



## Efficiency of Interactive Learning Multimedia in Increasing Knowledge of the Dangers of Drug Abuse

### ARTICLE INFO

#### Article Type

Descriptive study

#### Authors

Achmad Basari Eko W.\*<sup>1</sup> PhD

#### How to cite this article

Achmad Basari Eko W. Efficiency of Interactive Learning Multimedia in Increasing Knowledge of the Dangers of Drug Abuse. Health Education and Health Promotion. 2021; 9(Special Issue):481-485.

### ABSTRACT

**Aims** Drugs can change the conscious state for pleasure by altering users' perceptions, feelings, and emotions. This study aimed to assess the effectiveness of Interactive Learning Multimedia compared to lecture methods in increasing the knowledge of the dangers of drug abuse.

**Instrument & Methods** This quasi-experimental research was conducted in 2020 on grade IV elementary school students. Fifty-six students were selected by random cluster sampling method and randomly divided into multimedia learning groups (experimental) and lecture groups (control). Data was collected by the Knowledge on the Dangers of Drug Abuse questionnaire. Data were entered into the SPSS 18 software, and the covariance statistical test was used to determine the effectiveness of interactive learning multimedia.

**Findings** The pretest scores of lecture and multimedia groups were  $84.5 \pm 12.3$  and  $82.9 \pm 11.9$ , respectively. The posttest scores of lecture and multimedia groups were  $89.1 \pm 12.0$  and  $98.6 \pm 10.5$ , respectively ( $p < 0.05$ ).

**Conclusion** Using interactive multimedia learning can increase the knowledge of the dangers of drug abuse in school children better than lecture learning.

**Keywords** Drug Abuse; Elementary Students; Interactive Multimedia Learning; Narcotics

### CITATION LINKS

[1] Drugs, dangers and how to anticipate ... [2] Health promotion strategy on drugs abuse ... [3] Adolescent substance ... [4] Counseling on prevention, distribution ... [5] Juvenile delinquency and its ... [6] Character education development model based ... [7] Drug counseling as a preventive effort for illicit ... [8] Crime prevention in urban spaces through environmental ... [9] Structural equation modelling using AMOS: Confirmatory ... [10] Epilogue: Rethinking digital literacy: Media ... [11] Drug abuse prevention behavior in adolescents ... [12] Vocational education principal of leadership ... [13] Model aspects of open access to multimedia ... [14] The practicality of using interactive multimedia ... [15] The effectiveness of using interactive multimedia ... [16] Application of Computers in Modernization of Teaching ... [17] Features of creativity and innovation development ... [18] Organizational commitment survey ... [19] Development of computer-based interactive ... [20] Innovative educational practice for impactful ... [21] The impact of supervisory styles on satisfaction ... [22] Conceptualising scientific theory-law ... [23] Identifying factors affecting acceptance of virtual ... [24] Exploring the effects of emotional ... [25] Students' perception on use of technology ... [26] Interactive multimedia effectiveness ... [27] Cognitive theories and paradigmatic research ... [28] Interactive multimedia development ... [29] Development of interactive multimedia ... [30] Strategy of values education in the Indonesian ... [31] Strengthening character education of early ... [32] Technology-enhanced learning and the pursuit ... [33] Blending pedagogy and digital technology ...

<sup>1</sup>Faculty of Teacher Training and Education, Sebelas Maret University, Kota Surakarta, Indonesia

#### \*Correspondence

Address: Faculty of Teacher Training and Education, Sebelas Maret University, Kota Surakarta, Indonesia

Phone: -

Fax: -

achmadbasari@student.uns.ac.id

#### Article History

Received: July 07, 2021

Accepted: August 08, 2021

ePublished: January 25, 2022

## Introduction

When psychoactive drugs enter the user's body, the medication will affect a person's behavior. In general, addictive substances (also referred to as drugs) are categorized into three: depressants (medicines that cause feelings of relaxation and calm); stimulants (drugs that induce a sense of energy and alertness); and hallucinogens (medications that cause perversion as hallucinations). Drug abuse among youth and adolescents is undeniable, and many cases of abuse it in the environment around us <sup>[1]</sup>. United Nations on Drug and Crime (UNODC) estimates around 255 million people (5% of the adult population aged 15-64 years) using drugs at least once in 2015. This figure shows that the number of drug abusers among the world's population has stayed fixed in the last five years. Globally, more than 11% of the population taking drugs (approximately 29.5 million individuals) are estimated to suffer health problems due to drug use <sup>[2]</sup>.

