Media Effectiveness Analysis *Flipbook Digital* Material *Mocktail*

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Abstract

This study aims to analyze the effectiveness of using digital flipbook media to teach mocktails. This research uses a quasi-experimental method with a non-equivalent control group design. The study sample was a class of culinary students in the 10th grade at SMK Negeri 27 Jakarta, who were divided into two groups: an experimental group and a control group. This study collected data using pre- and post-tests, response questionnaires, and observations. The data were analyzed using univariate, bivariate, and knowledge improvement tests. The univariate test results for the control group obtained a t-count value of 9.78 > t-table 2.05, and the experimental group obtained a t-count value of 16.47 > t-table 2.05. This indicates that there was an increase in knowledge in each group before and after the intervention. The bivariate test results showed a t-count value of 8.18 > t-table 2.00, indicating a difference in the average increase in knowledge. Additionally, the N-gain score was 40% for the control group and 70% for the experimental group. Therefore, it can be concluded that students using digital flipbooks increased their knowledge more than students using PowerPoint media. The results of the response questionnaires for students and observers were also good, at 91% and 96%, respectively. This means that students and observers agreed that digital flipbook media effectively increased students' knowledge. Based on these results, it can be concluded that using digital flipbook media for mocktail material increases students' knowledge of hospitality.

Keywords: *Digital Flipbook, Mocktail, Media Effectiveness, Knowledge Improvement.*

INTRODUCTION

Learning is designed by educators to encourage creativity, improve thinking skills, and develop students' skills in building new knowledge so that mastery of the material is more optimal (Anisa, 2023). In the learning process, there is two-way communication between the teaching party (teacher) and the learning party (students. The purpose of learning is to increase the capacity of a person or group of people, such as skills, knowledge, attitudes to changes in behavior for the better (Sari et al., 2023). To achieve this goal, media is needed as a tool to convey messages and information containing the intent and purpose of the learning. The presence of media in the middle of the learning process has helped educators in conveying the learning objectives to be achieved. Along with the development of science and technology, learning media is not only in the form of real objects or printed media, but also comes in the form of visuals, audio, audio-visual, multimedia and the web. One of the media that is developed and used to support learning activities ise-book based on flipbooks.

The learning process that occurs in the XI Culinary class at SMK Negeri 27 Jakarta in the subject of Catering, the media that is still often used is printed books and PowerPoint. During the use of the media, learning went well and the increase in

students' knowledge was quite satisfactory. Even so, students were also open to trying new, more innovative and interactive learning media. Use of media flipbook digital can be one of the media that can support the learning process of students both in and outside the classroom.

Use of media flipbook digital material mocktails in learning mocktail help students understand Engineering making, serving and serving mocktails properly and correctly. Flipbook This can be accessed anytime and anywhere, making it easier for them to learn the concept of the material in detail. Features such as text, images, and videos in it also support the improvement of knowledge and skills. Flipbook digital material mocktail developed by Sabrina et al. (2024), it is necessary to test the effectiveness of its use to determine how effective this media is when used in the learning process.

Effectiveness interpreted as the achievement or success of a goal according to the plan and needs required. The measurement of media effectiveness is used to describe the level of success of this media when applied to the learning process in achieving previously set goals. Research related to media effectiveness flipbook has been done and discussed in articles conducted by (Putri & Wiranti, 2023); (Ardiansyah & Ridwan, 2023); (Azzahra et al., 2023); and (Diajengsari et al., 2023). The purpose of this study is to analyze the effectiveness of implementing media flipbook *digital* material *mocktail towards* increasing the knowledge of class X Culinary students at SMK Negeri 27 Jakarta and student responses to the effectiveness of learning by implementing digital flipbook material *mocktail*.

METHOD

This research was conducted at SMK Negeri 27 Jakarta in April 2025. The subjects in this study were class X Culinary students of SMK Negeri 27 Jakarta. While the ones used as *sample* The research is a class X Culinary 2 students totaling 30 people and X Culinary 3 which also totals 30 people. The approach in this study is quantitative. In addition, the method used is like *an experiment* with design *on- equivalent control group design*. Where the experimental class will be given treatment in the form of media *flipbook digital* material *mocktails*, while the control class will be given treatment in the form of media PowerPoint. The research scheme is shown as follows.

