Nirmana Motion Graphic Video: Innovation in Learning Design Principles and Elements

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The use of technology in education has become increasingly important in facilitating effective learning. However, the lack of diversity and innovation in using technology to develop learning materials poses new challenges for educators. In response, this research aims to develop and test the feasibility of a motion graphic video called Nirmana, which includes learning materials on design elements and principles. The research and development (R&D) process applied the ADDIE model to develop the motion graphic video media. The media testing involved 101 design major students. The data collection used questionnaires, observations, interviews, and documentation, which were analyzed using qualitative and quantitative methods. The result of this research is a Nirmana motion graphic video with learning materials about the elements and principles of design. The media was field-tested based on student assessment using the mean results per aspect. The assessment criteria included clarity of information and instructions, media attractiveness, usability and accessibility of media, and material arrangement and use of illustrations. The results showed that the Nirmana motion graphic video media received good to excellent scores on all of these assessment criteria. Specifically, the clarity of information and instructions received a good score of 78.7%, the media attractiveness received an excellent score of 81.7%, the usability and accessibility of media received an excellent score of 89.6%, and the material arrangement and use of illustrations received an excellent score of 85.8%. These results indicate that the developed Nirmana motion graphic video media is suitable for use as a design learning media. Furthermore, this research suggests that using technology to develop relevant and innovative learning materials can positively impact student attitudes and interest in learning design.

Keywords: *Learning, Nirmana, Motion graphic, ADDIE*

INTRODUCTION

Modern Information and Communication Technologies (ICTs) have a significant impact on various aspects of human life. Nowadays, technology and social networks are an integral part of people's lives (Kayimbasioglu, Oktekin, & Haci, 2016). The advancements in technology and information have encouraged individuals to improve their efficiency and effectiveness in performing daily activities. With the development of information sources that can be accessed anytime, anywhere, and by anyone, it has become easier to obtain information. Therefore, technology will likely become an essential part of human life in the future. Technology is not just a tertiary item; it is one of the primary human goods that help increase the effectiveness and efficiency of human activities. All aspects of life, including education, will incorporate technology.

Modern information and communication technology (ICT) is being integrated into all areas of human activity, including education, to enhance the effectiveness and quality of teachers' work (Hlasna, Klimova, & Poulova, 2017). Education plays a crucial role in the development of a nation, and providing education from an early age can foster knowledge acquisition (Kayimbasioglu et al., 2016). The primary goal of education is to equip individuals with the knowledge and skills they need throughout their lives (Gurbuzturk, 2018). With education, people acquire knowledge and skills that enable them to improve their quality of life.

Education creates situations that influence individual growth through learning experiences in all environments and throughout life (Astuti & Leonard, 2015). It plays a crucial role in developing individuals' potential to have religious and spiritual strength, personality, intelligence, noble character, and skills that are necessary for themselves, society, nation, and state (Ningrum, 2016; Li, 2017; Sharma, 2015). Therefore, to ensure educational effectiveness, quality resources, including human resources and educational infrastructure, are required (Rosa, 2019; Gomez-Zermeno, 2012; Grus & Rozensky, 2019).

The current industrial revolution in technology, also known as Technology 4.0, has a significant impact on education. It provides various creative and innovative learning media that instructors can use to advance education in Indonesia (Liboni et al., 2019). The use of technology in learning can make the process more exciting and help students understand the elements and principles of design better (Cunningham, 2017). Integrating technology in the learning process in line with the current era is one of the efforts to enhance the quality of education (Fuad et al., 2018).

Motion graphic videos are widely used in various fields, such as entertainment, documentation, and education. These videos are time-based visual media that combine video and graphic design, including elements such as 2D and 3D animation, typography, photography, and music. They are an effective learning media and make learning fun.

Nirmana, on the other hand, is the arrangement of visual elements such as point, line, color, space, and texture into one harmonious composition. It is a core principle applied in every work of art and design, and the basis for making artwork or design lies in the elements of points, lines, and planes.

Many learning media have been developed using motion graphic technology and techniques, but there is a lack of learning media that use Nirmana motion graphic videos to explain the elements and principles of design. This research aims to develop a motion graphic animation video that serves as an alternative learning media for Nirmana, particularly to explain the elements and principles of design and analyze the feasibility level of the learning media.

