Use of Adobe Flash CS 6 Media in Learning Design Skills Competence Modeling and Building Information

Akhid Aditia Rudiansyah1✉, Hadromi Hadromi[2], Heri Yudiono[2]

[1]SMK Bhina Tunas Bhakti Juwana, Indonesia
[2]Pascasarjana, Universitas Negeri Semarang, Indonesia

Article Info	Abstract
	This research was carried out based on the results of observations in the vocational theory learning process, there were several obstacles faced, There are several obstacles, namely, 1) the methods used are lectures and discussions that are less than optimal; 2) students are less enthusiastic in learning the material because the media used by the teacher is in the form of power points and softfile modules; 3) It is not possible to use power point media and module softfiles to operate randomly and freely in adjusting the selection of the material pages you want to learn. The research objectives of this research are (1) develop Adobe Flash CS6-based learning media in Vocational Theory subjects,(2) analyze the feasibility and practicality of learning media,(3) analyze the effectiveness of using learning media. Research on the development of learning media based on Adobe Flash CS 6 using the ADDIE development model. The data collection tool for the feasibility of learning media uses media experts. Media practicality data using assessment questionnaires by teachers and students. In the results of this study, Adobe Flash CS 6 can be integrated with server side scripting such as CGI, ASP and PHP to create beautiful database web applications. In addition, it can also be used to make short films or cartoons, presentations, advertisements or web banners, logo animations.

✉ Correspondence :
Jl. Sunan Ngerang No. 109 Juwana, Kebonsawahan, Kec. Juwana, Kab.
Pati Prov. Jawa Tengah, Indonesia
E-mail: akhidaditia@gmail.com

INTRODUCTION

Bhina Tunas Bhakti Juwana Vocational School is one of the Vocational High Schools in Pati Regency which has the competence of Building Modeling and Information Design expertise. At the graduate standard of SMK Bhina Tunas Bhakti Juwana in the competency of Design, Modeling and Building Information, there are vocational theory subjects that must be completed in class XII. Based on observations in the vocational theory learning process, there are several obstacles faced. There are several obstacles, namely, 1) the method used is lectures and discussions that are not maximally implemented; 2) students are less enthusiastic in learning the material because the media used by the teacher is in the form of power points and softfile modules which cannot display examples of design images and videos in a complete and structured manner, so that learning outcomes are not optimal; 3) Does not allow the use of power point media and module softfiles to operate randomly and freely in adjusting the selection of material pages to be studied and cannot be controlled to search for material pages quickly, considering the large scope of material; 4) The use of learning media at Bhina Tunas Bhakti Juwana Vocational School, namely Module softfiles and Powerpoint (one-way broadcast media), is not considered to be of maximum urgency because most of the vocational theory learning materials display images directly.

The facilities owned by Bhina Tunas Bhakti Juwana Vocational School should be able to become a great potential as a support for the formation of an interesting and innovative teaching and learning process for Modeling and Building Information Design students, but in practice, the facilities owned have not been fully utilized to support the teaching and learning process. Technology-based learning media that can display visual and verbal is the use of computer-based media Development of computer-based media, one of which uses the Adobe Flash CS 6 program. Adobe Flash CS 6 is a graphic animation program that is used to produce works in the field of animation, presentations and learning media. The Adobe Flash CS 6 program has the advantage of creating 2-dimensional designs, creating movies, games, animated buttons and interactive menus. Adobe Flash CS 6 is also equipped with an Action script menu, custom easing and filters.

Researchers chose Adobe Flash CS 6 as a means to realize multimedia as in a study conducted by Gd Tuning Putra, Made Windu Antra Kesiman, S.T., MSc., and I Gede Mahendra Darmawiguna, S.Kom., M.Sc in 2013. According to the journal, Adobe Flash CS 6 is software that can be used to create animations accompanied by images, video, text, charts, and sound. There are several reasons for choosing Adobe Flash CS 6 as a presentation media, namely because Adobe Flash CS 6 has advantages, including the final result of the flash file having a smaller size (after publishing), Adobe Flash CS 6 is able to import almost all image files and files. audio files so that presentations with Adobe Flash CS 6 come alive, animations can be created, executed, and controlled. Adobe Flash CS 6 can form executable files (*.exe) so that it can be run on any PC (Personal Computer) without having to first install the Adobe Flash CS 6 program. (Andi Pramono, 2010: 2).