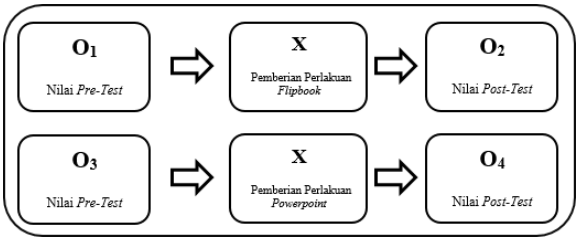

Figure 1. Schematic *on-Equivalent Control Group Design*

Data Collection Techniques

Data collection techniques in this study were through tests, response questionnaires, and observations. The tests conducted in this study were in the form of *pre-test* and *posttest* in the form of multiple-choice questions totaling 25 questions. In addition, a response questionnaire was also given to

students to find out feedback on how effective the media was. *Flipbook digital* used during the learning process. Observation in this study was by conducting observations during the learning process in the control class and the experimental class. Before being used during the study, a test of the question instrument was carried out using the validity test of the question items, the reliability test and the difficulty level test.

Test of Question Item Validity

The assessment instrument used is questions *Pré-test* and *post-test* consisting of 30 multiple choice questions. Then a trial was conducted on 25 respondents to determine the validity of the questions. Questions are declared valid if they meet the criteria $r_{count} > r_{table.}$ Result r_{count} obtained from each valid number compared to r_{table}at n=25 with a significance level of alpha (α) 0.05 of 0.396. Based on the trial results, 25 valid questions were obtained.

Table 1 Results of the Validity Test of Question Items

No	r count	Status	No	r count	Status
1	0,464	Valid	16	0,460	Valid
2	0,426	Valid	17	0,510	Valid
3	0,495	Valid	18	0,437	Valid
4	0,414	Valid	19	0,443	Valid
5	-0,180	Drop	20	0,481	Valid
6	0,006	Drop	21	0,444	Valid
7	0,412	Valid	22	0,560	Valid
8	0,449	Valid	23	0,560	Valid
9	0,457	Valid	24	0,444	Valid
10	0,180	Drop	25	0,397	Valid
11	0,430	Valid	26	0,527	Valid
12	0,470	Valid	27	-0,474	Drop
13	0,490	Valid	28	0,530	Valid
14	0,518	Valid	29	0,490	Valid
15	0,146	Drop	30	0,569	Valid

Reliability Test

The reliability test in this study used the Kuder Richardson-20 (KR-20) method. The reliability test conducted obtained an r count of 0.795. These results indicate that the question instrument *Pré-test* and *posttest* reliability which is included in the high category.

Test Difficulty Level

The difficulty level test is used to test the level of difficulty of each question item. The calculation results of 25 questions obtained 2 (two) questions in the easy category and 23 (twenty-three) questions in the medium category. The absence of questions in the difficult category is likely due to ability which students have are homogeneous and the majority can answer correctly, and the questions designed are not yet complex enough so that they are very easy for students to understand.

Criteria	Question Numbe	Amount
Currently	1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	24
Easy	7, 9	2

control class and experimental class, starting from counting mean, minimum value, maximum value, and standard deviation. While inferential analysis consists of normality test, homogeneity test, hypothesis test includes paired *sample t-test* and *independent sample t-test*, test*N-Gain*, and Likert scale.

RESULTS AND DISCUSSION

Descriptive Data Analysis

From the descriptive data that has been processed, the minimum, maximum, average and standard deviation values of the results were obtained *pre-test* and *post-test* control class and experimental class. The following presents the results of descriptive data analysis of the control class and experimental class.

Table 3. Descriptive Data Analysis of Control Class and Experimental Class

	n	Min	Max	Mean	St.
***Pre-test* KK**	25	36	64	50,53	6,34
***Post-test* KK**	25	44	84	70,00	11,64
***Pre-test* KE**	25	36	68	55,47	10,12
***Post-test* KE**	25	72	100	86,40	6,94

Based on these data, there is a difference in the average value*pre-test* And *posttest* in the control class was 19.07 and the difference in the average value *Pré-test* and *post-test* in the experime ntal class was 32.40.

