Journal of Education and Learning; Vol. 5, No. 3; 2016
ISSN 1927-5250 E-ISSN 1927-5269
Published by Canadian Center of Science and Education

The Effectiveness of Geography Student Worksheet to Develop Learning Experiences for High School Students

Wiwik Sri Utami[1], Sumarmi[2], I. Nyoman Ruja[2] & Sugeng Utaya[2]

[1] Universitas Negeri Surabaya, Surabaya, Indonesia

[2] Universitas Negeri Malang, Malang, Indonesia

Correspondence: Wiwik Sri Utami, Universitas Negeri Surabaya, Surabaya, Indonesia. Tel: 62-813-3190-7676. E-mail: wiwikutami@unesa.ac.id

Received: June 1, 2016 Accepted: June 23, 2016 Online Published: August 11, 2016

doi:10.5539/jel.v5n3p315 URL: http://dx.doi.org/10.5539/jel.v5n3p315

Abstract

The purpose of this study is to examine the effectiveness of geography student worksheet in developing high school students' learning experiences. The student worksheet was planned to gain opportunity to develop creative and geography skills. The effectiveness is assessed from the contribution of the worksheets in improving the skills of geography, geography learning outcomes, and students' responses in learning geography worksheet. The students' geography skills are considered good, learning outcomes also increased. Worksheet is able to increase the knowledge of learners. The response of student is very good towards geography worksheet, learning becomes active, interesting and not boring.

Keywords: effectiveness, geography worksheet, geography learning experience

1. Introduction

Learning is a form of interaction between the individual and the environment that will give the experience of the real situation. This interaction leads to a series of learning experiences. This is in line with the statement of Burton (2006), which suggests a good learning situation consist of a rich and varied series of learning experiences unified around a vigorous purpose and carried on in interaction with a rich varied and propocative environment.

Learning is a process of giving a learning experience that leads to the achievement of competence of learners. Swan (2005), Koohang (2009) stated that meaningful learning will provide a powerful learning experience. Powerful learning experience will make it possible to improve the interpersonal, intrapersonal and knowledge-related competencies.

The component of the learning which supports the attainment of learning is teaching materials. Merrienboer (1997) stated that teaching materials play an important role in learning, it refers to the function of teaching materials as 1) guidelines for teachers to direct all of its activities in the learning process, as well as a substance competencies that should be controlled by students, 2) guidelines for learners who will direct all activities in the teaching learning process as well as a substance of competence which should be learned and mastered, 3) an evaluation tool of learning outcomes achievement/mastery. Moreover, Chappell and Craft (2009) and Susantini et al. (2016) who stated that student worksheet is part of the teaching materials that can be used to develop thinking skills, asking and answering questions, making connections and assessing the improvement in learning outcomes of students.

Tomlinson (2012) states that the teaching material and worksheets that can develop learning experiences of learners is a device that: is informative (inform the learning objectives), there is a learning strategy (for face to face learning and practice), formulate a clear learning experience, the motivation, the exploration to help learners perform a new discovery in the study. Moreover, Richard (2001) and Tomlinson (2012) state that ideal teaching materials and worksheets are the device that can provide information and learning experience and developed with good design and features.

According to Ausubel (1979), the learning experience will enter into long-term memory and will be the new knowledge if it has meaning. The learning experience is an interaction between the subjects with teaching materials. Ausubel learning theory is very close to the main core of constructivism. Both stressed the importance

of learners' associate experiences, phenomena, and new facts into the sense system that is already held. Both stressed the importance of assimilating new experience or understanding into concepts that already belongs to the learners. Both assume that in learning process, learners are active.

Vygotsky (in Hergenhahn, 2012) states there is a close relationship between the everyday experience with the concept of science (scientific). According to Sihono (2004) there is a qualitative difference between complex thinking and conceptual thinking. Complex thinking is based on the categorization of the object based on a situation whereas conceptual thinking is based on abstract notion. Developing the ability to analyze, create hypotheses, and test everyday experience. This capability is determined by the experience and depending on the specific type of social interaction.

Hansen (2000) and Andersen (2008) state that experience-based learning is a learning process in which students analyze their learning experience by reflecting, evaluating and reconstructing the experience done individualy, in groups or a combination of both. Cohen and Walker (1993), reveal that experience-based learning is identified as the basis of the stimulus of learning, learners are actively building their own experiences, learning is a process that is holistic, learning to build learners social and cultural side, the success of learning is influenced by socio emotional learners.

