, 2010). Azhari & Alexandro (2015) argue that interest is a psychological aspect in the form of cognitive and affective which encourages students to take part in learning. Interest will arise if it is preceded by knowledge gained through experience or interaction with the environment, while in the affective aspect shows the level of emotion in the form of the process of determining learning activities that are liked or not.

Findings obtained in preliminary research using interview with chemistry teachers of Vocational High Schools in Palembang Indonesia indicated that students were more concerned with vocational subjects than chemistry subjects so that students' interest in learning chemistry is low, the low interest of students has an effect on learning outcomes as evidenced by the low percentage of students who achieve learning completeness of 42.86%, minimum completeness criteria for chemistry subjects was 75 with lecture learning methods and discussions, students' initial assumption that learning in Vocational Schools focuses on vocational practices alone causes participants to be less interested in and exclude chemical subjects, learning outcomes of students who do not achieve classical completeness are also caused by the difficulty of students to associate previous learning experiences with the material being studied because students have forgotten. Learning using an experiential model on chemistry subjects is expected to overcome the above problems.

Experimental learning has been proven to encourage students to construct their own knowledge from the experiences they experience (Lebrón & Tabak, 2018; Zhai, Gu, Liu, Liang, & Chin-Chung, 2017). Utami (2013) reported that the application of experiential learning models made active students and students able to assimilate and accommodate knowledge from the experiences they experienced. Umaedi in Suharto (2012) argues that in experiential learning, students experience what is learned, integrate with real situations, and associate existing experiences with life. Research on experiential learning models has been conducted (Huang, Chen, & Chou, 2016; Kiili, 2005), including classroom action research by Warsito (2015) who reported that student learning outcomes can be improved by using experiential learning models. Increased learning outcomes occur from the first cycle of 65% to 82.08 in the second cycle. The percentage increase in class learning outcomes from cycle I to cycle II was 16.6%. The increase in learning outcomes is due to the application of experiential learning can increase learning interest seen in the affective aspects in the first cycle of the first meeting amounted to 61.45% to 91.66% at the last meeting in cycle II. The experiential learning model emphasizes the learning process, which uses life experiences in learning and creates a pleasant and conducive learning atmosphere so as to increase students' interest in learning. However, the application of the experimental model to learning in Chemistry subjects has not been done much, especially in stoichiometric material.

The formulation of the problem in this study is how to increase the learning outcomes of chemistry of students through the implementation of experiential learning models in the class XSMKN 4 Palembang. Limitation of the problem in this study is that the learning outcomes seen are cognitive and affective aspects. Cognitive aspects are seen from the results of student learning tests while the affective aspects are seen from the results of the questionnaire interest in learning. The purpose of this study is to apply an experiential learning model to describe improvement of students' chemistry learning outcomes at Vocational High School in Palembang, Indonesia. The results of this study are expected to provide benefits to tutors as information about planning and implementing experiential learning models on chemical subjects to improve student learning outcomes; the implementation of experiential learning models is expected to have a positive impact on students' chemistry learning outcomes; as a solution to overcome learning problems to improve the quality of learning and school quality; can increase knowledge

■ METHODS

Sample and Procedure

This research was classroom action research conducted collaboratively between researchers and teachers who teach tenth graders in chemistry subjects at vocational high school in Palembang, Indonesia, that was XTITL1 class of SMKN 4 Palembang. Recent studies of classroom action research were widely invesitigated(Sulimah, Sulitya, & Fitri, 2018; Anggaraeni, 2018). Action research conducted in this research was a form of self-reflective inquiry carried out by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of the practices and practices that are carried out (Carr & Kemmis, 1986). The study was conducted in two cycles, each of which consisted of two meetings with the activity stage, namely concrete experience, observation and reflection, abstract conceptualization, and active experimentation. Each cycle consists of four stages, namely planning, action, observation, and reflection. The study was conducted from November 2017 - May 2018. Data was collected from April 11, 2018 - May 9, 2018. The study was conducted collaboratively with tutor teachers at Palembang Vocational High Schools. The research subjects were 35 students with a ratio of 28 male students and 7 female students.

