Digitalization of Teaching Materials and Learning Assessment of Marketing Management Course with Artificial Intelligence (AI) Based on Gadgets Applications

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Abstract. The purpose of this study is to examine the viability of using artificial intelligence based gadget applications for learning assessments and digitization of teaching materials in marketing management courses. The R&D approach utilizing the DDD-E (Decide, Design, Develop, Evaluate) model was employed in this investigation. The study's sample consists of sixty-five students from the Business Education Study Program. Questionnaires and observation are used as data collection methods. Descriptive analysis was used in the data processing procedure. Chat GPT, Toonme, and Quizizz are AI apps that are used to prepare lesson plans. In this study, media experts and material experts used a feasibility validation questionnaire to test the viability of digital learning assessments and instructional materials. Based on the study's findings, it is known that using AI-based mobile applications for learning in Marketing Management Courses' Teaching Materials and Learning Assessment is viable.

Keywords: Teaching Materials, Learning Assessment, Artificial Intelligence, Gadget Applications.

1 Introduction

In today's digital era, traditional teaching materials often cannot optimally meet the learning needs of students with the skills needed to face the challenges of the modern world, such as critical skills, creativity, and digital literacy (UNESCO, 2017). Traditional teaching materials tend to minimize the use of technology, such as multimedia, simulation, and other digital resources, which can improve the learning experience (Yasa 2021). The inclusion of digital learning assessments and teaching materials is crucial to the teaching and learning process because, in these exercises, the medium of digital-based learning can serve as a bridge to help clarify information that is not quite clear (Firnanda, 2022), Haslinda (2022). AI-based teaching materials offer innovative solutions by leveraging computing power to personalize learning experiences, improve student engagement, and provide more accurate feedback. This indicates

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that artificial intelligence (AI) holds significant promise for improving the efficacy and efficiency of education, including the creation of instructional materials.

The UNIMED Strategic Plan for 2020–2024 outlines eight academic competences for Unimed graduates, one of which is: competent to master and apply technology. This is done to ensure that Unimed graduates are of the highest caliber and capable of competing in the twenty-first century. Creating, developing, and disseminating science, technology, and/or art that directly supports educational, industrial, and cultural engineering innovation is UNIMED's second strategic goal for 2024 (Restra UNIMED 2020–2024). By making all available instructional resources easily accessible, the strategic plan's implementation fosters student independence in the classroom. The Marketing Management course is a compulsory course at the Faculty of Economics, Unimed. All study programs at FE Unimed study Marketing Management courses. The primary issue is that learning still relies on printed textbooks and learning assessments due to the subpar quality of the currently available teaching materials. The use of AI tools in the development of learning assessments and teaching materials is anticipated to result in learning materials that are readily available and flexible enough to be used whenever needed in order to guarantee learning achievement in each topic covered. Through understanding the concept and application of the material, it can have an impact with the birth of creative innovation ideas in the implementation of the Marketing Management course's output projects.

After creating the digital course materials, it is also hoped that students with competence as educators have good abilities, skills and attitudes in creating teaching materials and learning assessments in accordance with technological developments (Saragih, 2023). Meanwhile, students with basic competencies as entrepreneurs are expected to be able to have the abilities, skills and attitudes required in marketing in the digital era. The question posed by this study is whether it is worthwhile to use artificial intelligence-based gadget applications for the digitalization of teaching materials and learning assessments in marketing management courses. The goals of this investigation is evaluate the feasibility of using artificial intelligence based gadget applications for digitalizing teaching materials and learning assessments for marketing management courses.

