International Journal of Elementary Education.
Volume 4, Number 4, Tahun 2020, pp. 575-579
P-ISSN: 2579-7158 E-ISSN: 2549-6050
Open Access: https://ejournal.undiksha.ac.id/index.php/IJEE

Learning Multimedia Development Using Articulate Storyline for Students

Fandi Nugroho[1*], M Iqbal Arrosyad[2]
[12] *Pendidikan Guru Sekolah Dasar, Universitas Muhammadiyah Bangka Belitung, Indonesia*

ARTICLE INFO
Article history:
25 December 2019
Received in revised form
01 January 2020
Accepted 25 January 2020
Available online 03 November 2020

Kata Kunci:
Multimedia, Articulate Storyline

Keywords:
Multimedia, Articulated Storyline

ABSTRAK
Pelaksanaan pembelajaran di sekolah dasar sangat terbatas pada penggunaan media pembelajaran dan pembelajaran lebih berpusat pada guru. Penelitian ini bertujuan untuk menggembangkan multimedia pembelajaran mengunakan *articulated storyline* yang layak dan efektif bagi peserta didik kelas IV SD muhammadiyah Pangkalpinang. Jenis penelitian ini adalah *Research and Development (R&D)*. Tahap penelitian pengembangan ini mengacu pada model pengembangan Alessi & Trollip yang dibagi menjadi empat tahap, yaitu: (1) perencanaan; (2) desain; (3) pengembangan produk dan (4) evaluasi. Penentuan tingkat kelayakan berdasarkan uji validasi ahli media dan materi serta uji coba kepada 6 siswa melalui angket. Penentuan tingkat keefektifan berdasarkan data *Pre-test* dan *Post-test* kepada 30 siswa. Hasil penelitian menunjukkan tingkat kelayakan rata-rata penilaian dalam prosentase oleh validator ahli media sebesar 82,5% dengan kategori "Sangat Baik". Penilaian ahli materi sebesar 71%, dengan kategori "Sangat Baik". Tanggapan 6 siswa mendapatkan rata-rata nilai akhir dalam prosentase sebesar 71,33% dengan kategori "Sangat Baik". Berdasarkan rerata *Pre-test* dan *Post-test* terdapat peningkatan nilai rerata 14,9. Nilai rerata yang didapat kemudian dikonversi pada perhitungan nilai gain score untuk mengetahui tingkat keefektifan produk. Secara keseluruhan pada perhitungan nilai *gain score* diperoleh nilai rerata sebesar 0,62 pada 30 siswa, dengan kategori "Sedang". Simpulan penelitian ini adalah secara keseluruhan bahwa pembelajaran multimedia tematik integratif pada sub tema keanekaragaman hayati dan tumbuhan untuk kelas IV SD layan dan efektif untuk digunakan.

ABSTRACT
The implementation of learning in elementary schools is very limited to learning media and more teacher-centred learning. This study aims to develop multimedia learning using articulated storylines that are feasible and effective for fourth-grade students of SD Muhammadiyah Pangkalpinang. This type of research is Research and Development (R&D). This research development stage refers to the Alessi & Trollip development model, which is divided into four stages, namely: (1) planning; (2) design; (3) product development, and (4) evaluation. Determination of the feasibility level based on the validation test of media and material experts and testing to 6 students through a questionnaire. Determination of the level of effectiveness based on pre-test and post-test data to 30 students. The results showed that the average feasibility level of the assessment percentage by the media expert validator was 82.5% with the "Very Good" category. Expert assessment of the material is 71%, with the category "Very Good". The responses of 6 students get an average final score in the percentage of 71.33% in the "Very Good" category. Based on the pre-test and post-test mean, there is an increase in the mean score of 14.9. The mean value obtained is then converted to the calculation of the gain score to determine the level of product effectiveness. Overall, in calculating the gain score, the mean value was 0.62 for 30 students in the "Medium" category. It can be concluded that integrative thematic multimedia learning on sub-themes of animal and plant diversity for fourth-grade elementary school is feasible and effective to use.

1. Introduction

The world of education is currently experiencing quite a tough challenge, namely the industrial revolution 4.0. The development of a new era called the 4.0 industrial revolution began with the emergence of supercomputer experiments, smart robots, driverless vehicles, and the development of neurotechnology and a revolutionary era that occurred as a result of these developments (Kuswara & Sumayana, 2020; Setiawan et al., 2019; Syam, 2019). The interaction and development of technology indirectly impact human life, both in personal and social life. This change causes cultural changes where technology cannot be separated from human life. This cultural phenomenon seems to have become a new

Corresponding author.
E-mail: fandinugroho88@gmail.com[1]

habit in our society. Whether we realize it or not, this phenomenon has various effects that cannot be underestimated.