RESEARCH METHODOLOGY

This study on Research and Development (R&D) utilized the ADDIE development model as presented by Branch in 2009. The model involved five stages: Analysis, Design, Development, Implementation, and Evaluation. During the Analysis stage, the researchers analyzed the needs of Nirmana Motion graphic video content and production device requirements. In the Design stage, they developed and compiled design for the Nirmana Motion graphic video, made media titles, and selected material elements and principles of design. In the Development stage, the researchers created media based on storyboards and flowcharts and tested the application through expert validation. Once declared feasible by expert validation, the developed media was tested in the field with 101 design students in the Implementation stage. Finally, in the Evaluation stage, the data collected were analyzed and retested based on observations, interviews, and questionnaires. The evaluation results were used to improve the developed product, making it feasible and attractive to the learning target. Table 1 below shows the flowchart of the ADDIE model development.

Table. 1 ADDIE Development Model

A Analysis	Analyzing the requirements for Nirmana's motion graphics video content and equipment needs.
D Design	Creating a motion graphic video, including designing and compiling media titles and selecting design elements and principles for Nirmana.
D Development	Creating media content based on storyboards and flowcharts, as well as testing applications using expert validation.
I Implementation	Field testing was conducted involving 101 design students.
E Evaluation	Evaluation should be done to ensure the feasibility of the developed product as a learning media.

The design testing in this study was conducted in multiple stages. The first stage involved expert validation, which included media experts, material experts, and lecturers, as mentioned in Wijnen et al. (2021). The second stage was field testing, which involved 101 randomly selected students with high, medium, and low abilities in the field of design. This step was taken to obtain student assessments and responses to the motion graphic video product developed. The feedback received from the students was used to revise the developed product. The data in this study were collected using questionnaires for media experts, material experts, and lecturers, as well as questionnaires for students. Observations were also made to assess the attitude of students during the product testing process and to determine the attractiveness of the products developed for the students. Semi-structured interviews were conducted to collect data from lecturers, and documentation was carried out by looking for variable data in the form of books and journal articles that were useful for strengthening the data that had been obtained in the field, as mentioned in the works of Habibi et al. (2020), Marino (2012), Riyanto (2020), Riyanto & Widiyanto (2021), and Teo (2013).

There are two types of data analysis techniques: qualitative and quantitative. The qualitative analysis comprises four steps, namely, data collection, data reduction, data presentation, and conclusion drawing. This technique was used to analyze data obtained from suggestions, input, and corrections by the product validators, which include media experts, material experts, and learning experts (Design Lecturers). On the other hand, quantitative data analysis used descriptive statistical analysis to process data from questionnaires in the form of scores. To determine the feasibility of the motion graphic video, the criteria shown in Table 2 were used.

Table 2. Feasibility Interpretation Criteria

Percentage	Qualification	Decision
81 – 100%	Very good	Eligible without Revision
61 – 80%	Good	
41 – 61%	Enough	Eligible with Revision
21 – 40%	Deficient	Not Eligible
<20%	Very less	

RESULTS AND DISCUSSION

Initial Product Development

A motion graphic video was developed using advanced technology to aid students in better understanding Nirmana learning, specifically the elements and principles of design. The video uses audio and images to stimulate both hearing and vision senses. The development of this audio-visual media followed a process that began with an analysis stage, where a needs analysis was carried out to identify problems faced during Nirmana learning. This stage involved interviewing lecturers and observing the learning method to identify several problems in the Nirmana learning process, specifically with the elements and principles of design, which still used the conventional lecture method and PowerPoint media that were not clear or attractive.

Based on the above description, the researchers conducted a study of the appropriate learning media for Nirmana material, especially on the elements and principles of design, which is an essential material for students in learning Design. At the design stage, the researchers designed the needs in the development of the Nirmana motion graphic video. The process involved developing a model, determining the type of media to be applied, and preparing the material to be presented in audio-visual media. A lattice of motion graphic video feasibility questionnaire instruments was developed to be tested by learning experts and learning technology experts. An additional lattice of instruments was also developed to measure the feasibility of media to students.