2 Teoritical Review

Artificial Intelligence

Artificial intelligence (AI) was one of the most significant innovations of the Industrial Revolution which is a technology that has the ability to think like a human but is operated by a robot that is not as natural as a human. AI typically has a certain level of intelligence that allows it to do things like creativity, perception, and knowledge. One area of science and technology that is advancing the fastest is artificial intelligence. Artificial Intelligence (AI) is a technology that humans can use as mobile assistants such as robots. However, AI is only a virtual representation in computer systems, and due to its broad scope, AI can be used in many fields Arly, et al. (2023)

Teaching Materials and Learning Assessment with Artificial Intelligence Based on Gadget Applications

Educators have a critical role to play in helping students succeed in school. They must develop lesson plans, provide resources that will enhance classroom activities, implement the curriculum, administer tests to gauge student progress, and create strategies for learning (Chien and Wu, 2020: 2). Artificial intelligence is intelligence with human-like characteristics, including learning, cognitive skills, adaptability, and decision-making (Chen at all, 2020). In the age of AI, when looking for answers to various problems, a person no longer meets with experts or experts in a certain field but the answer comes from a machine. Consultants, sources and information providers are all machines. This is for example seen in the ChatGPT-AI Messaging Chatbot and chat.openai.com, users only need to type or tell the AI what they want and the machine immediately responds or presents what is needed (Burhani, 2023). A major factor in the expansion and advancement of educational technology is artificial intelligence, which is beginning to be used in classroom activities in schools and colleges (Molenar, et al. 2021).

Universities use software or other media to automate processes like curriculum alignment, feedback provision, and the selection of relevant learning resources. The skill of using AI to produce book works can increase the number of book publications, which can ultimately contribute well to the quality of literacy in Indonesia (Andrianty, at all 2023), Putri, at all 2023). These artificial intelligence (AI) tools can be utilized to create educational resources and tests.

1. Chat GPT is one of the AI applications that is often used in the development of teaching materials. It can be used as a source of information from poorly understood material with a variety of answer options.
2. Steve AI is an app that can be used to create video presentations, while Canva is an app that can be used to create books that serve as instructional tools, posters, percentages, also other formats.
3. Quizizz is the next app that allows you to easily conduct learning assessments and provide assessments automatically.
4. Other AI applications, such as Toonme, Fliki, and D-ID, have also been created and generated interactive electronic teaching materials.

Relevant Research

Sari and Avianty (2023) conducted a research entitled Development of AI-based Teaching Media in the Mathematics Learning Evaluation Course. The AI applications used in this study are Chat GPT, Fliki, Toonme and D-ID. In light of the findings of studies on the creation of AI-based instructional materials, it is known that AI-based Teaching Media is feasible and effective to be used in Mathematics Learning evaluation courses, so it is recommended to apply the use of AI in Learning Media in other courses. The same thing was also expressed by Yasa et all (2021) in their research entitled Increasing Students' Learning Spirit Through Interactive Multimedia in Science Subjects, The study's findings imply that the use of interactive multimedia in instruction is doable. The study's conclusion is that the media produced can be utilized to increase learning and results.

Research Roadmap

This research was developed by paying attention to the research roadmap of Universitas Negeri Medan and the research roadmap of the research team. Furthermore, this study was conducted

using a variety of research findings from earlier studies conducted by different researchers. Here is the roadmap of this research

Table 1. Research Roadmap

Previous research	Current research	Future research
1. The Effectivevess of Nonparametric SPSS Based Statistical Practicum Module Development in Improving the Student Learning Result (2019) 2. Development of HOTS-Based Communication and Negotiation Teaching Materials (2022) 3. Development of Organizational Behavior Teaching Materials with PJBL-Based 3D Realist Vedio (2023)	Digitization of Teaching Materials and Learning Assessment with Artificial Intelligence Based on Gadget Application	AI and AR Collaboration in Learning The impact of the use of AI and AR technology on student social behavior

3 Research Methode

This study uses the Ivers Barron DDD-E model to create teaching materials and learning assessments based on gadget applications, Tegeh (2014). This model consists of four stages: Decide (set program goals), Design (design the initial design of the program), Develop (develop, integrate media elements and create multimedia displays), and Evaluate (evaluate the entire development process until the product is produced)

1. Decide Stage, for development with the DDD-E method, the first stage is to set goals. The process carried out at this stage are:
   a. Conduct curriculum analysis to determine learning objectives, and determine learning materials,
   b. Conduct an initial analysis of students to identify initial abilities and assess the availability of resources, and identify the availability of resources to apply the teaching materials that have been developed.

