



Development of Instructional Media on Packaging Competency in Visual Communication Design Expertise Program at SMK Negeri Purwosari

Roedie Agus Setiyoono¹ Ekohariadi¹ Rina Harimurti¹ Ratna Suhartini¹
Meini Sondang Sumbawati¹ and I Gusti Putu Asto B¹

¹ Universitas Negeri Surabaya, Surabaya, Indonesia
roedie.22011@mhs.unesa.ac.id

Abstract. Packaging competence in Visual Communication Design (DKV) expertise program in the learning process based on evaluation results of subject teachers is known to have several obstacles that cause student learning outcomes to be less effective, it can be seen that the value of student learning outcomes and innovations produced by packaging competence is still lacking, this is also supported based on the results of observations of the implementation of the DKV competency packaging program competency learning which is still carried out using conventional learning methods, such as lectures, demonstrations, and assignments. The purpose of this study was to develop instructional media using Macromedia Flash 8 on valid and practical on packaging competence in DKV expertise program. This research includes the stages of media and material preparation, the media development stage by making appropriate media designs, and the validation and practicality test stages. Validation test results from media-related assessments show that the validation for aspects of media display is 80.6% or includes valid category to apply, validation for content aspects is 85.4% or includes valid category to apply, and validation for language aspects is 96.7% or includes valid category to apply. Results of the practicality test show results where the practical test of use of media by teacher shows percentage results of 82% or in category of learning media that is very practical to use, and the practical test of using media by students shows percentage results of 86% or in category of learning media that is very practical to use.

Keywords : Development, Macromedia flash, Packaging, Validity, Practicality.

1 Introduction

Education is one form of effort made to improve the quality of human resources. Through education, human resources gain knowledge and skills that can be used as initial capital to recognize, practice, and be able to solve problems that will be faced in life or at work. Education is also expected to be able to develop the quality of the nation's next generation in various aspects that can reduce or resolve various cultural problems and national character. The desire of the people and the government's concern

© The Author(s) 2023

A. Mustofa et al. (eds.), *Proceedings of the International Joint Conference on Arts and Humanities 2023 (IJCAH 2023)*, Advances in Social Science, Education and Humanities Research 785,

https://doi.org/10.2991/978-2-38476-152-4_201

for cultural and national character education eventually accumulated in government policies regarding cultural and national character education.

The National Education System as stipulated in Undang – Undang Nomor 20 Pasal 3 Tahun 2003 emphasizes that "National education functions to develop and form a useful national character to educate the life of the nation for the development of the potential of students to become people who believe and fear God Almighty. , has a noble character, is healthy, knowledgeable, capable, creative, independent, and becomes a democratic and responsible citizen". Based on Undang-Undang Nomor 20 Pasal 3 Tahun 2003, it can be observed that in addition to developing children's cognitive and psychomotor potential, the government also emphasizes affective development which is very important as a provision for children to live social lives in society.

Vocational Education packaged in the form of Vocational High Schools (SMK) is an educational level that focuses on preparing the nation's children to be productive and has the expertise, and skills to support the 3 main goals of SMK alumni, namely work, entrepreneurship, and continuing at the tertiary level. SMK as the final milestone in improving the quality of Human Resources and a bridge in preparation for facing challenges from the nation must have quality in terms of the implementation of learning for three years. The good quality of SMK education will allow for a systematic increase in the quality of SMK alumni and the readiness of SMKs to compete in the world of work. Therefore, in SMK education it is very possible to develop efforts in fostering the quality of education.

Purwosari State Vocational School is one of the Vocational Schools based on Vocational Center for Excellence (SMK-PK) which is a major program from the Directorate General of Vocational Studies KEMENDIKBUD. Purwosari State Vocational School has six excellent expertise programs in realizing the applicability of the SMK-PK program including Engineering and Business Management expertise programs. In 2021 the Purwosari State Vocational School will focus on developing a Visual Communication Design (DKV) expertise program in the success of the SMK-PK program. The DKV expertise program is one of the expertise programs analyzed that has opportunities in a number of ways in implementing the SMK-PK program. This analysis of DKV competency needs is in accordance with the progress of Science and Technology (IPTEK) and suitability with the current era of digitalization 4.0.

