

Journal of Education, Teaching, and Learning is licensed under A <u>Creative Commons Attribution-Non Commercial 4.0 International License</u>.

DANCE VIDEO DEVELOPMENT TUTORIAL BETAJA DAYAK KANCING'K MELIAU DISTRICT FOR ART CULTURE LEARNING IN JUNIOR HIGH SCHOOL

Sesilia Wynni Wilhimina Tanema¹⁾, Aloysius Mering²⁾, Indri Astuti³⁾

1) Universitas Tanjungpura, Pontianak, Indonesia E-mail: Sesiliawynni06@gmail.com

²⁾ Universitas Tanjungpura, Pontianak, Indonesia E-mail: <u>aloysiusmering@fkip.untan.ac.id</u>

3) Universitas Tanjungpura, Pontianak, Indonesia E-mail: <u>indribk91@yahoo.com</u>

Abstract. The purpose of this study was to develop a video tutorial for the *Betaja Dayak Kancing'k* dance in the Meliau sub-district for learning Cultural Arts in Junior High School. To achieve the research objectives, the Research and Development (R&D) method of the ADDIE development model was used. With the ADDIE Development model, the research is carried out through the stages of (1) Analyze, (2) Design, (3) Develop, (4) Implement, and (5) Evaluate. This research was conducted at Junior High School Brother Pontianak 9th grade with 30 students and four validators, design experts, media experts, and dance learning materials experts. Data from expert instruments with qualitative and quantitative analysis as a whole from the results of data analysis (in the range of values 1-5) The tutorial video design was declared "Very feasible" with an average of 4.27. Likewise, the analysis of empirical test data with individual test procedures, small groups, and field tests. The 32 9th grade students of Brother Pontianak Junior High School with an average skill score of 88 in the "Very Good" category. The results of the effectiveness test in this study were the results of the dancing skills of the students, the results of which were 30 students, which showed that as many as 24 students got an average score of 85 and 6 students with an average of 65 students, it was concluded that the average result of students' dancing skills was 81.22 with a very good category. good. With the data obtained, video tutorials can be applied in junior high schools in learning arts and culture with dance material.

Keywords: Video tutorial, Betaja dance, Cultural arts.

I. INTRODUCTION

Learning arts and culture in Junior High School is a learning that really supports students' learning creativity starting from learning material to practice which consists of fine arts, music arts, dance arts, and theater arts. It is absolute for arts and culture teachers that the achievement of cultural arts learning objectives is in accordance with those stipulated in the applicable curriculum content standards, we can base it on meeting what needs are necessary for students to study cultural arts at school. Based on the 2013 curriculum, the policy of the Minister of Education and Culture Contained in the Minister of Education and Culture No. 160 of 2014 curriculum renewal is in line with ideas, designs, documents, media, and textbooks. In line with the learning objectives of 9th grade Arts and Culture, students are expected to be able to understand, communicate, and demonstrate dance moves to

achieve learning objectives. The teacher provides material in class and the teacher provides dance practice.

Video media has a function as a learning medium, namely an affective function, a cognitive function, and a compensatory function (Arsyad 2003) video tutorials can replace the teacher's time with videos, children can learn independently, the use of video tutorials as learning media can make the teacher's role more positive and productive. Teachers can share roles with the media so that they have more time to pay attention to other educational aspects, such as helping students with learning difficulties, personality formation, motivating learning, and others.

With the use of this video tutorial, the teacher does not have to explain the teaching material repeatedly. Especially for media in the form of videos, if needed, the material can be re-presented simply by showing it again (review). This hall is in line with research conducted by Ninda Ekawati, Supurwoko, Daru Wahyuningsih, (2020) that the development of suitable



learning media to help students learn independently will have a positive impact on the quality of education itself.

Research on the development of video tutorials has been carried out by several researchers. The results of research on developing video tutorials Nurlatifah (2014) found that the dance learning process was assessed from three aspects, namely authentic affective assessment, authentic cognitive assessment and authentic psychomotor assessment. It is also strengthened by the findings of Agni (2014) that video tutorials can be used as a medium to improve understanding of the material, as well as findings from Ningsih (2013) which show video tutorials are effective in motivating creativity and increasing dance skills results significantly. Therefore, the use of video tutorials has the opportunity to increase students' interest in learning, skills, and results of dancing skills.

Previous research has shown that it only focuses on a combination of text, audio, and images. There is no art element in the tutorial video. When compared to previous research, this research has differences. The development of this video tutorial has a complete video of dance, video tutorial of motion props and dance history.