Comparison of this research with research conducted by Gd Tuning Putra, Made Windu Antra Kesiman, S.T., MSc., and I Gede Mahendra Darmawiguna, S.Kom., M.Sc in 2013. According to the journal, Adobe Flash CS 6 is software that can be used to create animations with images, videos, text, charts, and sounds. Meanwhile, according to this research, it can not only be used to create animations with pictures, videos, text, charts, and sounds, but can also be used online in the form of applications/software that can be installed on students' android phones.

The advantages and capabilities of Adobe Flash CS 6 are: It is the most popular web animation technology today, so it is widely supported by various parties. b. Small file size with good quality. c. Hardware requirements are not high. d. Can create websites, interactive CDs, web animations, animated cartoons, electronic cards, TV advertisements, banners on the web, beautiful presentations, make games (games), web and mobile applications. e. Can be displayed on many media such as Web, CD-ROM, VCD, DVD, Television, Mobile and PDA.

Adobe Flash CS 6 is an application that is widely used by web professionals because of its amazing ability to display multimedia, combining elements of text, graphics, animation, sound and as well as interactivity for users of internet animation programs. Today, Adobe Flash CS 6 has become the prima donna of web designers as a means to create an attractive and interactive website. Adobe Flash CS 6 (Flash MX) is a standard professional authoring tool application program used to create stunning vector and bitmap animations for the purposes of creating interactive and dynamic websites. In addition, this application can also be used to create animated logos, movies, games, create navigation on websites, banners, animated buttons, interactive menus, interactive form fields, e-cards, screen savers and the creation of entire web content or application creation. other web applications.

Animations and images created with Adobe Flash CS 6 will still look great on any window size and screen resolution. This is because Adobe Flash CS 6 is made with vector graphics technology that describes images using lines and curves, so that the size can be changed as needed without reducing or affecting the quality of the image. Loading time with processing other animations, other animations, such as animated gifs and java app plet. Also able to create interactive websites, because users can use the keyboard or mouse to move to other parts of the web page or movie, move objects, enter information in forms. Capable of animating complex graphics very quickly, so that full-screen animations can be directly linked to websites.

In the results of this study, Adobe Flash CS 6 can be integrated with server side scripting such as CGI, ASP and PHP to create beautiful database web applications. In addition, it can also be used to create short films or cartoons, presentations, advertisements or web banners, logo animations, navigation controls and others. Flash MX also provides new video streaming capabilities that have been expanded to various video formats including MPG, DV (Digital Video), MOV (Quick time) and AVI formats. These video formats can be saved into MX flash files using better file compression. This wider video support allows for better creativity in making flash movies. The advantages of Adobe Flash CS 6 MX can be used in the world of education to achieve learning goals.

