Original Research Article

Interactive Multimedia Development to Prevent Drug Abuse among Elementary School Students

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ABSTRACT

In this paper we present how interactive multimedia can be used as an introduction to prevent drug abuse among Elementary School students. We use adobe flash in the development of interactive multimedia because students more familiar whit it and it is cheaper, since it can be stored in compact disc, than any other application program. We evaluate in terms of learning, material and media aspects. To see the effectiveness of the multimedia, the t- test was used. The result is that the group using interactive multimedia products has a better learning achievement than the group not using multimedia.

Keywords: drug abuse prevention, interactive multimedia, Elementary School students

INTRODUCTION

The social and economic impact of drug trade and abuse makes the world, including Indonesia, worried. Socio-economic losses due to drugs abuse tend to increase from year to year. Drug users share syringes which provide a high risk of transmitting hepatitis and HIV / AIDS diseases. (BNN. 2014) The number of suspected drug abuse under 16 years of age in 2012 was 132 people and there were 11 children under 15 years of age who became patients in the medical center for drug addicts in Jakarta. (Pusdatin Kemenkes, 2014). When entering the body, substances of psychotropic drugs will mainly affect the central nervous system or brain so that it causes physical, psychological and social dysfunction. (Dewi Anggreni.2015) Schools need to take a more active role in preventing drug abuse among their students.

Since drug victims are not only the adults, preventive efforts need to be made as early as possible. The role of schools in the matter can be realized in various forms such as providing Counseling Agency as well as maximizing the role of counseling teachers (BK), developing various forms of training programs with measurable targets and realistic stages and providing information and knowledge or the students since ignorance and incomprehension can be the cause of drug abuse among students. (Muhammad Sirozi. 2013).

Nevertheless, some research results as described above show that Indonesian people still have to work harder and do more to prevent drug abuse among students. The spread of drug outbreaks is more expansive than its prevention efforts. Drug dealers and drug users tend to move faster and more aggressively than the apparatus who are after them so that they often get away with the drugs. The characteristics of high grades (IV - VI) students aged 9-12 years old are that they focus on practical daily life, want to learn realistic interest in special lessons, perceive value as an

appropriate measure of school achievement, and like to form peer groups to play in which they make their own rules in the group (Sri Joko Yunanto (2004)). Adobe flash which was once macromedia flash is a program to create animation and professional web applications. In addition, it is also widely used for making games, animated cartoons, and interactive multimedia applications. Flash reliability is superior in the file size of the results of a small animation compared to other programs. Animations generated by the flash program have more attractive appearance. The advantages of the flash, among others are that its result file has a smaller size (after publishing), it can import almost any image file and audio files so that in the presentation, the display will be more alive, it can be formed, run and controlled, it can create executable files so that they can run on any PC without having to first install it with a flash program, and the font will not change even if the PC used does not have the font. One of the ways to develop a drug abuse prevention program in school is by integrating drug prevention materials into the subjects, since until now it has not been included in the new curriculum of 2013. One of the subjects suitable to teach the drug prevention materials is social study. Learning media is not merely a teaching tool for teachers but it is rather a means of message channel from the messengers to the recipients since it is used not only by teachers but also by students. (Pramono 2002). The use of appropriate and varied learning media can overcome the passive attitude of students and can generate passion for learning. The interaction between children and the environment allows them to learn independently according to their interest and ability. (Sadiman, et al., 2009). It helps students and cause excitement to learn. Multimedia term is related to the use of various media formats sequentially or simultaneously in presenting information or in independent study programs. (Setyosari, 2010) The multimedia concept is seen as a revolutionary form of education which

encourages teachers to have the student-centered learning. Students are invited to actively engage in learning by using learning resources with an intermediate range of media formats of learning. The use of varied learning media generates learning media in the form of multimedia. (*Stephen C. Yanchar,* 2014)

METHODOLOGY
Design of Study
This study consisted of three stages, namely: (i) analysis, (ii) design and development; and (iii) implementation and evaluation. In the first stage, observation was conducted to find out the school condition and the learning process of social studies in Grade IV. Interviews were conducted to grade IV teachers and students to collect information on the use of the types of learning media, learning process, and the use of multimedia learning as well as the development of multimedia learning required by students. Documentation and archive studies were conducted to collect and identify data from documents and archives sources. Document types included syllabus, lesson plan and teaching handbook while the types of archive included a list of student names and of their learning outcomes. At this stage the results of the observation of Grade IV students of Elementary Schools in Sleman District became the benchmark to develop the media.

