

Effectiveness Of Media Use Of *Flipbook* Learning *Marzipan* In The Cake Decoration Course On Students' Knowledge Level

Elsanti Mura Guna¹, Mahdiyah², Annis Kandriasari³

^{1,2,3}Universitas Negeri Jakarta, Jakarta, Indonesia

Article Info

Article history:

Accepted: 06 October 2025

Publish: 17 October 2025

Keywords:

flipbook

Marzipan

students' knowledge,

cake decoration

Abstract

The purpose of this study was to evaluate the impact or effectiveness of using flipbook learning media about Marzipan on increasing students' knowledge of Cake Decoration courses. The research method used was a quasi-experimental with a nonequivalent control group design, involving two comparison groups, namely: a control group (using PowerPoint) and an experimental group (using flipbook). The research instrument was 25 multiple-choice questions that had been tested for validity and reliability, as well as a student response questionnaire. Data were collected through pre-test, post-test, and questionnaire. Data analysis used the Wilcoxon test, the Mann Whitney test, and the N-Gain calculation. The results showed an increase in knowledge in both groups, but more significant in the experimental group. The Wilcoxon test showed that $Z_{\text{count PowerPoint}} = 4.706 > Z_{\text{table 1.645}}$ and $\text{flipbook} = 4.782 > Z_{\text{table 1.645}}$. The Mann Whitney test produced $Z_{\text{count}} 2.183 > Z_{\text{table 1.656}}$, indicating a significant difference between the groups. N-Gain analysis showed PowerPoint (0.52 in the moderate category) and flipbooks (0.78 in the high category). Student responses to the flipbooks were very positive, with an average of 95%. Thus, the Marzipan learning flipbooks effectively increased student knowledge while providing an interactive, enjoyable, and relevant learning experience.

This is an open access article under the [Lisensi Creative Commons Atribusi-BerbagiSerupa 4.0 Internasional](https://creativecommons.org/licenses/by-sa/4.0/)



Corresponding Author:

Corresponding Author

Elsanti Mura Guna

³Universitas Negeri Jakarta

1. INTRODUCTION

In the effort to develop competent human resources ready to compete globally, education plays a central role. The quality of this learning process is influenced, among other things, by the appropriateness of the media used as teaching aids. (Halawan & Mulyanti, 2023). The development of digital technology encourages the use of interactive media such as *e-book*, videos, flipbook which can increase student engagement and understanding. In today's digital age, the use of dynamic learning media is a primary focus in efforts to increase student motivation and knowledge. Education in the 21st century demands the integration of information and communication technology into every area of learning. (Hardoyo sidik et al., 2023). Evolution in the digital era has the capacity to eliminate the communication barriers that previously existed between lecturers/teachers and students. The rapid development of information and communication technology has now transformed the educational landscape, enabling educators to learn quickly and easily. With technological advancements, interactive digital learning media, such as *e-book*, video, *flipbook* Now more accessible. Interactive media can increase student engagement and participation through active interaction with learning materials.

In the Culinary Arts Study Program at Jakarta State University, the Cake Decoration course is an important subject that equips students with cake decorating skills. One of the subtopics is making cakes. *Marzipan*, which students still find difficult to understand, especially in producing a smooth, crack-free texture. Previously used learning media, such as PowerPoint, lectures, and videos, were deemed incomplete and ineffective. Initial survey results showed that most students had difficulty understanding the material of *Marzipan*, and the majority expressed high interest (92.4%) if the material was presented through *flipbook* digital. Use of learning media *flipbook* digital with material of *Marzipan* has various advantages. This media makes it easier for students to learn independently, increases reading interest, and motivates them in the learning process. In addition, *flipbook* Digital technology also supports students in adapting to modern technological developments. Some students may be unfamiliar with, or even have no knowledge at all, about using digital technology of *Marzipan* as a material for attractive and aesthetic cake decorations. Use of *flipbook* digital media can contain steps from creation to implementation of *Marzipan* in Cake Decoration in detail, thus helping to develop skills and broaden students' knowledge in the Cake Decoration course. Media of *flipbook* Digital also plays a role in inspiring students to be more creative in designing unique cake decorations.

Previous research (Yuniarni, 2024) has developed *flipbook* digital media and materials of *Marzipan* and was declared highly suitable based on expert validation and trial results. However, the effectiveness of this media in improving student knowledge has not been tested. Therefore, this study was conducted to test the effectiveness of its use of *flipbook* learning *Marzipan* in the Cake Decoration course on the level of students' knowledge. The formulation of the research problem is whether the use of media of *flipbook* learning *Marzipan* is effective in increasing students' knowledge. The aim of the research is to assess the effectiveness of the media of *flipbook* digital in learning *Marzipan*, especially for D4 Culinary Arts students at Jakarta State University. The research results are expected to be useful for researchers in expanding their experience in developing learning media, for students in improving their knowledge and skills, and for the world of education as a reference and alternative teaching material in cake decorating learning.