The steps of the research carried out consisted of the stages of research preparation, conducting research, and reporting research. The research preparation began from a preliminary study to Palembang 4 Vocational High School through preliminary observation and interviews with the chemistry teacher at SMKN 4 Palembang to obtain data on the characteristics of students, schools, learning achievement, and problems faced by teachers and students on chemistry subjects. The results of preliminary observations and interviews were analyzed to obtain alternative solutions to problems which were then continued to the preparation of the learning instruments and instruments applied. The stage of the implementation of the study aims to retrieve data on learning outcomes of students in class X of SMK 4 Palembang. The results of the research data are then analyzed, described, and interpreted to obtain conclusions. Reporting of research results can be used as information and input material for tutor teachers to improve the quality of the learning process, besides that other researchers can also use the reporting of research results as input and references in conducting research.

Data Analysis

Measurement and assessment in learning can be done with test techniques in the form of assignments to work on certain questions or problems made by the teacher (Sudijono, 2012). The test in this study was used to measure students' understanding of the chemical concepts after participating in experiential learning. Written tests in the form of multiple choices totaling 15 questions will be used as a measure of learners 'knowledge at the end of each cycle so that the results of the final cycle test are obtained by the cognitive aspects of the students' data. Questionnaire was an instrument for measuring affective given to students as respondents (Riduwan, 2013). Questionnaire research is used to measure the affective of students, especially the interest in learning chemistry of students. Giving questionnaire interest in chemistry learning is carried out before the implementation of cycle 1 actions and at the end of each cycle. The process of collecting observational data or sequential recording in learning of the aspects observed in accordance with the dexriptor that appears in the rubric is referred to as observation (Sudijono, 2012). The activities of students during the learning process can be known through observation. Observation activities in this study were carried out using research instruments namely observation sheets and assisted video camera tools.

Analysis of test data for classroom action research will be conducted from the beginning of the study until the end of the data collection activities. Student learning completeness is analyzed by using descriptive analysis by calculating the percentage of completeness of student learning outcomes. Students are considered complete if the value of students is> 75, while class learning completeness is achieved if e"85% of students have reached the criteria for completing drinking. The test results of students from each learning cycle were analyzed to obtain the average value of learning outcomes. The instrument used to collect observation data is the observation sheet. The activities of students in groups during the learning process will be based on descriptors that appear on the observation sheet (Sudjana, 2012). Analysis of questionnaire data in this study using a Likert scale with the response option strongly agree, agree, quite agree, disagree, and strongly disagree. According to Amir (2015), the Likert scale is a declarative statement followed by option choices that indicate various degrees of agreement on one statement, which has five response choices indicating a continuum of disapproval and agreement. The maximum weight score of each statement both positive and negative is 5. Calculation of the average questionnaire results from each learning cycle was analyzed by descriptive analysis technique by calculating the percentage of each item.

RESULT AND DISCUSSION

This study consisted of two cycles, each of which consisted of two meetings. The first cycle studied the topic of voltaic cells and corrosion. The second cycle studied the topic of electrolysis and Faraday's Law. Tests of learning outcomes and measurements of interest are carried out at the end of each cycle.

1. Pre Cycle Research

Data on student learning outcomes before action (T0) is taken from the daily test scores of students on the topic of Stoichiometry. The learning completeness analysis showed that only 42.86% of students completed. Meanwhile, 57.14% are in the incomplete category. The average pre-cycle learners' cognitive learning outcomes were 71.23. This shows that there needs to be treatment applied in the classroom to improve student learning outcomes and classical learning completeness

