



# Evaluation of Motorcycle Technology Instructional Media

Muhammad Yasser Arafat\*, Rahmat Deddi Rianto Dako, Sunardi, Sugeng Pramudibyo

*Mechanical Engineering Education Department, Universitas Negeri Gorontalo, Gorontalo, Indonesia*  
Corresponding author. Email: [muhammadyasser@ung.ac.id](mailto:muhammadyasser@ung.ac.id)

## ABSTRACT

This study aims to evaluate the application of Motorcycle Technology Instructional Media. The evaluation focuses on three aspects, namely (1) content aspect, (2) display aspect, and (3) programming aspect. Respondents in this study were students of Mechanical Engineering education department, FT UNG who had used Motorcycle Technology Instructional Media as many as 33 students. Data were obtained using a questionnaire and analyzed using descriptive statistics. Based on the results of data processing using descriptive statistics and categorization, it can be concluded that the content aspect, display aspect, and programming aspect have a good category. In addition, in detail the 3 aspects are translated into 15 indicators. Based on the results of descriptive statistics, there are 14 indicators with good scores, and 1 indicator with very good scores.

**Keywords:** *Evaluation, Learning Media, Motorcycle Technology.*

## 1. INTRODUCTION

According to the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, learning is a process of interaction between students and educators as well as learning resources in a learning environment. This learning process aims to achieve predetermined learning objectives. These goals are the minimum competencies that must be mastered by students after completing the learning process. To make the learning process more effective, it needs to be supported by good learning media. According to Rayandra Asyhar [1], good learning media is learning media that functions as an instrument to help educators convey material to students, so that learning becomes effective and efficient. This will have a positive effect on increasing learning motivation [2] so that it will have an impact on improving student learning outcomes [3].

Good learning media is an important tool in creating an effective and meaningful learning experience. In the era of increasingly advanced information and communication technology, the use of instructional media has become increasingly relevant in the educational context.

Currently, the modern education community has utilized technology-based learning media. Reyna [4] identified the 3 types of media that are commonly used, namely electronic learning (e-learning), mobile learning (m-learning), and digital learning (d-learning). According to him, students will easily obtain teaching materials provided by educators, but in this case students and education require technological knowledge and skills to maximize the utilization of e-learning, m-learning, and d-learning so that their use is correct and does not overlap. so that the results are maximized.

Motorcycle Technology Instructional Media is a type of d-learning media that displays images and animations of motorcycle technology. d-learning is currently considered as an educational medium capable of transforming the learning process and continues to spread widely and gain popularity day by day in the digital world [5].

Several studies related to the positive impact of using instructional media on learning include those by Agusti, Herayanti, Sampoerna, Suliastiningsih and Suratman [6]–[10]. These impacts can be in the form of increasing learning motivation, increasing learning outcomes and so on.

To develop quality learning media, systematic stages are needed. Through the development approach adapted from Richey & Klein, [11] there are three stages that are analytical from start to finish which include *planning*, *production*, and *evaluation*. The evaluation stage is a very important stage which can be used as a basis for assessing the quality of the media as well as the basis for developing further learning media.

The purpose of evaluating instructional media is to select instructional media to be used in class, to see procedures for using media, to check whether the objectives for using the media have been achieved, to assess the teacher's ability to use media, to provide information for administrative purposes and to improve the media itself [12].

According to Warsita, [13] the evaluation stage is carried out to ensure that the learning media developed are guaranteed to be of good quality and can fulfill their functions to achieve learning objectives. Evaluation of learning media is a process of assessing learning media based on criteria. There are three main criteria for evaluating instructional media, namely: (1) quality of content and goals, (2) instructional quality, and (3) technical quality.

Media evaluation according to the Directorate General of Elementary and Secondary Education (1988/1989) [14] states that media evaluation has the following objectives:

1. Provide guidelines to government agencies in providing quality educational media.
2. Provide guidance to teachers in making quality educational media
3. Provide guidelines to producers in producing quality educational media.
4. Protect schools from the use of educational media that cannot be accounted for from an educational technical perspective.

Evaluation of educational media can be grouped into two types, namely formative evaluation and summative evaluation. Formative evaluation is a process intended to collect data on the effectiveness and efficiency of media to achieve stated goals. The data is intended to improve and perfect the media in question to make it more effective and efficient.

**2. METHODS**

Evaluation of Motorcycle Technology learning media uses a survey approach. The data were obtained from 33 students of the FT UNG mechanical engineering education department as users of Motorcycle Technology learning media.