Education in every century is only limited to education provision between existing individuals, meaning that education is limited to a few students. Based on an understanding of the industrial revolution 4.0, developments in that era are the basis for economic and community development. The industrial revolution 4.0 and education are the keys to creating new ideas and technologies important in sustainable development and increasing labour productivity (Aldianto et al., 2018; Efriyanti & Annas, 2020; Syamsuar & Reflianto, 2018).

The way to conduct education that combines science and technology is learning by using multimedia articulate storylines, as suggested by (Arwanda et al., 2020; Hadza et al., 2020; Pratama, 2018) that the articulate storyline application is an application that is often used to make MPI even though it has not been widely used in educational circles than Ms. Power point. However, the articulate storyline application has navigation that allows us to create links (connections) between slides appropriately. Learning using this application will be assisted in delivering the material as desired.

Based on observations and interviews with elementary school teachers in Muhammadiyah Pangkalpinang, the results were: (1) student learning outcomes in the learning process were still low; (3) the learning media used are not quite right; (4) the method of delivering material is still oriented to the Teacher-Centered Learning approach; (5) lack of use of media in the process of delivering a material; (6) the unavailability of learning multimedia that uses the articulate storyline application. The implementation of learning in elementary schools is very limited to the use of instructional media. Good learning uses various media and support to facilitate and assist students in understanding the material presented (Diawati, 2018; Septiani & Hasanah, 2019; Wijayanti et al., 2017). The use of articulate storyline media at SD Muhammadiyah Pangkalpinang is still lacking. It is evidenced by using more teacher-centred learning. The use of articulate storylines in learning is very good because learning will be more interesting and focus more on the articulate storyline's appearance. The appearance of the articulate storyline is very diverse and interesting. The articulate storyline application has been set up for an attractive, varied appearance. Not only does it look attractive, but the sound or music that is displayed can also be various (Ghofur & Raharjo, 2018; Riyanto et al., 2019; Wahyudin, 2013). Thus, articulating storyline learning media can make students focus on the future, and teachers easily deliver learning material.

Several relevant studies support this research. The first research conducted by (Arwanda et al., 2020), who obtained the research results that the learning media articulate storyline theme 7 with think, pair and square model can improve 4C competence following the demands of 21st-century learning. Both studies conducted by (Hadza et al., 2020), who obtained research results that the media based on the articulate storyline was valid and fit for use as a learning medium, and the three studies conducted by (Pratama, 2018) obtained the results of the study that articulate storyline-based learning media was valid and could help students in drawing function graphs. This study aimed to analyze multimedia development using articulate storylines in fourth-grade students of SD Muhammadiyah Pangkalpinang.

2. Method

This study uses a research and development model (Citrasmi et al., 2016; Maufur & Lisnawati, 2017; Sundari, 2019). Research and development methods are research methods to produce certain research products and test the product's effectiveness. What was developed in this study was multimedia learning using an articulate storyline for grade IV students. In this development research, the researcher used the research development stage referring to the Alessi & Trollip development model, which was divided into four stages, namely: (1) planning; (2) design; (3) product development and (4) evaluation. Development research can be used for several forms of product development, such as media, teaching materials, learning strategies, and learning methods.

This multimedia trial design is carried out in three stages: alpha testing, beta testing, and product effectiveness testing. Alpha test is done by validating the product by material experts and media experts. After the alpha test phase and the initial revision have been completed, the next stage is the beta test. At this stage: (1) selecting six class IV Muhammadiyah Pangkalpinang students, with high, medium and low ability levels (two each). The teacher assists the selection of students or can also be seen by looking at the odd semester student report cards' grades and (2) explaining the aims and objectives. (3) the researcher invites students to use multimedia learning, (4) provides a questionnaire sheet to students to assess the quality of multimedia learning products, and (5) make final revisions before the final multimedia products are used in integrative thematic learning.

Data collection in this study was taken using a questionnaire sheet instrument and learning outcomes tests. Questionnaire sheets to assess the feasibility of a product are given to material experts

and media experts. Learning outcome tests are used to determine the effectiveness of multimedia products developed based on student cognitive learning outcomes. The material experts validated the assessment instrument for learning multimedia products from the material/content and learning aspects. In contrast, media experts validated the assessment questionnaire instrument for the display and programming aspects. The question instrument has been validated both theoretically and empirically.

