USEJ 8 (1) (2019)

Unnes Science Education Journal

http://journal.unnes.ac.id/sju/index.php/usej

THE IMPLEMENTATION OF E-JAS SCIENCE EDUTAINMENT TO IMPROVE ELEMENTARY SCHOOL STUDENT'S CONCEPTUAL UNDERSTANDING

Sekar Dwi Ardianti✉, Savitri Wanabuliandari, Susilo Rahardjo

Universitas Muria Kudus

Article Info

Received January 2019
Accepted January 2019
Published Febuary 2019

Keywords:
Conceptual Understanding, E-JAS, Science Edutainment.

Abstract

This research aims to unveil the improvement of elementary school student's conceptual understanding through the implementation of E-Jas Science Edutainment. This research is a pre-experimental research with the design of one group pretest and posttest. The sample of the research uses purposive sampling technique. The result of the Normalized-Gain research shows that there is an improvement of student's achievement under the criteria of medium (28.57%) and high (71.43 %). The classical result shows the normalized gain of 71% or 0.71, which means that student's improvement was really high. The result shows that the implementation of E-JAS Science Edutainment can improve student's learning achievement.

p-ISSN 2252-6617
e-ISSN 2252-6232

✉Corresponding author:
Sekar Dwi Ardianti
Elementary School Education Program, Faculty of Teaching and Education, Universitas Muria Kudus
E-mail: sekar.dwi.ardianti@umk.ac.id

INTRODUCTION

The regulation of Ministry of Education and Culture Number 65 year 2013 regarding the standardized process of 2013 curriculum explains that the learning process of 2013 curriculum is thematic and integrated. Natural science is taught to elementary school students in integrated and thematic learning. According to Rusman (2011) thematic learning is a learning model which facilitates the students to actively dign and find conceptual information in holistic, meaningful, and authentic way. The material of natural science for elementary school students are explained in a theme which is related to other learning load which expects the students to understand the material. The thing is caused by the characteristics of elementary school students who need complete understanding of materials. Sumantri (2016) says that the thinking development of elementary school students is integrative in a united way. Ardianti (2015) also explains that the integration of thematic learning especially in natural science aims to make the learning process effective and efficient. The students are expected to understand scientific concept easily under certain theme.

However, the actual condition shows that many students in Indonesian faces difficulties in understanding natural science concept. Natural science is always be considered as a difficult thing for students because they need more memorization and theorietical understanding with difficult terms. In the basic way, natural science is not only a theory and memorization, but also related to actual and real life learning in the real life. Pratama, et al (2015), states that natural science discusses natural phenomena, factual truth, and phenomena which is obtained through experiment in the laboratory or in the natural life. The difficulty of the students make the having low comprehension of concept. Besides, some factors influencing the students conceptual understanding is the lack of variation of learning process. The activity which is planned by the teacher can influence the result of the students from the learning. Setyaningsih & Dewi (2015) say that the planning of the materials affects the meaningful learning process for the students. Teacher supposes to plan certain learning process which activates student's understanding through sequences of activities where students are actively involved. Dermawan (2014) states that the packing of learning by the teacher influence the meaning understood by the students. The learning strategy should make students, active, participative and cooperative to improve student's cognitive, psychomotoric, and affective learning (Ridlo & Alimah, 2012).

Based on the oinitial observation, teachers tend to only lecture in the classroom. Teacher rarely uses variation in using a learning model which attract the student's attention. Teacher tend to dominate the learning process, which makes the students passive in the classroom since they only listen to some materials explained by the teacher. Once in a while, teacher give students time to ask; however, only some students want to ask questions. Students tend to be bored by the classroom situation since teacher do not actively involve the students. Teacher does not use the schools' surrounding environment as the learning source for the students. Thus, students become less active in the learning process.

One of the way to handle this problem is by making a learning environment which focuses on the students. Margiastuti, et al (2015) states that the implementation of the learning process which focuses on the students will make them able to be active and less boring. Attractive learning process can improve student's conceptual understanding. Umar, et al (2016), in his research, shows that the improvement of students learning outcome will happen if the teacher uses attractive learning process. In this research, the researcher proposes Experiential *Jelajah Alam Sekitar* (Nature Exploration) (EJAS) Science Edutainment approach to teach students science.

