International Journal of Multicultural and Multireligious Understanding

http://ijmmu.com
editor@ijmmu.com
ISSN 2364-5369
Volume 6, Issue 6
December, 2019
Pages: 788-795

Development of Scientific-Based Educative Multimedia Games to Improve Indonesian Narrative Writing Skills for Elementary School Students

Tustiyana Windiyani; Endry Boeriswati; Mohamad Syarif Sumantri

Universitas Negeri Jakarta, Indonesia

http://dx.doi.org/10.18415/ijmmu.v6i6.1215

Abstract

This study aims to develop multimedia and scientific-based educational games to improve Indonesian writing skills. The method used in this research is research and development methods. Participants in this study were state elementary school students in the Municipality, the procedure in this study was based on needs analysis, planning, and evaluation. The results of this research show that multimedia application products and Scientific Based Educational Games To Improve Indonesian Narrative Writing Skills which are developed effectively because by using multimedia assistance as a tool helps teachers to convey messages and have a positive impact on improving Indonesian narrative writing skills.

Keywords: *Multimedia; Narrative Writing Skills; Elementary School*

Introduction

Indonesian Language Teaching is experiencing very rapid development. Various approaches, strategies, techniques, methods, and media for innovative and varied Indonesian language teaching began to be applied by Indonesian language teachers (Suparsa, Mantra & Widiastuti, 2017; Sneddon, 2003). The purpose of the change in teaching patterns is in the context of achieving student competence in certain fields. The mastery of skills in the Indonesian language field also received attention. Language skills are no longer only to be known, but to be mastered by students. Language skills have four interrelating components, namely listening skills, speaking skills, reading skills, and writing skills. One of the language skills that needs serious attention is the writing skill, because in reality it can be seen that the students' writing skills are still very low. Writing skills do not come automatically, but must go through regular practice and practice (Wainem, 2013; Owen & Mantlana, 2017).

In general, scientists have distinguished two components of language ability, namely productive ability and receptive ability. Productive abilities are manifested by speaking and writing skills, while receptive abilities are manifested by listening and reading skills (Li & DeKeyser, 2017; Davies, Andrés-Roqueta, & Norbury, 2016). Language skills cover four aspects, namely listening skills, speaking skills,

reading skills, and writing skills (Mohammad & Hazarika, 2016; Maskor, Z. M., & Baharudin, 2016). Writing and reading skills as communication activities that complement each other. Writing habits will not be realized without the habit of reading. In language learning these four skills cannot be separated, but can be distinguished. Listening skills cannot be distinguished from speaking skills, or reading and writing skills (Mohammad & Hazarika, 2016; Maskor, Z. M., & Baharudin, 2016; Berninger, 2019). of the four skills, one of the language skills that needs serious attention in teaching Indonesian at school is writing skills. In this connection, the teaching of writing must be improved. By writing, students will be able to express ideas and experiences that can benefit themselves and others. Writing skills are needed in this modern life. In this modern life, it is clear that writing skills are needed because it is a characteristic of an educated person or an educated nation. According to Phillips Galloway & Uccelli, (2019) and Tarigan (2008) writing is used by scholars to record or record, convince, report, or inform and influence. Such aims and objectives can only be achieved well by people who can structure their thoughts and express them clearly. That clarity depends on the mind, organization, use of words, and sentence structure is one's ability to paint graphic images that are understood by the language writer himself or others who have a common understanding of the language symbols (Stephenson, Parrila, Georgiou & Kirby, 2008).

Multimedia has experienced the development of concepts in line with the development of learning technology (Rachmadtullah, Zulela., & Sumantri, 2018). When computer technology was not yet known, the concept of multimedia was well known, namely by integrating various media elements, such as: print, audio cassettes, video and sound slides. These elements are packaged and combined to convey a particular subject matter topic. In this concept, every element of the media is considered to have strengths and weaknesses. The strength of one media element is used to overcome the weaknesses of other media. For example, inadequate explanations are conveyed with written text such as how to say something, then assisted by audio media. Likewise material that needs visualization and movement, then it is assisted with video (Sumantri & Rachmadtullah, 2016).

Teaching media narrative writing skills that can be used that is using the help of educative multimedia games. Multimedia is a medium that combines two or more elements of media consisting of text, graphics, images, photos, audio, video and animation in an integrated manner. Multimedia is divided into two categories, namely: linear multimedia and interactive multimedia. Multimedia also provides opportunities for educators to develop learning techniques so as to produce maximum results (Rachmadtullah, Zulela, & Sumantri, 2019). Likewise for students, with multimedia it is hoped that they will be easier to determine with what and how students can absorb information quickly and efficiently. Sources of information are no longer focused on the text of the book solely but broader than that. The ability of multimedia technology that is getting better and developing will add convenience in gaining student knowledge.