2. Designing Stage,

   The goal of this phase is to create a teaching materials design. The design's output is known as the original draft, and it goes through several stages of development, such as designing instructional materials and learning assessments from scratch.
   a. Design of materials and broadcast materials
   b. Learning video plan
   c. Learning Assessment Plan

3. Develop Stage

the process of turning a concept product design into a working product up until the point at which it is ready for usage. The procedure used at this point is
a. Development of teaching materials and digital broadcast materials
b. Development of digital learning assessments

c. Development of learning applications for Marketing Management courses

4. Evaluation Stage

The final goal of the evaluation is to measure the achievement of development goals by conducting a validity test to see the feasibility level of the teaching materials and learning assessments developed.

Time and Place of Research

This study was conducted from May 2024 to July 2024 at FE Unimed, Business Education Study Program.

Population and Sample

The 204 participants in the Business Education Study Program comprise the research population, which serves as a source of data for this study. 65 students enrolled in the Unimed Business Education Study Program's fourth semester served as the study's sample.

Data Collection Techniques

a. Observation is carried out to collect the data needed in the decision stage, namely data on curriculum analysis (identification of learning objectives, and determining learning materials) as well as student analysis to determine the availability of resources and initial capabilities of research samples.
b. To ascertain the degree of viability of the generated learning tests and instructional materials, a material validation sheet called a questionnaire is employed. Three groups of validators—material, media, and language validators—evaluated the viability of instructional materials and learning evaluations. The elements that are evaluated include the language, presentation, appearance, and content of the document.

Data Analysis Techniques

The produced teaching material products are revised based on the data outcomes. Data on opinions or responses from products collected through questionnaires and analysis with descriptive statistics. In this study, the answer to the instrument item was measured using the Likert Scale where the answer to the instrument item was classified into five options. After the data was obtained, the average score was determined using the following procedure to determine the weight of each validator's response, Arikunto (2019)

$$\text{Average total score } \frac{Total\ Score}{Number\ of\ Question} \text{ ..... 1)}$$

$$\text{Result } = \frac{Average\ Total\ Score}{Maximal\ Score} \text{ X 100\% ..... 2)}$$

After the validator's response was calculated, the data in the following table was used to perform a descriptive analysis:

Table 2. Categories Eligibility Criteria

Percentage	Eligibility Criteria	Score
21	Very Unworthy	1
21-40	Not Eligible	2

41-60	Quite Decent	3
61-80	Proper	4
81-100	Highly Worthy	5

Source: Arikunto 2019

4. Result and Discussion

4.1. Decide

a. Conduct initial research

The initial research carried out was in the form of an analysis of the curriculum used and student analysis to identify initial abilities and assess the availability of resources. In addition, at this stage, the availability of resources in the implementation of the developed teaching material media was also identified.

Curriculum Analysis

The curriculum utilized at the State University of Medan's Faculty of Economics was examined at this step of the curriculum analysis process, with a focus on the courses used for the Business Education study program. The Independent Learning Independent Campus (KKMB) curriculum and the OBE curriculum are used at FE UNIMED, with the assignments from the KKNI curriculum being adopted as a supplemental unit. Routine Tasks (TR), Critical Book Reports (CBR), Critical Journal Reviews (CJR), Mini Research (MR), Team Projects (TP), and Idea Engineering (RI) are the six types of assignments. Students must generate specific items that are in line with the course requirements as part of the Team Project assignment. Students must visit the workplace as part of their Mini Research assignment in order to gather data, compare theories learned in the classroom with real-world facts, and collect observations. The goal of case-based learning (also known as the "Case Method"), problem-based learning, and project-based learning is to have students thinking at a higher level as they solve challenges.