E-JAS is a model which utilizes surrounding environment as a learning source for students. The utilization of various understanding is useful for the students (Savitri & Sudarmin, 2016). The students can directly interact with their environment as well as applying what they get from the learning process. Wanabuliandari & Ardianti (2018) states that the content of the materials will be interesting and activating for students if it is close to them. Alimah (2012) also opines that E-JAS model can give direct experience for the students to improve their personal, social, rational, metacognition, and cognition. Students can do observation during the learning process. Sari, et al (2013) explains that observation can give students real experience in the learning process.

Ngabekti, et al (2017) states that JAS can successfully improve student's learning outcome.

Edutainment is an attractive learning method. Saepudin (2016) says that edutainment comes from education and entertainment. Widiyatmoko (2012) mentions that edutainment can attract the students to be fond of all learning subjects. Meanwhile, science edutainment includes the element of science to entertain the students. Taufiq, et al (2014) states that science edutainment can invite the students to do learning activity through games which educate them joyfully. Pratiwi, et al (2018) also explains that edutainment as a learning design is a learning load which is combined with entertainment. The expectation of the learning model's implementation is to make the student's learning outcome improved. Ardianti, et al (2017) menitions that an entertaining learning process will help the students to learn with no pressure, thus it grows their motivation in learning. The same thing is also explained by Estiani, et al (2015) that the implementation of learning process with a game can improve the classical passing grade of the students.

E-JAS Science Edutainment model attract students to learn science in a joyful and interactive way with their environment by exploring the nature. The exploration can give student's real experience that makes them have real and extended understanding. Besides, the activity can also make the students more active in the learning process. If the students are active, they will be more motivated to learn the concept. The implementation of E-JAS science edutainment is expected to be able to improve student's conceptual understanding.

This research aims to review the conceptual understanding of elementary school students through E-JAS science edutainment.

METHODS

This research is a pre-experimental research conducted in SD 1 Bacin, Kudus. The research uses one group pretest posttest design. Ruseffendi (2010) portray the design as follows.

O X O

Note:

O : Student's pretest and posttest

X : The learning process using the model of E-JAS Science Edutainment

This research uses the students of IV grade class of SD 1 Bacin. The sample was taken using purposive sampling technique. The students in the IV grade have the characteristics of being attracted to a playful learning and able to do the outdoor learning.

The data of student's conceptual understanding was obtained using tests. The instrument of the test used evaluation which contains 25 multiple choices and 5 short essays. The analysis of the data were through Normalized gain test to know the improvement of student's understanding in the level of elementary school.

Normalized gain test was done to know how far the understanding of the students before and after the learning process is. The conceptual understanding is based on the pretest and posttest score through the formula of normalized gain <g> as follows (Hake, 1998: 65).

Notes :

Spost = Posttest Score

Spre = Pretest Score

Smaks = Maximum Score (100)

After that, the normalized gain (g) test was translated as in the criteria of in Table 1 (Hake, 1998: 65) as follows.

Table 1. Normalized gain criteria $\langle g \rangle$

Normalized gain $\langle g \rangle$	**Criteria**
$\langle g \rangle < 0.3$	Low
$0.3 \leq \langle g \rangle < 0.7$	Medium
$\langle g \rangle \geq 0.7$	High

RESULTS AND DISCUSSION

The result of the research is the improvement of student's understanding displayed from the evaluation in pretest and posttest. The data can be seen in Table 2 as follows.

Table 2. The Score of Student's Understanding

Component	Conceptual Understanding Score	
	Pretest	Posttest
Average	59.71	88.57
Highest	78	94
Lowest	50	86

Based on the Table 2, there is a significant improvement of student's conceptual understanding. The average score of the posttest (88.57) was higher than the pretest one (63.14). In order to measure the improvement statistically, the researcher conducted normalized gain test. The result can be seen as follows.

Table 3. The Result of Normalized Gain Test

Normalized gain $\langle g \rangle$	Criteria	Percentage (%)
$\langle g \rangle < 0.3$	Low	0
$0.3 \leq \langle g \rangle < 0.7$	Medium	28.57
$\langle g \rangle \geq 0.7$	High	71.43

Table 3 shows that the improvement of student's conceptual understanding through science edutainment E-JAS was categorized as medium and high. Meanwhile the classical understanding improvement was 71% which is also high.

The improvement of student's conceptual understanding happens since the model ask the students to explore their surrounding, that they can observe their environment directly. Sastrika, et al (2013) states that students learn better through their involvement in learning and their application in the real world. The real experience makes them able to make the learning process meaningful. Wanabuliandari, et al (2016) says that E-JAS can give student's effective learning. The result also supports Alimah (2014) that the model can be used to attract students with real scientific investigation.