The DKV expertise program of Purwosari State Vocational High School in carrying out its function as PK Vocational School must adapt to the potential of the area it has, where the regional potential owned by Purwosari State Vocational School is the location of Purwosari Vocational High School which is adjacent/located in the Oil and Gas (Oil and Gas) area managed by PT. Exxon Mobil. The location of the Purwosari State Vocational School which is close to MIGAS opens several opportunities for DKV expertise programs in implementing or implementing the PK SMK curriculum, one of which is creating branding through packaging competencies that are included in the school's operational curriculum that has been set.

Packaging competence in the DKV expertise program includes competency in developing packaging design and packaging production processes that are tailored to

the product. In the learning process, especially in the packaging competence based on the evaluation results of the subject teachers, it is known that several obstacles cause student learning outcomes to be considered less effective. supported based on the results of observations in the implementation of learning on the competency packaging program for DKV expertise, it is still carried out using conventional learning methods, such as lectures, demonstrations, and assignments. Students' understanding of the subject matter is the main objective of the learning process carried out (1). Innovation in the learning process must be carried out to improve student learning outcomes in the competence of the DKV expertise packaging program. Demands in learning in the era of globalization are in the form of developments in information technology that can be used to develop student learning processes (2). One way to apply/use information technology in learning is to use technological resources as a medium in the learning process (3).

Media in the learning process can support the success of the learning process (2). So that in the learning process, it is required to develop learning media that can support the learning process and improve the quality of learning. Development of learning media intended to improve mathematics learning outcomes in schools (4). The form of developing innovative learning media in learning process that can be done is to develop innovative learning media to facilitate the student learning process. Learning media is a tool that functions and can be used to convey learning messages (5). The application of Macromedia Flash 8-based learning media in the CNC TU 2A subject was able to increase student learning responses, with a percentage of 86.72% of 34 students, which can be categorized in the "Very Strong" category. The learning outcomes also increased from the pre-test average score of 78.03 to 84.12 and were declared "Completed" with class learning mastery reaching 91.42% (6).

Good learning media is learning media that can be easily used by students and students can also easily understand the subject matter through these learning media. One form of learning media that is considered suitable for DKV expertise program students, in particular, is the packaging competency, namely using macromedia flash. Macromedia Flash is an application software for animation that is used for the internet, thus it can be used in the development of interactive multimedia for CD production, networking and use on the web (Firdaus, 2012).

Based on the existing problems in the DKV expertise program at Purwosari State Vocational School and based on previous studies, it is necessary to carry out qualitative research to develop learning media using macromedia flash 8 on valid and practical DKV expertise packaging competencies.

2 Method

Research is a type of development research with an R&D (Research and Development) approach using the 4D model (Define, Design, Development, and Dissemination) developed by Thiagarajan (1974). The R&D approach model aims to produce new products through the development process (7). The 4D model in this study includes

Define which includes the activities of determining learning products/media to be developed along with their specifications and at this stage needs analysis is carried out through initial research and literature studies. Design contains the activities of making designs for predetermined learning products/media, Development which includes activities of making designs into products and testing product validity repeatedly until products/learning media are produced in accordance with established specifications, Dissemination which includes activities disseminating learning products/media which have been tested for use or use by students (7). The research includes several stages which are described as follows.

2.1 Preparation Phase

At the preparatory stage in this study includes:

1. Preparation of packaging material which consists of packaging material in DKV and Evaluation expertise programs or practice questions.
2. Making designs for presenting packaging material in macromedia flash learning media 8
3. Create an assessment instrument for validating macromedia flash 8 learning media for packaging competencies in the DKV expertise program
4. Create assessment instruments for teachers and students regarding practicality in using macromedia flash learning media for packaging competencies in the DKV expertise program

2.2. Development Stage

The development of macromedia flash learning media in this study includes making media designs including making attractive designs without reducing aspects of delivering the main material related to packaging, making tolls that are already understood in using macromedia flash learning media, and adjusting to learning objectives.