At the development stage, the researchers used Adobe Premiere Pro to develop the motion graphic video media in Nirmana learning, which involved designing the initial part of the video, including the title of the media and the purpose of the material, followed by the material section containing material about Nirmana, especially on the elements and principles of design.

The implementation stage involved presenting the motion graphic video media about Nirmana, specifically on the elements and principles of design, to students in the design major to determine the feasibility of the media in the learning process. The evaluation stage was then conducted to perfect the audio-visual media applied at the implementation stage. The motion graphic video media developed was improved according to the experts' criticisms and suggestions to produce an appropriate media.

Product Testing

The product that was developed underwent a field test with a large group of students majoring in design. Before the test, experts and practitioners validated all the instruments that were used in this study. The questionnaire instrument was used to test motion graphic video media on Nirmana material, with a focus on the elements and principles of design. The test involved 101 design students and tested four aspects, namely Clarity of Information and Instructions for Media Use, Media Attractiveness, Media Usability and Accessibility, Material Structure, and Illustration Use. The assessment results from the extensive group test are presented in Table 3.

Table 3. Field testing using questionnaire

Aspects	Score	Classification
Aspect I: Clarity of Information and Instructions for Media Use	78,7%	Good
Aspect II: Media Attractiveness	81,7%	Excellent
Aspect III: Usability and Accessibility of Media	89,6%	Excellent
Aspect IV: Arrangement of Material and Use of Illustrations	85,8%	Excellent

According to Table 3, the test results indicate that the developed media is suitable for use as a learning tool for Nirmana material, particularly regarding the elements and principles of design. The aspects of Information Clarity and Media Usage Instructions received a good rating, scoring 78.7%. The aspect of Media Attractiveness received an excellent rating, scoring 81.7%. The Usability and Accessibility aspects of the

Media also received an excellent rating, scoring 89.6%. Additionally, the aspect of Material Structure and Use of Illustrations was rated excellent, scoring 85.8%. These test results demonstrate that the developed media is an effective learning tool for Nirmana material.

CONCLUSION

The researchers have successfully developed a Nirmana motion graphic video product using Adobe Premiere Pro application based on appropriate study materials. Field test results have shown that this learning media can help students better understand Nirmana material, particularly regarding the elements and principles of design. The Nirmana motion graphic video media can be accessed through smartphone applications, which are more attractive and easy to use for students. The attractiveness of motion graphic videos can support learning activities in the field of design and student understanding. Future research can expand the possibility of making learning media using motion graphic media on other materials or integration with other technologies.

ACKNOWLEDGEMENT

REFERENCES

Ayu A.P. 2013. "Nirmana-Komposisi Tak Berbentuk" Sebagai Dasar Kesenirupaan Fakultas Seni Rupa Institut Kesenian Jakarta. Fakultas Seni Rupa. Jakarta: IKJ.

Astuti, A., & Leonard, L. (2015). Peran Kemampuan Komunikasi Matematika TerhadapPrestasi Belajar Matematika Siswa. Formatif: Jurnal Ilmiah Pendidikan Mipa, 2(2).

Branch, R. M. (2009). Instructional Design-The ADDIE Approach. New York: Springer.

Habibi, Mundilarto, Jumadi, J., Gummah, S., Ahzan, S., & Prasetya, DSB (2020). Efek singkat proyek pada keterampilan berpikir kreatif di kalangan guru fisika pra-jabatan berkemampuan rendah. Jurnal Evaluasi Internasional dan 415– 420. https://doi.org/10.11591/ijere.v9i2.20531. 9(2),

Marino, MP (2012). Ruang Perkotaan sebagai Sumber Utama: Sejarah Lokal dan Pemikiran Sejarah di Kota New York. Ilmu Sosial, 103(3), 107– 116. https://doi.org/10.1080/00377996.2011.592166.

Riyanto, A., & Widiyanto, W. (2021). Pengembangan permainan korfball berbasis permainan ajar pemahaman untuk sekolah dasar. Jurnal Pendidikan, Kesehatan dan Olahraga, 11(8), 397–404. https://doi.org/10.12775/ jehs.2021.11.08.044.