The issue of drugs in Indonesia remains critical and complicated. Over the last decade, this issue has been prevalent and common <sup>[3]</sup>. Drug abuse is an urgent problem in Indonesia. At present, there are around 3.2 million drug users in Indonesia; drug cases have crossed the boundaries of gender, economic class, and even age <sup>[4]</sup>. Sumara et al. <sup>[5]</sup> stated that one of the vulnerable groups to drug abuse is youth and adolescents. Childhood and adolescence are the future assets of a nation <sup>[6]</sup>. However, a lot is happening to teenagers this time, such as drugs and Genk motorcycles.

BNN survey results mention that 4 out of 100 students have used drugs. Half of this amount consumed medicines in the past year. Strategies to overcome drug problems are carried out by reducing supply (supply reduction) and reducing demand (demand reduction). Efforts to minimize need can be made with preventive measures. A good prevention program is a cost-effective way. One initiative that can be done to prevent drug abuse is an extension program. Salatun & Mina <sup>[7]</sup> argue that extension programs can increase knowledge about drugs' dangers and provide valuable information and solutions. Drugs impact lawlessness medical and psychological problems so that people know the dangers of drugs and prevent abuse among the community <sup>[8]</sup>. In adolescence, prevention efforts are often carried out when young people are exposed to new ideas, namely when they try to play adults' roles and be more independent <sup>[9]</sup>. Adolescents begin to decide about potentially harmful destructive behaviors, such as risky sexual behavior, smoking, drinking, unsafe driving behavior, and drug use <sup>[10]</sup>. This development period is a time when interventions can strengthen or change previous experiences. Prevention needs to be done in evidence-based interventions (evidence-based

response) because not all interventions provide positive outcomes. The study results of Jumaidah & Rindu <sup>[11]</sup> show that knowledge, attitude, and environmental factors strictly prevent drug abuse.

There are several methods of increasing adolescent knowledge, some of which are done using interactive learning multimedia. Here, interactive learning is related to two or more communication directions of the communication component <sup>[12]</sup>. Multimedia combines text, art, sound, animation, and video sent to you via computer or other electronic or digital <sup>[13]</sup>. While interactive multimedia is one of the learning media that has been widely applied in elementary schools, this proves that the development of educational technology has penetrated at the school level <sup>[14]</sup>. The essential characteristic of interactive media is that students not only pay attention to the media or objects but are also required to interact during learning <sup>[15]</sup>. The most critical value of educational software is that a multimedia approach to teaching can be achieved <sup>[16]</sup>. The lecture method is widely used today to provide information, including drug abuse. However, this method has disadvantages because it is one-way <sup>[17]</sup>. Learning with interactive multimedia can improve students' listening abilities than audio learning media <sup>[18]</sup>. States that a combination of media (video) is better for producing the ability to remember information than just looking at a picture, reading, or listening. Research results from Rachmadtullah & Sumantri <sup>[19]</sup> also found that computer-based interactive multimedia applications are valid and suitable for primary schools' teaching and learning activities.

Therefore, this study aimed to assess the effectiveness of interactive multimedia learning compared to the lecture method in increasing student knowledge to reject drugs.

## Instrument and Methods

This quasi-experimental research was conducted in 2020 on grade IV elementary school students of Kota Surakarta, Indonesia. The sample size was calculated at 44 persons according to the Cochran formula. Considering 10% of loss, 56 students were selected by random cluster sampling method and randomly divided into multimedia learning groups (experimental) and lecture groups (control).

A demographic (gender, age, addictive try, and drug usage experience) and the Knowledge on the Dangers of Drug Abuse questionnaires were used for data gathering. It has 33 items in 2 dimensions. The survey was tested for reliability in 20 students outside the study, and Cronbach's alpha was reported 0.88.

After taking the executive permissions for the research and registering the research project for ethical issues (ethical code: 2020.HFSOW.7836), the sampling was started. The lecture group was studied

with teachers who deliver material about drugs according to social sciences subjects by lecture. The multimedia learning group studied with media in interactive learning multimedia contains pictures, sounds, videos, and games, and students answered quizzes. Each group filled out a pre-test questionnaire before the intervention. Shortly after the intervention, the post-test questionnaire was filled out.