Inferential Analysis of Normality Test

Homogeneity Test

Test homogeneity done using *Levene Test* to find out whether each group of data in the study

is homogeneous. The homogeneity value is seen from the F value .count and F_{table} on *level significant* alpha (α) 0.05. The data from the homogeneity test calculation results are presented in the following table.

Tabel 4. Hasi Uji Normalitas

Perlakuan	n	L_{hitung}	L_{tabel}	Kesimpulan
Media *Powerpoint*	30	0,091	0,161	$L_{hitung} < L_{tabel}$, maka H_0 diterima data terdistribusi normal
Media *Flipbook Digital*	30	0,122		

Homogeneity Test

Test homogeneity done using *Levene Test* to find out whether each group of data in the study is homogeneous. The homogeneity value is seen from the F value .count and F_{table} on *level significant* alpha (α) 0.05. The data from the homogeneity test calculation results are presented in the following table.

Table 5. Homogeneity Test Results

	F_{count}	F_{table}	a
Levene Test	0,445	4,01	0,05

Hypothesis Testing

Independent Sample T-Test

After the result data *pre-test* and *posttest* in the control class and experimental class it is stated that the distribution is normal and homogeneous, then furthermore processed using test independent *sample t-test.* Test results independent *t-test* in this study as follows.

Table 6. Test Results *Independent Sample T-Test*

t_{count}	Dk	alpha	t_{table}
8,18	58	0,05	2,00

Paired Sample T-Test

Univariate test using paired *sample t-test* to see the difference in the average knowledge results in paired samples before being given treatment and after being given treatment in each group. The results of the t-value calculation count test paired *sample t-test* in each group as follows.

Table 7. Test Results *Paired Sample T-Test*

Paired Sample T-test **Control Class**			
	Mean	n	Std.Dev
		30	10,90
dk		29	
t_{count}	9,78		
t_{table}	2,05		

Paired Sample T-Test **Experimental Class**			
	Mean	n	Std.Dev.
	30,93	30	10,29
dk		29	
t_{count}	16,47		
t_{table}	2,05		

Test *N-Gain*

Calculation *N-Gain* conducted to see the extent of the increase in students' knowledge after being given media treatment flipbook *digital* material *mocktail*. The calculation results obtained in the test *N-Gain* are as follows.

Table 8. Calculation Results *N-Gain*

Group	***N-Gain Score***	***N-Gain Percent***
Control Class	0,40	40%
Class Experiment	0,70	70%

Student Response

Student responses were obtained by filling out a questionnaire which could show feedback and data on the effectiveness of media use. *Flipbook digital* material *mocktail*. The recapitulation of student responses is presented in the following table.

Table 9. Results of the Effectiveness Response Questionnaire

Aspek	Skor SS	S	TS	STS	Jum.	Rata-rata (%)
Mutu pengajaran	380	75	-	-	455	91%
Tingkat pengajaran	351	114	-	-	465	
Intensif	200	210	-	-	410	
Waktu	403	147	-	-	550	

Observer Responses

Observer responses are obtained through observation and assessment of media effectiveness *flipbook* digital material *mocktail during* the learning process. In addition to observing during the learning process, observers also conduct interviews to find out students' feedback directly.

1) Observer response in the control class

Table 10. Results of the Observer Response Questionnaire in Class Control

Aspect	SS	S	TS	STS	Day	Rate (%)
Attractiveness	76	21	8		105	
Convenience Usage	36	39	2		81	
Relevance Material	32	27	2		61	
Interactivity Media		15	14		29	82%
Knowledge Enhancement Learners	20	33	4		57	

2) Observer response in the experimental class

Table 11. Results of the Observer Response Questionnaire in Class Experiment

Aspect	SS	S	TS	STS	Day	Rate (%)
Attractiveness	76	21	8		105	
Convenience Usage	36	39	2		81	
Relevance Material	32	27	2		61	
Interactivity Media		15	14		29	82%
Knowledge Enhancement Learners	20	33	4		57	

DISCUSSION

This study focuses on analyzing the effectiveness of using flipbook *digital* material *mocktail towards* improving students' knowledge at SMK Negeri 27 Jakarta. The data obtained in this study used a questionnaire instrument *Pré-test* and *post- test* material *mocktail*. Before the instrument was given, a test of the validity of the questions was conducted to measure whether each question item was declared valid or invalid. Of the questions, 25 questions were declared valid because $r_{count} > r_{table}$. After that, a reliability test was carried out and a high result was obtained of 0.795. Furthermore, a test of the level of difficulty of the questions was carried out on 25 questions which obtained two results.