2. THEORETICAL STUDY

Knowledge

Knowledge is the result of human cognitive processes in understanding an object through experience, education, or information. Bloom (1956) classified knowledge into six cognitive domains: knowing, comprehending, applying, analyzing, synthesizing, and evaluating. This classification was later revised by Anderson & Krathwohl (2001) and is still used today. Thus, knowledge is not only limited to the ability to remember, but also involves understanding, application, and critical assessment. The level of knowledge can be measured through test instruments or questionnaires compiled based on cognitive domain indicators. Respondents' scores are then categorized as good (76–100%), sufficient (56–75%), and poor ($\leq 55\%$). (Riska et al., 2024). The level of knowledge is influenced by internal factors (age, education, motivation, emotional intelligence) and external factors (social environment, learning media, family support). (Puspitasari, 2012)

Instructional Media

Learning media is an instrument that functions as a channel for educational messages to ensure clear, interesting, and easy-to-understand information for students (Levie & Lentz (1982). Media has four main functions which are grouped into: attention function (attention), affective function (emotion), cognitive function (knowledge), and compensatory function (replacing weaknesses). Meanwhile, according to Kemp & Dayton (1985), media functions as motivation, information delivery, and instructions. Therefore, learning media plays a dual role: supporting conceptual understanding while boosting student **motivation** and participation in learning activities.

Flipbook As a Learning Media

Flipbook is an interactive digital media that resembles a three-dimensional book and is capable of containing text, images, animations and videos. (Aini et al., 2022). Compared with *e-book* of conventional, *flipbook* is more communicative, attractive, and flexible because it can be accessed anytime via digital devices of *flipbook* is to encourage independent learning, improve digital literacy skills, and provide a more contextual learning experience (Naufal Al Fathi, 2025). However, *flipbooks* also have limitations, such as **dependence** on digital devices and internet networks, as well as the potential for distraction due to gadget use (Aini et al., 2022). However, various studies have shown that flipbooks effectively improve learning outcomes, motivation, and knowledge of students at various levels of education.

Flipbook Learning Marzipan

Flipbook learning *Marzipan* has been developed by (Yuniarni, 2024) for the Cake Decoration course as an interactive media that presents the meaning, history, function, materials, equipment, and manufacturing techniques of *Marzipan*. This media combines text, images, and videos, making it easier for students to **understand** concepts and practical skills. Feasibility testing shows that flipbook This is very suitable for use (material validity 99%, media 89%, language 90%) and received a positive response from students with a score of 94%.

3. RESEARCH METHODS

The subjects in this study were students of the 2023 intake in the Culinary Arts & Food Service Processing Diploma 4 study program at Jakarta State University who were taking the Cake Decoration course in the even semester of the 2024/2025 academic year. This study itself was conducted using a quasi-experimental design (*like an experiment*) model *Non-equivalent Control Group Design* from a population of 64 students, 60 students were sampled using the technique of *purposive* Sampling, Total subjects were 60 students, who were divided equally (30 students/group) into treatment groups (*flipbook* of *Marzipan* digital media) and a comparison group (PowerPoint). Data collection was conducted by administering a pre-test and post-test, the instruments of which were 25 multiple-choice questions that have been proven valid and reliable, as well as a student response questionnaire for the experimental group. The test instrument was used to measure the increase in students' knowledge in the cognitive domain (C4–C6), while a Likert-scale questionnaire was used to assess students' responses to the media of *flipbook*. The data analysis process in this study includes descriptive and inferential methods. Normality test (*Lilliefors*) and homogeneity (F test) are used as analysis requirements. Data that meet the assumptions are tested using paired *sample t-test* and *independent sample t-test*, while abnormal data is tested using *Wilcoxon signed rank test* And *Mann-Whitney U test*. In addition, the N-Gain calculation was used to determine the effectiveness of increasing knowledge, while the questionnaire data was analyzed using category percentages. Based on the results of data processing, it was found that the group using *flipbook* non-normally distributed and groups of Normal *PowerPoint*. So, because one of them is not normally distributed, a non-parametric test is used, namely the *Wilcoxon Signed Rank Test* and continued with the test of *Mann Whitney*.

