Developing Flipbook-based Teaching-Learning Material in the Culinary Arts Program of Unimed

by Erli Mutiara

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Article Info	Abstract
	The digital era requires learning materials which is easily accessible online or offline. This research and development study aims to develop flipbook-based teaching-learning material for the Indonesian Snacks and Beverages course in the Culinary Arts Program of Unimed. Data were obtained by interviews, questionnaires, and documentation. The teaching-learning material was assessed for feasibility by subject, language, and media experts (3 of each) to assess the content, wording, and design. The trial stage involved 40 students and one lecturer to assess the effectiveness of the material. The data obtained were analyzed descriptively. The results of this study show the problems in the course, such as low motivation of students, lack of parental support, lack of effective teaching-learning material, difficulty in obtaining proper learning sources on the Internet, and limited textbooks for the lecturer. The developed teaching-learning material alleviates some of these problems. The feasibility test results are as follows: subject expert: 3.23 (good); media expert: 3.28 (very good); language expert 3.02 (good). The small group trial stage and field trial results are 3.49 and 3.64, respectively. This finding shows that the developed flipbook-based teaching-learning material is feasible to use in the Indonesian Snacks and Beverages course.

Introduction

Education as a communication process is often manifested in the teaching-learning process in the class. The practical learning process requires several components, including teaching-learning material (Asmi et al., 2018; Donohue, Buck, & Akerson, 2020). Praspito and Rosy (2021) assert that teaching-learning material is an instrument that is required by an educator in the learning process to help the learner and educator in the teaching-learning process. Developing a new teaching-learning material is part-duty and part-competency development of a university lecturer. The primary purpose of developing teaching-learning material is to make the teaching-learning process more effective and efficient in reaching the competency standards and improve students' cognitive, affective, and psychomotor skills (Maksum&Purwanto, 2021). As such, a lecturer is expected to be able to design and develop teaching-learning material that determines the success of the teaching-

learning process (Munandar & Rizki, 2019). Similarly, Noviyanita (2019) suggests that the development of teaching-learning material plays a significant role in the success of the teaching-learning process in the university.

However, many educators still use ready-made, conventional teaching-learning materials. These kinds of teaching-learning materials are ready-made, and educators often rely on these without trying to design one themselves. Choosing an inappropriate teaching-learning material for a particular setting results in a poor understanding of the subject, so the results might not be satisfying (Lisa &Wedyawati, 2020). Poor understanding in this era might also be caused by difficulties in an online learning setting, such as network problems, lack of media, or hardware difficulties (Utomo et al., 2021).

Ayu and Pahlevi (2019) suggest that the quality of the teaching-learning process is poor when an educator only uses conventional teaching-learning materials. Some educators are not ready to carry out blended learning because of various limitations (Dittmar & Eilks, 2019; Supandri, 2018). This situation is also the case in the Culinary Arts Study Program of Unimed. The lecturers mostly use conventional teaching-learning materials from publishers instead of developing a new teaching-learning material that fits the particular needs in Unimed, in particular, the Indonesian Snacks and Beverages course. Indonesian Snacks and Beverages is a course in the study program that deals with the basic principles, preparation, and production of Indonesian traditional snacks and beverages. It is a compulsory course for the Culinary Arts study program in Unimed, and it is considered necessary as it preserves national heritage and identity.

The COVID-19 pandemic forced the conventional classroom-based teaching-learning process to be suspended. Online learning, which has been developed since the emergence of the Internet, surged forward and took center stage as the solution to learning in the pandemic situation. Along with online learning, new teaching-learning materials suitable for online learning settings are developed. Digital teaching-learning material is a form of self-development for lecturers facing 21st-century learning and Industrial Revolution 4.0 (Warsita, 2018). An educator has to be able to integrate technology into the learning process to make it more attractive to the students (Susanto et al., 2021). A creative and innovative teacher should be able to develop learning materials in digital format (Kier & Khalil, 2018). Manual and digital teaching-learning materials are similar in that they both explain the subject based on the competency standards and indicators and have exercise questions. Competency standards and indicators are needed as students need to know what they are expected to be able to do at the end of every teaching-learning process (Rahayu & Haq, 2020). However, digital teaching-learning materials are more powerful as they are digital and can be shared easily through social media like Facebook, WhatsApp, Telegram, and others (Nurhayati et al., 2021).