(2) questions are in the easy category and twenty-three (23) questions are in the medium category.

The research process was carried out at SMK Negeri 27 Jakarta using class X Culinary 3 as the control class and X Culinary 2 as the experimental class. In the control class, students were given treatment in the form of media. PowerPoint. Meanwhile, in the experimental class, students were given treatment in the form of media. Flipbook digital material mocktails. Both classes were given questions Pré-test and post-test the same, then the value obtained will be processed and the difference in the average value will be seen. The results of the data analysis before being given treatment by carrying out pretest and after being given treatment, namely using PowerPoint in the control class and flipbook digital material mocktail in the experimental class showed an increase in value. The average value can be seen pre-test in the control class was 50.53 and in the experimental class was 55.47. After being given treatment, the average value post-test in the control class was 70.00 and in the experimental class was 86.40.

Next, before hypothesis testing is carried out, the initial stages carried out are normality testing and homogeneity testing. Based on data from the control group and the experimental group, the data obtained from both groups are normally distributed and homogeneous. Hypothesis testing uses univariate tests, namely *a paired sample t-test* aims to see the differences in knowledge results before and after treatment in each group. The results of the univariate test calculations in the control group obtained a t $value_{count}$by 9.78 > t_{table}2.05. Meanwhile, the experimental group obtained a t value of$_{count}$by 16.47 > t_{table}2.05. Both results show a difference in knowledge before and after treatment in each group. These results are in line with research conducted by Dimu et al. (2024) that there was an increase in student knowledge before and after treatment in each group.

The next hypothesis test is a bivariate test, namely an independent *sample t-test* by comparing the difference between the average values in the control group and the experimental group. The results of the calculation obtained $t_{count}$by 8.18 > t_{table}2.00 which can be interpreted as meaning that there is a difference in the level of knowledge of students who use media. *Flipbook digital* material *mocktail with* those using the media *PowerPoint*. The difference obtained by the experimental class showed a higher difference compared to the control class. This difference arose because flipbook digital material mocktails visual and audio features that suit the needs of students, making it easier for them to understand the material. These results are in line with research conducted by Lehan et al. (2023) and Lestari et al. (2024) which showed a positive and significant influence on increasing the knowledge of students who use media flipbook digital.

Score measurement N-Gain conducted to analyze the increase in students' knowledge. In the control class, the results were N-Gain Score amounting to 0.40 which is included in the moderate category. Meanwhile, in the experimental class, the results obtained N-Gain Score amounting to 0.70 which is included in the high category. Based on these calculations, the experimental class that uses the media flipbook digital material mocktail higher if compared to with class control who use the media PowerPoint.

Based on the results of hypothesis testing from univariate tests, bivariate tests, and knowledge improvement tests, the calculation results in the experimental group were higher than the control group. This shows that the use of media flipbook digital material mocktails is very effective in increasing students' knowledge, this is also supported by observations made by observers during the learning process. In the control group, there were several students who were less enthusiastic, so they paid less attention to the material being presented. In contrast to the experimental group, students were more enthusiastic even when they were first introduced to the media flipbook digital This. When given instructions on how to use it, students pay close attention. They also look focused when asked to study it independently. The form and features contained in this media make it very easy for students to learn the materials mocktail that is in it. This is strengthened not only based on the results of observations made by observers, but also through the results of a questionnaire on student responses to the media. Flipbook digital material mocktail.