2.3 Testing Stage

The learning media testing phase in this study includes:

Media Validation. Validation is carried out by media experts and material experts with the assessment criteria for validation being said to be valid if the results are in the range of 81%-100% with the criteria of "Very Eligible", range of 61%-80% with the criteria of "Eligible", range of 41%-60 % with the criteria of "Not Eligible", and the range 0% -40% with the criteria of "Very Ineligible". The instrument for the validity of the development of Macromedia Flash 8 learning media includes the following aspects.

Aspects of Media Display

- 1) Compatibility of the contents on the worksheet with the desired concept or definition
- 2) Compatibility of colors, writing, and images in interactive learning media with the help of computers
- 3) Appropriateness of color, appearance, images and writing on the material in the learning media

Aspect Content

- 1) Compatibility between packaging materials and materials on Macromedia Flash
- 2) Clarity of Concept The material presented on Macromedia Flash media
- 3) The suitability of animation in learning media using Macromedia Flash with the concepts in the packaging material
- 4) Clarity of Macromedia Flash media animation in conveying the packaging concept

Aspect Language

- 1) Standard language used
- 2) Ease of understanding related to the language used
- 3) The effectiveness of the sentences used
- 4) Sentence Completeness Information that students need
- 5) The use of words according to the perfected spelling

Practicality Assessment

- a) The results of the teacher's responses to interactive media based on Macromedia Flash 8 were used to analyze data from the teacher's response questionnaire sheet with a Likert scale in the form of a checklist carried out with the same calculation as the method of evaluating the validity questionnaire.
- b) The results of the assessment of students' responses to interactive media based on Macromedia Flash 8 with the Guttman scale in the form of "Yes-No" were converted into numbers. The practicality test instrument for teacher using media based on Macromedia Flash 8 includes the following aspects.
 - 1) Effective Aspect
 - a) Instructional media can be used to explain material
 - b) The quiz used helps in the evaluation process
 - 2) Interactive Aspect
 - a) All buttons from learning media can be used properly
 - b) The 3D model scale can be adjusted
 - c) The letters displayed are easy to read and read
 - d) always facing the screen
 - e) The displayed value corresponds to the calculation.
 - 3) Efficient Aspect
 - a) Learning media is easy to use anywhere

- b) Learning media is easy to carry, does not require special specifications to use
- 4) Creative Aspect
 - a) Presentation of questions in the form of an interesting quiz
 - b) students to complete.
 - c) Learning media can help students to be active in the learning process

The practicality test instrument for students using media based on Macromedia Flash 8 includes the following aspects.

1. Usefulness Aspects
 - a) Learning media can be used to explain packaging material
 - b) Learning media can be used to do evaluation
2. Convenience Aspect
 - a) Learning media is easy to use
 - b) Practical learning media to use
 - c) 3D models can be rotated easily
3. Satisfaction Aspect
 - a) Satisfaction is felt after using learning media
 - b) Fun learning media used in Learning Activities

The design for the development of interactive learning media based on macromedia flash on the competency packaging program for DKV expertise from start to finish is described in the form of a flowchart as follows.

