THE EFFECT OF FLAP POSTER ON STUDENTS' CREATIVITY IN LEARNING HUMAN RESPIRATORY SYSTEM

***Juwita Rahmawati*[1)], *Hayat Solihin*[2)], and *Lilit Rusyati*[3)]**
[1)]International Program On Science Education, FPMIPA UPI
[2)]Departemen Pendidikan Kimia, FPMIPA UPI Jl. Dr. Setiabudhi No. 229 Bandung
Email: juwita.rahmahati@student.upi.edu

ABSTRACT

This descriptive research investigated the influence of the flap poster on students' creativity in studying human respiratory system. Samples were 34 eight grade students in one of Private International Schools in Bogor, in which they were divided into experimental or control class, 17 students for each class. Qualitative data were obtained by using rubric and questionnaire. Results showed that experimental class students' creativity was higher than control class students, in which this indicates that flap poster can facilitate students in developing their creativity. Furthermore, results also indicated that when the flap poster was implemented in learning Human Respiratory concept, experimental class achieved better results in every creativity dimension compared to control class.

Kata kunci: *flap poster*, creativity, human respiratory system

ABSTRAK

Penelitian deskriptif ini menyelidiki pengaruh penggunaan *flap poster* terhadap kreativitas siswa dalam mempelajari materi Sistem Pernapasan Manusia. Sampel adalah 34 siswa kelas delapan di salah satu sekolah swasta internasional yang ada di Bogor. Siswa kemudian dibagi menjadi kelompok eksperimen dan kontrol dengan 17 siswa untuk masing-masing kelas. Data kualitatif diperoleh dengan menggunakan rubrik dan kuesioner. Hasil menunjukkan bahwa siswa di kelas eksperimen memiliki kreativitas yang lebih tinggi dibandingkan dengan kelas kontrol, dan ini mengindikasikan bahwa *flap poster* dapat memfasilitasi siswa dalam mengembangkan kreativitasnya. Selain itu, hasil juga mengindikasikan bahwa ketika *flap foster* diimplementasikan dalam mempelajari konsep Pernapasan Manusia, kelas eksperimen meraih hasil yang lebih baik dalam semua dimensi kreativitas dibandingkan dengan kelas kontrol.

Keywords: *flap poster*, kreativitas, sistem pernapasan manusia

INTRODUCTION

Science is essential major studied by students in school. Learning science effectively can guide students to understand science in daily life. Learning science effectively can be facilitated by teaching and learning aids, in which Singh (2011) found that teaching aids can improve students' reading, writing, and speaking skills. This research focused on the use of poster as teaching aids in learning science. Posters are known as an excellent medium for developing communication skills, particularly where short and concise communication is needed (Zevenbergen,1999). Multilayered-innovative poster can trigger students' interest and creativity in learning science. This multilayered-innovative poster is called as flap poster. In flap poster, a system is depicted in a multilayered form. For example, flap posters of a lung will depict not only the outer structure but also its inner structure. First layer of the poster will show an outer structure of a lung and as students flipped the next layer of the poster, it will depict the inner structure of a lung, from a lung membrane (pleura) to alveoli and so on. Several research suggested the advantages of using poster as teaching aids. Bracher (1998) suggested that presentation of the flap poster has a potential as a learning method as well as an assessment in learning science. EL-Sakran and Prescott (2013) also stated that poster presentations could cater for different learning styles, allow for personality preferences and students' creativity in poster design.

The term creativity itself varies in its definition. According to Barron and Harrington (1981), there are two categories of creativity definition, (1) creativity as socially recognized achievement in which there are novel products to which one can point as evidence, such as inventions, theories, buildings, published writings, paintings, sculptures and films; laws; institutions; medical and surgical treatments, and so on; or (2)

creativity as an ability manifested by performance in critical trials, such as tests, contests, in which one individual can be compared with another on a precisely defined scale. From the above categories, flap poster project can be included in both categories, in which it might affect students' creativity. Flap poster as students' project is considered as a novel product because the flap poster is a real form of creativity product that can be assessed to measure the creativity. The process of creating and presenting flap poster trigger students' involvement and performance.