Data were entered into the SPSS 18 software, and the covariance statistical test was used to determine the effectiveness of interactive learning multimedia [20].

## Findings

The mean age of participants in the lecture group was  $10.3 \pm 1.8$ , and in the multimedia group was  $10.5 \pm 1.4$  years, and most of the participants (60%) were girls. Some students claimed to have tried addictive substances such as cigarettes. However, none uses psychotropic drugs or narcotics (Table 1).

**Table 1)** Results of demographic characteristics (N=56)

Characteristic	Lecture N (%)	Multimedia N (%)
<b>Gender</b>		
Male	11 (39.3)	10 (35.7)
Female	17 (60.7)	18 (64.3)
<b>Age (Year)</b>		
10	19 (67.9)	18 (64.3)
11	9 (32.1)	10 (35.7)
<b>Addictive Try</b>		
Cigarette	2 (7.1)	3 (10.7)
Liquor	0	0
<b>Psychotropic Drugs or Narcotics Usage Experience</b>		
Yes	0	0
No	30 (100)	30 (100)

The pretest scores of lecture and multimedia groups were  $84.5 \pm 12.3$  and  $82.9 \pm 11.9$ , respectively. The posttest scores of lecture and multimedia groups were  $89.1 \pm 12.0$  and  $98.6 \pm 10.5$ , respectively ( $p < 0.05$ ).

## Discussion

Character learning media, especially in Interactive Learning Multimedia prevention of drug abuse, effectively increases understanding and experience of the dangers of drug abuse. This step in developing multimedia learning to prevent drug abuse for elementary school students is relevant to government programs that combat drug trafficking. The effectiveness of multimedia learning can also be seen from the comparison of test results, namely the pre-test (before being given treatment) and post-test (after being given treatment), both for the experimental and control groups [21]. The experimental group treated with multimedia post-test learning scores was far better than the control group post-test scores treated with conventional learning without interactive multimedia learning [22]. Another proof of the effectiveness of multimedia

learning is student responses during the learning process [23]. In addition to the things above, there are exercises with answer keys to learn independently and measure each other's abilities more clearly in interactive multimedia learning.

The process was expanded from the full trial, and the experiment's effectiveness test found that interactive multimedia increased the knowledge of the dangers of student drug abuse. This suggests that one of the advantages of multimedia can improve learning outcomes: students' knowledge about the dangers of drug abuse. The results showed that the multimedia presentation format used increased responsibility and understanding of the dangers of drugs. This can occur because multimedia presentations are exciting presentations containing images, videos, animations, and games. Multimedia is interactive. This attracts students to pay attention and try to use it to finish. Through learning technology, emotions can be manipulated to positively influence learning [24]. Audio and redundant conditions make learners feel that their understanding is greater than their actual understanding [25]. Following the research results of Rosamsi *et al.* [26], interactive multimedia provides a fair value of students' effectiveness in mastering concepts.

Implementation of multimedia in the teaching process increases students' active participation on time, facilitating interactive learning and increasing success [27]. This also agrees with Maria *et al.* [28]. They point out that interactive multimedia has provided new variations for students in the learning process. It is easier for them to memorize the lesson's contents when shown with exciting pictures and sounds. Interactive multimedia shows that learning material is valid, practical, and useful [29].

Guidelines for developing multimedia interactive models of learning drug prevention and character education for the aspects of responsibility can be obtained by teachers or learning technology developers by developing multimedia learning for drugs and character education for responsibility [30]. Teachers and learning technology developers can utilize this multimedia model development guide to develop interactive learning to prevent drug abuse and character education aspects of responsibility [31]. It is imperative to develop interactive multimedia learning of drug abuse prevention and other character education aspects [32]. Character learning media, especially in interactive learning multimedia prevention of drug abuse, effectively increases understanding and experience of drug abuse dangers. Combining digital educational tools with innovative teaching technology in the teaching and learning process helps trainees improve their skills in considering problems and developing awareness [33].

