



THE USE OF INTERACTIVE GAME OFFLINE CD IN THE INVERTEBRATES MATERIALS AS AN EFFORTS TO IMPROVE STUDENT LEARNING OUTCOME AT SMP 1 UNGARAN

Rivanna Citraning Rachmawati

¹Department of Biology Education , FPMIPATI, University of PGRI Semarang

²Department of Biology Education , FPMIPATI, University of PGRI Semarang, Semarang, Indonesia

ABSTRACT

Based on the first observations in May 2015, at SMP 1 Ungaran, indicated of learning outcomes was not maximum. The teaching strategies have not been optimized the computer media. It affected to the less of students learning outcome, especially Invertebrates material. This study aims to determine student learning outcomes of VII grade in the second semester at SMP 1 Ungaran, by using Interactive Game offline CD. The research methodology used true experiment, the subjects of this study were students at SMP 1 Ungaran of VIII grade in the second semester. Data collection techniques performed through observation and tests with observation sheet as instrument and test to measure the student learning outcomes. The study used pretest-posttest control group design. The data were analyzed by using the N-Gain. The results showed that there are an improvement in the experimental group with the results of N-Gain, the highest score in the presentation category is 82%, whereas the highest of N-Gain score in the low category is 62% in the control group. The conclusion proves that the study by using Interactive Game offline CD in the experimental group has been seen an improvement of students learning outcomes are higher than the control group with conventional learning.

Key Words: Interactive, Game offline CD , Invertebrates, Learning outcome

© 2015 Semarang State University. All rights reserved.

INTRODUCTION

The implementation of learning by using curriculum 2013 was purposed on students centered, interactive, focused on the active-probe activities with stimulation to All Corners (all five senses), and used the real world context as well as the use of multimedia tools (various educational technology equipment) is required. Based on the first observations in VIII grade of second semester at SMP 1 Ungaran, indicated of learning outcomes was not maximum. There was an evident from the average of daily tests was 5.25 with classical learning completeness reached only 30%. Limitations of instructional media, and the use of media that are less innovative at SMP 1 Ungaran in biology learning made student learning outcomes unsatisfactory. In Invertebrates learning materials, the teachers felt very difficult to explain. The one of factor caused in the learning process was still used conventional methods in teaching, because of the limitations of the media as well as models of learning were less innovative. Based on interviews result with teachers SMP 1 Ungaran, it was not only made student learning outcomes were less

satisfactory, but it also raised the level of saturation of students in biology learning. To overcome the saturation of students in the biology learning, it must be made to implement a variety of teaching methods more innovative and to create an atmosphere of fun in the learning process so as to eliminate the difficulties students in following biology learning.

In facing the several of learning styles, surely it must be added with logic and culture of the way we work, and most important of all the above is a way our brains work which in this case we call learning modality. Briefly, learning modality is a way how the brain absorbs information coming through the senses optimally. According to Gardner (2002), the learning modality can be characterized into Auditory, Visual, Reading and Kinesthetic learning style. The students at SMP 1 Ungaran have the characteristics of auditory and visual learning styles; it can be in the know after they completed a questionnaire to determine the characteristics of the learning style of each student. The characteristics of auditory learning style according to Gardner, namely: learning to rely on hearing to be able to understand and remember.

The characteristics of this learning model really put the hearing as the main tool to absorb the information or knowledge.

The characteristics of the visual learning type are the type of learning that tends to receive information and most effective to use the sense of sight (visual). For students who have a visual learning style, which plays an important role, are the eye/ visual.

Based on the observations, e-Learning media can be divided into two, namely the online and offline interactive media. E-Learning media are online can be realized in the form of a website. Certainly the use of online media this takes considerable cost and slow down the network if using the media file is very large, but it also makes it easy to convey, to update the contents, students can send emails to other students, post comments on the discussion forum, use the space chat, video conferencing to link to communicate directly. While the e-Learning media that are offline can be realized in the form of CD, Swajati (2005). Based on some of the above considerations, it is necessary

2. RESEARCH DESIGN

Experiments were carried out can be described as follows

(Arikunto,2006)

