

THE APPLICATION OF ELECTRIC STOVE AS A LEARNING TOOL OF BATIK CRAFT

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Abstract

This article is the result of the research that aimed at describing the application of electric stove as a learning tool of batik craft lesson in the Arts and Craft Education Program, Visual Arts Education Department, the Faculty of Languages and Arts, Yogyakarta State University, that can provide a sense of comfort, safety, and air pollution-free in the learning process compared to oil stove. In addition, this study also described the effectiveness of batik craft learning and quality of batik works with the application of electric stove compared to the oil stove.

The subject were students who taking batik craft lesson consists of regular and nonregular classes with 60 students. This research is a comparative experiment that compared the application of electric stove to the oil stove as a learning tool. Data collected by observation or direct observation during the learning activities taken place, and interviewed the students. All data which collected by observing, interviewing, and documenting processes of batik works were analyzed qualitatively, reflected and compared.

The results showed that the application of electric stove as a learning tool of batik craft lesson was able to give a sense of comfort, safety, air pollution-free, and could motivate students in the batik learning better and has proven to be more effective than the use of oil stove. The use and the application of oil stove as a learning tool less affect the quality of students' work of batik craft lesson.

Keywords: electric stove, batik, comfort, safety, air pollution-free, motivation, quality.

INTRODUCTION

The success in the learning process is influenced by: (a) an active lecturer who is able to motivate and to create a harmonious atmosphere of study, exciting and able to give encouragement to students, (b) an adequate learning infrastructure, and (c) adequate time for learning.

The signs of a learning quality can be seen from the behavior of teachers' learning, behavior and impact of students' learning, the learning atmosphere, the learning materials, the instructional media and the learning systems.

The learning process at Arts and Craft Education Program still have problems on the lack of facilities and infrastructure, especially in practice learning that needs more safety and comfortable equipment. For example, in batik learning still use oil stove to heat the batik wax. Oil stove has a tendency in causes smoke that pollute the air, potentially explosive, and the unruly heat, resulting less comfort, safety , and less to generate and build a positive attitude towards learning.

The efforts to overcome these obstacles one of which can be done by increasing practice equipment that can provide a sense of comfort, safety , generate and develop positive attitudes towards learning, which in turn can improve the quality of processes and learning outcomes. In this regard, it is necessary in the form of innovative teaching and learning practice equipment to improve the learning quality.

The application of electric stove is one of the efforts in improving the learning quality of batik lesson. It also gives a sense of comfort, safety , air pollution-free, and can motivate students to create batik works. The application of electric stove needs to be implemented in order to determine how effective this tool to contribute positively in the learning activities in the batik lesson.

In the batik lesson , the students must always be active in updating the global market developments. The students also are required to create new batik works with creative ideas. Based on the developments taking place in the community in relating to the rapid technological development, and the recognition of batik by UNESCO as Indonesian cultural heritage, educational institutions encourage in conducting batik lesson to adapt it into the world of batik. Arts and Crafts Educational Program which organizes batik craft lesson should takes an active role in improving the quality learning of batik in keeping up with the rapid development of technology as it is today.

Based on that situation, can be seen that there are some weaknesses of the use of oil stove and the benefit of the use of electric stove in batik lesson. The application of electric stove as a learning tool is considered to be very appropriate to be applied in order to improve the learning quality. However, it still need an in-

depth comparative study of the effectiveness of the implementation of the oil-stove and electric stove as a learning tool.

From the background above, there are some fundamental issues raised include: 1) a sense of comfortable, safety , air pollution-free in the learning process of batik craft with batik wax by applying the electric stove as a learning tool 2) the effectiveness of batik learning by applying the electric stove compared to the oil stove as a learning tool, and 3) the quality of the batik work by applying the electric stove compared to the oil stove as a batik learning tool.

REFERENCE

Referring to Sumardi Suryabrata (in Haryanto, 2003) said that bahwa there are two factors that influence the learning process, ie: (1) internal factors, and (2) external factors. The internal factors are the physiological and psychological condition of the learning participants, and the external factors can be an instrumentation factors such as; the curriculum, learning facilities, teachers, and the learning method.

Hardianto (2005: 96) explain that there are some variables that influence the learning process, such like teachers, learning participants, learning environment, methods/technics, and learning media/tools. In facts, there are still found uneffective learning. Much times, energies, and costs waste for nothing, and the learning goals can not be achieved.

In the execution of learning process, lecturers should use the media in the learning process, in order to make the learning matter can be understood easily and clearly by the students. The media or the learning tool is everything that can be used to be a medium in learning process. Depend on the function, a media can be a demonstrating tool and facilities. (Hardianto, 2005:98).