Data collection was carried out using a questionnaire using a Likert scale and consisting of 3

aspects, namely (1) material/content aspects, (2) display aspects, and (3) programming aspects [15]. The collected data is processed using descriptive statistics consisting of mean, mode, mode, and standard deviation. Furthermore, the results of descriptive statistics are divided into 3 categories with the following conditions [16]:

**Table 1.** Categories

Categories	rates
very good	$X \geq Mi + 1SDi$
good	$Mi - 1SDi \leq X < Mi + SDi$
Not great	$X < Mi - 1 SDi$

**3. DISCUSSION RESULTS**

Evaluation of the Motorcycle Technology learning media is carried out in 3 aspects as follows:

**3.1. Content Aspect**

The material/content aspect consists of 3 indicators namely (1) clarity of material, (2) language quality, (3) display quality. Material/content aspects are evaluated to measure the extent to which the superiority/quality of learning media is in conveying the message of the material presented. The description of the data obtained on the material/content aspect is as follows:

**Table 2.** Descriptive Statistics of Content Aspect

Descriptive Statistics	
Means	44.42
Standard Error	0.80
Median	45.00
Mode	48.00
Standard Deviations	4.57
Sample Variance	20.88
kurtosis	0.00
Skewness	-0.80
Range	17.00
Minimum	33.00
Maximum	50.00
sum	1466.00
Count	33.00
Confidence Level (95.0%)	1.62

Based on the data above, it can be categorized as follows:

**Table 3.** Category of Content Aspect

Categories	rates
very good	$X \geq 48.99337$
good	$39.85512 \leq X < 48.99337$
Not great	$X < 39.85512$

The mean value of the material/content aspect descriptive data collected is 44.42 which is included in the good category, which is between 39.85512 and 48.99337. Thus the material/content aspect is in the good category

### 3.2. Display Aspects

The display aspect consists of 8 indicators namely (1) Text Readability, (2) Image Quality, (3) Color

compatibility, (4) Audio Quality, (5) Layout, (6) Animation, (7) Animation the workings of the components and systems that exist on the motorcycle (8) transition. The display aspect is evaluated to measure the extent to which the superiority/quality of the appearance of learning media makes it easy and attractive for users. The description of the data obtained on the display aspect is as follows:

**Table 4.** Descriptive Statistics of Display Aspect.

Descriptive Statistics	
Means	96.06
Standard Error	2.20
Median	99.00
Mode	110.00
Standard Deviations	12.62
Sample Variances	159.31
kurtosis	-0.19
Skewness	-0.77
Range	44.00
Minimum	66.00
Maximum	110.00
sum	3170.00
Count	33.00
Confidence Level (95.0%)	4.48

Based on these data table 4, it can be categorized as follows:

**Table 5.** Category of Display Aspect.

Categories	rates
very good	$X \geq 108.6823616$
good	$83.43885055 \leq X < 108.6823616$
Not great	$X < 83.43885055$

The mean value in the display aspect descriptive data collected is 96.06 which is included in the good category, which is between 83.43885055 and 108.6823616. Thus the display aspect is in the good category

### 3.3 Programming Aspects

The programming aspect consists of 4 indicators namely (1) Programming, (2) Interaction, (3) Navigation, (4) Efficiency. The programming aspect is evaluated to measure the extent to which the excellence/quality of learning media is in terms of ease of use, and efficiency in conveying the message of the material presented. The description of the data obtained on the programming aspect is as follows:

**Table 6.** Descriptive Statistics of Programming Aspect

Descriptive Statistics	
Means	80.76
Standard Error	1.72
Median	81.00

Mode	90.00
Standard Deviations	9.89
Sample Variances	97.88
kurtosis	3.44
Skewness	-1.24
Range	51.00
Minimum	46.00
Maximum	97.00
sum	2665.00
Count	33.00
Confidence Level (95.0%)	3.51

Based on the data above, it can be categorized as follows:

**Table 7.** Category of Programming Aspect

Categories	rates
very good	$X \geq 90.65085$
good	$70.8643 \leq X < 90.65085$
Not great	$X < 70.8643$

The mean value of the descriptive programming aspect data collected is 80.76 which is included in the good category, which is between 70.8643 and 90.65085. Thus the programming aspect is in the good category.

Overall, there are 15 indicators that are measured and compiled in 3 aspects. Descriptive statistics and categorization results can be seen in table 8. Based on table 8, it can be argued that there are 14 indicators that fall into the good category, namely (1) Clarity of Material, (2) Language Quality, (3) Visual Quality, (4) Text Readability, (5) Color compatibility, (6) Audio Quality, (7) Layout (lay out), (8) Animation, (9) Animation of how components and systems work on motorbikes, (10) Transitions, (11) Programming, (12) Interaction, (13) Navigas, (14) Efficiency. There is 1 indicator that is in a very good category, namely the image quality indicator.