In the second stage, interactive multimedia was designed and developed based on the proposed model. In order to achieve the research goal, the prototype was designed and developed using the ADDIE development model consisting of five phases: analysis, design, development, implementation and evaluation. The steps undertaken on the material design were (1) planning the material to be presented in accordance with the competence standards and basic competency that was determined and with the order of presentation of the material; (2) designing the evaluation / exercise of the material already given and

giving the feedback; (3) collecting supporting materials such as video, animation, clip art image, and audio. This was followed by making flowchart and storyboard. The last step was (4) making multimedia learning products using computer programs, namely adobe flash 8 and other supporting programs in accordance with the flowchart and storyboard that had been made. After the initial product was finished, it was then packed in the form of CD with the process of burning file as a means of learning multimedia CD.

The third stage began with validation of each product by material experts and media experts. After that it was included in one-on-one trials, small group trials, and field trials.

Instrument
The instrument developed in this study referred to the development of the adaptive learning model from Ade Kosnandar covering aspects of learning, material and media.

Table 1.Questionnare content and number of the item

	Aspect	Indicator	Number of item
1	Learning	Clarity of learning competence formulas	1
		Clarity of study instructions	1
		Precise material	1
		An example in the presentation	1
		Exercises for conceptualizing	1
		Provision of tests to measure students' abilities	1
		Interesting material delivery	1
		Learning activities which motivate students	1
2	Material	Material attraction	1
		Clarity of language to make the material easy to understand	1
		Ease of material learning	1
		Difficulty level of the questions	1
		The utility of the material in real life	1
3	Media	Clarity of media usage instructions	1
		Ease of use	1
		Type and size of font	1
		Composition and color combination	1
		Image display quality	1
		Video	1
		The capacity of music	1
		Freedom to choose the menu	1
		Possibility in generating student motivation	1
		Total	22

In the questionnaire there were five different scores used to give response about the interactive multimedia product developed namely: excellent (5), good (4), average (3), below average (2) and poor (1). The scores are then converted to marks on the scale of 5 with the reference table quoted from Sugiyono as illustrated in table 2:

Table 2.Conversion from scores tomarks in the scale of 5

Score Interval	Mark	Category
$Xi > xi + 1.80SBi$	A	Excellent
$Xi + 0.60Sbi < X < xi + 1.80SBi$	B	Good
$Xi + 0.60Sbi < X < xi + 0.60SBi$	C	Average
$Xi + 0.60Sbi < X < xi - 0.60SBi$	D	Below Average
$X < xi - 1.80Sbi$	E	Poor

To prove the effectiveness of the utilization of multimedia product the t test needs to be held. The test used 2 independent samples (free) to find out the average equality of 2 independent populations. The different populations are 2 groups of samples each of which was treated as experimental group (subjected to multimedia learning).

Respondent
In this study, sample selection could not be done randomly because it could screw up students' schedules. The respondents were the students of Grade IV of Elementary School in Sleman Regency, Special Region of Yogyakarta. A total of 60 students who were involved in this study had homogeneous characteristics. There were two groups, namely: control (30

students), who were given non multimedia learning and treatment group (30 students), who were given multimedia learning.

Procedure

This competency test was conducted to find out the effectiveness of multimedia product. In the implementation, the average score of the treatment group compared to that of the control group. In this way the minimum completeness criteria would be obtained.

RESULTS AND DISCUSSION

Based on the results of one-to-one testing, it can be concluded that the multimedia developed by researchers is good. This is seen from the average amount of valuation after converted into qualitative data that was 4.09. As for the details, 3.9 was obtained on the learning aspect; 4.3 on the material aspect; and 4.2 on the media aspect. When the data were converted to the scale of 5, the result was good. Small group trial data were processed and converted to a scale of 5 and a score of 4.11 with good criteria was obtained. The scores obtained when compared to one-to-one trials increase by 0.02 from a 4.09 to 4.11 for small group trial. As for the details it was found that the mean scores of the students of the treatment group were 4.3 on the learning aspect; 4 on the material aspect; and 4 on the media aspect. When they were converted to a scale of 5, the results were good. The data obtained from field trials increased significantly compared to previous trials. After being converted, it was found out that there was an increase by 0.14 percent with the average score of 4.25. This score was converted to a scale of 5 so it was categorized as excellent. Based on the results, the feasibility of learning decreased by 0.06 from that of field trial in which the average score was 4.24 with very good category. The material feasibility aspect increased significantly in mean score of 4 for small group trials to 4.26 in excellent field trials. Then the data were converted to a scale of 5 and the result was very good. The result of t test as the effectiveness test