Estiningsih (1994:2) argue that demonstrating tool is a learning media that contained the characteristics of the concept of learning matter. The main function of the demonstrating tools is to reduce the abstract of the concept, so the students can catch the real meaning of the concepts itself. By touching, seeing, shaping, and manipulating the object, students will get many real experiences in life about

the meaning of concept. The examples of demonstrating tools are: white/blackboard, chalk, and so on.

Facilities can also be a learning media which has the main function as a tool to help the learning activities, for examples: black/whiteboard, rulers, circles, klinometer, metric, LK (worksheets), LT (tasksheets), and playing tools.

Base on the references above, it can be concluded that media and learning tools are everything that become a medium of the learning process which can stimulating the mind, feeling, interest, willing, and motivating the students, so the learning process can stimulate the mind, feeling, student interest, and motivating the student so that the learning process can be run effectively and efficiently and the learning objectives can be achieved.

Batik craft is the flagship lesson in the Arts Crafts Education Program , Faculty of Languages and Arts, Yogyakarta State University and it is a compulsory subject in the curriculum of 2009. There are 3 levels in the lesson of batik craft, ie: Batik Craft I, Batik Craft II and Batik Craft III . These lessons learn about the knowledges and understanding of the fundamentals of batik, a wide range of batik products, knowledges about the making of batik products, and how to conduct the exhibition.

This lesson gives students an understanding of the concepts and designs of batik, knowledge of tools, materials and process of batik and batik work practices. Learning is done through the creation of concepts and work practices, with the exploration of materials, media, design, and so on, to produce batik work with new design ideas .

RESEARCH METHOD

The subjects of this study were 60 students of the Arts and Craft Education Program who taking courses of Batik Craft I consists of regular and nonregular classes. The research location is Batik Studio of Visual Arts Education Department of Faculty of Languages and Arts, Yogyakarta State University. This research is a comparative experimental study that compares the application

of electric stove with oil stove as a learning tool. In this study, researchers get involved during the learning process takes place and followed the process continuously.

This study was conducted in several stages, as follows:

1. Experimenting the application of electric stove , and at the same time still use oil stove as a learning tool of batik.
2. Diagnosing how the feel of comfort, safety , and free-air pollution can motivate students in learning, influence the learning effectiveness, and the quality of batik work with the application of electric stove and oil stove as a learning tool.
3. Comparing some advantages and disadvantages, associated with the feeling of comfort, safety , free-air pollution and how they can motivate students in learning batik, influence the learning effectiveness, and quality of batik work by the use of electric stoves compared to oil stoves as a learning tool.

Data collected by direct observation during the learning activities took place, interviews the student about how far were the feel of comfort, safety , free-air pollution can motivate students in the learning batik by using electric stove compared to the use of oil stove. In addition, the data collection was done by documenting the batik work that made by using electric stove and oil stove. All data were analyzed qualitatively and then reflected and compared. The comparison of the quality of work can be seen on the results of the making of pattern by *canting* tool (the fineness, the strength of the line that patterned by batik wax on the fabric (*mori*) , the strenght of translucency and strength/translucent color in the coloring process. It also compared the cleanliness of the fabric.

RESEARCH RESULT

1. The feel of comfort, safety , and free-air pollution can motivate students in learning batik

The feel of comfort, safety , and free-air pollution are the urgent elements in learning of practice, especially in batik learning practice. To determine the level

of comfort, safety, free-air pollution, and students' motivation in doing the tasks of making batik work, in-depth research was done for about 4 months. Based on the data obtained during the observations, interviews, and documentation, can be obtained the research data about the the use of oli stove and electric stove.

The usage of oil stove as learning tool in the practice of batik has a tendency to provide a sense of discomfort, because it tend to be soiled with oil, smoke from stove interfere the breathing, and the smell that generated from the burning kerosene also make the practice discomfort (Interviewed by Sartono, March 19, 2012). The same explanation was also said by Sari (interview on March 19, 2012) that the use of oil stove was inconvenient caused by the dirt (caused by kerosene), smoke from stoves interfere with breathing, and the smell of burning kerosene, discomfort because the conditions of unstable stove flame that had to be shrinked and enlarged repeatedly. Referred to the observation results, it can be explained that the use of oil stoves is uncomfortable .

In the other side, the use of electric stove in learning batik tends to be more comfortable, because it clean and there was no smoke that can interfere the breathing, and there was no smell caused by combustion (Interview with Sartono, 23 April 2012). Muryani also confirmed on her interview on April 23, 2012, which explained that the use of electric stoves tended to be more comfortable compared to the oil stove because of its cleanliness , no smoke that interfere the breathing, no smell from burning kerosene, and no need to repeatedly shrink and enlarge the flame, just turn on / off button to lower the temperature / heat of batik wax. Apart from some of the explanations, the observations also showed the same thing, that students have a tendency to be more comfortable using electric stove.