The flap poster might be used in every topic of science. One of them is Human Respiratory system, because it is a very important concept to be learnt by middle school students and due its system complexity. Liu et al. (2005) stated that complex systems of human body that have several features are difficult to understand, because it has nonlinear and relational causality as well as invisible and dynamic mechanisms. Flap poster is one of teaching aids alternatives to learn the complex system of human body. Since the respiratory organs consist of bigger to smaller parts and structured from the outside to the inside part, the flap poster could enhace student's under-standing. Therefore, the aim of this descriptive research was to investigate the influence of the flap poster on students' creativity in studying human respiratory system.

METHOD

Research was conducted in one of private international school in Bogor. Sampel was two 8th grade classes (class 8-A and class 8-B) comprised of 17 students in each class. Class 8-A was served as the experiment class that implementing flap poster project in learning human respiratory system, while class 8-B served as the control class implementing the common poster project. The common poster consist only one layer, but the flap poster consist several layers that represent whole structure human respiratory system (from outer to inner structure). The students' creativity is measured by Creative Product Analysis Matrix (CPAM) rubric which was designed by Besemer and Treffinger (1981). Product of creativity was classified into three creative dimensions: 1) novelty, 2) resolution, 3) elaboration and synthesis. Students' creativity is determined by calculating the rubric score of each creativity dimension of students' product. The criteria of dimension "novelty" are original, surprising, and germinal. The criteria of dimension "resolution" are valuable, logic, and useful, and the criteria of dimension "elaboration and synthesis" are organist, elegant, understandable, complex, and artistic (Munandar, 2009).

RESULTS AND DISCUSSION

Novelty

Results suggested that percentage of novelty in experimental class was 77.78% while in control class was 73.33% in which both are categorized as good. The dimension "novelty" of students' creativity measured when implementation of flap poster design (experimental class) and common poster design (control class). Students make a design for their flap poster and common poster in a certain theme with teacher guidance. The three criteria of "novelty" that are original, germinal, and surprising are found in students' product (flap poster and common poster). Comparison between experiment and control class in terms of dimension "novelty" is presented in Figure 1.

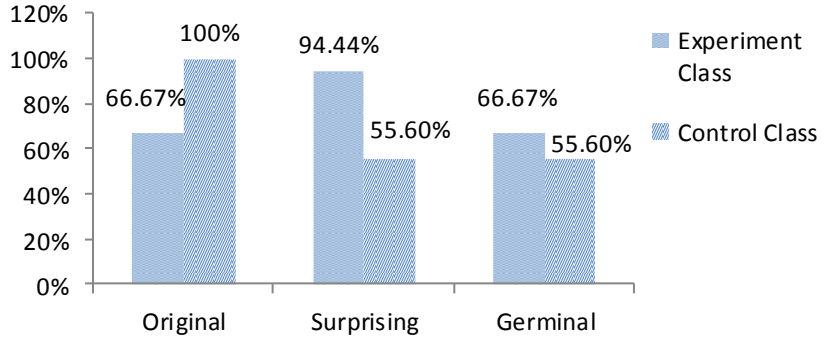

Figure 1. Percentage of Creativity Dimension "Novelty" in Each Class.

Dimension of creativity "novelty" must be considered from the experience of the creator (Munandar, 2009). Figure 1 showed that experiment class has higher percentage than control class in criteria "surprising" and "germinal", while in criteria "original", control class has higher percentage than experiment class. In experiment class, idea to create layout of the flap posters comes from the guidance of the teacher so that in terms of originality, control class was better than experimental class. Creativity is highly influenced by students' independence (Yue, 2004) and freedom of expression (Longshaw, 2009). Flap poster is a relatively new media so that students still need some guidance in making it. Guidance consequently affecting students' independence and freedom of expression in experimental class so that in terms of originality, control class was better than experimental class.