2. Cylce I Research

The cognitive learning outcomes of students from the pre-cycle to the first cycle have increased. This is indicated by the percentage of participant learning completeness increased to 62.86%. Improving student learning outcomes in cycle 1 is also indicated by the average learning outcomes which increased to 77.74. However, the learning process in cycle 1 shows that the completion of classical completeness has not yet been achieved, it is necessary to take corrective actions in the learning process in the next cycle. The weakness of learning in cycle 1 is that students do not write down their observations and reflections on the reflective observation stage in the STUDENT WORKSHEET so that students have difficulty communicating the results of their group discussions in front of the class. In addition, the division of groups of students based on seating causes the spread of students with high ability and low ability to be uneven so that learning activities are only centered on groups of highly capable students. Another disadvantage is that the teacher must appoint students to convey the results of the discussion in the active experimentation stage because no students raise their hands to communicate the concepts obtained. The follow-up plan for cycle 2 is based on learning weaknesses in cycle 1, namely the teacher determines the group based on the ability of students so that the spread of students with high and low ability is evenly distributed; the teacher instructs students to write down their observations and reflections on the reflective observation stage using student worksheet; The teacher gives an instruction to write the results of the discussion in the active experimentation stage in the column that is already available in the student worksheet and then randomly selected students present it in front of the class. Measuring the learning interest of students in cycle 1 was also carried out using a questionnaire instrument. Increased interest in student learning seen from the average score aspects of interest in the questionnaire. Learning interest of students in cycle 1 (T1) amounted to 78.10%.

3. Cycle II Research

Mastery and the average value of learning outcomes of students in cycle 2 also experienced an increase. The completeness of cognitive learning outcomes before action (T0) was 42.86%, increasing to 62.86% in cycle 1 (T1) and becoming 85.71% in cycle 2 (T2). Learning completeness in cycle 2 had achieved classical learning completeness, namely e”85% of students reached KKM with an average learning outcome in cycle 2 which was equal to 84.23, so the study was stopped until cycle 2. Increased completeness and average learning outcomes Cognitive learners throughout the cycle can be drawn in Figure 1.

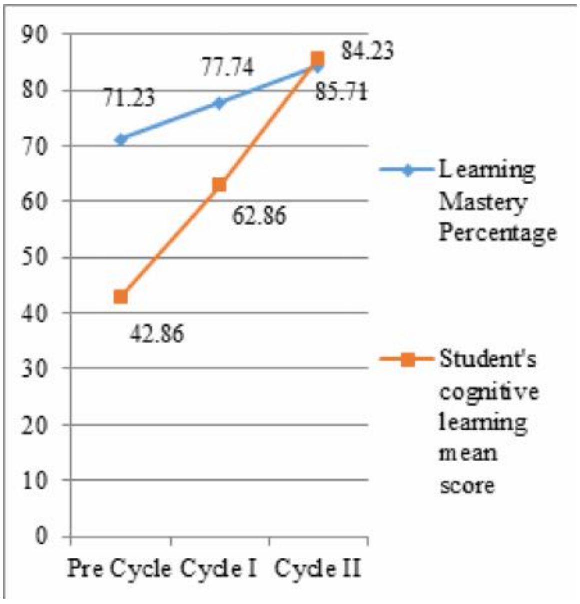

Figure 1. Improvemet of Student’s learning Outcomes

Things obtained indicate an increase in student learning outcomes with the application of an experiential learning model. These results are in line with the results of the latest research that has been done (Johansen, 2017; Agrawal, Nair, Abbeel, Malik, & Levine, 2016). Learning in cycle 2 has been carried out smoothly and quite well. Based on observation data, the results showed that the improvement of action in cycle 1 was carried out well in cycle 2, as evidenced by the observation that students wrote the results of the discussion on the reflective observation stage in the student worksheet and completed it before gathering. In addition, in the activeexperimentation stage each group has written the results of the discussion in the student worksheet. However, there are some obstacles that are lacking in learning in cycle 2. Constraints

Tabel 1. Student's interest in learning of students in cycle 1 and cycle 2.

No.	Interest Aspect	Mean Score	
		Cycle 1 (T_1)	Cycle II (T_2)
1.	Fun in chemistry learning.	3.96	4.13
2.	The meaningfulness of learning material.	3.90	4.00
3.	Attention in participating in chemistry learning.	4.13	4.18
4.	Ability to remember in chemistry learning.	3.46	3.91
5.	Responses during chemistry learning.	3.99	4.33
6.	Willingness to study chemistry.	3.99	4.23
	Total	23.43	24.78
	Score percentage	78.10%	82.61%

faced are the emergence of interactions between students who are outside the topic of learning, this is indicated by situations in which some students chat outside the topic of learning. However, this obstacle can be overcome by alternative solutions, namely the equal distribution of teacher's attention to each student's learning activities, namely the teacher reprimands and reminds students to return to their work so that learning is carried out properly.