Mayer (2014) explains how we process information through two basic channels, verbal and visual. Many people assume that multimedia is clearly better because it uses both channels. Researchers have found that multimedia helps people learn more easily because it is easier with diverse learning preferences. Some media can be used to take advantage, the fact that our brains access information in a non-linear way. Although multimedia can provide opportunities for enhanced learning, it can also be effective, even detrimental, when implemented poorly.

Based on the statement that has been described, this research aims to develop Scientific-Based Multimedia and Educational Games to Improve Indonesian Language Writing Skills. This research is expected to be useful both theoretically and practically. Theoretically, this research can be useful in the development of instructional media, not only educational multimedia games but other learning media that can make the learning process more meaningful. Furthermore, it can be used in the learning process in the classroom and outside the classroom, both at school and also at the student's own home, so students can study independently without the help of the teacher. Is an input for schools, education agencies and the government, that the development of instructional media is needed to create conducive classes.

Methodology

This research aims to develop Scientific-Based Multimedia and Educational Games to Improve Indonesian Language Writing Skills The method used in this research is research and development methods. Development or Research and Development is a research method used to produce a particular product and test the effectiveness of the product (Sugiyono, 2011). To be able to produce certain products used research that is needs analysis and to test the effectiveness of these products in order to function in the wider community, research is needed in order to test their effectiveness. So this research and development is longitudinal or gradual.

Participation

The place for conducting scientific-based multimedia development research in learning to write Indonesian Language Class III Public Elementary Schools in the Municipality. The selected schools are Semplak 1 public elementary school, Semeru 1 and 2 public elementary school, Sindangsari public elementary school, Bantarjati public elementary school, Sindangbarang public elementary school 1, Police public elementary school 1, Cemplang public elementary school, Sukadamai public elementary school, Lawanggintung public elementary school 2, Court 1 primary school, Katulampa public elementary school 3. The selection of these schools is based on the same accreditation, characteristics, and facilities and infrastructure. The research will be conducted in December 2018 - June 2019. Implementation period The research is calculated from the preparation of the research plan to the report of the research results.

Characteristics of the Model Developed

The product developed in this research is to develop scientific-based multimedia to improve Indonesian writing skills. The specific purpose of this research. Its multimedia components include text, images, video, audio / recording, symbols and animation. While the components contained in the educational game are game rules, game world, plot, theme, characters, object items, text, graphics, and sound, animation, and user interface. This multimedia and educational game contains curriculum learning materials for 2013 Sub-theme Energy Resources for grade III elementary schools. The details are in the form of basic competencies, indicators, learning objectives to be achieved by students, the concept of energy sources, phenomena related to energy sources, summaries, exercises, and evaluation questions.

Data collection technique

Data collection techniques using instruments in the form of questionnaires and interviews. This questionnaire is intended for expert validation assessment and student response. While the interview instrument is used to strengthen the data obtained from the questionnaire instrument. The interview instrument was used in the expert validation test.

Results

Requirements Analysis

Researchers have gone through the stages of potential and problems, this stage is done during school observations of the needs of students through observing the process of learning Indonesian in elementary

schools. In the learning process narrative writing is still centered on the teacher oriented method that is the teacher-centered learning process. While the teacher has not used interactive learning media, the media used are still conventional in nature. This makes students less enthusiastic and feel bored with the learning process that takes place, because it is monotonous. While we now live in an era where all rely on the sophistication of technology. In addition to negative influences, technological progress also has a positive influence, especially in the field of education to improve the quality of learning that is interesting, and able to develop students' abilities to the fullest. There are adequate learning facilities and infrastructure, an internet network that can be accessed by students through a WiFi network, a laptop, LCD projector, and active speakers. This has become the potential to take advantage of existing facilities, students need an interesting and not boring learning media to support a more effective learning process. Based on observations that have been passed, it can be concluded that Multimedia and Educational Games Based on Scientific to Improve Indonesian Language Writing Skills for elementary school students.

Product Design

This interactive multimedia-based learning media form is designed using the Adobe Flash CS6 application with the help of Unity in an executable format (*. Exe) that can be installed and run on a Personal Computer (PC) as well as an application package format (* apk) that can be installed and run on a smartphone Android OS. This media is expected to provide convenience in learning French especially l'identité material for reading skills both independently and guided.