4. RESULTS AND DISCUSSION

RESULTS

The research was conducted in three stages. In the preparation stage, the instruments were compiled and tested for validity and reliability. *pre-test*, post-test, and student response questionnaire. Of the 30 items tested on 20 respondents, 25 were declared valid and 5 were invalid. The instrument's cognitive levels include analysis (C4), evaluation (C5), and creation (C6). The reliability test using the KR-20 produced a value of 0.90, indicating high consistency. The item difficulty test showed 1 difficult item, 20 medium items, and 4 easy items. In the implementation stage, two groups of students

participated in *pre-test*, learning (control using PowerPoint, experiment using flipbook Marzipan), *post-test*, and questionnaire in the group with flipbook. Descriptive results show an increase in scores: control group 51.27 → 79.00 (difference 27.73), experimental group 49.23 → 89.27 (difference 40.03). The completion stage includes analysis of N-Gain scores and evaluation of media effectiveness through a questionnaire, which shows flipbooks are more effective in improving student knowledge than PowerPoint.

Table 1. Descriptive Test Analysis

	N	Minimum	Maximum	Mean	Difference Mean	standard Deviation
Pre-test KK	30	20	80	51,27	27,73	18,60
Post-testKK	30	52	92	79,00		8,71
Pre-test KE	30	28	68	49,23	40,03	13,60
Post-testKE	30	72	100	89,27		6,27

The normality test was carried out to determine the distribution of knowledge increase data, by comparing the $L_{\text{value.count}}$ and L_{table} using the method of *Lilliefors*. The results show that the experimental group data with flipbook Marzipan was *not* normally distributed ($L_{\text{count}}0.341 > L_{\text{table}}0.161$), while the control group with PowerPoint was normally distributed ($L_{\text{count}}0.161 = L_{\text{table}}0.161$). The homogeneity test shows that both groups have uniform variance ($F_{\text{count}}1.76 < F_{\text{table}}1.86$), so the data is homogeneous. Based on these results, hypothesis testing was carried out using the *Wilcoxon Signed-Rank*, because in the group with *flipbook learning Marzipan* not normally distributed so that one of them is said to be abnormal, then it is continued with a nonparametric test. For comparisons between groups, a nonparametric test is used *Mann-Whitney*. In addition, knowledge gains were analyzed using the N-Gain score to determine the effectiveness of the learning media and the calculation of the percentage of questionnaires against student responses.

Table 2. Normality Test Results

Treatment	n	L_{count}	L_{table}	Conclusion
Media Flipbook	30	0,341	0,161	List > Table Data is not normally distributed
Media PowerPoint	30	0,161	0,161	Lhitung ≤ Ltabel Normally Distributed Data

Test of *Wilcoxon Signed Rank Test* showed a significant increase in both the control group ($Z_{\text{count}}= 4.706 > Z_{\text{table}}= 1.645$) and the experimental group ($Z_{\text{count}}= 4.782 > Z_{\text{table}}= 1.645$). *Uji Mann Whitney Test* shows a significant difference between the two groups with $Z_{\text{count}}= 2.813 > Z_{\text{table}}= 1.656$ ($p = 0,05$).

Table 3. Mann Whitney Test Results

Number of R-KK	Number of R- KE	WIT H_{count}	n	Alpha (s)	WIT H_{table}	Decision	Conclusion
728	1105	2,81	60	0,05	1,645	Reject H_0	There is a significant difference

The results of the N-Gain calculation show that the control group obtained a score of 0.52 (medium category), while the experimental group achieved a score of 0.78 (high category). In

addition, the results of the student response questionnaire regarding flipbook shows an average percentage of 95%, which includes the response aspect (93.84%) and the reaction aspect (95.47%).

5. DISCUSSION

The results of the study show that both PowerPoint and flipbook were able to increase student knowledge, but higher increases were achieved in the group that used flipbooks. This shows that flipbook as an interactive digital media is more effective than conventional presentation media. Significant improvements are shown by the test of *Wilcoxon* and differences between groups through tests *Mann Whitney* strengthens the finding that the use of *flipbook* can provide a more meaningful learning experience. N-Gain analysis also confirms that flipbook is able to provide a high improvement category, while PowerPoint is only in the medium category.

The very positive student response with a percentage of 95% shows that flipbook Not only is effective in increasing knowledge, but it can also boost students' motivation, interest, and self-confidence. This media is considered more relevant, easier to understand, and presents material visually and interactively. These findings align with research (Soejana et al., 2024) and (Andri et al., 2023) which concludes that media based on flipbooks effectively improves learning outcomes because it is able to combine text, images, and videos in an interesting way. Thus, *flipbook* learning *Marzipan* proven to be effective in increasing student knowledge while providing a more enjoyable learning experience than PowerPoint media.