Flipbook application is one of the applications which can be used as learning media in online learning settings. The digital flipbook is not only limited to text but can also include pictures, animations, videos, and audio to make it more exciting and interactive (Candra & Susilowibowo, 2021; Nurhayati et al., 2021). Teaching-learning material made using the Flipbook application is easily accessible, and it can be accessed online and offline at a low cost as it is in soft copy (Arifitama, 2018).

Previous teaching-learning material development using flipbook by Noviyanita (2019) shows that flipbook-based digital teaching-learning material is feasible in practice. Fahrezi and Susanti (2021) developed a flipbook teaching-learning material for Supply Accounting for Android system using a contextual approach, and it was very feasible to use in the teaching-learning process. Arifitama (2018) implemented Augmented Reality in flipbook media for online learning. Ayu and Pahlevi (2019) developed a feasible teaching-learning material using the Kvisoft flipbook maker for Public Relations and Protocol course. Candra and Susilowibowo (2021) show that flipbook-based e-books supported the teaching-learning process for PPh pasal 21 (income tax) subject. There had been no flipbook-based digital teaching-learning material for the Indonesian Snacks and Beverages course. Based on the above, this study aimed to: (1) develop a digital teaching-learning material based on flipbook for Indonesian Snacks and Beverages course; (2) assess the feasibility from the response of students and lecturers on the developed teaching-learning material.

Method

This study was a research and development work using Borg and Gall model. Sugiyono (2018) explains that there are ten steps in Borg and Gall model, but the researcher only uses 7 out of the ten steps. Researchers can choose which steps are relevant to follow based on their specific circumstances (Haryanto et al., 2015). The steps used in this research are:

1) Potential and problem identification,
2) Data collection,
3) Product design,
4) Product design validation,
5) Design revision,
6) Product trial, and
7) Product revision.

The product design was validated by subject, media, and language experts (3 of each). The average score from all experts was used to determine the validity and feasibility of the product to go into the trial stage. The trial stage consisted of a small group trial with ten students and a field trial with 30 students. The students and the lecturer in the trial stage were given a questionnaire to assess the feasibility of the product. Table 1 and Table 2 show the scoring criteria for each expert and validity criteria, respectively. The average score in Table 2 is obtained from averaging the scores from the experts and questionnaire on a 4 point scale.

Table 1. Scoring Criteria

Score	Criteria
4	Very Good
3	Good
2	Decent
1	Poor

Table 2. Validity Criteria

Average Quality Score	Criteria
$3.26 < \bar{x} \leq 4.00$	Very Good
$2.51 < \bar{x} \leq 3.26$	Good
$1.76 < \bar{x} \leq 2.51$	Decent
$1.00 < \bar{x} \leq 1.76$	Poor

Results

Preliminary data were collected with the interview as the data collection technique. During the development, documentation was used to document the development. The questionnaire was used to collect data during the trials. The data were analyzed using the descriptive qualitative technique to describe the development and response of the teaching-learning material.

Pre-validation Steps

Preliminary observation identified the problems faced by the students in the Indonesian Snacks and Beverages course. The problems faced by the students during online learning were identified to come from internal (students themselves), teacher, environment, and infrastructure factors. Several problems identified during the observation are the low motivation of the students, lack of parental and environmental support at home, gadget availability, network problems, lecturers' ability in using online learning applications, difficulty in following the lecture as the teaching-learning material was unsuitable for the specific purpose, and the difficulty to search for valuable source from the Internet. The Indonesian Snacks and Beverages textbook used by the lecturer was also limited in function. These problems caused the recipes used by the students to not meet the standards required in the curriculum. The interviews and observations revealed that new teaching-learning material in the form of flipbook-based digital teaching-learning material was needed in the Indonesian Snacks and Beverages course. This situation would alleviate the problems relating to teaching-learning material.

The design of teaching-learning material was developed using flipbook application. The first step was to study the learning goals based on the curriculum and Semester Lesson Plan to prepare the appropriate content. The product consisted of a front and back cover, development team credit page, foreword, table of contents, and the content. The content consisted of several chapters; each included practice and exercise questions and exciting pictures to illustrate the content and decrease boredom. The prototype teaching-learning material was tested for validity by three subject experts, three media experts, and three language experts.