According to Andersen (2008), experience-based learning is not limited to the method, techniques even approach but as wide and deep as the education itself. This is in line with the opinion of Kolb (1984) and Boud (1993) who states that the experience-based learning has extensive dimension concerning basic experiential learning such as the level of learner control, the degree of correspondence between the learning environment to the real environment, and the degree of involvement of self-learners. Applying the experience-based learning in formal education is closely related to the competency-based curriculum that commonly leads to increase self-concept, greater awareness and other considerations in the learning process.

Hansen (2000) and Andersen (2008) explain that the characteristics of experience-based learning include: 1) experience-based learning requires the involvement of all parties who are directly related to experience-based learning, feelings and senses, 2) active use of all the life experiences of learners is relevant which will be integrated more effectively in learning values and understanding, 3) reflecting further on the experience in order to increase and transform students into a deeper understanding, 4) intentionality design, learning is intentionally designed as a structured learning such as simulations, games, socio-dramas, new inventions, 5) facilitation, learning involves people who have experiences, such as teachers, leaders, therapists who are assumed as facilitators in the learning that allow the negotiation and control of students, 6) assessment of learning outcomes: assessment tasks congruent with experience-based learning including project, read the notes and journals, peer assessment and self-assessment.

Student worksheet can help students understand the material and provide wide opportunity to demonstrate their knowledge and develop process skills (Karsli & Sahin, 2009). Student worksheet can improve the learning success and make students more active and efficient in learning (Trewet et al., 2013; Kibar et al., 2010; Beauchamp et al., 1998). Student worksheet can develop creative thinking skills (Susantini et al., 2016; Bakirci et al., 2011). While Crespo et al. (2010) confirmed that the use of the worksheets in learning can enhance the learning experience of students.

Research Daryono (2011) explains that in a geography lesson, students learn to use the textbook as the only source of learning. Textbooks used mostly only emphasizes the attainment of knowledge. Furthermore Daryono (2011) and Mintowati (2011) stated that during the learning geography simply transfer the existing knowledge in textbooks that are rote. Teacher's less emphasis on achieving geography skills. This is not in accordance with Policies of Ministry of Education and Culture No. 69 in 2013 the demands of the curriculum in force in Indonesia which states that by developing competency achievement learning experiences by providing opportunities for students to develop the ability to act , knowledgeable, skilled, and act.

The research purpose is to determine the effectiveness of the worksheet to develop students' experience in learning geography in the material of distribution of natural resources in Indonesia.

2. Research Method

This study used pre-post test group design. Learners in a classroom tested at the beginning of learning (pre-test) at the end of the lesson given test (post-test) to determine the effectiveness of the worksheet (Cresswell, 2005). Subjects of the study were students of grade XI IIS-1 SMA Negeri 1 Surabaya, totaling 26 people. The study was conducted in odd semester of 2015-2016. The study involved geography subject using worksheet which emphasizes on knowledge, skills and ability to communicate geography information.

Effectiveness of geography worksheet was seen from the response and learning outcomes of students (Susantini et al., 2016). Data collection technique use were written tests, questionnaires and performance. Data on the responses of students were analyzed descriptively. Data related to learning outcomes were analyzed using N-Gain Score with the following formula $(g) = \frac{S_f - S_i}{100 - S_i}$, where S_f is the final score (post) and S_i is the initial score (pre). This study also conducted a descriptive analysis by using the N-Gain criteria according to Hake (1999), namely: 1) Learning with "high-gain", if <g > > 0.7; 2) Learning with "medium gain", if 0.7 > < g > > 0.3; and 3) Learning with "Low gain", if < g > < 0.3.

3. Results and Discussion

Geography learning by using a worksheet that was developed does not only contain material as the transformation of geographic knowledge but also develop the skills of geography. Mastery of the substance of the subject is no longer focused on understanding the concept of sterile from public life but the development of knowledge and skills through learning that emphasizes the experience of learners and are authentic. Mutlu et al. (2015) stated that learning needs to be designed in accordance with the life and experiences of students to help students construct knowledge and skills learned. To improve the knowledge and skills of geography, the material in worksheet also contains facts, data and maps related to the material covered.