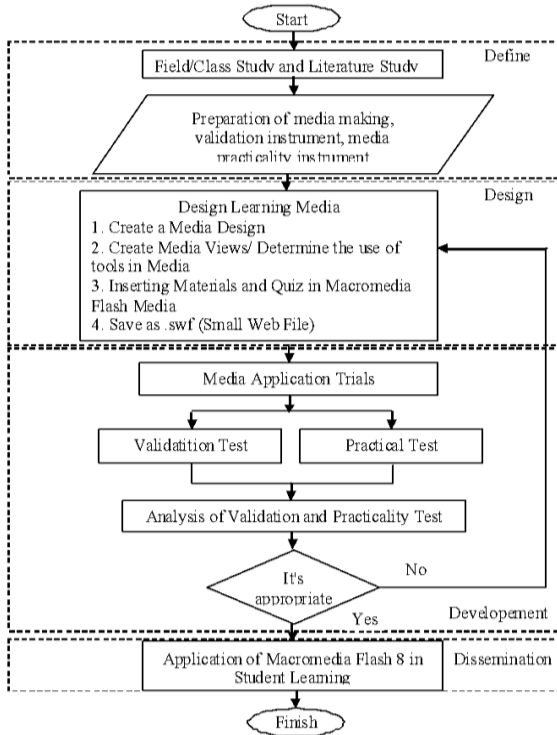


Fig. 1. Flowchart of Media Development Implementation

3 Results and Discussion

3.1 Creating Media Designs

Media design Macromedia Flash Learning Media for packaging competencies in the DKV expertise program on the initial appearance includes information on the use of learning media, Core Competencies, Learning Objectives, Packaging Materials, Evaluation or practice questions. The initial appearance of the learning media developed is as follows.



Fig. 2. Display of Learning Media

3.2 Application to Student Learning

The main function in using the Macromedia Flash 8 learning media is to help make it easier for students to complete/complete packaging competencies in the DKV expertise program so that this learning media must be made as easy as possible to use. This Macromedia Flash learning media has the final format in the form of a .swf file (shockwave movie) which can be opened with the Adobe Flash player on a computer or using the SWF player on the play store on the student's cellphone/smartphone. The development of learning media with Macromedia Flash 8 is one of the innovations that is considered linear with the implementation of teaching factory learning which is applied at Purwosari State Vocational School because of its usefulness which can be used at any time.

3.3 Results of Media Validation

The validation of the assessment of the developed media was carried out by three experts on learning media and learning materials/subject teachers. The results of the validation assessment of the developed learning media are as in Table 1.

3.4 Media Practicality Assessment Results

The results of the practicality assessment of learning media by the teacher show the following results. The practicality assessment of media use was carried out by a number of 10 teachers with the following results in Table 2.

Table 1. Learning media validation results.

No	Description	Validator Assessment			Eligibility Percentage	Remark
		1	2	3		
1	Aspects of Media Display					
	Compatibility of the contents on the worksheet with the desired concept or definition	4	4	3	91.7	Valid
	Compatibility of colors, writing, and images in interactive learning media with the help of computers.	3	3	3	75	Valid
	Appropriateness of color, appearance, images and writing on the material in the learning media	3	3	3	75	Valid
	Average Assessment Aspects of Media Display				80.6	Valid
2	Aspect Content					
	Compatibility between packaging materials and materials on Macromedia Flash	4	4	4	100	Valid

No	Description	Validator Assessment			Eligibility Percentage	Remark
		1	2	3		
3	Clarity of Concept The material presented on Macromedia Flash media	4	3	4	91.7	Valid
	The suitability of animation in learning media using Macromedia Flash with the concepts in the packaging material	3	3	3	75.0	Valid
	Clarity of Macromedia Flash media animation in conveying the packaging concept	3	3	3	75.0	Valid
	Average Assessment Aspect Content				85.4	Valid
	Aspect Language					
	Standard language used	4	4	4	100	Valid
	Ease of understanding related to the language used	3	4	4	91.7	Valid
	The effectiveness of the sentences used	4	4	4	100	Valid
	Sentence Completeness Information that students need	4	3	4	91.7	Valid
	The use of words according to the perfected spelling	4	4	4	100	Valid
Average Assessment Aspect Language				96.7	Valid	

4 Conclusion

The conclusions from the development of macromedia flash-based learning media on the competence of the DKV expertise program packaging include:

1. The validation of media-related assessments shows that the validation for aspects of media display is 80.6% or included in the valid category to apply, validation for content aspects is 85.4% or included in the valid category to be applied, and validation for language aspects is 96.7% or included in the valid category to apply.
2. The results of the Practicality Test show the results where the practicality test of the use of media by the teacher shows a percentage of results of 82% or in the category of very practical learning media to use, and the practicality test of the use of media by students shows a percentage of results of 86% or in the category of very practical learning media to use.