## 4. CONCLUSION

Based on the results and discussion, it can be concluded that the Instructional media for Motorcycle Technology is a learning medium that is suitable for use. This can be seen from the results of measurements on the content aspect, display aspect, and programming aspect yielding good grades. In addition, in detail the 3 aspects which are translated into 15 indicators based on the results of descriptive statistics, there are 14 indicators with good scores, and 1 indicator with very good scores.

## ACKNOWLEDGMENTS

Thanks to the Dean of the Faculty of Engineering, Gorontalo State University, Chair of the Mechanical Engineering Education Department, Head of the Industrial Engineering Laboratory, Faculty of Engineering, Gorontalo State University

## REFERENCES

- [1] Rayandra, Kreatif Mengembangkan Media Pembelajaran. Jakarta, 2012.
- [2] I.T.D. Sinaga, N.W. S. Rahan, and A.R. Azahari. Pengaruh Media Pembelajaran Kahoot Terhadap Motivasi Belajar Siswa SDN Nanga Bulik 6 Kabupaten Lamandau. *Journal of Environment and Management*, vol. 3, no. 1, 2022, doi: 10.37304/jem.v3i1.4286.
- [3] N. S. I. Gunarti, S. E. Wibowo, H. Haryanto, M. Sintawati, and M. Andriyani. Quizizz Application and Its Impact on Advanced Mathematics Learning Outcomes of Prospective Elementary School Teachers in Indonesia. *International Journal of Elementary Education*, vol. 6, no. 3, 2022.
- [4] J. Reyna, J. Hanham, and P. Meier. A taxonomy of digital media types for Learner-Generated Digital Media assignments. *E-Learning and Digital Media*, vol. 14, no. 6, 2017, doi: 10.1177/2042753017752973.
- [5] L. Chitkushev, I. Vodenska, and T. Zlateva. Digital Learning Impact Factors: Student Satisfaction and Performance in Online Courses. *International Journal of Information and Education Technology*, vol. 4, no. 4, 2014, doi: 10.7763/ijiet.2014.v4.429.
- [6] R. Sulistyarningsih, A. G. Wicaksono, and M. Mustofa. Pengaruh Penggunaan Media Video Pembelajaran Interaktif Terhadap Hasil Belajar Matematika Siswa Kelas Va. *Journal of Educational Learning and Innovation (ELIa)*, vol. 3, no. 1, 2023, doi: 10.46229/elia.v3i1.646.
- [7] N. M. Agusti and A. Aslam. Efektivitas Media Pembelajaran Aplikasi Wordwall Terhadap Hasil Belajar IPA Siswa Sekolah Dasar. *Jurnal Basicedu*, vol. 6, no. 4, 2022, doi: 10.31004/basicedu.v6i4.3053.
- [8] S. T. Sampoerna, U. Rahardja, Mardiana, V. T. Devana, and N. P. Lestari Santoso. Pelatihan Inovasi Media Pembelajaran iLearning 2.0 Sebagai Pengabdian Masyarakat Terhadap Pendidikan Tinggi. *ADI Pengabdian Kepada Masyarakat*, vol. 2, no. 2, 2022, doi: 10.34306/adimas.v2i2.567.
- [9] L. Herayanti and H. Habibi. Model Pembelajaran Berbasis Masalah Berbantuan Simulasi Komputer untuk Meningkatkan Keterampilan Berpikir Kritis Calon Guru Fisika. *Jurnal Pendidikan Fisika dan Teknologi*, vol. 1, no. 1, 2017, doi: 10.29303/jpft.v1i1.236.
- [10] I.N.A. Susrawan. Pengembangan Video Pembelajaran Bahasa Indonesia Berbasis Kearifan Lokal Bali Melalui Model Pembelajaran Berbantuan Komputer (PBK) pada Siswa Kelas VIII di SMP N 1 Kubu Karangasem. *Prosiding Semnas Hasil Penelitian*, no. 11, 2016.
- [11] Sugiyono, *Metode Penelitian dan Pengembangan Pendekatan Kualitatif, Kuantitatif, dan R&D*. 2015.
- [12] E. K. Stai et al.. *Evaluasi Media Pembelajaran*. 2023.
- [13] B. Warsita. *Evaluasi Media Pembelajaran Sebagai Pengendalian Kualitas*. *Jurnal Teknodik*, 2019, doi: 10.32550/teknodik.v17i4.581.
- [14] Sungkono, "Evaluasi Media Pendidikan." Accessed: Jun. 23, 2023.
- [15] Yunus. *Pengembangan Model Pembelajaran Teknik Pengelasan Berbantuan Komputer Di SMK*. Yogyakarta, 2018.
- [16] S. Arikunto, *Prosedur penelitian : suatu pendekatan praktik / Suharsimi Arikunto | OPAC Perpustakaan Nasional RI*. 2013.

**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.