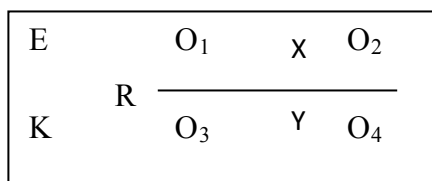


Figure 1. Research Design

Description:

E: the experimental group,

K: control group,

O1 and O3: Pretest,

O2 and O4: Posttest,

X: learning with Game offline CD

Y: learning without Game offline CD
(conventional)

This research used true experimental with Pre-Test Post-test Control Group Design. In this design the observation is done twice, before the experiment and after the experiment. Observations were carried out before the lesson starts (O1) is called pre-test, and observation post (O2) called a post-test at the experimental group. While (O3) as a

given the new conditions for developing a biological learning interesting, one of them by using Interactive Game offline CD for learning. Thus to know the results of VIII grade in second semester at SMP 1 Ungaran, in the material invertebrates when using Interactive Game offline CD it is necessary to study how students learning outcome of VIII grade in second semester at SMP 1 Ungaran in following the Invertebrates learning process by using Interactive Game offline CD.

MATERIAL AND METHODS

1. RESEARCH SUBJECTS

The subjects in this study were students of VIII grade at SMP 1 Ungaran in the second semester, as many as two classes, namely VIII A class as the experimental group and control group in VIII B class, determination of the experimental group and control group conducted by using random cluster sampling technique, because both classes are relatively homogeneous.

pre-test and control group (O4) as post-test in control group. The improvement of learning outcomes are determined by calculating the difference (O2-O1) and (O4-O3) the difference is tested with N-Gain (in Mashudi Meltzer, 2000).

3. PROCEDURE RESEARCH

The research activities carried out in stages as follows:

- a. Preparation Stage begins preparing teaching sets such as syllabus and lesson plans
- b. Implementation Stage: in the experimental group begins with a pretest, delivery of content by using Game offline CD, then posttest. The implementation Stage of the control group starts with the pre-test, the implementation of

the lesson with the lecturing method without using Game offline CD, then posttest.

- c. Stages of evaluation and analysis: This phase is adjusted to the learning strategy conducted at each meeting, learning media (Game offline CD) as well as preparing the questionnaire to determine the response of teachers to Game offline CD. Results of the observation of the learning outcomes were analyzed by using N-Gain.

RESEARCH FINDINGS AND DISCUSSION

Teaching materials that have been developed in the form of Interactive Game Offline CD is a Invertebrates material. The display of Game Offline Interactive CD is a combination of theory incorporating basic text character images, animations (movement), background (environment), music (complementary elements) and exercises with the game offline.

Game offline media material content as follows: Porifera is an animal that is perforated (porous), live in freshwater, in swamps, in shallow sea; the water is clear and quite. His body is composed of a diploblastic (two layers of tissue). The outer layer is composed of cells of the epidermis and the inner layer is composed of cells of the neck (koanosit). Body resembles a vase, has a body cavity (spongosol) and outlet (oskulum), the body is soft, porous surface (ostium).

Porifera has two layers of tissue, namely:

- a. The outer layer, composed of cells that form a flat, serves as the epidermis. This cell is called *pinakosit*.
- b. The inner layer, made up of cells and the funnel-shaped cells have flagella. This cell is called *koanosit*.

Coelenterata is an animal that has a cavity, including diploblastic animals, body radial symmetry. Cell layer consists of ectoderm and endoderm. Between ectoderm and endoderm are *mesogleas*. In the upper body there is the mouth, surrounded by tentacles. On the surface of the tentacles are knidoblas (stinging cells/nematocysts). Live in fresh water as well as sea. The body can be attached to the bottom of the water.

Coelenterata has two forms, namely:

- a. Polyps, solitary lives (alone) but there are colonies, cannot move freely, attached to the bottom waters.
- b. Medusa can produce two kinds of gametes, they are male and female gametes. Medusa can break away from the parent and swim freely in the water. Shape like an umbrella with tentacles waving.