Evaluation

In this evaluation stage, there are several ways to evaluate the results of the validation test and the results of the field trial evaluation consisting of small group and large group tests, while the evaluation results are as follows:

Table 1. Results of the Interactive Multimedia Expert Recapitulation

Aspect	Farming Items	Average
Multimedia Display	17	4.72
Multimedia Application Programming	7	4.00

The results of the validation assessment by the interactive multimedia expert on the aspect of interactive multimedia display obtained an average value of 4.72 with the criteria of "Very Good". For the programming aspect of interactive multimedia applications, the average value is 4.70 with the criteria of "Very Good". It can be said that Multimedia and Scientific Based Educational Games to Improve Indonesian Language Writing Skills are worthy of multimedia expert judgment. Furthermore, the results of the validation of material experts can be seen from the table below:

Table 2. Recapitulation Results of Material Experts

Aspect	Farming Items	Average
Feasibility of material content	5	4.30
Feasibility of Presentation of Material	5	4.75

The results of the validation of the material expert's evaluation showed that the content worthiness aspect obtained an average value of 4.30 with the criteria of "Very Good". For the aspect of the feasibility of the presentation of material obtained an average value of 4.75 with the criteria "Very Good". It can be said that the development of Scientific-Based Multimedia and Educational Games To Improve Indonesian Language Writing Skills from expert material assessment. After the media is validated by the material experts and the media experts then do a Small Group Try-Out Trial involving 25 fifth grade elementary school students. The results of the Small Group Try-Out trial can be seen in the table below:

Table 3. Feasibility of Small Group Try-out Trials

Aspect	N	Average
Ease of Use	20	4.40
Display	20	4.55
Quality of contents	20	4.60
Total		4.51

Based on the results of the Small Group Try-Out trial the results obtained with an average for the Ease of Use aspect have a value of 4.40 with the criteria of "Good". In the aspect of appearance has an average value of 4.55 with "Good" criteria. In the aspect of the quality of the contents of the material has an average value of 4.60 with the criteria "Very Good". So that the final score of the feasibility of interactive learning media worth 4.51 can be said that the development of Scientific-Based Multimedia and Educational Games Development to Improve Indonesian Writing Skills is feasible to use from the results of the Small Group Try-Out trial.

The last trial after going through the stages of expert validation and Small Group Try-Out trials and improvements, then a Field Try-out trial of 100 students was carried out, the results of this trial are presented in the table below:

Table 4. Field Try-out Trial

Aspect	N	Average
Ease of Use	80	4.77
Display	80	4.81
Quality of Content	80	3.81
Total		4.46

At the Field Try-out Trial stage, data on student responses to the development of interactive multimedia based on a scientific approach can be seen from three aspects of assessment, namely the ease of use aspect has an average value of 4.77 with the criteria of "Very Good". Display aspects obtained an average value of 4.81 with the criteria "Very Good". Quality aspects of the content of the material obtained an average value of 3.81 with the criteria "Very Good". The total average of the try-out field trials obtained by 4.30 can be said that the development of Scientific-Based Multimedia and Educational Games to Improve Indonesian Writing Skills is feasible to use.

Discussion

Based on the results of research that has been stated that in developing Scientific-Based Multimedia and Educative Games to Improve Indonesian Writing Skills it is found that the product has a valid value and is used. Multimedia is a tool that can create dynamic and interactive presentations that combine text, graphics, animation, audio and video images. Or Multimedia in general is a combination of

three elements, namely sound, images and text. Or Multimedia is a combination of at least two input or output media from data, media can be in the form of audio (sound, music), animation, video, text, graphics and images. Or Multimedia is the use of computers to create and combine text, graphics, audio, moving images (video and animation) by combining links that allow users to navigate, interact, create and communicate. This is in line with research conducted by Rachmadtullah, Zulela & Sumantri, (2018) suggesting that the use of multimedia in learning can facilitate teachers in conveying messages. In general the benefits that can be obtained using the learning process are more interesting, more interactive, the amount of teaching time can be reduced, the quality of student learning can be improved and the teaching and learning process can be done anywhere and anytime, and student learning attitudes can be improved. Mayer & Moreno (2002) suggested six media functions, namely: Adding learning motivation. Repeat what was learned. Improve learning responses. Increase catching power. In teaching narrative writing the role of multimedia can provide examples of how to write narrative multimedia tutorials that can also be used outside of school.

The advantage of multimedia in interactivity is that this media is inherently able to force users to interact with material both physically and mentally (Huang, Zhang, Zhu, Zhang & Meng, 2019; Wang, Li, Mayer & Liu, 2018). Of course this ability to force depends on how effective instructional instructions are able to attract users to actively try the learning presented. By using multimedia learning, users will be invited to directly try and use the available microscope. It is different if the same material is presented with a book or video. In this case the user is only passively (physically) seeing how to use the oscilloscope displayed. Mental activity (the user absorbs how to use and regulate the oscilloscope) may occur but physical activity (in this case trying to regulate the oscilloscope by yourself) does not occur. In other words - in the case of a simulation-using multimedia learning the user will try directly how things happen.