The feel of discomfort and unsecure in using oil stove as a learning tool in batik due to the potent to be explode (fire grabbed the jar of oil) (Interviewed by Sartono, March 19, 2012). The same statement also raised by Muryani (Interview, March 19, 2012), the use of oil stove as a learning tool of batik is less likely to give a sense of security, as well as potentially causing a fire explosive when grabbing the oil, and it also has the potential to cause a fire hazard. Different explanations obtained when applying the electric stove as a learning tool of batik.

The use of electric stove has a tendency to give a sense of security, because there is no fire in the stove so that no explosion will be happened. (Interview with Sartono, 23 April 2012). It was confirmed by Sari (interview on 23 April 2012), that explained that the use of electric stove on batik learning tended to provide security, but there was still a risk of electric shock in the event of the broken connecting cable to the current electricity. Further confirmed that, compared with the oil stove, electric stove tends to give a sense of security for students. Air pollution caused by oil stove was quite varied in particular air pollution. The use of oil stove as a learning tool of batik has some disadvantages such as smoke from the burning oil will pollutes the air, and it will interfere the breathing . (Interviewed by Sari, March 19, 2012). Some of the participants of batik craft lesson have to wear masks to keep their breathing from air pollution (smoke from burning kerosene from oil stove). They said that the use of oil stove has a side effects such as smoke from burning kerosene. Besides, visible smoke / pollution on batik practice can disturb the learning process. On the different occasions, Sari (interview on April 23, 2012) explained that in the use of electric stove on batik learning was no case of air pollution. So, it can also be observed that the application of electric stove as a learning tool of batik craft made the room or place where the practice of batik took place was free from smoke / air pollution .



Gambar 1: **Electric stove**
(Documented by Ismadi, 2012)

The students' motivation in the learning of batik can be raised from the students, from another person, or even from the external factors such as learning facilities, curriculum, and so on. Referring to the facilities in batik learning especially batik burner, the usage of oil stove less motivate the students to make batik work. It caused by some disadvantages that have explained before. However the students still use oil stove to do their task because of the situation of lack of facilities in batik studio. (Interviewed by Sari, March 19, 2012). The same thing was explained by Muryani (Interview on March 19, 2013), that the learning process in batik lesson tended to be less motivated in the application of oil stove .

In the next occasion at the different time, researcher changed the oil stove into electric stove. The fact showed that the application of electric stove in the learning of batik give more motivation to the students in doing their task such like what explained by Sari in her interview on April 3, 2013 that the application of electric stove give more motivation for the students in making batik works. The usage of electric stove gave more spirit to the students to practice because of its simplicity and advantages as described previously.



Gambar 2: The usage of electric stove, free- air pollution, and the comfort of students in making batik
(Documented by Ismadi, 2012)

2. The effectiveness in the learning process of batik.

On the use of oil stove as a batik learning tool needs to be revisited effectiveness, because the oil stove requires a variety of activities before using it, including: treatment of stoves, kerosene preparation (when oil is expensive and

scarce), take time to turn on the stove, and it took nearly 15 minutes to wait until a wax hot and ready for batik. In addition, the oil stove is not practical. By looking at these explanations, the usage of oil stove is not effective. Furthermore, the observations during the study in using the electric stove in batik learning, their effectiveness can be explained as follows. Electric stove requires no prior use activities, such as: nursing wick stoves, kerosene preparation, and requires only 4 minutes to wait until the wax hot and ready for batik. Although using electricity as energy heaters, electric stoves require only about 60 watts so that is not too expensive. In comparison with the use of oil stove with kerosene price of Rp. 7500, -/liter, the use of electric stove tend to be more efficient. In addition, electric stove is practical, can be brought and placed in cupboards tool without worrying oil spill or contaminate the cupboards. By looking at these explanations, electric stove is more effective to be used in learning batik.

3. Improving the quality of batik work

The heat of oil stove tends to be difficult to manage, so the heat of wax often become too hot or sometimes less. The use of oil stove in learning batik, it needs necessary skills in order to regulate the heat of wax as expected. If the wax is less heat, the effect will happen in patterning by *canting*, the wax will not penetrate into the fabric, so the most likely, the line motive will breaks or easily penetrated by dye fabric. Conversely, if the wax is too hot it will cause scratches when its spread is too thin. This situation will directly affect the whole quality of the work. This does not mean that the use of oil stove in the learning process of batik lead the patterning process by *canting* interrupted and caused a poor-quality work, but need skills in order to set a controlled fire cooker temperature / hot wax in a right way.