Student Learning Outcome in Experiment group and Control group

Improving student learning outcomes in the experimental group formed a learning by using the Interactive Game offline CD is much higher than the control group, it can be seen in the table below:

Table 1. N-Gain Results of Experiment group and Class group

Categories	N-Gain	Eksperiment group	Control group
very low	≥ 0,20	0%	31 % (13 students)
low	0,21-0,40	0%	62 % (26 students)
moderate	0,41-0,60	4 % (2 students)	7 % (3 students)
high	0,61-0,80	14 % (6 students)	0 % (12 students)
very high	0,81-1,00	82 % (34 students)	0 % (4 students)

Table 1 shows that the experimental group of 42 students, with 34 students (82%) experienced a very high increase with a gain of 0.81 exceeds the remaining 6 students (14%) experienced an increase in height and only 2 students (4%) in the category of moderate improvement.

In the control group there were 13 students (31%) who received the category with an increase in very low. While students who have increased with lower category there are 26 students (62%). An increase in the category of moderate just reached 7 students (7%). So that students who have a category of high and very high increase is 0%.

Based on the research results as shown in Table 1, experiments group by using Interactive multimedia is much more effective than conventional teaching. Learning can be more interesting and more fun if you use interactive game offline CD, so that students can grasp the concept of learning with clear and not boring.

In this situation, multimedia has a very important role to help teaching and students to understand the subject better. In general, the benefits received by better technology to support the learning process (Alavi, 2009). It was seen, when students learn about Invertebrates materials by using interactive Game Offline CD, they seemed enthusiastic and can be seen from the increasing student learning outcomes for teaching. The advantages of offline media, such as Interactive CD is (1) capable of displaying multimedia with larger file, (2) more efficient than the use of media online, (3) the level of interactivity is high because it has more experience of learning through text, audio, video, to animation packed with display pictures displayed along with the title and the narrative voice and also displays human behavior or complex tasks. While the results of the control group with conventional teaching/ lecturing, obtaining low level of learning outcomes. This is because of the conventional learning model has some drawbacks, among others, students receive information passively from teachers and learning is abstract and theoretical. In addition, students learn in a limited space and time compared by using interactive Game offline media CD.

Students' Response to the Use of Interactive Game offline CD as Media

Based on the results of a questionnaire completed students can be seen that the use of interactive Game offline CD is fun. Moreover, with exercises by using the game, students become more enthusiastic and seemed excited did interactive tasks. Some students repeated a number of times exercise with the game. It was an evident from multimedia content that was in conformity with the purpose of learning. To students, the display of multimedia Game offline CD is also interesting and creative media classified, students more interested in learning what impact the change in student learning is seen from the increasing student learning outcomes in a previous study. This is because students are directly involved in the

process of the invention of the concept and keen to learn to use the Game.

In the first stage of analysis of obtained data showed that all the classes have a homogenous variance. This means that the samples came from the same condition, namely prior knowledge of the same. Based on students' responses are known that 83% of students understand the concept of invertebrates were aired through the Game offline CD. Besides, the students also felt happy with their lessons, even wants the same media can be used on other materials. A pleasure student is the result of students' interest in technology, especially computers. This interest raises great motivation to learn more about the material, causing a deep impression of the material. The impression raises a strong memory, which can be recalled at any time, for example during the test as proposed by Dalyono (1996) that one of the factors that affect student learning outcomes are internal factors such as motivation or interest.

CONCLUSION

Based on the results of this study concluded that the Invertebrates learning material in the experimental group by using interactive game offline CD, reach students' learning outcome is higher than the control group with conventional learning.

REFERENCES

- Alavi, M., Yoo, Y. & Vogel, D., 1997., *Using technology to add value to management education*. <http://www.ijea.org/v10n10/>.
- Arikunto, S. 2006. *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Azhar, A. 2006. *Media Pembelajaran*. Jakarta. PT. Raja Grafindo Persada,
- Dalyono, M. 1996. *Psikologi Pendidikan*. Jakarta: Rineka Cipta.
- Daryono. 2007. *Evaluasi Pendidikan*. Jakarta: Rineka Cipta.
- Gardner, Howard. 2002. *Kecerdasan Majemuk*. Batam: Interaksara.
- Swajati. 2005. *Belajar Sendiri: Membuat CD Multimedia Interaktif untuk Bahan Ajar E-Learning*. Jakarta: PT Elek Media Komputindo