The results showed that the worksheet in teaching geography is able to develop the skills of geography as seen in Figure 1. Learning geography with Worksheet shows the geography skills of learners well. This is demonstrated by the average value of 83.46 geography skills. Of the 26 students, 18 students received grades of skills geography > 80.

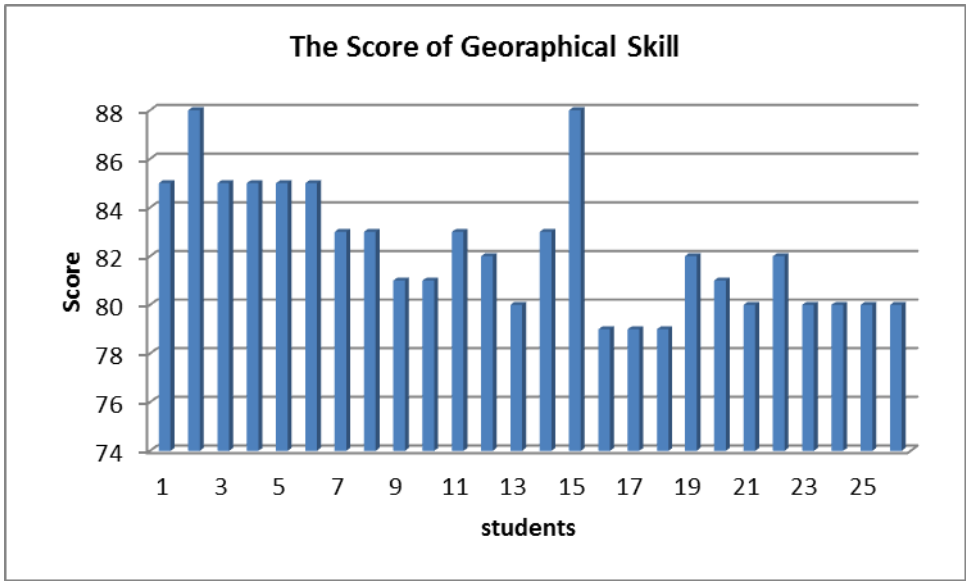

Figure 1. The score of geography skills

Students' knowledge of geography who learn to use the worksheet in which the material is the distribution of natural resources is good. The learning result can be seen in Table 1.

Table 1. Pre-test and post-test score of grade XI IIS 1 SMA Negeri 1 Surabaya

Students	Score		N-Gain	Category
	Pre Test	Post Test		
1	70	85	0.50	Medium
2	55	85	0.67	Medium
3	58	85	0.64	Medium
4	50	85	0.70	High
5	60	85	0.63	Medium
6	43	86	0.75	High
7	45	82	0.67	Medium
8	45	82	0.67	Medium
9	57	82	0.58	Medium
10	52	82	0.63	Medium
11	45	86	0.75	High
12	40	75	0.58	Medium
13	30	80	0.71	High
14	48	86	0.73	High
15	40	80	0.67	Medium
16	40	79	0.65	Medium
17	45	82	0.67	Medium
18	40	79	0.65	Medium
19	40	82	0.70	High
20	35	81	0.70	High
21	35	80	0.69	Medium
22	50	80	0.60	Medium
23	50	80	0.60	Medium
24	40	82	0.70	High
25	45	80	0.63	Medium
26	33	80	0.70	High
Averages	45,81	81,95	0.67	Medium

Source: written test result, 2015.

In teaching Geography at SMA Negeri 1, the average score of the pre-test is 45.81 and the post test score is 81.96, the N-gain score is 0.67. According to the Hake's criteria (1999), the N-gain score of 0.67 is medium category ($0.30 < \text{N-gain} < 0.70$), which means that geography worksheet can improve geographic knowledge of students in Class XI IIS-1 SMA Negeri 1 Surabaya at the medium level.

The average result of pre-test is 45.81 and post test is 81.95. It indicates that the use of the worksheets in learning can improve the knowledge of students. These results are supported by research Karsli and Sahin (2009) which state that the worksheet can be used for learning materials and concepts. Worksheet can also help learners to write shown creative ideas and enhance creativity in learning (Crammond et al., 1990).