Resolution

Most of students' products have fulfilled dimension "resolution" which has three criteria, logic, valuable and useful. It can be noticed that the product is logic from how students use logical thinking in creating their product. The product is also useful and valuable in term of how it can influence people to understand the concept presented in their poster product. Figure 2 showed that experiment class has higher percentage than control class in valuable and logic criteria of creativity dimension "resolution". Meanwhile, in useful criteria, both experiment class and control class has same percentage. It means that the function of flap poster is actually same with common poster.

Elaboration and Synthesis

The elaboration and synthesis dimension enable students to improve their ability to combine various elements skillfully and done carefully (Munandar, 2009). Elaboration and synthesis dimension consist of organize, elegant, complex, understandable and artistic criteria. Figure 3 showed that experiment class generally has higher percentage than control class in each criterion of elaboration and synthesis, which are organist, elegant, complex, and artistic. Only in understandable criteria both experiment class and control class has same percentage. In this research, both experiment and control group made flap poster/poster with the same "understandable" level. Furthermore, this is caused by the scoring criteria regarding the clear appearance of the product whether student clearly labeling all the features or not.

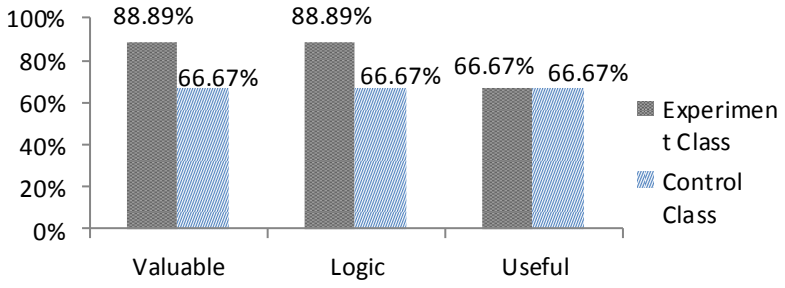

Figure 2. Creativity Dimension "Resolution" in Each Class.

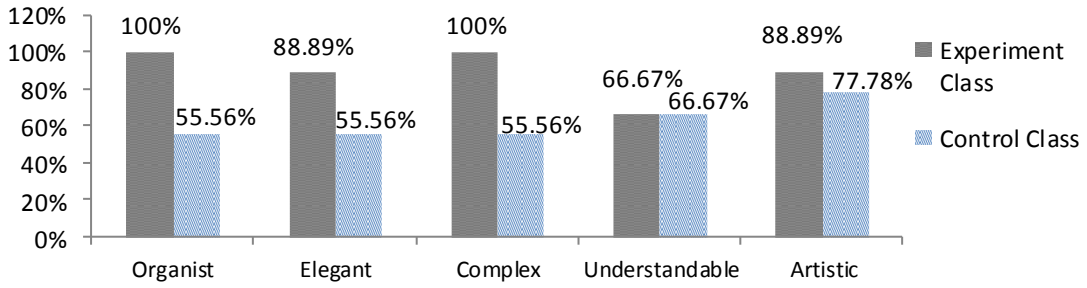

Figure 3. Creativity Dimension " Elaboration and Synthesis in Each Class.