Student Analysis

To ascertain the demands and degree of general knowledge of students regarding the content and themes in the teaching materials, student analysis is done. According to the interview's findings, students are generally more interested in multiple-choice questions when it comes to assessing their theoretical grasp. In addition, it is known that students are already tied to gadgets, every time students bring their gadgets. However, what students input is the wifi facilities in the study area to be further improved.

b. Setting learning objectives,

Following the first round of study, the Marketing Management Course's learning objectives were determined. The profile of graduates of the Business Education study program is known to be as follows, based on information found on the Study Program form:

Table 3. Profile of Business Education Graduates of the Faculty of Economics UNIMED

Nb	Graduate Main Profile	Description

1	Educators	Business management instructor in the Business School's marketing and entrepreneurship expertise program
2	Training instructors	Innovative and creative, with the ability to design, carry out, and assess learning as well as create instructional materials.
3	Self-employed	Capable of engaging in creative and imaginative competition with other business owners in order to further their own prosperity.
4	MSME Consultant	Capable of using managerial abilities in the workplace, as well as initiative and honesty in one's job.
5	Education researcher Business and management	Capable of using skills in accordance with their disciplines in a creative and inventive manner in line with knowledge development.

To achieve the graduate profile, competency standards are set for graduates as outlined in the following Graduate Learning Outcomes (CPL) which assesses the dimensions of attitude and values, general skills dimensions, special skills dimensions and knowledge dimensions. All courses in the Business Education Study Program are required to include the learning outcomes of the graduates in each learning design used.

c. Assign learning materials

The 12 Sub-Outcomes of the Marketing Management Course's basic competencies are formulated in the process of creating these competency standards. The following table lists the competency requirements that are part of the Marketing Management Course's Sub Learning Outcomes:

Table 4. Formulation of Sub CPMK Marketing Management Course

CPMK	Sub CPMK	Sub CPMK Statement
1	Sub CPMK 1	Able to analyze marketing concepts in the 5.0 era
	Sub CPMK 2	Able to develop marketing plans
2	Sub CPMK 3	Able to create value, customer satisfaction and loyalty
	Sub CPMK 4	Able to analyze consumer behavior
3	Sub CPMK 5	Able to analyze STP *Strategies (Market Segmentation, Target Market and Positioning Analysis)*
	Sub CPMK 6	Able to analyze pricing strategies
	Sub CPMK 7	Able to analyze marketing mix strategies
	Sub CPMK 8	Able to analyze promotional strategies
	Sub CPMK 9	Able to analyze brand equity
	Sub CPMK 10	Able to analyze CSR *(Corporate Social Responsibility)* Strategy
4	Sub CPMK 11	Able to analyze Product and Service Marketing
	Sub CPMK 12	Able to analyze the competitive global marketing in the digital era

4.2. *Design*

At this stage, two designs were carried out, namely the design of a printed book containing materials and assessments in print and the design of teaching materials and learning

assessments in the form of a gadget application. After attending this lecture, students are able to analyze the concept of marketing management in the 5.0 era, know the development of marketing management science from time to time, recognize and understand the meaning of the environment for the running of an organization, and are competent in understanding and using marketing strategies in winning the market.

To ensure that the theory used is relevant and up-to-date, the references used in reviewing the material in the Marketing Management Course come from the main book and supporting books, articles from research results both by the lecturer team and from the research results of others as well as articles from service results both by the lecturer team and from the service of others. Meanwhile, the design of teaching materials and digital learning assessments is carried out by utilizing *Artificial Intelligence* technology which has developed a lot.

a. Design of Materials and Broadcast Materials (Print and Digitized)

Designing broadcast materials, namely in the form of percentage materials and also digital material design, is used by the Canva application. The printed book is designed in 12 chapters where each chapter consists of introduction, material description, case study, summary, learning assessment.