Based on previous relevant problems and research, this study aims to develop video tutorials for learning arts and culture in junior high schools. This research is very important to do so that students can be excited, like, and improve the results of dance skills in learning arts and culture.

II. METHODS

The research method used is the research and development (R&D) method. This research was conducted at Bruder Junior High School Pontianak, West Kalimantan. The participants of this study consisted of one teacher and a 9th grade student of Junior High School Brother Pontianak

Development Procedure

In developing this interactive multimedia product using the ADDIE design model. According to Branch (2009) ADDIE has five stages which can be described in detail as follows:

A. Analysis

At this stage of analysis, researchers collect information that can help the process of developing video tutorials. This is important because to know the problems that occur in teachers and students in learning. at this stage of analysis, it must contain a library study which contains (1) Literature Review, (2) Curriculum Study, (3) Relevant Research. Followed by instructional analysis and student character analysis. The three stages of the analysis must contain the validation of the gap between the real and the ideal abilities, knowing the number of students in the study, knowing the location of the research subject, knowing the data on the distribution of students' abilities or research subjects, knowing the content of the material from the curriculum, knowing the technology that can be used, and knowing the facilities. owned by students and schools.

B. Design

at this stage is the lesson plan in the product and designing the material for Betaja dance. By setting goals to be achieved using video tutorials. The initial media product design begins with determining the initial concept of the storyboard and then it is designed into a visual prototype or commonly called a conceptual product. This initial product concept design is ready to enter the initial product development stage which will be validated by experts.

C. Development

Stages of development by realizing the initial product to become the final product in the form of video tutorials. The development stage starts from the initial product creation, expert validation and revision, as well as three trial stages accompanied by revisions to produce the final product. Some of the details of the steps carried out include:

D. Early Product Development

At the development stage, what is done is to realize the video tutorial product design that has been designed in the previous stage so that at this stage it produces an initial product.

E. Expert Validation

Expert validation is carried out to determine the feasibility of the product concept that has been designed. Validation involves several professional and experienced experts in their fields to validate the materials, media, and product designs developed.

F. Revision and Initial Product

After expert validation, revisions are made from expert input. The results of the revision made the product as the initial product accompanied by instructions for using the media. This is done to make the product quality better and suitable for use at the individual trial stage

G. Individual Trial

Individual trials were conducted on 2 (two) students with average ability. This trial is to determine the initial reaction from the use of the initial product which has been revised from expert validation tests.

H. Individual trial revision

After conducting individual trials, the initial product was revised. Product improvement is carried out by considering input from individual trial students.

I. Small group trial

Small group/class trials were conducted on 6 (six) students with high, average and low abilities. This trial is more complex in terms of the input given by students from the experience of using the initial product.

J. Small group trial revision

After conducting a small group trial, the initial product was revised again. Product improvement is carried out by considering input from small group trial students.

K. Large group trial

Field trials/large classes were conducted on 27 students. This trial is more extensive and the inputs given by students from the experience of using the initial product are very important to produce the final product.

L. Revision of large group trial

After conducting a large group trial, the product was revised again. Product improvement is carried out by considering input from large group trial students to produce a video tutorial final product.

M. The final product

Researchers made revisions and improvements from every input that existed during the trial, until the final product was obtained from a video tutorial for learning arts and culture in junior high school.

N. Implementation

In implementation, apply video tutorials to teachers and students.

O. Evaluation

The evaluation in this study focuses more on whether product development can have good effectiveness for teachers and students in the learning process. To determine the effectiveness of the video tutorials, students follow the movements in the video tutorials and will be assessed using the student dance skills assessment sheet which has 4 (four) assessment elements, namely Wiraga, Wirasa, Wirama and Harmoni.

Data collection

This study uses three techniques in data collection, namely interviews, questionnaires, and written tests. The data collection tools are interview guides, and questionnaire questions.

Data analysis technique

This study uses descriptive qualitative data analysis and quantitative analysis.