Every aspect of student learning interest measured during cycle 2 also indicated an increase (see Table 7). Students' interest in learning in cycle 1 (T1) was 78.10%, increasing to 82.61% in cycle 2 (T2). Based on the interpretation criteria of interest questionnaire scores, the percentage of 82.61% including the learning interest categories of students is very high. Increased learning interest of students in the whole cycle can be seen in Figure 2.

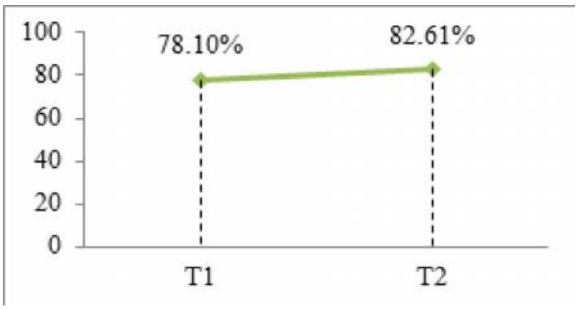

Figure 2. Percetanges of Students' Interest in Cycle I (T1) and Cycle II (T2)

The results of classroom action research conducted show that the implementation of experiential learning models can improve learning outcomes and interest of students in Chemistry subjects. The learning activity phase which contains concrete experience, observation and reflection, abstract conceptualization and active experimentation turns out to be able to improve student learning outcomes as indicated by an increase in the completeness of participants' learning outcomes students, average learning outcomes classically, and students' interest in learning. Learning outcomes of students from cycle 1 to cycle 2 can increase because of the improvement in learning activities in cycle 1. If you see the results of individual learning, not all students experience an increase in each cycle, learning outcomes of students in cycle 1 to cycle 2 there are does not increase individually. The results of the video analysis show the factors causing this. The factors that cause it are students do not really follow the learning process and there are students who do not enter among one of the meetings in cycle 2. Supportive research has been conducted by Nurhasanah (2013) reporting that there is an increase in student learning outcomes through the application of learning experiential because the experiential learning model involves students directly in the learning process, trains students to solve problems and take decisions through group collaboration. Another study conducted by Utami (2013) reported that the application of experiential learning models made active students and students able to assimilate and accommodate knowledge from the experiences they experienced.

CONCLUSION

Based on the research conducted, it can be concluded that experiential learning models can improve cognitive learning outcomes and students' learning interest in Chemistry subjects in stoichiometric material. Improved cognitive learning outcomes of students can be seen from increasing completeness and average learning outcomes of students, which is supported by an increase in students' interest in learning in Chemistry subjects. The average cognitive learning outcomes of students in pre-cycle (T0) amounted to 71.23 with learning completeness of 42.86%, the average cognitive learning outcomes of students in cycle 1 (T1) was 77.74 with learning completeness of 62.86%, and the average cognitive learning outcomes of students in cycle 2 (T2) amounted to 84.23 with learning completeness of 85.71%. mastery learning and the average cognitive learning outcomes of students from. While the interest in learning chemistry was seen from the results of the interest questionnaire in cycle 1 (T1) of 78.10% then increased in cycle 2 (T2) to 82.61%. These results indicate that T0 <T1 <T2. The interest in learning of students in Chemistry subjects also increases in each cycle. Based on the research that has been done, it is recommended for further research to be able to plan and implement experiential learning models in other Chemistry learning materials, because the experiential learning model has a positive impact if implemented in classroom learning activities. The experiential learning model can be an alternative solution to improve the quality of learning and school quality.

REFERENCES

Agrawal, P., Nair, A. V., Abbeel, P., Malik, J., & Levine, S. (2016). Learning to poke by poking: Experiential learning of intuitive physics. In *Advances in Neural Information Processing Systems* (pp. 5074-5082).

Alexandro, R., & Azahari, R, A. 2015. Meningkatkan minat belajar siswa melalui media visual pada materi tentang tindakan ekonomi dan motif ekonomi mata pelajaran IPS kelas VIII.D SMP Negeri 1 Dusun Tengah Kabupaten Barito Timur. *Jurnal Penelitian IPS-FKIP Universitas Palangka Raya*. 2(1): 53-78.