METHOD

The research method used is the Research and Development (R&D) development method with the ADDIE model approach. According to Warsita (2011: 7) the ADDIE development model is a development model based on an effective, dynamic system, and supports learning media development procedures. There are 5 stages of development, namely (1) the needs analysis stage (2) the design stage (3) the development stage (4) the product testing stage (5) the evaluation stage. The media development procedure can be illustrated in Figure 1.
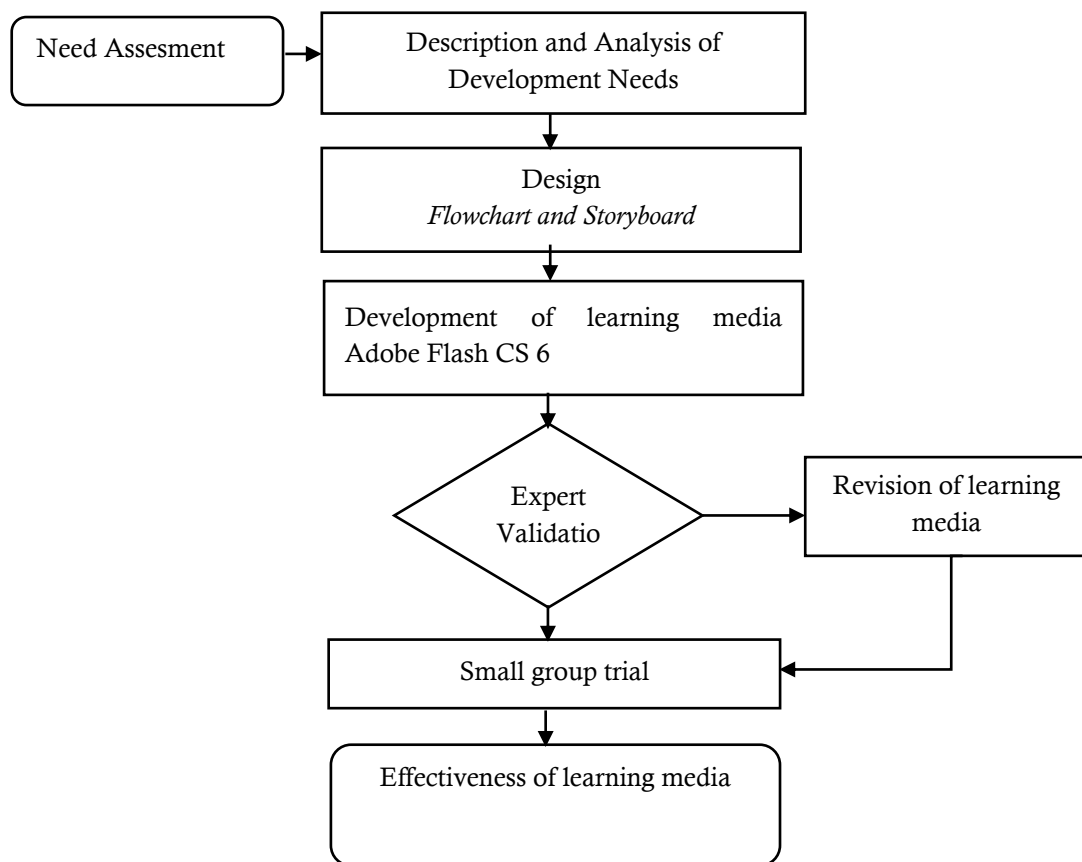

Figure 1. ADDIE Development Model Stages

The ADDIE method is used as a procedure for developing adobe flash cs 6-based learning media in vocational theory subjects. Research on the development of learning media was carried out at Bhina Tunas Bhakti Juwana Vocational School with the research subjects being 3rd grade students totaling 30 students. The data collection techniques used in this development research are:

1. Adobe Flash CS 6 media eligibility

The feasibility assessment of vocational theory learning media was carried out by 3 media experts by providing assessments and suggestions using a questionnaire from the aspects of

Presentation design, Interaction Usability, Accessibility and Reusability. The results of the assessment of learning media based on Adobe Flash CS 6 on the subject of Vocational Theory by Media Experts show that the media is very feasible to be used as learning material in the Vocational Theory subject. The results of the assessment are 81%, namely in the very feasible category. The assessment given by the Media Expert also provides suggestions for improving the media, namely the use of background colors that slightly hinder the readability of the material text and titles on the media and it is recommended to change the color of the text to contrast with the background color of the learning media. Another improvement lies in the animation presented on the intro menu of learning media. Animated images are considered less in accordance with the title of the subject matter, so it must be changed and adjusted to the title of the material, namely Vocational Theory Learning Media.