The response of students in using the worksheet deals with learning material presentation and worksheet display. Based on the trial results, the responses of SMA Negeri 1 Surabaya students on the worksheet is very good with an average score of 87.84. The response of using the worksheet in this study is 91.39 (very good), the response to the presentation of the material contained in the worksheet is 87.14 (very good), and the response to the worksheet display is 85 (very good), as shown Table 2.

Table 2. Response of student to geography students' worksheet

Aspect	**P1-1**	**P2-1**	**P3-1**	**P4-1**	**P5-1**
Response towards the use of Geography Students' Worksheet **(Maximum score 72)**					
Score	68	64	66	64	67
Percentage	94,44	88,89	91,67	88,89	93,05
Average	91,39				
Response towards the material contained in Geography Students' Worksheet **(Maximum score 28)**					
Score	24	23	25	26	24
Percentage	85,71	82,14	89,29	92,86	85,71
Average	87,14				
Response towards the Geography Students' Worksheet Display **(Maximum score 20)**					
Score	18	18	18	16	15
Percentage	90	90	90	80	75
Average	85				
Response of learners towards students' worksheet: 87,84 (very good)					

Information:

P1-1: Learning first meeting at SMA Negeri 1 Surabaya.

P2-1: Learning the second meeting at SMA Negeri 1 Surabaya.

P3-1: Learning third meeting at SMA Negeri 1 Surabaya.

Etc.

Based on the results of the written test and the response of students for using Geography worksheet with the material of "distribution of natural resources in Indonesia", it can develop students' learning experience. Geography skills demonstrated by the ability to draw a map of the distribution of minerals and the ability to analyze data on potential mineral shows very good score (average of 83.46). Knowledge of students is also good with an average value of 81.95 and a post test worksheet contribution in improving the knowledge of learners in the medium category (gain score = 0.67). This indicates that the worksheet can develop learning experiences of students, increase the activity of learning and thinking skills (Bakirci et al., 2011; Cilkler et al., 2012; Crammond et al., 1990; Ulas et al., 2012). The response of students to use the worksheet is very good because they are more active and interesting. This is according to research by Trewet (2013), which states that learning by using worksheet is not boring.

The results showed that learning geography by using a worksheet got a very good response from the learners. This is shown active learners to express opinions, ask questions, discussion in the group. Data, images and maps in the worksheet also attracted the attention of learners in learning geography.

4. Conclusion

Geography worksheet is effectively able to develop learning experiences of students, especially in the material of "distribution of natural resources in Indonesia". It can be seen from geography skills and learning outcomes which are categorized high. The response of students to the use of the worksheet is also very good because students are more active, interesting and not boring.

References

Andersen, L. (2008). Experience Based Learning. In G. Foley (Ed.), *Understanding Adult Education and Training* (2nd ed., pp. 225-239). Sydney: Allen & Unwin.

Ausubel, D. P. (1979). *Meaningfull Reception Learning and The Acquisition of Concepts* (Chapter 10, pp. 157-175). University Illinois, Urbana, Illinois: Academic Press.

Bakirci, H., Arzu, K. B., & Alper, S. (2011). The Effecs of Simulation Tecnique and Worksheet on Formal Operational Stage in Science and Tecnology Lessons. *Procedia Science and Behavioral Science*, *15*, 1462-1469. http://dx.doi.org/10.1016/j.sbspro.2011.03.311

Beauchamp, Y., & Yousesef, A. (1998). An Effective Approach to Design of Experiment (DOE) Using Calculation and Analysis Worksheet and Computerised Spreadsheet. *Computer and Industrial Enginering*, *35*(3-4), 643-646. http://dx.doi.org/10.1016/S0360-8352(98)00179-X

Boud, D., Cohen, R., & Walker, D. (1993). *Using Experience for Learning*. Buckingham: Open University Press.