Teo, T. (2013). Buku pegangan metode kuantitatif untuk penelitian pendidikan. Dalam Buku Pegangan Metode Kuantitatif Penelitian Pendidikan: Springer. Penerbit Rasa. https://doi.org/10.1007/978-94-6209-404-8.

Kayimbasioglu, D., Oktekin, B., & Haci, H. (2016). Integration of gamification technology in education. Procedia Computer Science, 102, 668-676. https://doi.org/10.1016/j.procs.2016.09.460

Gurbuzturk, O. (2018). Investigation of elementary education students' attitudes towards the use of smart boards. International Electronic Journal of Elementary Education, 11(1), 55-61. doi:10.26822/iejee.2018143961

Hlasna, P., Klimova, B., & Poulova, P. (2017). Use of information and communication technologies in primary education –A case study of the Czech Republic. International Electronic Journal of Elementary Education, 9(3), 681-692.

Ningrum, E. (2016). Pengembangan Sumber Daya Manusia Bidang Pendidikan. Jurnal Geografi Gea, 9(1).

Li, M. (2017) Ideological Education Plays An Important Role In The Construction Of Campus Culture. Internatio. Atlantis Press.

Sharma, L. (2015). A Review Of The Hole Of Hei"S In Developing Academic Entrepreneurship. Journal Of Entrepreneurship In Emerging Economies, 7(2).

Rosa, A. T. R. (2019). Using Human Resources Character Education Through The Characteristics Of Art And Culture. In International Symposium On Social Science, Education And Humanities (Isseh 2018). Atlantis Press.

Gomez-Zermeno, M. (2012). Digital Libraries. Electronic Bibliographic Resources On Basic Education. Comunicar, 66(2), 119-128.

Grus, C. L., & Rozensky, R. H. (2019). Competency-Based Continuing Education In Health Service Psychology: Ensuring Quality, Recommendations For Change. Professional Psychology: Research And Practice, 50(2), 106-117.

Liboni, L. B., Cezarino, L. O., Jabbour, C. J. C., Oliveira, B. G., & Stefanelli, N. O. (2019).

Cunningham, P. D. (2017). Bridging The Distance: Using Interactive Communication Tools To Make Online Education More Social. Library Trends, 65(4), 23-35.

Fuad, M., Deb, D., Etim, J., & Glotser, C. (2018). Mobile Response System: A Novel Approach To Interactive And Hands-On Activity In The Classroom. Educational Technology Research And Development, 66(2), 493-514.

Dwiflora, R. O., & Cofriyanti, E. (2021). Pembuatan Media Pembelajaran Animasi 2d (Motion Graphic) Pada Mata Kuliah Praktikum Fotografi Dasar. *Cogito Smart Journal*, *7*(2), 204214.

Nugraha, D. (2022). Pengembangan Media Digital Berbasis Motion Graphic Pada Pendalaman Materi IPS Sekolah Dasar. *Jurnal Basicedu*, *6*(3), 3649-3656.

Riris, E., & Syah, M. F. J. (2019). Pengembangan Media Pembelajaran Motion Graphics Berbasis Power Point Pada Kd Kerjasama Ekonomi Internasional Mapel Ekonomi Untuk Siswa Kelas Xi Ips Di Sma Negeri 1 Gondang. In *Doctoral Dissertation, Universitas Muhammadiyah Surakarta*.

Purwanti, A., & Haryanto, H. (2015). Pengembangan Motion Graphic Pembelajaran Mata Pelajaran Pendidikan Kewarganegaraan Kelas I Sekolah Dasar. *Jurnal Inovasi Teknologi Pendidikan*, 2(2), 190-200.

Zaki, R. A., & Islam, M. A. Pengembangan Media Pembelajaran Menggambar Ilustrasi Berbasis Motion Graphic. *Jurnal Seni Rupa, 10*(3), 22-37

Sukarno, dkk. 2008. Perancangan Motion Graphic Ilustratif Mengenai Majapahit Untuk Pemuda-Pemudi. Fakultas Seni Rupa dan Desain. Bandung: ITB.