Validation
Subject Experts Validation Results

The purpose of validation by the subject experts is to assess the content's structure, completeness, and truthfulness. The validation was done in two stages, with a revision between the stages. The result of the first

stage of validation can be seen in Table 3.

Table 3. Validation Stage 1 Score by Subject Experts

Aspect	Average Score	Category
Content quality	2.88	Good
Content delivery	2.52	Good

The content quality and delivery in the first stage were in the Good category with average scores of 2.88 and 2.52, respectively. The score in the delivery aspect was the lowest, and there were significant revisions in that aspect, including the addition of more descriptions, more questions, and answer keys. After the revision, the second stage of validation was carried out.

The content quality and delivery scores in stage 2 improved to the Very Good category with scores of 3.70 and 3.80, respectively (see Table 4). All aspects had a significant increase in scores. The content score increased from 2.88 to 3.70, whereas the delivery score increased from 2.52 to 3.80. As the subject aspect was considered to be in the Very Good category, no further revision was needed after this stage

Table 4. Validation Stage 2 Score by Subject Experts

Aspect	Average Score	Category
Content quality	3.70	Very Good
Content delivery	3.80	Very Good

Media Experts Validation Results

The purpose of validation by the media experts is to assess the media in the flipbook and their delivery, including the wording. Media in a teaching-learning material is vital to illustrate the content, make the teaching-learning material more interesting, and increase students' motivation to learn. The validation was done in two stages, with a revision between the stages. The media and delivery aspects in the first stage were in the Good category with average scores of 3.00 and 3.10, respectively (see Table 5). The experts suggested several points of revision, particularly the delivery aspect of the media.

Table 5. Validation Stage 1 Score by Media Experts

Aspect	Average Score	Category
Media quality	3.10	Good
Media delivery	3.00	Good

Several revisions were done based on the media experts' suggestions, including front and back cover, such as adding a picture representing the study program. The media quality and delivery scores in stage 2 improved to the Very Good category with scores of 3.50 and 3.52, respectively, in stage 2 (see Table 6). All aspects had an increase in scores. The media quality score increased from 3.10 to 3.60, whereas the delivery score increased

from 3.00 to 3.52. As the subject aspect was deemed in the Very Good category, no further revision was needed after this stage

Table 6. Validation Stage 2 Score by Media Experts

Aspect	Average Score	Category
Media quality	3.70	Very Good
Media delivery	3.80	Very Good

Language Experts Validation Results

The purpose of validation by the language experts is to assess language used in the teaching-learning material by Indonesian grammar, spelling, and PUEBI (General Guide of Bahasa Indonesia Spelling, Indonesian formal style guide). The clarity of language is crucial to deliver information correctly. The validation was done in two stages, with a revision between the stages. The language aspects in the first stage were in the Good category with an average score of 2.71 (see Table 7). The experts suggested several points of significant revisions.

Table 7. Validation Stage 1 Score by Language Experts

Aspect	Average Score	Category
Language	2.71	Good

Significant revisions were done after stage 1 based on the media experts' suggestions, such as the conciseness of the sentences, the use of suitable vocabulary, and punctuation and spelling based on PUEBI. The language score in stage 2 improved to the Very Good category with an average score of 3.33 (see Table 8). The language aspect had an increase from 2.71 to 3.33. The language experts considered this enough, and no further revision was needed.

Table 8. Validation Stage 2 Score by Language Experts

Aspect	Average Score	Category
Language	3.33	Very Good

Post-Validation

The validated teaching-learning material was put into a small group trial, and the data were obtained from questionnaires filled out by participants. The results showed that the teaching-learning material was exciting and feasible to use in the teaching-learning process, with an average score of 3.54. After that, the product was put into trial to obtain more valid data and assess the product's attractiveness on a broader scale. The field trial resulted in a score of 3.59, while the lecturer gave a score of 3.64. The small group and field trials result meant that the developed teaching-learning material is very feasible to use as learning material in the teaching-learning process in the Indonesian Snacks and Beverages course. As the results were satisfying, no further trial or revision was performed.