2. Practicality of Adobe Flash CS 6 Learning media

The assessment of the practicality of learning media carried out by the teacher refers to 8 assessment indicators, namely from the aspect of Content quality, Learning goals, Feedback and adaptation, Motivation, Presentation design, Interaction usability, Accessibility and Reusability. The results of the data that have been obtained show that the aspects of Motivation and Interaction usability show the highest number, namely at 90%, followed by the Presentation Design aspect 88% and Reusability 86.6%, the accessibility aspect 85%, Content quality and Feedback and adaptation aspects 82.5% and finally Learning goals 82%.

3. Application of Adobe Flash CS 6 media that has an impact on student competence

Assessment of learning media is carried out through a questionnaire response to the use of adobe flash cs6-based learning media in vocational theory subjects. Student response questionnaires were given to 30 students of SMK Bhina Tunas Bhakti Juwana. The results of the data obtained show that the highest aspect is Content quality, which is 90%, then Learning goal 85.7%, Motivation aspect 84.6%, feedback and adaptation aspect 83.5%, Interaction Usability aspect 82.9%, Presentation design aspect 82.1%, Accessibility aspect 81.5% and the last is the Reusability aspect of 80.3%.

Overall, Adobe Flash CS 6-based media can visualize and clarify the respiratory system material by providing observation objects in the form of images and animations. According to Hartatik (2014) the learning process using media designed in accordance with needs analysis that emphasizes the activeness of students both physically, mentally intellectually and emotionally, can obtain maximum learning outcomes both from the cognitive, affective and psychomotor aspects. In addition, the condition where students can manage their own learning media also allows interactive media based on Adobe Flash CS 6 to have a better influence on student learning outcomes on respiratory system material. This is in accordance with the results of research by Yeni and Yokhebed (2015) where students who are directly involved in operating interactive media can build their own knowledge because it is adjusted to the speed of each student's learning. This condition does not exist in the power point media that is applied in the control class, because the power point media is only operated by the teacher when explaining the respiratory system material.

RESULTS AND DISCUSSION

Adobe Flash CS 6 media eligibility

The feasibility of learning media based on Adobe Flash CS 6 on theoretical subjects by media experts is seen from the aspects of Presentation design, interaction usability, accessibility, reusability. The results of the feasibility test are 82%, namely in the very feasible category, while the calculation of each aspect can be seen in Table 1.

Table 1. Media expert test results for each aspect

Eligibility Indicator	Media Expert			Score	Category	Score (%)
	1	2	3	Average		
Presentation design	20	16	15	17	Very Worthy	85
Interaction Usability	24	19	19	20.6	Worthy	82
Accesibilty	19	16	15	16.6	Worthy	83
Reusability	13	10	9	10.6	Worthy	71
TOTAL	76	61	58	65	Worthy	82

Practical Adobe Flash CS6 Media

Data analysis of the practicality of learning media based on Adobe Flash CS 6 in vocational theory subjects based on the assessment of teachers and students of SMK Bhina Tunas Bhakti Juwana from the aspect of content quality, learning goals, feedback and adaptation, motivation, presentation design, interaction usability, accessibility and reusability is explained in table 2

Table 2. Student Assessment Results

Eligibility Indicator	Evaluation Teacher	Evaluation Student	Average Score (%)	Category
Content Quality	82.5	90	86.2	Very Practical
Learning Goal	82	85.7	83.8	Very Practical
Feedback And Adaptation	82.5	83.5	83	Very Practical
Motivation	90	84.6	87.3	Very Practical
Presentation design	88	82.1	85	Very Practical
Interaction Usability	90	82.9	86.4	Very Practical
Accesibilty	85	81.5	83.2	Very Practical
Reusability	86.6	80.2	83.3	Very Practical
TOTAL	85.6	83.9	86.2	Very Practical

The results of teacher and student assessments obtained a total score of 86.2% indicating that the learning media is very practical to be applied to vocational theory subjects. Based on teacher and student assessment data, the order of the highest aspects is the motivation aspect, then interaction usability, content quality, presentation design, learning goals, reusability, accessibility and finally feedback and adaptation.