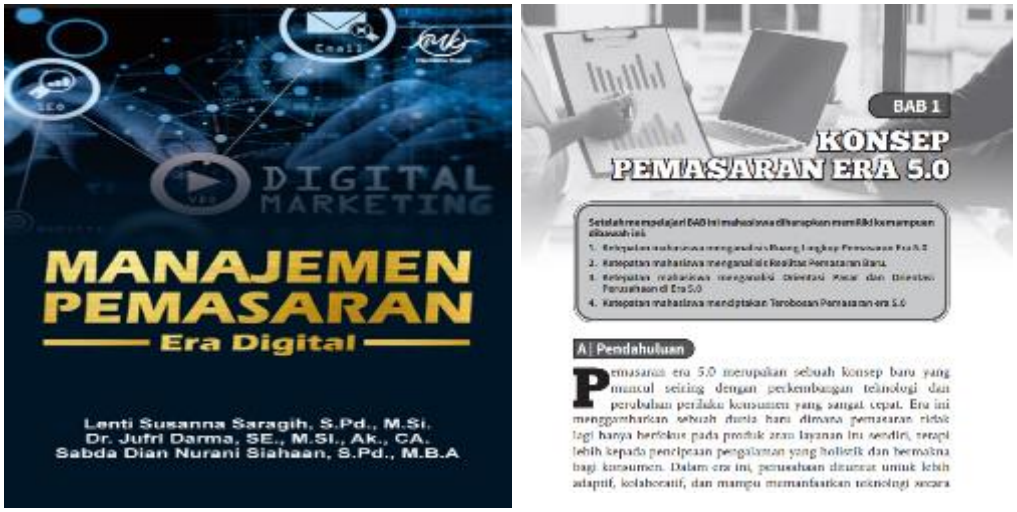

Fig. 1. Marketing Management Printbook Display

b. Designing Learning Videos

In designing learning videos, several AI applications are used such as *Video Maker*, *Powtoon* (marketing concept 5.0), and *Pictory AI* (consumer behavior).

Fig. 2. Learning Video Display

c. Learning Assessment Plan

Learning assessments are designed with several assignment models. The assignment is adjusted to the topic of study in each chapter. The form of assignment is in the form of essays, multiple choices, games and project assignments. In the project review, a project time schedule is designed at each meeting to facilitate the assessment of the achievement of the course project output. In addition, an assessment of student attitudes during the learning process is also carried out. The following are some examples of learning assessment displays that have been designed

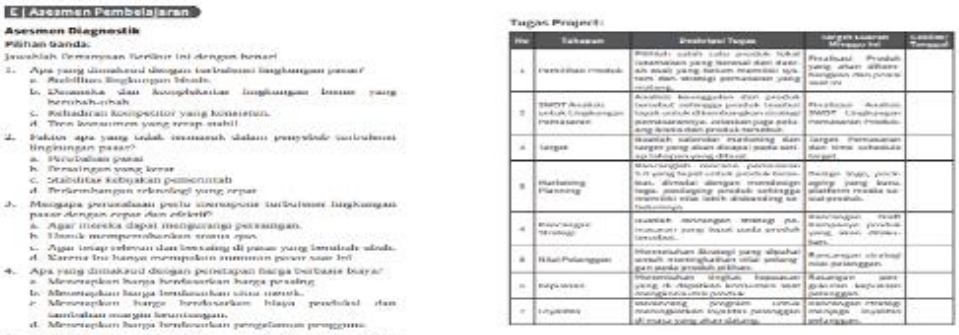

Fig. 3. Display of Learning Assessment for Marketing Management Courses

4.3. Develop

The next step is to develop the teaching materials and learning assessments after they have been assembled and created. At this point, all created material designs are turned into digital learning tests and instructional materials. The development stages carried out continue to utilize AI technology.

a. Development of Teaching Materials and Digital Broadcast Materials

The steps involved in creating digital instructional resources are as follows:

1. After the Heyzine application is opened, first sign in using an active email account then continue by entering a pdf file of teaching materials into the Heyzine application and determining the title and subtitle of the topic