Discussion

Online learning has seen a significant surge in education as the solution to the limitations during the COVID-19 pandemic. The pandemic prevents conventional learning in classrooms as it spreads quickly, and it is acute and deadly for people who are old or have low immunity. Online learning overcomes space/time limitations, which is one of the weaknesses of conventional learning (Turmuzi et al., 2021). Online learning is an interactive learning model which uses an internet network, sometimes with an integrated Learning Management System (LMS). Online learning system enables an enormous reach to students from more than one class at a time. The online learning activity in the Indonesian Snacks and Beverages course in Unimed is carried out with the help of several applications such as Whatsapp Group, Zoom, Google Classroom, Google Class Meet, and supported by *Sistem Pembelajaran Daring* (Online Learning System, Sipda) which is the LMS for Unimed.

The sudden change in the learning environment forces the lecturer and students to adapt to the new model to keep the previous performance levels (Hasan, 2020). The sudden change might have caused several problems, including decreasing students' interest in following the teaching-learning process. It resulted in lower performance during the early days of the shift to online learning.

The problems found in the Indonesian Snacks and Beverages course in Unimed come from internal (student), environment, lecturer, and infrastructure factors. Studies show that some of the internal factors that cause problems are the passiveness of the students during an online lesson, ease of doing other activities (playing games, eating, browsing, and other distracting activities) while the online class is going on, low motivation caused by lack of interaction with friends and lecturer, more amount of tasks, and difficulty of understanding the material (Ratnawati & Utama, 2021; Ririen & Hartika, 2021). The findings in Unimed are similar to the studies above.

Environment and parents also factor into the success of students' online learning activities. Several students in Unimed do not live in places with stable Internet connections as they moved to their parents' houses to lower living costs. Students who stay in Medan might also face difficulty as they tend only to use mobile Internet connections instead of cable Internet. This result is similar to the finding of Waikelak et al. (2021). Support from parents and the environment increases students' motivation as they feel that someone cares about them (Agustina & Kurniawan, 2020). The involvement of parents during online learning has a significant effect on students' learning and helps to reach the optimal learning outcome (Waikelak et al., 2021). While parents' involvement helps a lot in the online learning environment, there are challenges for the parents regarding time management between housework and helping the students, caring for the family, and understanding the students' subject material to help them.

Gadget availability is also a significant factor affecting online learning success, especially in remote areas in Indonesia. Sukaswanto (2013) found that, in the statistics class, not every student owns a laptop or personal computer, so they have to borrow laptops from their friends to complete the tasks and homework. The development of cheaper and more powerful smartphones helps alleviate this problem. However, network and

data quotas also affect students in online learning settings as some cannot afford to purchase unlimited or big quotas due to cost (Ririen & Hartika, 2021).

Online learning in Unimed is supported by various applications, such as Zoom, Google Classroom, Google Meet, and Sipda Learning Management System. The lecturer and students use those applications to support the teaching-learning process, and they are designed to distribute learning material to the students. Through the applications, lecturers can connect with the students while not in the same space (Nurhayati et al., 2021). The integration of technology is hoped to improve the effectiveness of the teaching-learning process.

Apart from the factors above, the weakness from the lecturer side is the difficulty in monitoring the teaching-learning process. The lecturer cannot easily monitor the engagement or understanding of students if the students are passive. Lecturers cannot directly help students with difficulty, like in the conventional learning process (Ratnawati & Utama, 2021). Other factors originating from the lecturers are limited capability of the lecturers in using the applications, unclear explanation of the material, lack of variety in learning media, and limited variety of applications used.

The problems found in Unimed are also similar to problems found in a previous study by Putria et al. (2020), who studied the online learning process during the COVID-19 pandemic. The problems include the lack of teaching-learning materials suitable for online learning and the difficulty of choosing a good Internet learning source (Altowairiki, 2021; Ghimire, 2022; Hu & Huang, 2022; Putria et al., 2020; Xhelili et al., 2021). The lecturer's textbook also has limitations, while interesting teaching-learning material is vital in online learning (Candra & Susilowibowo, 2021; Demosthenous, Panaoura, & Eteokleous 2020; Suryaratri, Komalasari, & Medellu, 2022).