The data analysis technique used is qualitative and quantitative statistical analysis techniques. Qualitative data were obtained from expert comments and suggestions. In contrast, quantitative data were obtained from media experts, material experts, and students from the validation results. Quantitative data in the form of scores were then analyzed and converted into qualitative data. The results of the conversion are then used as a reference for determining the feasibility of multimedia learning. The learning outcome assessment data was then obtained from the pre-test, and post-test results in quantitative data.

3. Result and Discussion

Based on media data analysis results, the media expert's assessment in the programming field got 41.5. The display aspect got a score of 41. According to the guidelines for converting quantitative data into qualitative data on the Fifth scale, the multimedia category is very well developed. Graphs of the evaluation of product results by the first media expert and the second media expert based on the average score are presented in table 1.

Table 1. Diagram of Media Validation Results

No	Aspect	Media Expert I		Media Expert II		Total	
		Score	Average Score	Score	Average Score	Score	Average Score
1	Programming	41	4,1	42	4,2	41,5	4,15
2	Display	42	4,2	40	4,0	41	4,1
	amount	83	4,15	82	4,1	82,5	4,125
Percentage		**83%**		**82%**		**82,5%**	
Score Range		**79,995**		**79,995**		**79,995**	
Score Category		**Very good**		**Very good**		**Very good**	

This research was developing an articulated storyline for fourth-grade Muhammadiyah Pangkalpinang students in a software format. This learning multimedia product uses a development research procedure that refers to the Alessi & Trollip development model, limited to several stages. These stages include: (1) the planning stage; (2) the Design stage; (3) the product development stage; and (4) the validation and testing phase (Sribawana et al., 2017; Ulfah & Soenarto, 2017; Wicaksono et al., 2020). The process of developing this learning media uses several xamp programs, window movie maker, corel draw, catamsia recorder and notes. The presentation of the material presented in the developed learning multimedia provides many variations for students in learning, as outlined in text, images, videos, and animation. Delivering learning using text, images, videos, and animation will make learning more interesting and focused (Pamungkas et al., 2018; Pramana & Suarjana, 2019; Yunita & Wijayanti, 2017).

Media experts have validated the multimedia learning products developed. Material experts tried out on a limited basis to 6 students, followed by field trials on 30 students. Researchers use suggestions, responses, and recommendations from the Alpha test to make revisions to the developed products. After being followed up for revision, the first beta testing was carried out by limited product trial testing, followed by the second beta testing, namely testing the products developed in the field to determine the feasibility of the product so that it could be used as a learning medium in the fourth grade of SD Muhammadiyah Pangkalpinang.

The results of the alpha test product assessment by media experts obtained a mean score of 4.125 in the very good category, the material expert's assessment obtained a mean score of 3.55 in the good category, the student's assessment on the first beta test obtained an average score of 4.08 in the very good category and on the test. The second beta average score was 4.27 in the very good category. The total score obtained from the overall assessment obtained an average score was 4.00 in the very good product category. The results of measuring the product's effectiveness are carried out through the pre-test and post-test, converted into gain score. The gain score obtained for multimedia learning products is 0.62 in the medium category. Based on the assessment carried out through several stages. It can be concluded that multimedia articulated storyline learning is feasible and effective for teachers and students at SD Muhammadiyah Pangkalpinang.

The developed multimedia articulate storyline has the following characteristics: (1) The learning material presented in the product is following the 2013 Curriculum and according to the needs of students; (2) The learning material is presented in the odd-themed sub-semester multimedia learning; (3) Multimedia learning presents the material in the form of text, images, videos and animations with various variations; (4) students use the evaluation contained in multimedia learning to determine the level of student understanding of the material presented (Arwanda et al., 2020; Hadza et al., 2020; Pratama, 2018).

The use of articulate storylines in learning is very good because learning will be more interesting and focus more on the articulate storyline's appearance. The appearance of the articulate storyline is very diverse and interesting. The articulate storyline application has been set up for an attractive, varied appearance. Not only does it look attractive, but the sound or music that is displayed can also be various (Ghofur & Raharjo, 2018; Riyanto et al., 2019; Wahyudin, 2013). Thus, articulating storyline learning media can make students focus, and teachers easily deliver learning material.