Lift expert validation

The researcher uses qualitative descriptive data to show the data analysis of expert validation results in using video tutorials. Presentation of data using tables and graphs. The criteria for the validity of designs, materials, and media are as follows:

Table 1 Likert Scale

Zillert Start			
No	Assessment criteria	value	
1.	Very good	5	
2.	Good	4	
3.	Pretty Good	3	
4.	Not Good	2	
5.	Very Not Good	1	

To calculate the average score using the formula:

$$\bar{X} = \frac{\sum X}{N}$$

Information:

 \bar{X} = Average score

 $\sum X$ = Total score

N =Number of raters

To get the interval distance between categories, Widoyoko (2018) uses the procedure (in Mering, 2020):

$$i = \frac{\textit{highest score-lowest score}}{\textit{number of classes}}$$

The interval distance is $i = \frac{5-1}{4} = \frac{4}{4} = 1$, thus obtained category: 1,0 - 2 = "Invalid", 2,1 - 3,0 = "Less Valid", 3,1 - 4,0 = "Valid", dan 4,1 - 5,0 = "Very Valid". To make it easier to use the validity criteria, it can be seen in table 2 below.

Table 2
Media Validity Criteria

	1,10010 , 011010	J 011101111
No	Criteria	value
1.	Very Valid	4,1 – 5,0
2.	Valid	3,1-4,0
3.	Less Valid	2,1-3,0
4.	Invalid	1.0 - 2.0

Student Dance Score Sheet

The ability of students to demonstrate the bataja dance is analyzed by practical assessment which includes four aspects of wiraga, wirama, wirasa with the following descriptions: (1) Wiraga is the basis for the ability of body movements or physical dancers, (2) Wirama is a pattern to achieve harmonious movement, (3) Wirasa is the level of appreciation and inspiration in dance, and (4) the overall harmony of interrelationships regarding the harmony of the blend of wiraga, wirasa, wirama and the harmony of the elements of art

The data analysis technique used in this study used quantitative descriptive data while the quantitative descriptive data collection technique in the form of data presented was based on individual research figures, the analysis used was by the following formula:

$$Ni \frac{student\ scores}{jmaximum\ score} X100$$



III. RESULT AND DISCUSSION

A. Results

The findings show that local content dance art material is one of the learning materials that do not have learning media which causes students to feel bored in participating in learning and results in the learning outcomes of some students not reaching the minumun score of 70. Based on this study there are some students who have a positive attitude towards learning arts and culture have not yet obtained learning outcomes that reach the minumun score for learning arts and culture to obtain learning outcomes that have not reached the minumun score.

The development of video tutorials was developed referring to the 2013 Curriculum with the material for the multimedia department in 9th grade odd semesters is traditional dance. The results of the field findings show that the age of students is 13-14 years old where students in dancing tend to have a fairly high curiosity towards the use of video tutorials where students will think abstractly and logically by using possible thinking patterns using dance tutorial videos can improve students' practical skills. Many students whose skill scores are low due to the lack of art and culture teaching materials, dance materials and limited time for cultural arts practice, 9th grade students currently participate in the online learning process 90% (50 students) and offline/offline by 10% (10 students) from a total of 60 students in 9th grade. The current use of learning media is google classroom, google meet, and youtube. Brother Pontianak Junior High School has a laptop/PC computer facility and an adequate internet network to support the distance learning process. Students who do not have facilities/access to study can use existing facilities at the school on condition that they comply with the Health protocol.

1) Design

Activities at this stage are learning plans in products and designing dance tutorial video materials. By setting goals to be achieved using video tutorials. At the stage of designing teaching materials for traditional dance materials, there are several stages, namely choosing instructional material, which is traditional material which is one of the materials in the arts and culture department in 9th grade odd semester, the instructional strategy used is Blended Learning. The media used in the learning process is internet media, namely the page https://youtu.be/gOglW3HdTrQ. allocation in the learning process is 2 meetings, with each meeting 2 x 45 minutes adjusted to the learning objectives Initial product concept design stage by making a video tutorial landscape storyboard. The general and specific views are as follows:



Figure 1 Display the Storyboard section of the Home Menu



Figure 2 Storyboard display section Training ment (Interactive Location)

2) Development

At this stage, product development starts from the initial product, instrument validation will be validated by four experts, product validation will be validated by four experts, each expert will validate the three aspects, namely design, material and media then revised and the trial phase is then carried out. revised again so that it becomes the final product. Some of the details of the results of the development stage carried out include:



Figure 3 Display of the basic competence of uniqueness of movementtari tradisional



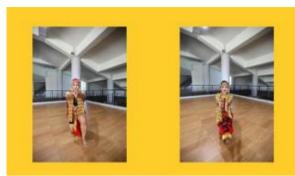


Figure 4 Display of various dances 1



Figure 5 Video display of full dance moves in pairs

3) Expert Validation

At this stage, the video tutorial is validated by 3 (three) experts who have expertise in all three aspects of material, media, and learning design. Validation of this product was carried out with the following data results:

Table 4

Validation Results of Learning Design Experts

Aspect	No	Suits of Learning Design Expe	Ai
Eligibility Characteristics	1.	The suitability of learning	4.75
Characteristics	2.	theory in video tutorials Have a learning goal	4.25
	3.	have an impact on increasing interest in learning in class	4.25
	4.	Specific ways of learning	4.00
Feasibility of	5.	Preliminary activity plan	4.25
learning activity	6.	Core activity plan	4.00
design	7.	Closing activity plan	4.25
Eligibility	8.	Systematic	4.50
Stages of	9.	The deepening of the material	4.50
multimedia learning		followed with every move Dance	
Ü	10.	simple or easy video media display	4.25
		understood	
	11.	Continuity of every dance movement	4.25
		Average	4.28

Information: A_i = Average value of expert validation

Based on the data from the validation results of learning design experts, it shows that video tutorials on traditional junior high school dance materials are very valid. The suggestions for improving the validation of the learning design by experts were revised according to the instructions given.

Table 5
Material Expert Validation Results

	viateri	at Expert validation Results	
Aspect	No	Indicators	Ai
Completeness of video material	1.	The movements presented are in accordance with the movements bataja dance theory.	4.75
	2.	The dance selection is taken from the local culture	4.75
	3.	Dance movements according to the indicators and basic competencies to improve skills Student	4.75
	4.		4.25
		The dance movement already includes elements of dance	
Video material accuracy	5.	Gymnastics movements are easy for junior high school students to follow	4.00
j	6.	Movement can be learned by junior high school students	4.25
	7.	Movement is neither too fast nor too slow for middle school students	4.00
Sufficiency and depth of material	8.	Presentation of 1 dance movement to increase students' motivation to follow the dance	4.25
material	9.	The dance moves are in accordance with the level middle school student development	4.25
	10.	The movements presented are not excessive	4.00
	11.	There is a relationship between dance	4.25
	12	Easy dance tutorial videos follow the dance	4.00
		Average	4,28

Information: A_i = Average value of expert validation

Based on the validation data from material experts, it shows that the material for traditional dance is very valid. The suggestions for improvement of material validation by experts are revised according to the instructions given.



Tabel 6 Media Expert Validation Results

Aspect	No	Indicators Ai	
Video Component	1	Lighting quality and angle capture Picture	4.50
	2	The bataja dance movement is clearly visible	4.25
	3	Narrative for opening and closing	4.75
Aspek Audio	4	The music used is clear	4.50
•	5	Dance movements according to the tempo of the music	4.50
	6	Dance moves according to the count	4.50
Aspects of precision, packaging, and	7	videos according to improvement activity student skills	4.25
attractiveness o	f 8	Make it easier for educators to receive material	4.00
	9	Easy operation video tutorial	4.25
	10	Gymnastics tutorial videos are safe for students to use	4.75
	11	Facilitate learning and make it easier students learn dance	4.25
Average		4.430	

Information: A_i = Average expert validation score

Based on the data from the validation results of media experts, it shows that the video tutorials for traditional dances. The suggestions for improving media validation by experts are revised according to the instructions given.

4) Initial Product Trial

Individual Trial Results and RevisionsAfter validation by experts, the video tutorial will continue to the trial stage. The trial stage carried out was the individual trial stage. The individual trial phase was carried out on two students with average ability. The purpose of this individual trial was to find out the results of students' dancing skills from the use of products that had been revised by expert validation.

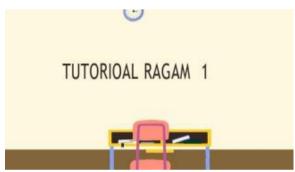
The results of the students' dancing skills at the individual trial stage were "very good" (81) using video tutorials for junior high school betaja dance materials. From the results of individual trials conducted on two students, no suggestions and improvements were found, so this product is feasible to be tested in the small group trial stage.

The results of students' dancing skills at the small group trial stage were 'very good' (86) using video tutorials on Betaja dance material for junior high schools. From the results of the medium group trial conducted on six students, no suggestions and improvements were found, so this product is feasible to be tested at the large group trial stage.

Based on the data from the large group trial, it showed that the attitude of the students at the small group trial stage was 'very good' (81) by using a video tutorial on the Betaja dance material for junior high school. The suggestions for improvement from the individual trial were revised according to the input given as the final product. The final product profile of the video tutorial for using video tutorials on Betaja dance material for junior high school is as follows:



The initial appearance of the media for traditional dance materials in the early part of the narrative invites students to learn traditional dance moves with pictures of the teacher's character.