Besides, science edutainment's nature exploration is an entertaining experience for students. The learing process includes game, role play, and demonstration (Hamid, 2011). These features are naturally attractions to kids in the elementary schools who like to play (Sumantri, 2016). Through playful activities, students can form their learning pattern and problem solving skills easily (Indriati, 2012). From the application of Science Edutainment, students can learn well without pressure. Ardianti, et al (2017) mentions that the edutainment gives students time to learning with playing. Thus, they will be more active and motivated to learn the boring science materials (Setyaningsih & Dewi, 2015).

The implementation of E-JAS Science Edutainment ask the students to play in the real world. Minarti, et al (2012) states that the concrete environment will make them able to comprehend the materials and to get rid of the classroom's boredom.

CONCLUSION

Based on the result of the research, E-JAS Science Edutainment can improve student's conceptual understanding with the n-gain of 71% or 0.71% or in high category.

REFERENCES

Alimah, S. (2012). Pengembangan Pembelajaran Experiential Jelajah Alam Sekitar pada Mata Kuliah Biologi. *Proceeding Seminar Nasional MIPA Unnes*. Semarang: Universitas Negeri Semarang.

Alimah, S. (2014). Model Pembelajaran Experiential Jelajah Alam Sekitar Strategi untuk Meningkatkan Kemampuan Berpikir Kritis Mahasiswa. *Jurnal Penelitian Pendidikan*, 3(1), 47-54.

Ardianti, SD. (2015). Pengaruh Modul Tematik *Inquiry-Discovery* Terhadap Hasil Belajar Siswa Materi Metabolisme Pembentuk Bioenergi. *Jurnal Refleksi Edukatika*, 5(2),1-6.

Ardianti SD, Wanabuliandari S, & Rahardjo S. (2017) Peningkatan Perilaku Peduli Lingkungan dan Tanggung Jawab Siswa Melalui Model E-JAS dengan Pendekatan Science Edutainment. *Jurnal Ilmiah Pendidikan Dasar*, 4(1), 1-7.

Ardianti SD, Pratiwi IA, & Kanzunnudin M. (2017). Implementasi Project Based Learning (PjBL) Berpendekatan Science Edutainment Terhadap Kreativitas Siswa. Jurnal Refleksi Edukatika, 7(2), 145-150.

Dermawan A. (2014). Keefektifan Collaborative Learning Berbasis Quiz Edutainment Terhadap Ketuntasan Hasil Belajar. *Chemistry in Education*, 3(1), 57-63.

Estiani W, Widiyatmoko A, & Sarwi. (2015). Pengembangan Media Permainan Kartu UNO untuk Meningkatkan Pemahaman Konsep dan Karakter Siswa Kelas VIII Tema Optik.*Unnes Science Education Journal*, 4(1), 711-719.

Hake, R.R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, 6(1), 64-74..

Hamid S. (2011). Metode Edutainment. Yogyakarta: Diva Press.

Indriati D. (2012). Meningkatkan Hasil Belajar IPA Konsep Cahaya Melalui Pembelajaran Science Edutainment Berbantuan Media Animasi. *Jurnal Pendidikan IPA Indonesia*, 1(2), 192-197.

Margiastuti SN, Parmin, & Pamelasari SD. (2015). Penerapan Model Guided Inquiry Terhadap Sikap Ilmiah dan Pemahaman Konsep Siswa Pada Tema Ekosistem. *Unnes Science Education Journal*, 4(3), 1041-1048.

Minarti IB, Susilowati SME & Indriyanti DR. (2012). Perangkat Pembelajaran IPA Terpadu Bervisi SETS Berbasis Edutainment Pada Tema Pencernaan. *Journal of Innovative Science Education,* 1(2), 105-111.

Ngabekti S, Ridlo S, Peniati E, & Martanto R. (2017). Meta-Analysis of Jelajah Alam Sekitar (JAS) Approach Implementation in Learning Process. *Jurnal Pendidikan IPA Indonesia*, 6(1), 153-164.

Permendikbud Nomor 65 Tahun 2013 tentang Standar Proses Kurikulum 2013.