Adobe Flash CS6 Media Effectiveness

Based on the N-Gain Test, it is known that the average value is 56.5% which is included in the effective category. The diagram of the results of the pre-test and post-test can be seen in the Figure 2.
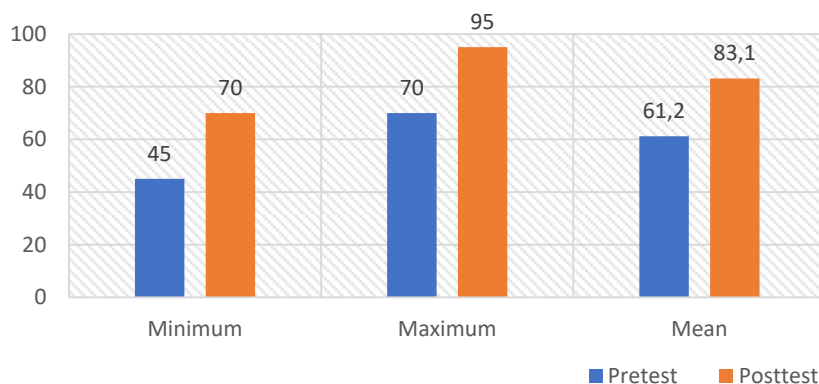

Figure 2. Diagram of pretest and posttest results

The development of this learning media uses the Adobe Flash CS 6 program which produces applications that can be run on computers or laptops and Android-based mobile phones. This Adobe Flash CS 6-based learning media can be run without having to install other additional software, so it is very easy to use. At the development stage, researchers also developed a learning media assessment instrument to determine the feasibility of the media.

The impact of the development of the Adobe Flash CS 6 program on vocational theory learning is the increased effectiveness of online learning outcomes for students' competence in Design, Modeling and Building Information. This data is shown based on the results of the effectiveness test of learning media, it is known that the t-test results are 0.000 <0.05. The t-test results show that there is a significant difference between the value of student learning outcomes before and after the use of learning media. To find out how effective the Adobe Flash CS 6-based learning media is in vocational theory subjects. can be tested using the N-Gain Test. The results of the N Test calculation are the average value of 77.930 or 77.9% which is included in the effective category.

1. **Feasibility of Adobe Flash CS 6 Learning Media**

Based on the results of the assessment of 3 Media Experts, a total score of 185 was obtained, while the expected total was 210, then the total score was calculated by the percentage of feasibility of learning media based on Adobe Flash CS6 in Vocational Theory subjects by Media Experts of 81%, namely in the Very feasible category. The increase in interest in learning is supported by the theory revealed by Arsyad (2016: 29) which states that learning media can increase and direct students' attention so that it can generate interest in learning.

2. **Practicality of Learning Media Adobe Flash CS 6**

Based on the results of the assessment of 2 Teachers in the Modeling and Building Information Design class, a total score of 137 was obtained, while the expected total was 160, so the total score was calculated by the percentage of conformity of learning media based on Adobe Flash CS 6 in the subject of Vocational Theory was 85%, namely in the category Very Appropriate.

Based on the results of the assessment of 30 students of Modeling Design and Building Information at SMK Bhina Tunas Bhakti Juwana, an average score of 34.1 was obtained in the very appropriate category. The total score of student questionnaire evaluation is calculated by the percentage of conformity of vocational theory learning media is 83.8%. The increase in learning outcomes above is supported by Arsyad's theory (2016: 29) which states that learning media can clarify the presentation of messages and information so that they can facilitate the learning process and improve learning outcomes.

3. **The Effectiveness of Adobe Flash CS 6 Learning Media**

The effectiveness of Adobe Flash CS 6-based learning media was tested with a t-test on the data of the petest and posttest. The results of the t test are known that the significance value is 0.000 < 0.05, so it can be concluded that there is a significant difference between the value of student learning outcomes before the use of adobe flash cs 6-based learning media and after using adobe flash cs 6-based learning media.