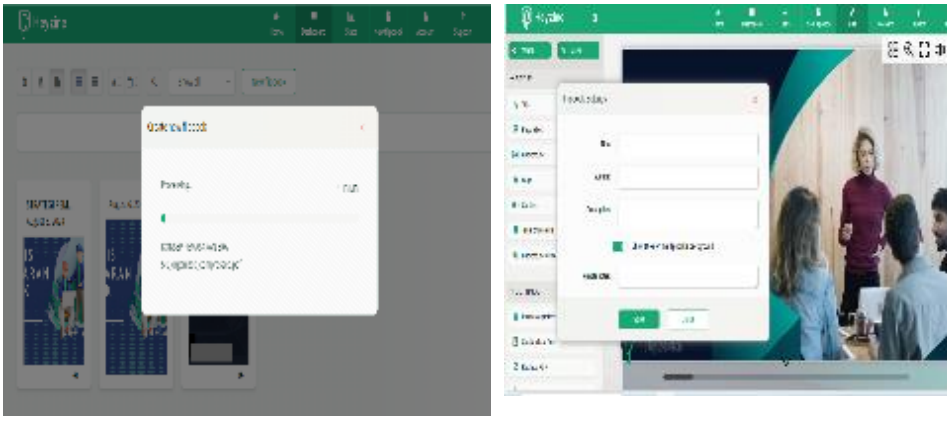

Fig. 4. Display of the Material Input Process on the Heyzine Application

2. Include Video Materials and Case Study Materials in the Heyzine Application.

Before the video is input in the Heyzine application, the learning video is first uploaded to the youtube account

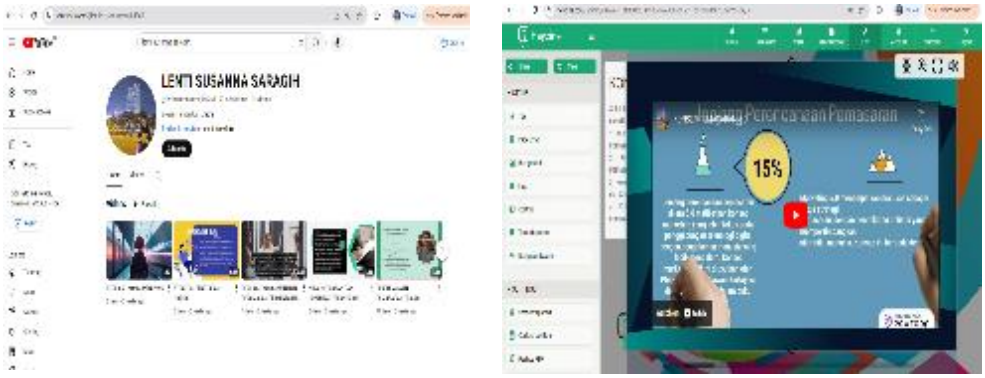

Fig. 5. Layout of Learning Videos on Youtube and Heyzine Applications

b. Development of Digital Learning Assessment

The application used in the development of learning assessments is Quizizz. The development carried out is by entering the Quizizz Application link into Heyzine. The following is the display of the Learning Assessment Questions on the Quizizz Application that have been developed into the Heyzine application

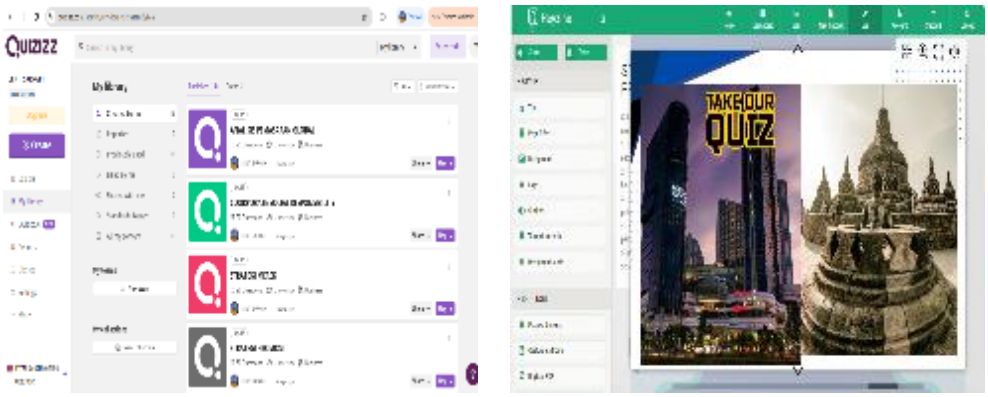

Fig. 6. Display of Digital Learning Assessment for Marketing Management Courses on the Quizizz Application

c. Application Development of Application-Based Teaching Materials

At this stage, there are several steps that are taken, namely application selection, application design and input of material in the application. To create a teaching material application, there is an AI application that can facilitate users in creating a new application, namely JegalApp which can be downloaded on the playstore using an android smartphone. The stages carried out in the development of this application are:

1. Install the app and create an account

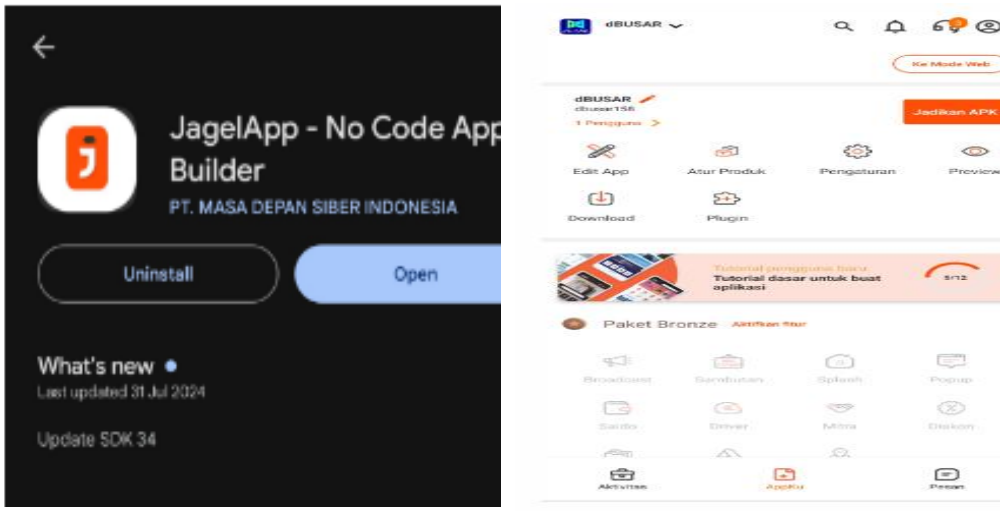

Fig. 7. JegalApp Display

2. Design the name of the application and register it on the Jegal App

To be able to create a new application, first design the logo and the name of the application you want to create so that at the time of the in-out process all documents are available. In the process of creating this instructional material, an application known as dBUSAR was created.

Fig. 8. View of the dBUSAR Application Registration Process

3. Edit the App

Namely adding menus, changing the layout and colors of the application display and inputting material into the application as seen in the image below:

Fig. 9. Editing Display of Marketing Management Teaching Materials Menu on JegalApp Application

4. Filling in Materials into the Application

After all the menus on the application are created, the next step is to edit the menu which aims to fill in the material into each application menu. The material filled in the application is a digital material flipbook that has been designed using the Heyzine Application by inserting a link in each menu that has been created. The next stage is to make all menus into one application as seen in the image below,

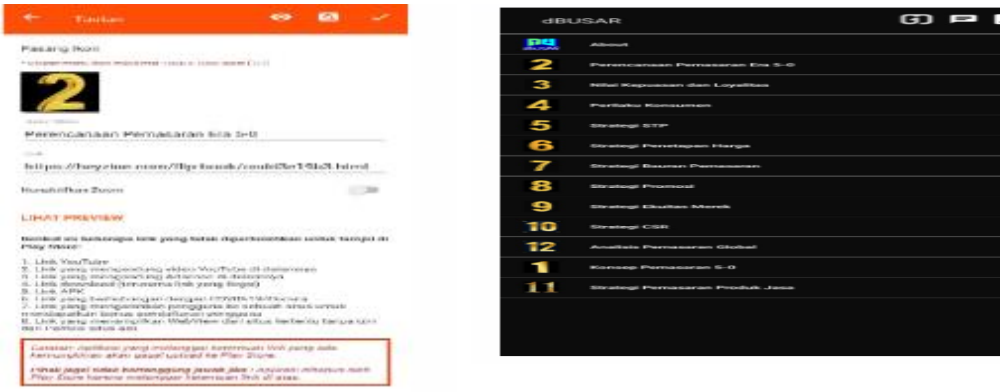

Fig. 10. Display of the Process of Filling Materials into the dBUSAR Application

5. Downloading and Installing the dBusar Application

After all the material has been entered into the application and has been changed into an application, the next step is to download the new application and then the application can be used by installing the dBUSAR application on the device. After the application is installed, the dBUSAR application can be used by users. Students as users can study the material, watch youtube videos, discuss case studies and at the end of learning take part in the assessment.