Pratama H, Sarwanto, & Cari. (2015). Pengembangan Modul Pembelajaran IPA Fisika SMP Kelas IX Berbasis Pendekatan Jelajah Alam Sekitar (JAS) pada Materi Gerakan Bumi dan Bulan yang Terintegrasi Budaya Jawa. *Jurnal Inkuiri*, 4(1), 11-20.

Pratiwi, I.K., Ardianti, S.D., & Kanzunnudin, M. (2018). Peningkatan Kemampuan Kerjasama Melalui Model *Project Based Learning* (*PjBL*) Berbantuan Metode *Edutainment* Pada Mata Pelajaran Ilmu Pengetahuan Sosial. *Jurnal Refleksi Edukatika*, 8(2),177-182.

Ridlo S & Alimah S. (2012). Strategi Pembelajaran Biologi Berbasis Kompetensi dan Konservasi. *Proceeding Seminar Nasional MIPA Unnes: Peran MIPA dalam Meningkatkan Kualitas Hidup dan Pengembangan Pendidikan Karakter*, ISBN: 978-602-18553-2-4, 545-555.

Rusman. (2011). *Model-Model Pembelajaran*. Jakarta: Rajawali Pers.

Ruseffendi, E.T. (2010). *Dasar-dasar Penelitian Pendidikan & Bidang Non-Eksakta Lainnya*. Bandung: Tarsito.

Saepudin, Ade, Saluky Saluky, & Muhammad Ali Misri. (2016). The Use Effects Of Interactive Multimedia *Edutainment* On The Achievement Improvements In Mathematics. *Information Technology Engineering Journals*, 1 (1), 1-15.

Sari YK, Susilowati SME, & Ridlo S. (2013). Efektivitas Penerapan Metode Quantum Teaching Pada Pendekatan Jelajah Alam Sekitar (JAS) Berbasis Karakter dan Konservasi. *Unnes Journal of Biology Education*, 2(2), 165-172.

Sastrika IAK, Sadia IW, & Muderawan IW. (2013). Pengaruh Model Pembelajaran Berbasis Proyek Terhadap Pemahaman Konseo Kimia dan Keterampilan Berpikir Kritis. *E-Journal Program Pascasarjana Universitas Pendidikan Ganesha,* 3.

Savitri, EN & Sudarmin.(2016). Penerapan Pendekatan JAS (Jelajah Alam Sekitar) Pada Mata Kuliah Konservasi dan Kearifan Lokal Untuk Menanamkan Softskill Konservasi Pada Mahasiswa IPA UNNES. *Unnes Science Education Journal*, 5(1), 1109-1115.

Setyaningsih MD & Dewi NR. (2015). Pengembangan Media Papan Permainan Berbasis Science-Edutainment Tema Makanan untuk Siswa Kelas VII. Unnes Science Education Journal, 4(3), 965-972.

Sumantri, MS. (2016). *Strategi Pembelajaran, Teori dan Praktik di Tingkat Pendidikan Dasar.* Jakarta: PT Raja Grafindo Persada.

Taufiq M, Dewi NR, & Widyatmoko A. (2014). Pengembangan Pembelajaran IPA Terpadu Berkarakter Peduli Lingkungan Tema "Konservasi" Berpendekatan *Science Edutainment*. *Jurnal Pendidikan IPA Indonesia*, 3(2), 140-145.

Umar NHM, Parmin, & Wusqo IU. (2016). Pengaruh Media Kartu Pintar Tumbuhan Berbasis *Science Edutainment* Terhadap Minat Belajar dan Pemahaman Konsep Siswa Tema Gerak Tumbuhan. *Unnes Science Education Journal*, 5(2), 1288-1297.

Wanabuliandari S, Ardianti SD & Rahardjo S. (2016). Implementasi Model E-JAS Berbasis Mathematic Edutainment untuk Meningkatkan Prestasi Belajar dan Perilaku Kepedulian Terhadap Lingkungan. *Jurnal EduMa*, 5(2), 34-41.

Wanabuliandari S & Ardianti SD. (2018). Pengaruh Modul E-JAS Edutainment terhadap Karakter Peduli Lingkungan dan Tanggung Jawab. *Scholaria: Jurnal Pendidikan dan Kebudayaan*, 8(1), 70-79.

Widiyatmoko A. (2012). Pengembangan Perangkat Pembelajaran IPA Fisika Dengan Pendekatan Physics-Edutainment Berbantuan CD Pembelajaran Interaktif. *Journal of Primary Education*, 1(1), 38-44.