The development results show that the flipbook-based teaching-learning material is feasible to use in the Indonesian Snacks and Beverages course. As the Indonesian Snacks and Beverages deals with the production of Indonesian traditional snacks and beverages, flipbook teaching-learning material is very suitable as it is heavily focused on the visual aspect to illustrate the ingredients and processes. The feasibility was mainly in the Very Good category with scores of 3.23 from the subject expert, 3.28 from the media expert, and 3.02 from the language expert. The students' response was in the very interesting category, with a score of 3.33 in the small group trial and 3.49 in the field trial. The lecturer also considered the teaching-learning material to be very interesting, with a score of 3.64. The media in the flipbook likely add much appeal to the teaching-learning media. The validity and interest show that the flipbook-based teaching-learning material is feasible in the Indonesian Snacks and Beverages course.

The feasibility of flipbook-based teaching-learning material is supported by previous studies which developed similar flipbook-based teaching-learning material in other subjects. Noviyanita (2019) developed a feasible e-learning material for linear program subjects in grade 10 of vocational high school. She developed the teaching-learning material with the flipbook maker application, and it was assessed to be valid by experts. The students' responses (85.9%) show the practicality of the developed flipbook teaching-learning material. This finding

means that the flipbook maker-based teaching-learning material can be used as a learning source.

Similarly, Hayati et al. (2015) developed a flipbook teaching-learning material for Physics. The teaching-learning material was validated by subject and media experts and users. The teaching-learning material was then used to obtain data from the experimental class, and the average increased 57.23% in all aspects. It can be concluded that, overall, the developed multimedia-based flipbook for Physics can improve high school students learning outcomes. At the middle school level, Rahmawati et al. (2017) developed a flipbook for motion/dynamics topics in Physics. The assessment from experts was 86.47% or in the very valid category. The developed flipbook teaching-learning material was feasible and effective to be used in the teaching-learning process in middle school. The flipbook teaching-learning material did not undergo a significant revision while being developed.

Bahri et al. (2019) also conducted another study on e-learning teaching-learning material. The developed teaching-learning material was assessed by experts who consider it in the Very Good category. The practicality of the developed teaching-learning material is measured from students and teacher questionnaire responses, whom both consider it very practical. The effectiveness of the teaching-learning material based on students' metacognitive test shows an increase of 0.47 or in the medium category ($0.3 < g < 0.7$).

Furthermore, Hidayawati et al. (2020) also developed a feasible teaching-learning material in book form. The developed teaching-learning material has appropriate content with perfect linguistic delivery, both in the Very Good category and the graphical aspect was in the Good category. Overall, the teaching-learning material was in the Good category and deemed feasible in learning activities.

The followings are brief explanations of other studies that support the findings of this study. A study by Zulhelmi (2021) shows an increase in students' test scores after using the Kvisoft flipbook maker in manual PCB production topics. Juwati et al. (2021) developed a feasible flipbook teaching-learning material with a score of 84% for the Literature Theory course in university. Other studies using flipbook-based digital teaching-learning materials that show the feasibility of this teaching-learning material are Asmi et al. (2018) in the Pancasila Education course and Lisa & Wedyawati (2020) with the metacognitive approach in the Basic Mathematics course.

Conclusion

The problems facing Indonesian Snacks and Beverages course students can be caused by internal, lecturer, environmental, and infrastructure factors. The problems include low motivation, distraction, lecturers' limitations in using the applications, lack of parents' support, gadget and network availability, lack of appropriate teaching-learning material, and difficulty finding useful online learning sources. The flipbook-based teaching-learning material was developed to alleviate some of these problems. After being assessed by experts and tested in small group and field trials, the developed teaching-learning material was deemed feasible to use with scores in the Very Good category.

Recommendations

The flipbook-based teaching-learning material serves as an example of developing a suitable teaching-learning material for specific needs. Lecturers should try to develop their teaching-learning material for their specific needs instead of relying on mass-produced, conventional teaching-learning material. Further discussions on developing better teaching-learning material for different settings should also be carried out. Still, there are some problems in online learning that cannot be solved by developing new teaching-learning materials such as infrastructure and lecturers' ability to operate online learning applications. Lecturers and the government should strive to solve these problems.

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