The results of this research are compared with the previous research conducted by Rahmat Saputra, Septyani Thalia, Tria Gustiningsi entitled Development of Computer-Based Learning Media with Adobe Flash Pro CS6 on the Wide Build Flat Material in 2020, there are differences in the research concept, namely: Researchers used Design Research Development Study type with two stages, namely the preliminary stage and the prototyping stage. Data collection techniques used include walkthroughs, questionnaires, interviews, and tests.

The first stage is the analysis stage, this stage consists of needs analysis, learning component analysis, and environmental analysis. The analysis stage is to find out the problems experienced during the learning process in the classroom, Based on this stage, it is known that there is a need for varied and effective learning media for Vocational Theory subjects, Modeling Design Competencies and Building Information. It is known that in this subject, 65% of students do not meet the Minimum Completeness Criteria (KKM). Learning media has a contribution in improving the quality and quality of learning. This is in accordance with the opinion of Geralch and Ely (in Arsyad, 2005:11) that the media is able to build the condition of students so that they have knowledge, skills and attitudes and have visual and verbal abilities in one container. Meanwhile, according to Hamalik (in Azhar Arsyad, 2011) learning media functions to generate motivation and are able to stimulate student learning activities.

The development of learning media for Vocational Theory of Building Modeling and Information Design competencies uses the Adobe Flash CS 6 program which produces applications that can be run on computers or laptops and Android-based mobile phones. This Adobe Flash CS 6-based learning media can be run without having to install other additional software, so it is very easy to use. At the development stage, the researcher also developed a learning media assessment instrument to determine the feasibility of the media.

The feasibility instrument was developed by referring to the development assessment by John Nesbit, namely the Learning Object Review Instrument (LORI). According to Leacock & Nesbit (2007) "A primary goal of LORI is to balance assessment validity with efficiency of the evaluation process". The LORI assessment covers several aspects, including (1) the quality of the content (content quality); (2) aspects of learning (Learning goal alignment); (3) aspects of feedback and adaptation (Feedback and adaptation); (4) aspects of motivation (Motivation), (5) aspects of design (Presentation design); (6) aspects of ease of use (Interaction usability); (7) aspects of ease of access (Accessibility) and (8) aspects of ease of reuse for the development of other media (Reusability).

The adobe flash cs6-based learning media that has been developed, then conducted a formative test to material experts and media experts as well as teachers and students in small groups to determine the feasibility and practicality of learning media. The results of the feasibility test of learning

media by material experts and media experts are 91% and 81%, respectively, which are in the very feasible category. The results of the practicality test conducted by teachers and students respectively 85% and 83.8%, namely in the very practical category.

The results of the formative test resulted in several comments and suggestions for improvements to the learning media including: 1) presentation design problem, where the intro display of learning media based on Adobe Flash CS 6 in Vocational Theory subjects is not in accordance with the subject, 2) the appearance of the writing on the material page cannot be read clearly because the color is in harmony with the background color, 3) the content of the learning material needs to be adde, 4) practice questions on learning media are less varied. Based on the comments and suggestions given by material and media experts, the next step is to improve learning media.

After the learning media was perfected at the revision stage, the next stage was implementation, at this stage the learning media based on Adobe Flash CS6 in the Vocational Theory subject was implemented for students of Modeling and Building Information Design SMK Bhina Tunas Bhakti Juwana totaling 30 people. The first step is, the teacher gives practice questions in the form of a pre-test to students through an online test. The second stage is the teacher provides learning media to students in the form of an android application (apk) that has been installed on each student's cellphone and is used when the Vocational Theory subject takes place. Vocational Theory Learning is given online via Whatsapp group media. Vocational Theory subjects were carried out in 6 online meetings by implementing learning media based on Adobe Flash CS6. The last stage is the teacher giving a post-test to 30 students of SMK Bhina Tunas Bhakti Juwana

The last stage of developing learning media is the evaluation stage. The evaluation stage is to analyze the effectiveness of adobe flash cs6-based learning media on vocational theory subjects. based on the effectiveness test of learning media, it is known that the results of the t test are $0.000 < 0.05$. The results of the t test show that there is a significant difference between the value of student learning outcomes before and after the use of learning media. To find out how much effective the Adobe Flash CS 6-based learning media is in Vocational Theory subjects can be tested using the N-Gain Test. The results of the N Test calculation are the average value of 77.930 or 77.9% which is included in the effective category.