Amir, T. 2015. *Merancang kuesioner: Konsep dan panduan untuk penelitian sikap, kepribadian, dan perilaku*. Jakarta: Prenadamedia Group.

Anggraeni, A. D. (2018). Metode Role Playing dalam Pembelajaran Profesi Kependidikan. *Jurnal Pendidikan Progresif*, *8*(1), 29-35.

Baharuddin, & Wahyuni, E.N. 2010. *Teori belajar & pembelajaran*. Yogyakarta: Ar-Ruzz Media.

Budi, L., Yamtinah, S., &Redjeki, T. 2013. Pengaruh metode pembelajaran Group Investigation (GI) dan minat terhadap prestasi belajar siswa pada pokok bahasan struktur atom dan sistem periodik kelas XI SMAN 6 Surakarta tahun pelajaran 2012/2013. *Jurnal Pendidikan Kimia (JPK)*. 2(3): 10-18.

Carr, W & Kemmis, S. 1986. *Becoming critical: education, knowledge and action research*. London: Palmer Press.

Cleary, T. J., & Kitsantas, A. (2017). Motivation and self-regulated learning influences on middle school mathematics achievement. *School Psychology Review*, *46*(1), 88-107.

Huang, T. C., Chen, C. C., & Chou, Y. W. (2016). Animating eco-education: To see, feel, and discover in an augmented reality-based experiential learning environment. *Computers & Education*, *96*, 72-82.

Johansen, S. K. (2017). Experts in Teams– An experiential learning method. *Exploring Teaching for Active Learning in Engineering Education SDU, Odense, Denmark May 23-24 2017*, 31.

Kiili, K. (2005). Digital game-based learning: Towards an experiential gaming model. *The Internet and higher education*, *8*(1), 13-24.

Lebrón, M. J., & Tabak, F. (2018). Leading in the Real World: Operationalizing a Power-Based Model of Collaboration for Leadership Experiential Learning. *Organization Management Journal*, *15*(3), 110-129.

Nurhasanah, A. 2013. Peningkatan hasil belajar siswa melalui pendekatan *experiential learning* dalam pembelajaran IPA di Kelas V MIS Ma'arif Kauman. *Jurnal Pendidikan dan Pembelajaran.* 2(7).

Renninger, K. A., Hidi, S., Krapp, A., & Renninger, A. (2014). *The role of interest in learning and development*. Psychology Press.

Riduwan. 2013. *Belajar mudah penelitian untuk guru – karyawan dan peneliti pemula*. Bandung: Alfabeta.

Sudijono, A. 2012. *Pengantar statistik pendidikan*. Jakarta: RajaGrafindo Persada.

Sudjana, N. 2012. *Penilaian hasil proses belajar mengajar*. Bandung: Ramaja Rosdakarya.

Suharto, T. 2012. Perbedaan keefektifan model pembelajaran experiential learning, sinektik, dan pengajaran langsung dalam pembelajaran apresiasi prosa fiksi ditinjau dari kecerdasan emosional siswa. *Jurnal Karya Ilmiah IKIP PGRI Madiun*. 17(2): 1-15.

Sulimah, S., Sulitya, D., & Fitri, S. (2018). Improving Students' Learning Achievement Through Think, Talk, and Write (TTW) Learning Mode. *Jurnal Pendidikan Progresif*, *8*(1), 10-17.

Utami. 2013. Pengaruh model experiential learning berbantuan media benda asli terhadap hasil belajar IPA Peserta didik kelas IV SD Gugus 1 Kecamatan Tabanan. *Jurnal Pendidikan Guru Sekolah Dasar*. 1.

Warsito, V. 2015. Penerapan model experiential learning untuk meningkatkan hasil belajar IPA Fisika siswa kelas VII SMP Negeri 5 Palu. *Jurnal Pendidikan Fisika Tadulako (JDFT)*. 3(1): 1-18.

Zhai, X., Gu, J., Liu, H., Liang, J. C., & Chin-Chung, T. (2017). An experiential learning perspective on students' satisfaction model in a flipped classroom context. *Journal of Educational Technology & Society*, *20*(1), 198.