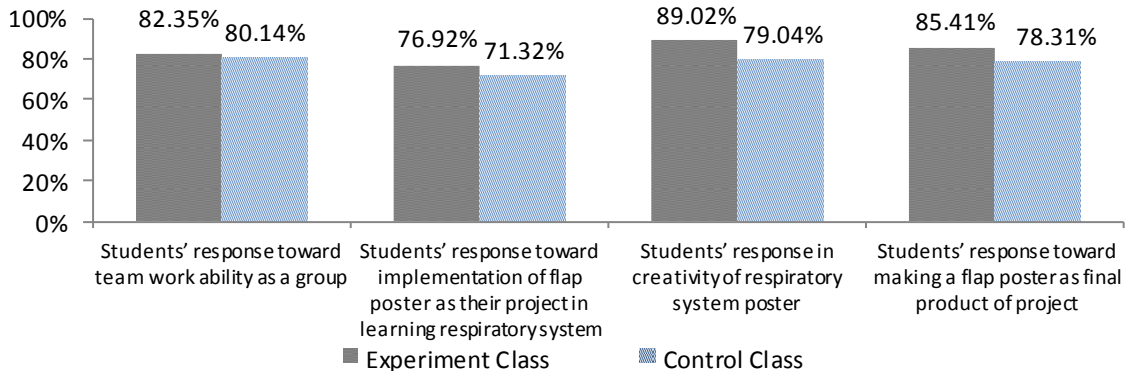

Figure 4. Students' Response towards Flap poster and Common Poster

The students' response towards flap poster and common poster implementation result was given right after the posttest had conducted. The scoring mark for calculating the questionnaire result is based on students' judgment in each statement. The score range of each degree is different from 1 up to 4, each indicator has a couple of positive and negative statement (Figure 4). Figure 4 showed that experiment class has higher percentage of positive response in each indicator than control class, especially in the third and fourth indicator.

The best response in experiment class is enhancing students' creativity on learning media which is 89.02%. Students create their own learning media, in this case is flap poster, as their project so that the students are reinforced to explore their creativity in order to make poster as innovative as possible. Meanwhile, the best response in control class is group working ability which is 80.14%. It means that creating poster as group's project enhances students' as a team because by working as a group they can create a good collaboration among students.

Thus, from all of the discussion above it can be interpreted that most of student generally has positive response toward flap poster implementation, which means they all are generally feel comfortable, enjoy, and prefer to implement flap poster as the learning media than the common one.

CONCLUSION

The implementation of creating flap poster on Human Respiratory System can improve students' creativity due to its ability to encourage the students to explore their creative ideas. Based on the findings of the research, we encourage the use of flap poster as an alternative teaching strategy to improve students' creativity and understanding on another concept that require students to share their knowledge and develop their creativity. But, analyzing students' ability before grouping the students is really important. Teacher should determine the group members that consist of low and high achievement student. Teacher also should make sure that each group is working collaboratively. Other important thing is the time allocation for creating flap poster should be determined properly, so that students can finish it optimally.

REFERENCES

Barron, F. and Harrington, D. M. (1981). Creativity, Intelligence, and Personality. *Annual Review of Psychology* Vol. 32, pp. 439-476.

Bracher, L. (1998). The process of poster presentation: a valuable learning experience. *International Journal of Medical Teacher* Vol. 6 No. 20, pp.552-557.

Besemer, S. P., & Treffinger, D. J. (1981). Analysis of creative products: Review and synthesis. *Journal of Creative Behavior* Vol. 15, pp.158-178.

El-Sakran, T. M. and Prescott, D. (2013). Poster Presentations Improve Engineering Students' Communication Skills. *International Journal of Education and Practice* Vol. 1 No.7, pp. 52-86.

Fraenkel, J. R. and Wallen, N. E. (2007). *How to Design and Evaluate Research in Education, Sixth Edition*. New York: Mc-Graw Hill.

Liu, L., Marathe, S., and Hmleo-Silver, C. E. (2005). *Function Befor Form: An Alternative Approach to Learning About Complex System*

Paper presented at the Annual Meeting of the American Educational Research Association. Montreal QC.

Longshaw, S. (2009). Creativity in Science Teaching. *School Science Review* Vol. 332, pp. 90-94.

McMillan, J. H. (2012). *Educational Research, Sixth Edition*. Boston: Pearson Education.

Munandar, U. (2009). *Pengembangan Kreativitas Anak Berbakat*. Jakarta: Rineka Cipta.

Singh, S. (2011). *Teaching aids in classrooms – both the traditional and the modern.* [Online].Retrievedfromhttp://www.indiastudychannel.com. [Accessed on October 6, 2014].

Yue, X. (2004). Enhancing University Students' Creativity: Reflection and Suggestions. *Journal of Higher Education* 2004, No.1, pp. 84-91.

Zevenbergen, R.. (1999). Student Constructed Posters: A Tool For Learning and Assessment in Preservice Mathematics Education. *International Journal of Mathematics Teacher Education and Development* Vol. 1 No.1, pp.72-83.