Several relevant studies support this research. First research conducted by (Arwanda et al., 2020), the learning media articulate storyline theme 7 with the think, pair and square model can improve 4C competence following the demands of 21st-century learning. Both studies (Hadza et al., 2020) obtained research results that the media based on the articulate storyline was valid. Fit for use as a learning medium and the three studies conducted by (Pratama, 2018) who obtained the study results that articulate storyline-based learning media were declared valid and could help students draw function graphs. This research dreams that the articulate storyline application has been arranged for an attractive, varied, and not only an attractive appearance but the sound or music displayed can also vary. Thus the articulate storyline learning media can make students and teachers focus easily on delivering learning materia.

4. Conclusion

Based on the results and analysis, it can be concluded that overall thematic integrative multimedia learning on plant diversity theme for the fourth-grade elementary school class is feasible and effective to use. The purpose of this research is that the articulate storyline application has been arranged for an attractive, varied appearance, and not only has an attractive appearance. However, sound or music displayed can also vary. It can make students focus, and teachers easily deliver learning material.

References

Aldianto, L., Mirzanti, I. R., Sushandoyo, D., & Dewi, E. F. (2018). Pengembangan Science Dan Technopark Dalam Menghadapi Era Industri 4.0-Sebuah Studi Pustaka. *Jurnal Manajemen Indonesia*, *18*(1). https://doi.org/10.25124/jmi.v18i1.1261

Arwanda, P., Irianto, S., & Andriani, A. (2020). Pengembangan Media Pembelajaran Articulate Storyline Kurikulum 2013 Berbasis Kompetensi Peserta Didik Abad 21 Tema 7 Kelas IV Sekolah Dasar. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah*, *4*(2). https://doi.org/10.35931/am.v4i2.331

Citrasmi, N. W., Wirya, N., & Tegeh, I. M. (2016). Pengaruh Model Pembelajaran Scramble Berbantuan Media Gambar Terhadap Hasil Belajar IPA di SD. *Jurnal Mimbar PGSD Undiksha*, *4*(2). https://doi.org/10.23887/jjpgsd.v4i2.8425

Diawati, L. P. (2018). Pengaruh Model Children's Learning in Scince Berbantuan Media Audio Visual Terhadap Kompetensi Pengetahuan IPA Siswa. *Jurnal Mimbar Ilmu*, *23*(2), 113–121. https://doi.org/10.23887/mi.v23i2.16417

Efriyanti, L., & Annas, F. (2020). Aplikasi Mobile Learning Sebagai Sarana Pembelajaran Abad 21 Pada Era Revolusi Industri 4.0. *Jurnal Educative: Journal of Educational Studies*, *5*(1), 1–40. https://doi.org/10.30983/educative.v5i1.3132

Ghofur, A., & Raharjo, N. R. B. (2018). Peningkatan Kemampuan Berfikir Kritis Mahasiswa Melalui Pendekatan 5E Dan Sets Berbantu Aplikasi Media Sosial. *JINoP (Jurnal Inovasi Pembelajaran)*, *4*(2), 102–112. https://doi.org/10.22219/jinop.v4i2.6678

Hadza, C., Sesrita, A., & Suherman, I. (2020). Development Of Learning Media Based On Articulate Storyline. *Indonesian Journal of Applied Research (IJAR)*, *1*(2). https://doi.org/10.30997/ijar.v1i2.54

Kuswara, K., & Sumayana, Y. (2020). Apresiasi Cerita Rakyat sebagai Upaya Memperkuat Karakter Siswa

dalam Menghadapi Revolusi Industri 4.0. *Jurnal Basicedu*, *5*(1), 317–326. https://doi.org/10.31004/basicedu.v5i1.678

Maufur, S., & Lisnawati, S. (2017). Pengaruh Penggunaan Media Gambar Berseri Terhadap Keterampilan Berbicara Bahasa Indonesia Siswa Kelas III MI Al-Washliyah Perbutulan Kabupaten Cirebon. *Al Ibtida: Jurnal Pendidikan Guru MI*, *4*(2), 189. https://doi.org/10.24235/al.ibtida.snj.v4i2.1888

Pamungkas, A. S., Ihsanudin, I., Novaliyosi, N., & Yandari, I. A. V. (2018). Video Pembelajaran Berbasis Sparkol Videoscribe: Inovasi Pada Perkuliahan Sejarah Matematika. *Prima: Jurnal Pendidikan Matematika*, *2*(2), 127. https://doi.org/10.31000/prima.v2i2.705