In addition, Likert scale calculations were also carried out to assess how students responded to the effectiveness of learning while using media.flipbook digital material mocktails.The calculation results show an average value of 91% which is included in the very good category. These results indicate that students agree that the media flipbook digital material mocktail is very effective as a tool in the learning process both in and out of class. These results also agree with the research conducted by Kumalasani & Eilmelda (2022) features on flipbooks has an influence on the learning process to become more interesting, interactive, and stimulate the auditory senses. This shows the use of media flipbook digital effectively used in the process learning through media flipbook digital presenting images, audio, and video with detailed explanations so that it can help students understand the material. In addition, the media flipbook digital also helps teachers in creating efficient learning, and enables students to carry out the learning process independently anywhere.

Similar to student responses, in observer responses, Likert scale percentage calculations were also carried out to see observer responses in assessing the effectiveness of media use. Flipbook digital material mocktail with media PowerPoint during the learning process. Based on observations made by observers in the control class, the average score was 82%. This is different from the experimental class which obtained an average score of 96%. In the control class, the media PowerPoint was considered effective in helping to learn the material mocktails. However, during the observation, several students were found to be less enthusiastic when participating in learning, especially when the researcher was delivering the material. This is due to the lack of media interactivity. PowerPoint which only presents material in the form of writing and images, so that the researcher plays a greater role in delivering the material using the lecture method and makes students less participatory during the learning process.

In contrast to the experimental class, students appeared very enthusiastic when this media

was first introduced. Various features available in flipbook become a great attraction in helping students to understand the material more easily, because this media packages it in an interesting and interactive way. In addition, the content of the material in flipbook is quite complete and dense, but remains concise so as not to confuse students. Media in the form of digital links with light file sizes can be accessed anytime and anywhere without burdening the storage of students' devices. The results of these observations are relevant to research conducted by Hasanah et al. (2021) and Yuliati et al. (2024) which stated that the use of digital media supports the learning process to be better and more sustainable so that it can spark the desire to learn and the creativity of students. In addition, it can also encourage student-centered learning because they can interact directly with the subject matter presented.

Based on the results of the discussion of the research on the effectiveness of media use flipbook digital by analyzing the increase in students' knowledge, it can be concluded that the use of media flipbook digital material mocktail very effective in increasing the knowledge of class X Culinary students at SMK Negeri 27 Jakarta. This study shows that the media flipbook digital has advantages including its use is not limited by time and place, the media can be accessed repeatedly, the material presented is easy to understand and remember, and has good and clear visual quality. These things are supported by students who show enthusiasm and interest during the learning process using flipbook digital.

CONCLUSION

Based on the results of the research that has been carried out through the data processing stage, it can be concluded that there are changes or effectiveness in the use of media *flipbook digital* material mocktail towards increasing the knowledge of class X Culinary students at SMK Negeri 27 Jakarta. This is reinforced by the results of calculations in the bivariate test hypothesis testing using independent sample t- test t value is obtained count of 8.18 and the percentage increase in knowledge (N-Gain) in the experimental group, 70% were obtained, which is included in the high category, meaning that there was a higher increase in knowledge in students using media. Flipbook digital material mocktail compared to those using PowerPoint material mocktail.

Students who use media flipbook digital material mocktail appear more enthusiastic and active during the learning process. In addition, through the questionnaire of student responses and observer responses, the percentage obtained showed quite large results, namely 91% and 96%. This response can be interpreted that students and observers agree to the use of media flipbook digital material mocktail effective in improving students' knowledge.

SUGGESTION

Based on the conclusions presented, this study suggests that the media flipbook *digital* on the material mocktail can be used as an alternative learning media that should be considered by educators, especially in the subject of Culinary Arts. Therefore, educators are encouraged to start exploring and integrating flipbook digital into teaching and learning activities to increase the effectiveness of material delivery.

The implications of this research cover several areas. In the field of technology, the development of interactive learning media such as flipbook digital HTML5-based is considered effective and can be further developed with multimedia integration and light gamification. Schools also need to strengthen digital infrastructure and provide training for teachers in the creation and use of flipbook digital. In addition, the integration of this media into the curriculum can support learning efficiency and reduce paper use. For vocational education flipbook digital expands access to self-study and presenting practical materials visually, thereby strengthening students' understanding of vocational content.

ACKNOWLEDGEMENT

The researcher would like to thank all parties who have been willing to help and support during the research process until the writing of this article. The researcher hopes that this article can increase insight and provide benefits, especially for researchers and readers in general.

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