Burton, J. (2006). Developing Conceptual Framework for Creativity. *ICT and Theacher Education, Thinking Skill and Creativity*, *1*(1), 3-13. http://dx.doi.org/10.1016/j.tsc.2005.07.001

Chappell, K., & Craft, A. (2009). Creative Science Teaching Labs: New dimensions in CPD. *Thinking Skills and Creativity*, *4*, 44-59. http://dx.doi.org/10.1016/j.tsc.2009.01.001

Cilikler, D. (2012). The Effect of The Use of Worksheet about Aqueoue Solution Reaction on Preservice Elementary Science Teachers' Academic Success. *Procedia Science and Behavioral Science*, *46*, 4611-4614. http://dx.doi.org/10.1016/j.sbspro.2012.06.306

Crammond, B., Martin, C. E., & Shaw, E. L. (1990). Generalizability of creative problem solving procedures to real life problems. *Journal for the Education of the Gifted*, *13*, 141-155. http://dx.doi.org/10.1177/016235329001300203

Crespo, M., & Pozo, J. J. (2004). Relationship between Everyday Knowledge and Scientific Knowledge; Understanding How Matter Change. *International Journal of Science Education*, *26*(11), 1325-1343. http://dx.doi.org/10.1080/0950069042000205350

Creswell, J. W. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research*. New Jersey: Pearson Prentice Hall.

Daryono. (2011). *Mapping and Quality Improvement of Education High School in East Java (regency of Sumenep, Sampang)* (unpublished). Research Report on LPPM Unesa, Surabaya.

Hake, R. R. (1999). *Analyzing Change/Gain Score* (online). Retrieved from http://www.physic

Hansen, R. E. (2000). The Role of Experience in Learning: Giving Meaning and Authentic to the Learning Process in Schools. *Journal of Technology Education*, *11*(2). http://dx.doi.org/10.21061/jte.v11i2.a.2

Hergenhahn. (2010). *Theories of Learning (Teori Belajar)*. Kencana Prenada Media Group, Jakarta.

Karsli, F., & Sahin, C. (2009). Developing Worksheet Based on Science Process Skill: Factor Affecting Solubility. *Asia Pacific Forum on Science Learning and Theaching*, *10*(1).

Kibar, Z. B., & Alipasa, A. (2010). Implementing of Worksheet Related to Physical and Chemical Change Concepts. *Procedia Social and Behavioral Sciences*, *2*(2010), 733-738. http://dx.doi.org/10.1016/j.sbspro.2010.03.093

Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood: Prentice Hall.

Koohang, A. (2009). E-Learning and Contructivism: From Theory to Application. *Interdisciplinary Journal of E-Learning and Learning Objects*, *5*.

Merrienboer, V. J. J. G. (1997). *Training Complex Cognitieve Skills: A Four Component Instructional Design model for Technical Training*. Englewood Clifft, NJ: Educational Technology Publication.

Ministry of Education and Culture. (2013). *Policies of Ministry of Education and Culture Number 69 Year 2013 about Basic Structure of Secondary School Curricula*. Jakarta, Ministry of Education and Culture.

Mintowati. (2011). *Mapping and Quality Improvement of Education High School in East Java (regency of Sidoarjo, Mojokerto , Mojokerto)* (unpublished). Research Report on LPPM Unesa, Surabaya.

Mutlu, M. E., Ilker, K., Buket, K. K., & Ayse, P. M. (2015). Implementation of the Lifelong Experience Management Approach-Observation on the First Experience. *Procedia Science and Behavioral Science*, *174*, 849-861. http://dx.doi.org/10.1016/j.sbspro.2015.01.680

Susantini, E. I., & Lisa, L. (2016). Effectiveness of Genetics Student Worksheet to Improve Creative Thinking Skills of Teacher Candidate Students. *Journal of Science Education*, *17*(2).

Swan, K. (2005). A Constructivist Model for Thinking about Learning Online. In J. Bourne, & J. C. Moore (Eds.), *Element of Quality Online Education: Engaging Communities*. Needham, MA: Sloan-C.

Tomlinson, B. (2012). Material Development for Language Learning and Teaching. *Cambridge Journal Lang Teach*, *45*(2), 143-179. http://dx.doi.org/10.1017/S0261444811000528

Trewet, C. B., & Nancy, F. (2013). Evaluation of The Impact of a Continuing Profesional Development Worksheet on Sustained Learning and Implementing Change After Continuing Pharmacy Education Activity. *Research in Social and Administrative Pharmacy*, *9*(2), 215-221. http://dx.doi.org/10.1016/j.sapharm.2012.06.002

Ulas, A. H., Oguzhan, S., & Esengul, T. (2012). The Effects Worksheet Base Upon 5e Learning Cycle Model on Student Success in Teaching of Adjective as Gramatical Componens. *Procedia Science and Behavioral Science*, *31*, 391-398. http://dx.doi.org/10.1016/j.sbspro.2011.12.072