Display on the home menu that provides sub menus, namely the Instructions Menu, Competence Menu, Material Menu, Video Menu and, Exercise Menu



The description display invites students to watch the complete dance movements starting from individuals, in pairs, and in groups showing the details of Betaja dance movements





Video display of individual complete dance moves to show details of Betaja dance movements starting from the head, shoulders, torso, and legs.

5) Implementation

At this stage, the final product that has gone through expert validation, individual trials, small group trials, and field trials/large classes can be applied to teachers and students by making preparations for using video tutorial products. Here's the preparation for teachers and students:

Teacher Preparation

Teachers attend training so that they can use learning tutorial videos as teaching materials. The results of the teacher training implementation plan are designed with four components, namely identification, tools and materials, time allocation (training schedule, duration: 1 hour), and training implementation.

Student Preparation

Students take part in exercises for the use of video tutorial products as well as the implementation of learning computer hardware maintenance materials. The preparation of students in the form of two lesson plans (RPP) with a duration of 4 x 45 minutes for each meeting.

6) Evaluation

At the evaluation stage, each stage of analysis, design, development, and implementation of the ADDIE model always has a simultaneous evaluation stage. The results of the evaluation carried out at each stage will improve the quality of development to the next stage. Thus, the final evaluation results in this study focus more on the effectiveness results after using this product. The results of the effectiveness can be seen in detail in the results of the effectiveness test.

Multimedia Effectiveness

Student attitude measurement results in this study using a Semantic Differential Scale on 30 9th grade students of Junior High School Brother Pontianak to see student attitudes before and after the use of video tutorials.

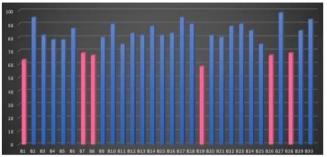


Figure 6. Graph Recapitulation of Student's Dance Skill Score

Based on the data of the students' dancing skills at the very good effectiveness test stage by using video tutorials for learning cultural arts on Betaja dance material for junior high schools.

B. Discussion

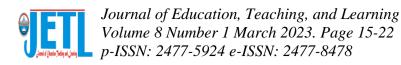
Research and development of betaja dance video tutorial products for cultural arts learning has been carried out. The researcher will present the results of the research consisting of the results of the development design, development profile, and the effectiveness of using video tutorials for learning arts and culture research results from sub-problem one, namely the development design consisting of analyze, design, develop, implement, and evaluate. For research results from subproblem two, namely the development profile consisting of a video tutorial product profile. Furthermore, for the results of research from sub-problem three, namely the effectiveness test which consists of the acquisition of students' practical skills. After explaining the results of the research, a discussion was carried out on the development design, development profile, and effectiveness of the use of Betaja dance tutorial videos for learning arts and culture. The results of research and development in this study are as follows.

At the analysis stage, the study of the curriculum found that the curriculum used was the curriculum used at the Pontianak Brothers Junior High School, the 2013 curriculum. Traditional dance is one of the materials taught in 9th grade in the odd semester. Minimum completeness criteria (minumun score) where have the same minumun score, which is 70.

In a relevant research study, it was found the results of research on the development of this research has same result that conducted by Nurlatifah (2014), Agni (2014), and Ningsih (2013).

The teachers in evaluating dance learning using a congruence evaluation mode (Marizana, 2013). In addition, the teacher measures students' abilities in terms of cognitive, affective, psychomotor aspects by using measuring tools in the form of theoretical and practical tests. In this study, there are points of difference in terms of school level. This study was applied at the elementary school level. Seen from the experimental class average of 71.83.

Furthermore, another research conducted by Paramita (2013) is known that the average pretest score is 50.5 posttest is 78.6. So it can be concluded that there is an increase in learning outcomes before and after using the product. The



results of this study and previous studies show that video tutorials on learning cultural arts with Betaja dance material are very feasible to use and can improve students' skills in dancing.

Obtaining these learning outcomes can be seen by looking at the cognitive aspects of the learning process. The success in improving student learning outcomes using video tutorials is indicated by an increase in students' understanding of the learning process using video tutorials.