Table 2. Results of the practicality of learning media assessment by the teacher.

Respondent/ Teacher	Score Assessment	Practical Percentage	Criteria
1	8	80	Very Practical
2	8	80	Very Practical
3	9	90	Very Practical
4	8	80	Very Practical
5	8	80	Very Practical
6	8	80	Very Practical
7	8	80	Very Practical

Respondent/ Teacher	Score Assessment	Practical Percentage	Criteria
8		8	80 Very Practical
9		9	90 Very Practical
10		8	80 Very Practical
Average			82 Very Practical

Table 3. Results Of Student Learning Media Practicality Assessment

Respondent/ Student	Score Assessment	Practical Percentage	Criteria
1	7	100	Very Practical
2	6	86	Very Practical
3	6	86	Very Practical
4	5	71	Very Practical
5	6	86	Very Practical
6	7	100	Very Practical
7	5	71	Very Practical
8	6	86	Very Practical
9	6	86	Very Practical
10	6	86	Very Practical
Average		86	Sangat Praktis

References

1. Akhmadan, W.: Pengembangan Bahan Ajar Materi Garis dan Sudut Menggunakan Macromedia Flash dan Moodle Kelas VII Sekolah Menengah Pertama. *Jurnal Gantang* , 2 (1), 27-40 (2017).
2. Firdaus, Fiki dan Samsudi.: Macromedia Flash Profesional Sebagai Media Pembelajaran Untuk Meningkatkan Prestasi Belajar Siswa. *Jurnal Pendidikan teknik Mesin Vol. 12 No.1* Juni 2012 (21-24) (2021).
3. Husada, S. P., Taufina, & Zikri, A.: Pengembangan Bahan Ajar Pembelajaran Tematik Dengan Menggunakan Metode Visual Storytelling Di Sekolah Dasar. *Jurnal Basicedu*, 3(2), 524–532 (2020). <https://doi.org/10.31004/basicedu.v4i3.416>
4. Mahnun, Nunu.: Media Pembelajaran (Kajian Terhadap Langkah-Langkah Pemilihan Media Dan Implementasinya Dalam Pembelajaran) . *Jurnal Pemikiran Islam*; Vol. 37, No. 1 Januari-Juni 2012 (2012).
5. Mangesa, R. T.: Pengembangan Model Pembelajaran Berbasis Kompetensi Bidang Kelistrikan Di Sekolah Menengah Kejuruan. *Jurnal Cakrawala Pendidikan* , 34 (3), 401-411 (2015).
6. Sanaky, Hujair A.H.: Media Pembelajaran Interaktif-Inovatif. *Kaukaba*, Yogyakarta (2013).
7. Setyosari, P.: Metode Penelitian Pendidikan & Pengembangan. In *Metode Penelitian Pendidikan & Pengembangan*. (2016).

8. Sumarsih, d. M.: Pengembangan Multimedia Akuntansi Biaya Metode Harga Popok Pesanan Bagi Mahasiswa Jurusan Pendidikan Akuntansi UNY. *Jurnal Inovasi Teknologi Pendidikan* , 3 (1), 92-105 (2016).
9. Tanrere, S. M.: The Development Of Chemo Editainment Media Through Macromedia Flash MX Software For Chemistry Science Instruction At Junir Secondary School. *Jurnal Pendidikan dan Kebudayaan* , 18 (2), 156-162 (2012).
10. Togik Hidayat dan Aisyiah EP.: Penerapan Media Pembelajaran Berbasis Macromedia Flash 8 Melalui Pembelajaran Langsung Untuk Meningkatkan Hasil Belajar Pada Pelajaran Mesin Cnc Tu 2a Siswa Kelas Xi Tpm 3 Di Smk Negeri 3 Boyolangu. *JPTM*. Volume 02 Nomor 01 Tahun 2013, 63-71 (2013).
11. Wibowo, S. d.: Media Pembelajaran Animasi Penyerbukan Pada Tumbuhan Menggunakan Macromedia Flash 8. *Jurnal Techno.COM* , 14 (2), 151-158 (2015).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