CONCLUSION

Development of learning media Vocational Theory Competency of Design Modeling and Building Information using Adobe Flash CS 6 program, produce software applications that can be run on computers or laptops and Android-based mobile phones online. The impact of the development of the Adobe Flash CS 6 program on vocational theory learning is the increase in the effectiveness of students' online learning outcomes, Modeling Design Skills and Building Information Competencies. and the results of teacher and student assessments show that learning media is very practical to be applied to vocational theory subjects. Based on the development of learning media adobe flash cs 6 can be implemented in vocational theory subjects Competency Design Skills Modeling and Building Information.

REFERENCES

Astatin, G. R., & Nurcahyo, H. (2016). Developing Adobe Flash-Based Biology Instruction Media to Improve the Mastery of Competency in Curriculum 2013. *Jurnal Inovasi Pendidikan IPA*, *2*(2), 165-175.

Arfani, F. R. (2017). Pengaruh Penggunaan Multimedia Interaktif Berbasis Adobe Flash Terhadap Peningkatan Prestasi Belajar Tema 5 Anak Tunagrahita Ringan Kelas 5 Di SLB Negeri Surakarta Tahun Pelajaran 2016/2017. *IJDS: Indonesian Journal of Disability Studies*, *4*(1), 1-8.

Annisa (2016) Impelementasi Pembelajaran CTL Berbantu Adobe Flash CS6 Untuk Meningkatkan Motivasi Belajar dan Prestasi Belajar Akuntansi (Studi Kasus Siswa kelas X SMK 1 Surakarta). Jurnal Pendidikan Universitas Sebelas Maret

Amalia, A. R., & Ivada, E. (2016). Implementasi Pembelajaran Ctl Berbantu Adobe Flash Cs6 Untuk Meningkatkan Motivasi Dan Prestasi Belajar Akuntansi. Tata Arta: Jurnal Pendidikan Akuntansi, 2(1).

Amalia, S. (2019). Pengembangan Media Pembelajaran Interaktif (Mpi) Berbasis Flash Pada Materi Gerak Parabola. *Menara Ilmu*, *13*(7).

Herdiansyah, H., Cholily, Y. M., & Cahyono, H. (2019). The Development of Interactive Instructional Media Using Adobe Flash in a Form of Game on the Geometry Lesson (Cube and Cuboid) for Secondary School. *Mathematics Education Journal*, *3*(1), 32.

Kopecky, K. (2009). Adobe Flash Platform for Creator of Online Multimedia Educational

Content. *Journal of Technology and Information Education*, Volume 1, Issue 3, ISSN 1803-537 X.

Murawan. 2015. Perancangan Media Pembelajaran Interaktif Berbasis Adobe Flash CS6 Untuk Meningkatkan Motivasi Belajar Siswa Kelas X SMA Purwakarta. *Jurnal Pendidikan Fisika.Universitas Sebelas Maret*.

Yuliardi, R., & Lutfi, A. F. (2018). Pengembangan Media Pembelajaran Berbasis Adobe Flash Untuk Meningkatkan Kemampuan Penalaran Matematis Siswa. *Eduma: Mathematics Education Learning and Teaching*, *7*(2), 81-88.

Zulkarnain, A. D., & Jatmikowati, T. E. (2018). Pengembangan Media Pembelajaran Berbantuan Adobe Flash CS6 Berbasis Android Pokok Bahasan Segitiga. *Gammath: Jurnal Ilmiah Program Studi Pendidikan Matematika*, *3*(1).