The observation showed that most of the students could control the burner flame, so the heat / temperature wax run as expected. A few students could not adjust the flame so the wax was too hot and diluted so that the patterning process by *canting* dilated or even tended to spread and less tidy. Besides, the effect that

happend if the wax is overheating will make it burnt and dirty. It will make the beak of canting quickly clogged.

The appication of electric stove in the learning of batik, incidentally does not have any tendency to make the wax overheating. The usage of electric stove was also be a necessary skills for students to regulate the heat of the wax as expected, how to cope if the wax is too hot (smoke billowing out) by turning on / off switch located on the burner for a moment and then turned on again so the wax did not frozen anymore. From the observations during the study showed that most of the students can control the heat / temperature of the wax as expected and only a small number of student who forgot to set the heat or turn off the on / off so the wax is too hot and diluted so that the patterning dilated or even tended to spread and less tidy.

By looking at a few explanation above, these results can be explained as follows: 1) if the usage of electric stove is not equipped by heat controller / stove temperature, the use of oil stoves and electric stove were less significantly affect the quality of the work of batik. Relying on a number of explanations above, the table below can help in explaining the results of the study :

Tabel 1: Short explanation about the usage of oil stove snd alectric stove.

No	Research Aspect	Oil stove	Electice stove
1.	Safety	- Gives less sense of security, because of the burning smoke that causes interrupted breathing and the possibility of a stove to explode.	- Provide a sense of security, because of its smokeless and less likely to explode. - Provide less security against the possibility of blisters power cables that allow an electrical shock.
2.	Comfort	- Gives less sense of comfort because of dirty stoves, smoke from the stove, and the aroma / odor caused by the burning kerosene.	- Provide a sense of comfort because the stove clean, no smoke from the stove, and no scent / odor caused by the burning kerosene.
3.	Air Pollution	- Potentially caused an	- No cause of air

	free	air pollution from the smoke of burning kerosene	pollution.
4.	Ability in motivating the students	- Less motivate the students to work because of its less cumbersome, dirty and unattractive	- Motivate the students to do their tasks because of its practical, clean and attractive.
5.	Effectivity in learning	- Learning process is less effective, because it requires time to perform maintenance of the wick stoves, kerosene preparation (expensive and rare), and turn on the stove. It takes nearly 15 minutes to wait for the wax hot and ready to be used for batik processing.	- Enhance the effectiveness of learning because of its practical, (no need to take care of the wick stove, no need to set up the kerosene (expensive and rare), and requires only a few moment (4 minutes) for a hot wax to be ready to be used for batik processing.
6.	Quality of patterning by canting	- Oil stove has a tendency to make the wax overheating that can bothered patterning process by <i>canting</i> so the quality of batik is not good enough.	- Electric stove does not have a thermostat so the heat can not be manage as expected, that make the wax too hot which cause difficulties at the patterning process by <i>canting</i> , so the works will be less qualified.
7.	The quality of the product	- Less influence on the quality of product	- Less influence on the quality of product

CONCLUSION

Based on the result of this research, can be explained that the application of electric stove as a learning tool in batik craft lesson can provide a sense of comfort, safety , and air pollution-free in the learning process compared to oil stove. In addition, this study also describes the effectiveness of batik craft learning and quality of batik works with the application of electric stove compared to the oil stove . The use and the application of oil stove as a learning tool less affect the quality of students' work of batik craft lesson.

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sampai saat ini menjadi Staf Pengajar di Program Studi Pendidikan Seni Kerajinan, Jurusan Pendidikan Seni Rupa, Fakultas Bahasa dan Seni, Universitas Negeri Yogyakarta.

Beberapa pengalaman penulisan karya ilmiah, diantaranya adalah:

- "Pluralisasi Pembelajaran Motif Batik Nusantara" (*Makalah Seminar Nasional*, di FBS UNY, Oktober 2009).
- "Peningkatan Kualitas Pembelajaran Kerajinan Batik Dengan Menggunakan Metode Interaktif berbasis Komputer Multi Media" (*Jurnal Imaji FBS UNY*, Februari 2010).
- "Batik Bayat Klaten: Tinjauan Sejarah, Bentuk, dan Gaya" (*Makalah Seminar Nasional*, di FBS UNY, Mei 2010).
- "Evolusi Batik Dahulu dan Sekarang" (*Makalah Seminar Nasional*, di FBS UNY, Mei 2011).

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