6. CONCLUSION

Based on the research results, the media of *flipbook* learning *Marzipan* This research shows that the use of media of *flipbook* learning *Marzipan* is effective in improving students' knowledge in the Cake Decoration course. The analysis results showed a significant increase in the group using flipbook compared to the control group using PowerPoint, with N-Gain scores in the high category for flipbook and medium category for PowerPoint. In addition, student responses to flipbooks are very positive with an average percentage of 95%, covering aspects of ease of understanding, interest, relevance, satisfaction, and increased self-confidence. Thus, *flipbook* learning *Marzipan*. It is suitable for use as a learning medium because it is able to provide an interactive, enjoyable and more effective learning experience in supporting student understanding.

7. SUGGESTION

Media *flipbook* learning *Marzipan* can be used and recommended as a learning medium in the Cake Decoration course because it has been proven to increase student knowledge, not only that, the media of *flipbook* also easy to understand, there is a combination of visuals, text, and video. *Flipbook* It can also foster interest in learning, enjoyable experiences, and students' self-confidence.

8. BIBLIOGRAPHY

- Aini, R. N., Gusfarenie, D., & Murtadlo, A. (2022). Media Pembelajaran Flipbook dan Pengaruhnya Terhadap Keaktifan Belajar Siswa. *EDU-BIO Jurnal Pendidikan Biologi*, 5(2). <https://edubio.ftk.uinjambi.ac.id>
- Aisyah, S. (2023). Efektivitas Flipbook Digital Pada Materi Ipas Dalam Meningkatkan Motivasi Dan Hasil Belajar Peserta Didik Di SMK Yapalis Krian. *Educational Technology Journal* |, 3(1), 8–14. <https://journal.unesa.ac.id/index.php/etj>
- Alfarizi, M. S. (2023). *Efektivitas penggunaan media Flipbook dalam pembelajaran PAI untuk meningkatkan minat belajar siswa pada mata pelajaran PAI kelas VII di UPT SMP Negeri 9 Gresik*. UIN Sunan Ampel Surabaya.