Conclusion

Based on the findings and discussion that have been described, the conclusion in this study is the application of multimedia and Scientific Based Educational Games obtained valid and efficient so that it can be used as a source of learning to write narrative in elementary schools. Interactive multimedia that is able to present material attractively, and is able to accommodate the learning styles of each student. Interactive multimedia programs can be used as enrichment for intelligent students or as remediation for students who need more study time. With its advantages, interactive multimedia can be used as an alternative media for learning in accordance with the characteristics of students in learning material including Indonesian language material.

Reference

Berninger, V. W. (2019). *Reading and writing acquisition: A developmental neuropsychological perspective*. Routledge.

Davies, C., Andrés-Roqueta, C., & Norbury, C. F. (2016). Referring expressions and structural language abilities in children with specific language impairment: A pragmatic tolerance account. *Journal of Experimental Child Psychology*, *144*, 98-113.

Huang, C., Zhang, Y., Zhu, C., Zhang, C., & Meng, H. (2019). Chinese sports basketball teaching tactics training system combined with multimedia interactive model and virtual reality technology. *Multimedia Tools and Applications*, 1-15.

Li, M., & DeKeyser, R. (2017). Perception practice, production practice, and musical ability in L2 Mandarin tone-word learning. *Studies in Second Language Acquisition*, *39*(4), 593-620.

Maskor, Z. M., & Baharudin, H. (2016). Receptive Vocabulary Knowledge or Productive Vocabulary Knowledge in Writing Skill, Which One Important?. *International Journal of Academic Research in Business and Social Sciences*, *6*(11), 2222-6990.

Mayer, R. E. (2014). Incorporating motivation into multimedia learning. *Learning and Instruction*, *29*, 171-173.

Mayer, R. E., & Moreno, R. (2002). Aids to computer-based multimedia learning. *Learning and instruction*, *12*(1), 107-119.

Mohammad, T., & Hazarika, Z. (2016). Difficulties of learning EFL in KSA: Writing skills in context. *International Journal of English Linguistics*, *6*(3), 105-117.

Owen, M., & Mantlana, C. D. (2017). Reading Difficulties Experienced by Grade 10 English Second Language Learners in Dutywa District, South Africa. *International Journal of Educational Sciences*, *17*(1-3), 41-51.

Phillips Galloway, E., & Uccelli, P. (2019). Beyond Reading Comprehension: Exploring the Additional Contribution of Core Academic Language Skills to Early Adolescents' Written Summaries. *Reading and Writing: An Interdisciplinary Journal*, *32*(3), 729-759.

Rachmadtullah, R., Ms, Z., & Sumantri, M. S. (2018). Development of computer-based interactive multimedia: study on learning in elementary education. *Int. J. Eng. Technol*, *7*(4), 2035-2038.

Rachmadtullah, R., Zulela, M. S., & Sumantri, M. S. (2019, March). Computer-based interactive multimedia: a study on the effectiveness of integrative thematic learning in elementary schools. In *Journal of Physics: Conference Series* (Vol. 1175, No. 1, p. 012028). IOP Publishing.

Rowntree, D. (1976). Evaluation: the critical ingredient of educational technology?. *Programmed Learning and Educational Technology*, *13*(4), 7-9.

Sneddon, J. N. (2003). *The Indonesian language: Its history and role in modern society* (p. 70). Sydney: UNSW Press.

Stephenson, K. A., Parrila, R. K., Georgiou, G. K., & Kirby, J. R. (2008). Effects of home literacy, parents' beliefs, and children's task-focused behavior on emergent literacy and word reading skills. *Scientific Studies of Reading*, *12*(1), 24-50.

Sugiyono, P. (2011). Metodologi penelitian kuantitatif kualitatif dan R&D. *Alpabeta, Bandung*.

Sumantri, M. S., & Rachmadtullah, R. (2016). The effect of learning media and self regulation to elementary students' history learning outcome. *Advanced Science Letters*, *22*(12), 4104-4108.

Suparsa, I. N., Mantra, I. B. N., & Widiastuti, I. A. M. S. (2017). Developing learning methods of Indonesian as a foreign language. *International journal of social sciences and humanities*, *1*(2), 51-57.

Tarigan, H. G. (2008). Menulis sebagai keterampilan berbahasa. *Bandung: Angkasa*.

Wainem, W. (2013). *Peningkatan Kemampuan Menulis Narasi Siswa Pada Pelajaran Bahasa Indonesia Dengan Media Video Compact Disk (VCD) Pada Siswa Kelas V Semester II Sdn 03 Karanglo Tahun 2012-2013* (Doctoral dissertation, Universitas Muhammadiyah Surakarta).

Wang, F., Li, W., Mayer, R. E., & Liu, H. (2018). Animated pedagogical agents as aids in multimedia learning: Effects on eye-fixations during learning and learning outcomes. *Journal of Educational Psychology*, *110*(2), 250.