Product development design video tutorial using the ADDIE development design model. The stages of development are carried out systematically, namely through five stages, namely analysis, design, development, implementation, and evaluation. The analysis phase is an important step in gathering information for the development of the initial product plan design. With the accuracy of the initial product plan, an initial product is produced that is in accordance with the results of the previous analysis. The initial product development stage that has been developed is validated by experts on the material, media, and design aspects before being tested empirically. In expert validation, the video tutorial product was declared "very valid". Improvement suggestions from experts were made to revise the video tutorial product. The revised initial product was continued to the stage of individual trials (one to one), small group trials (small group trials), field trials (field try). After each trial, the product is revised according to the suggestions for improvement given. The product revision in the field trial is a form of the final product of the empirical test in the development stage. The final product is used in implementation to teachers and students. Before using the final product, teachers and students were trained directly on the use of multimedia. After that, the learning process took place according to plan. After implementing the use of the final product, an effectiveness test is carried out as an evaluation stage. By following each stage of development systematically, a video tutorial product development design can be generated.

IV. CONCLUSIONS

The effectiveness of the use of the final product is carried out to see the results of students' dancing skills after using the video tutorial. The average score of students' dancing skills was 81.22 so that students' dancing skills were categorized as very good after using video tutorials. The results of the effectiveness test of using video tutorials carried out through the results of students' dancing skills could be categorized as very effective.

REFERENCES

- Agni, E. W. (2014). "Faktor-faktor Penghambat Pembelajaran Seni Tari di SMP Negeri 4 Wonosari". *Skripsi*. Universitas Negeri Yogyakarta
- Ariyanti, D (2020) Multimedia Interaktif Berbasis Ispring suite 8. *Jurnal Education and Development*, 8(2).
- Branch, R. M. (2009). *Instructional Design:The ADDIE Approach*. New York: Springer.

- Caesariani, N. A. (2018). Pemanfaatan Multimedia Interaktif pada Model Problem Based Learning (PBL) dalam Pembelajaran Matematika. *Jurnal Pendidikan Tambusai*, 2(2), 832-840.
- Evans, Rupert N, dan Edwin, Lewis H. (1978). *Foundation of Vocational Education*. Ohio: Charles E. Merril Publishing Company.
- Griffey, J. (2020). *Introduction to Interactive Digital Media*. Newyork: Routledge
- Hardani (2020). *Metode Penelitian Kualitatif & Kuantitatif*. Yogyakarta: CV. Pustaka Ilmu Group.
- Khalid, M. S., Alias, M., Razally, W., Yamin, S., & Herawan, T. (2010). The effect of using an interactive multimedia courseware within a collaborative learning environment on the learning of pre-algebra concepts among pre-university engineering students. *Procedia-Social and Behavioral Sciences*, 8, 571-579.
- Marizana, M V. (2013). "Model Evaluasi Pembelajaran Seni Tari di SMA Negeri 2 Padang". *Skripsi*. Universitas Negeri Padang.
- Mering, A. (2020). *Pengembangan Instrumen Penilaian dan Penelitian*. Pontianak: IAIN Pontianak Press.
- Munir. (2012). Multimedia Konsep & Aplikasi Dalam Pendidikan. Bandung: ALFABETA.
- Ningsih. (2013). Penerapan Teknik Penilaian pada Pelajaran Seni Musik di SMP Negeri 4 Kecamatan Guguak. *Skripsi*. Universitas Negeri Padang
- Nurlatifah. (2014). Penilaian Autentik pada Mata Pelajaran Seni Tari dalam Implementasi Kurikulum 2013 untuk Siswa Kelas VII di SMP Negeri 1 Sukarame Kabupaten Tasikmalaya. *Skripsi*. Universitas Pendidikan Indonesia.
- Parata, T. P., & Zawawi, M. (2018). Pemanfaatan Multimedia Interaktif Pembelajaran IPA-Biologi Terhadap Motivasi dan Kemampuan Kognitif Siswa SMP Negeri 14 Kota Palembang. *Jurnal Ecoment Global*, 3(2), 52-78.
- Putri, E, D, P. (2018). Pengembangan Multimedia Pembelajaran Interaktif Kimia Berbasis Android Menggunakan Prinsip Mayer Pada Materi Laju Reaksi. *Jurnal Inovasi Teknologi* Pendidikan, 5(1).
- Rajendra, I. M., & Sudana, I. M. (2018). The influence of interactive multimedia technology to enhance achievement students on practice skills in mechanical technology. *Journal of Physics: Conference Series*, 953(1).
- Rusman. (2018). Belajar dan Pembelajaran Berbasis Komputer: Mengembangkan Profesionalisme Guru Abad 21. Bandung: Alfabeta.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.
- Sutirman. (2013). *Media & Model-Model Pembelajaran Inovatif.* Yogyakarta: Graha Ilmu.