Pramana, I. P. Y., & Suarjana, I. M. (2019). Pengaruh Model Pembelajaran Time Token Berbantuan Media Video Terhadap Hasil Belajar IPA Kelas V SD. *Journal of Education Technology*, *2*(4), 137. https://doi.org/10.23887/jet.v2i4.16425

Pratama, R. A. (2018). Media Pembelajaran Berbasis Articulate Storyline 2 Pada Materi Menggambar Grafik Fungsi Di SMP Patra Dharma 2 Balikpapan. *Jurnal Dimensi*, *7*(1). https://doi.org/10.33373/dms.v7i1.1631

Riyanto, M., Jamaluddin, U., & Pamungkas, A. S. (2019). Pengembangan Video Pembelajaran Berbasis Aplikasi Video Scribe Pada Mata Pelajaran IPS di Sekolah Dasar. *Madrasah: Jurnal Pendidikan Dan Pembelajaran Dasar*, *11*(2). https://doi.org/10.18860/madrasah.v11i2.6419

Septiani, M. T., & Hasanah, M. (2019). Media Audio Visual untuk Pembelajaran Musikalisasi Puisi. *BASINDO : Jurnal Kajian Bahasa, Sastra Indonesia, Dan Pembelajarannya*, *3*(1), 31–37. https://doi.org/10.17977/um007v3i12019p031

Setiawan, R., Mardapi, D., Pratama, A., & Ramadan, S. (2019). Efektivitas blended learning dalam inovasi pendidikan era industri 4.0 pada mata kuliah teori tes klasik. *Jurnal Inovasi Teknologi Pendidikan*, *6*(2), 148–158. https://doi.org/10.21831/jitp.v6i2.27259

Sribawana, I. P. S. S., Kusmariyatni, N., & Suwatra, I. I. W. (2017). Pengaruh Model Pembelajaran Problem Based Learning Berbantuan Media Gambar Terhadap Hasil Belajar IPA Kelas IV. *Mimbar PGSD Undiksha*, *5*(2), 1–12. https://doi.org/10.23887/jjpgsd.v5i2.10934

Sundari, N. (2019). Penggunaan Media Gambar dalam Meningkatkan Keaktifan Siswa dalam Pembelajaran Pengetahuan Sosial di Sekolah Dasar. *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699. https://doi.org/10.1017/CBO9781107415324.004

Syam, A. R. (2019). Guru dan Pengembangan Kurikulum Pendidikan Agama Islam di Era Revolusi Industri 4.0. *Tadris: Jurnal Pendidikan Islam*, *14*(1), 1–18. https://doi.org/10.19105/tjpi.v14i1.2147

Syamsuar, S., & Reflianto, R. (2018). Pendidikan dan tantangan pembelajaran berbasis teknologi informasi di era revolusi industri 4.0. *E-Tech: Jurnal Ilmiah Teknologi Pendidikan*, *6*(2). https://doi.org/10.24036/et.v2i2.101343

Ulfah, D. M., & Soenarto, S. (2017). Pengaruh penggunaan media video dan gambar terhadap keterampilan menulis kelas V. *Jurnal Prima Edukasia*, *5*(1), 22–34. https://doi.org/10.21831/jpe.v5i1.7693

Wahyudin, Y. (2013). Aplikasi Alur Cerita (Storyline) Pada Tata Pameran Di UPTD Museum Kabupaten Subang. *Patanjala: Jurnal Penelitian Sejarah Dan Budaya*, *5*(3), 449–458. https://doi.org/10.30959/patanjala.v5i3.99

Wicaksono, A. G., Jumanto, & Oka, I. (2020). Pengembangan media komik komsa materi rangka pada pembelajaran IPA di sekolah dasar. *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran*, *10*(2), 215–226. https://doi.org/10.25273/pe.v10i2.6384

Wijayanti, N. N. D., Arini, N. W., & Suarni, N. K. (2017). Pengaruh Model Pembelajaran Kooperatif Tipe Talking Stick Berbantuan Media Audio Visual Terhadap Hasil Belajar IPS. *Mimbar PGSD Undiksha*, *5*(2). https://doi.org/10.23887/jjpgsd.v5i2.11015

Yunita, D., & Wijayanti, A. (2017). Pengaruh Media Video Pembelajaran Terhadap Hasil Belajar Ipa Ditinjau Dari Keaktifan Siswa. *Sosiohumaniora: Jurnal Ilmiah Ilmu Sosial Dan Humaniora*, *3*(2), 153–160. https://doi.org/10.30738/sosio.v3i2.1614