From the description and conclusions stated in the front, the research and development of interactive

learning multimedia on this aspect of responsibility can be given the following suggestions. The need for synergy between the school, parents, and the community in preventing drug abuse and developing student character, the way the teacher provides timely to students that involve the role and parents of the city so that the responsibilities of students are trained. Students should actively develop student character through daily activities at home, especially aspects of trust to parents. The community should also help build student character by caring for students by giving attention to discipline. In the learning process, of course, starting with the planning of learning, in preparation for learning, the teacher must plan the use of interactive multimedia learning to prevent the aspect of character education from being responsible for the planned learning process. So, learning with multimedia can simulate complex processes and abstract concepts.

The model developed is interactive multimedia drug prevention learning. Based on the effectiveness test results, which show a significant increase in students' responsible attitude after utilizing interactive multimedia learning on drug enforcement, it is recommended that teachers use interactive multimedia learning in character education learning. To use this interactive learning multimedia product to run effectively and efficiently, in utilizing it, it must understand the instructions for interactive learning multimedia drug prevention that accompanies multimedia learning products. For broader utilization and different targets, this interactive learning multimedia can be made possible online, that is, broadcast using internet Html so that a broader and many targets can use it. However, previously it was necessary to develop similar products by educational technology developers with different character values to become a single unit with a quiz format and serial character education games. With the instructions for developing interactive learning multimedia, teachers and technology developers can use it to develop learning multimedia with different character values. The enormous potential of fair interactive multimedia use from schools is expected to improve student learning outcomes. To stakeholders, significantly the scope of the education office. The need to instruct or make policies related to media use in general learning and specifically multimedia interactive learning in schools.

## Conclusion

Using interactive multimedia learning can increase the knowledge of the dangers of drug abuse in school children better than lecture learning.

**Acknowledgments:** None declared by the author.

**Ethical Permissions:** The research was registered by the ethical code: 2020.HFSOW.7836

**Conflicts of Interests:** None declared by the author.

**Authors' Contribution:** Achmad Basari Eko W. (First Author) does everything.

**Funding/Support:** None declared by the author.

## References

- 1- Darwis A, Dalimunthe GI, Riadi S. Drugs, dangers and how to anticipate them. *J Amaliah*. 2018;1(1):36-45. [Indonesian]
- 2- Kurniawan KRN. Health promotion strategy on drugs abuse communication effort. *Indones J Health Promot*. 2018;1(1):21-4. [Indonesian]
- 3- Amanda MP, Humaedi S, Santoso MB. Adolescent substance abuse. *Prosiding Penelitian Dan Pengabdian Kepada Masyarakat*. 2017;4(2). [Indonesian]
- 4- Juanda J, Fauzan R, Satriananda S, Yusnianti E. Counseling on prevention, distribution and use of drugs in Meunasah village, mesjid Punteut, Blang Mangat district, Lhokseumawe city. *J Vokasi*. 2017;1(2). [Indonesian]
- 5- Sumara D, Humaedi S, Santoso MB. Juvenile delinquency and its handling. *Prosiding Penelitian Pengabdian Kepada Masyarakat*. 2017;4(2):346-53. [Indonesian]
- 6- Supeni S, Nurati DE, Sufa FF, Jumintono. Character education development model based on regional culture. *JARDCS*. 2019;11(5):673-83.
- 7- Salatun R, Mina R. Drug counseling as a preventive effort for illicit drug trafficking in the community. *Pengabdian Masyarakat*. 2019;2(1). [Indonesian]
- 8- Piroozfar P, Farr ERP, Aboagye-Nimo E, Osei-Berchie J. Crime prevention in urban spaces through environmental design: A critical UK perspective. *Cities*. 2019;95:102411.
- 9- Mustafa MZB, Nordin MNB, Abdul Razzaq ARB. Structural equation modelling using AMOS: Confirmatory factor analysis for taskload of special education integration program teachers. *Univ J Educ Res*. 2020;8(1):127-33.
- 10- Buckingham D. Epilogue: Rethinking digital literacy: Media education in the age of digital capitalism. *Digit Educ Rev*. 2020;37:230-9.
- 11- Jumaidah J, Rindu R. Drug abuse prevention behavior in adolescents in the Sukmajaya district, Depok. *Jurnal Ilmiah Kesehatan*. 2017;16(3):42-9. [Indonesian]
- 12- Jumintono J, Suyatno, Zuhary M, Said H, Azman MNA. Vocational education principal of leadership: A case study in east Nusa Tenggara. *J Soc Sci Res*. 2018;(6):825-31.
- 13- Atanasov I, Pencheva E. Model aspects of open access to multimedia broadcast services in the evolved packet system. *Int J Digit Multimed Broadcast*. 2016 Mar:1-13.
- 14- Kumalasani MP. The practicality of using interactive multimedia in thematic learning for grade IV elementary school. *Jurnal Bidang Pendidikan Dasar*. 2018;2(1):1-11. [Indonesian]
- 15- Wiana W. The effectiveness of using interactive multimedia in improving the concept of fashion design and its application in the making of digital fashion design. *IOP Conf Ser Mater Sci Eng*. 2018;306:012131.
- 16- Stanojevic D, Cenik D, Cenik S. Application of Computers in Modernization of Teaching Science. *Int J Cogn Res Sci Eng Educ*. 2018;6(2):89-104.
- 17- Mikhailova OB. Features of creativity and innovation development in students at secondary high school. *Int J Cogn Res Sci Eng Educ*. 2018;6(2):11-9.
- 18- Mustafa MZ, Buntat Y, Omar MA, Razzaq ARA, Ahad R. Organizational commitment survey: A confirmatory factorial analysis based on vocational colleges teachers