of social study multimedia utilization in drug prevention is $F_{Stat}= 5.11 > 1.96 = F_{Crit}$, because $F_{Stat}> F_{Crit}$, Ho was unverified, meaning that both groups had unequal learning achievement. Of the 30 students of the multimedia class who took the competence test, it was found that 90% of students gained the learning completeness with an average score of 76.67. Meanwhile, the average of the group learning achievement using textbook material (non multimedia) was 60.63. Based on these results it can be concluded that the average group using multimedia learning product had a better learning achievement than those using textbook material (non multimedia).

CONCLUSION

The researchers have shown that the development of multimedia learning is important because it can provide positive motivation for users. Based on the findings of the research, it can be concluded that the developed multimedia learning model can improve the quality of learning in Elementary Schools. On the basis of the benefits expressed by the learning multimedia model of development outcomes, there are a number of practical implications for teaching and learning activities, among others are

Multimedia learning was developed effectively to improve student's achievement. The results of competency test as part of the feasibility test/ effectiveness of multimedia learning according to data on the subjects of 60 Elementary School students with 30 students of treatment group and 30 students of control group show different students' scoring gains. They show that the academic achievement score of the students group who were given the multimedia learning treatment developed was higher than those who were treated with the conventional teaching materials in the form of textbooks. Based on these findings it can be concluded that the learning by means of multimedia learning developed effectively improve student learning achievement. Learning Multimedia

developed helps the fourth grade teachers provide various supporting materials and they are not fixated on conventional teaching materials. Multimedia learning developed widens the teacher horizon. The multimedia material is very helpful for the teachers to teach because students are more interested in the audiovisual material raised by the product. This certainly increases the spirit of teachers to prepare lessons better. Teaching is not always limited to a series of posts without meaning, but it becomes more varied. Teachers become more challenged to find forms of teaching methods that attract students. They are also increasingly encouraged to search for supporting material outside the textbook either in the form of still images or audiovisual. It also encourages teachers to further enhance their ability to attract students through various forms of questions for the students to dig deeper, and it provides more extensive material, not fixated on the existing materials in teaching materials. In addition, more teachers are encouraged to use the facilities already provided by the school in the form of computer equipment in the computer lab. This has an impact on improving the ability of teachers in operating the supporting media i.e. computers.

REFERENCES

- Ade Kosnandar. 2000. Evaluasi Multimedia Pembelajaran. Jakarta: Pustekkom Diknas.
- BNN. 2014. Final Report of the National Survey on Drugs Abuse Development for Fiscal Year 2014.
- Dewi Anggreni.2015. Impact on Narcotics, Psychotropic Users and Addictive Substances (Drugs) in Gunung Kelua Samarinda Village Ulu eJournal 2015 Sociology-Sociology, 3 (3):, ejournal.sos.fisip-unmul.ac.id.
- Muhammad Sirozi. 2013. The Role of Schools in Preventing Drug Abuse Among Students. Paper Presented in the Activity of the South Sumatra Province National Narcotics Focus Group Discussion (FGD) on May 30, 2013 in Palembang.
- Pramono 2002. Information and communication technology for junior and senior high schools. Jakarta Center Curriculum and Books
- Pusdatin Kemenkes, 2014, *Say no to narkoba say yes to life: Jakarta.*
- Sadiman, et al., 2009: 10). Media Education: Definition, Development and Utilization Jakarta: Rajawali press.
- Setyosari, 2010: 222) educational & development research methods. Jakarta: Kencana
- Sri Joko Yunanto (2004). Intelligent children's learning resources. Jakarta: Grasindo.
- *Stephen C. Yanchar,* 2014. www.ifets.info/journals/18_4/32.pdf *Stephen C. Yanchar,* 2014. *Instructional Design and Professional Informal Learning: Practice, Tensions and Ironies.*
- Sugiyono. (2011). *Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: Alfabeta.*

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