- Andri, Y., Syamswisna, L., Fitri, Y., Program, S., Pendidikan, B., & Fkip, U. (2023). EFEKTIVITAS PEMBELAJARAN KOOPERATIF BERBANTUAN MEDIA FLIPBOOK TERHADAP HASIL BELAJAR SISWA SISTEM GERAK MANUSIA DI SMP. *Jurnal Pendidikan Da Pembelajaran*, 2.
- Basuki, & Adang Hambali. (2024). Epistemologi Filsafat: Cara Memperoleh Pengetahuan. *Idarotuna: Jurnal Manajemen Pendidikan Islam*, 160–166. <https://doi.org/10.29313/idarotuna.v1i2.5696>
- Goliah, M., & Jamaludin, U. (n.d.). PENGEMBANGAN MEDIA PEMBELAJARAN FLIPBOOK UNTUK MENINGKATKAN PEMAHAMAN SISWA MATERI BAGIAN-BAGIAN TUMBUHAN. *Jurnal Keilmuan Dan Kependidikan Dasar*, 15(01), 2623–2685.
- Halawan, A. N., & Mulyanti, D. (2023). Faktor-Faktor Yang Mempengaruhi Peningkatan Kualitas Mutu Instansi Pendidikan Dan Pembelajaran. *Inspirasi Dunia: Jurnal Riset Pendidikan Dan Bahasa*, Vol. 2, 57–64.
- Hardoyo sidik, N. A., Fahmi, F., Umami, K., Annajmi, Akbar, Z., & Fahirah. (2023). *MEDIA PEMBELAJARAN (Suatu Pengantar Sarana Pendidikan)* (R. Kusumawati, Ed.). CV. Mega Press Nusantara.
- Hayati, E. N., Sukur, A., Nabila, A., Kusuma, A. D., Amalia, D. A., Aini, F. N., & Hanafi, Y. (2024). PERAN MEDIA SOSIAL TERHADAP PENGEMBANGAN MEDIA PEMBELAJARAN INOVATIF DI ERA SOCIETY 5.0. *Jurnal Pembelajaran, Bimbingan, Dan Pengelolaan Pendidikan*, 4(9), 2. <https://doi.org/10.17977/um065.v4.i9.2024.2>
- Juniati, S. R., Aeni, A. N., & Ismail, A. (2025). Pengembangan Media Flipbook untuk Meningkatkan Pemahaman Konsep Siswa terhadap Materi Organ Tubuh Manusia. In *Ainara Journal* (Vol. 6, Issue 2). <http://journal.ainarapress.org/index.php/ainj>
- Kartikasari, R. D., Sumardi, A., Cahya Kartika, P., & Tanti, S. (2023). Pengembangan Media Pembelajaran Flipbook Mata Kuliah Bahasa Indonesia untuk Perguruan Tinggi. *Prosiding Seminar Nasional Penelitian LPPM UMJ*. <http://jurnal.umj.ac.id/index.php/semnaslit>
- Kumalasani, M. P., & Eilmelda, Y. (2022). Analisis Efektivitas Penggunaan E-Modul Berbasis Aplikasi Flipbook Pada Pembelajaran Tematik Di SD. *Jurnal Pemikiran Dan Pengembangan Sekolah Dasar*, 10(1), 39–51. <https://doi.org/10.22219/jp2sd>
- Lukiastuti, F., & Hamdani, M. (2012). *Statistika Non Parametrik* (D. Gunawan, wawan, Tim Redaksi CAPS, Ed.; 1st ed.). CAPS.
- MRL, A., Jaya, I. made M. J., & Mahendra, Ns. D. (2019). *BUKU MODUL PROMOSI KESEHATAN*.
- Naufal Al Fathi, M. (2025). Efektivitas Media Pembelajaran Elektronik Flipbook Berbasis Problem Solving Terhadap Hasil Belajar Peserta Didik. *Continuous Education : Journal of Science and Research*, 6. <https://pusdikra-publishing.com/index.php/josr>
- Puspitasari, R. (2012). KONTRIBUSI EMPIRISME TERHADAP PENDIDIKAN ILMU PENGETAHUAN SOSIAL. *Jurnal Edueksos*, 1 No 1.
- Riska, N., Sulistiawati, F., Belladonna Putri Utami, S., Puteri Ramanda, D., Yuwono Putri, D., & Qonita Ulya, A. (2024). EFEKTIVITAS PENGGUNAAN FLIPBOOK TERHADAP PENINGKATAN PENGETAHUAN SISWA SENIOR HIGH SCHOOL. 8(5), 4791–4801. <https://doi.org/10.31764/jmm.v8i5.26405>
- Sajidah, H. B. N. (2024). Faktor yang Memengaruhi Kesulitan Mahasiswa Prodi Pendidikan IPA dalam Mempelajari Kimia Dasar di STKIP Modern Ngawi. *Konstruktivisme : Jurnal Pendidikan Dan Pembelajaran*, 16(2), 232–240. <https://doi.org/10.35457/konstruk.v16i2.3547>
- Saputra, N. E., Zumrotun, E., Nichla, S., Attalina, C., Guru, P., Dasar, S., Islam, U., & Jepara, N. U. (2024). Pengaruh Media Pembelajaran Berbasis Flipbook terhadap Hasil Belajar IPAS di Kelas IV SDN 2 Kuanyar. *Jurnal Simki Pedagogia*, 7(1), 317–327. <https://jiped.org/index.php/JSP>

- abstract/34/13/2201/4852827%0Ainternal-pdf://semisupervised-3254828305/semisupervised.ppt%0Ahttp://dx.doi.org/10.1016/j.str.2013.02.005%0Ahttp://dx.doi.org/10.10
- Setiadi, D., Milana, Maksum, H., & Muslim. (2024). Kontribusi Pengalaman Belajar Dan Motivasi Belajar Pada Mata Pelajaran PKK Terhadap Minat Berwirausaha Siswa Di SMKN 1 Bukittinggi. *JTPVI: Jurnal Teknologi Dan Pendidikan Vokasi Indonesia*, 3(1), 575–582. <https://doi.org/10.24036/jtpvi.v3i1.270>
- Soejana, Y., Anwar, M., & Sudding. (2024). Pengaruh Media E-Modul Berbasis Flipbook pada Model Problem Based Learning (PBL) Terhadap Motivasi dan Hasil Belajar Peserta Didik Kelas XII SMA Negeri 1 Wajo (Studi Pada Materi Pokok Sifat Koligatif Larutan). *ChemEdu (Jurnal Ilmiah Pendidikan Kimia)*, 5, 116–124.
- Wahana, W., Dalam, W., & Sinarti, D. (2019). Faktor-Faktor yang Mempengaruhi Tingkat Pemahaman Mahasiswa pada Mata Kuliah Auditing di Politeknik Negeri Batam. In *Journal of Applied Accounting and Taxation Article History* (Vol. 4, Issue 1).
- Yuniarni, A. (2024). *Skripsi Pengembangan Media Pembelajaran Flipbook*.