sample. *Int J Eng Adv Technol*. 2019;8(5):279-88.

19- Rachmadtullah R, MS Z, Syarif Sumantri M. Development of computer-based interactive multimedia: Study on learning in elementary education. *Int J Eng Adv Technol*. 2018;7(4):2035.

20- Rahmat H, Leng CO, Mashudi R. Innovative educational practice for impactful teaching strategies through scaffolding method. *Asian J Univ Educ*. 2021;16(4):1-8.

21- Ali NHM, Hassan SA, Jailani O, Zaremohzzabieh Z, Jie LZ. The impact of supervisory styles on satisfaction of undergraduate counselling interns in Malaysia. *Asian J Univ Educ*. 2020;16(3):138-48.

22- Jain J, Luaran JE. Conceptualising scientific theory-law relationship among pre-service teachers with different academic abilities in science. *Asian J Univ Educ*. 2020;16(3):208-19.

23- Majid FA, Shamsudin NM. Identifying factors affecting acceptance of virtual reality in classrooms based on technology acceptance model (TAM). *Asian J Univ Educ*. 2019;15(2):51-60.

24- Kumar JA, Muniandy B, Wan Yahaya WAJ. Exploring the effects of emotional design and emotional intelligence in multimedia-based learning: An engineering educational perspective. *New Rev Hypermed Multimed*. 2019;25(1-2):57-86.

25- Gorra VC, Bhati S. Students' perception on use of technology in the class room at higher education institution in Phillipines. *Asian J Educ ELearn*.

2016;4(3):92-103.

26- Rosamsi S, Miarsyah M, Ristanto RH. Interactive multimedia effectiveness in improving cell concept mastery. *J Biol Educ*. 2019;8(1):56-61.

27- Stankovic Z, Maksimovic J, Osmanovic J. Cognitive theories and paradigmatic research posts in the function of multimedia teaching and learning. *Int J Cogn Res Sci Eng Educ*. 2018;6(2):107-14.

28- Maria U, Rusilowati A, Hardyanto W. Interactive multimedia development in the learning process of Indonesian culture introduction theme for 5-6 year old children. *J Prim Educ*. 2019;8(3):344-53.

29- Djamas D, Tinedi V, Yohandri. Development of interactive multimedia learning materials for improving critical thinking skills. *Int J Inf Commun Technol Educ*. 2018;14(4):66-84.

30- Suyatno, Jumintono, Pambudi DI, Mardati A, Wantini. Strategy of values education in the Indonesian education system suyatno. *Int J Instruct*. 2019;12(1):607-24.

31- Supeni S, Hakim L, Jumintono. Strengthening character education of early childhood through javanese traditional game dakon. *Int J Recent Technol Eng*. 2019;7(6 Suppl 2):243-9.

32- Visvizi A, Daniela L. Technology-enhanced learning and the pursuit of sustainability. *Sustainability*. 2019;11(15):4022.

33- Makarova EA. Blending pedagogy and digital technology to transform educational environment. *Int J Cogn Res Sci Eng Educ*. 2018;6(2):57-66.