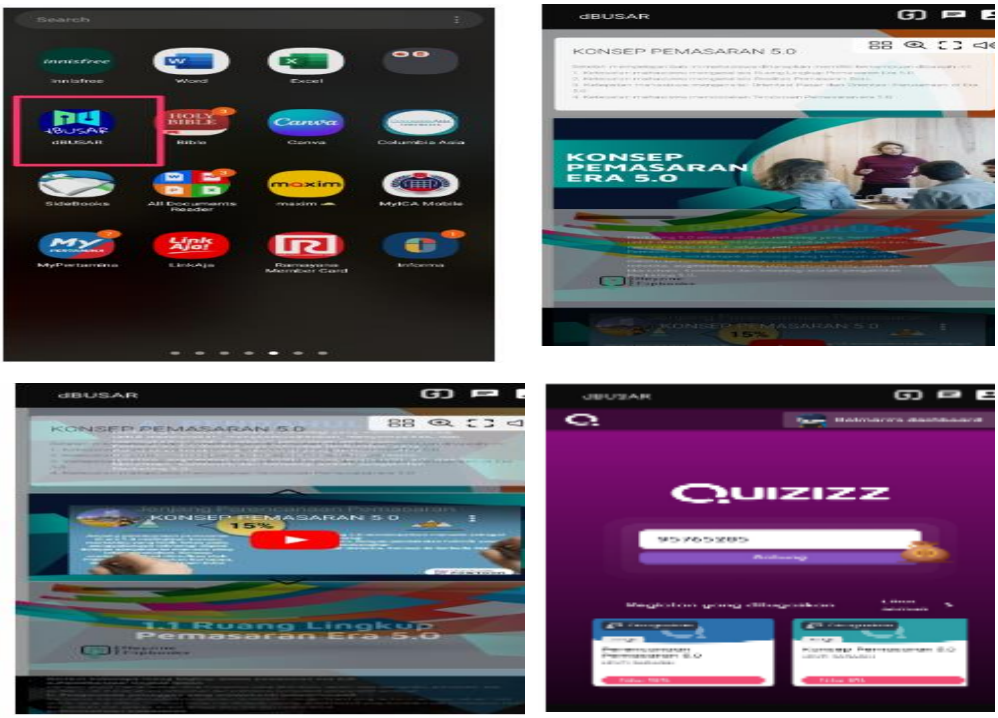

Fig. 11. dBUSAR Application Display Image

4.4. Evaluation

After that, the generated teaching materials are put to the test and validated to see how feasible they are. Three expert validators, material expert validators, linguist expert validators, and media expert validators, participated in the feasibility test for the creation of instructional materials and learning assessments. The content feasibility aspects, presentation and display feasibility aspects, and language feasibility aspects are evaluated by the validator team. The assessment data is analyzed following the assessment conducted by the validator data. The average score for every component of the assessment was determined in order to determine the weight of each validator's response. The following formula is used to get the average score:

$$\text{Average total score } \frac{Total\ Score}{Number\ of\ Question} \text{ ..... } 1)$$

$$\text{Result } = \frac{Average\ Total\ Score}{Maximal\ Score} \text{ X } 100\% \text{ ..... } 2)$$

Assessment tools have been developed in order to evaluate these factors of feasibility, as indicated in the table below:

Table 5. Instrument of Validation of Teaching Materials and Learning Assessment of Marketing Management Course

Nb	Aspects	Indicators	Item Number
1	Eligibility of Material Content	Suitability of the content of the material with the CPL	1, 2, 3
		Content Accuracy	4,5,6,7
		KKNI Assessment	8,9,10
		Project Based Learning, *Problem Based Learning* and *Case Study* Tasks	11,12,13,14
		Conformity of the content of the assessment with the CPL and materials	15,16,17, 18, 19
		Material support	20, 21, 22
		Freshness of material	23, 24, 25
2	Application Presentation Eligibility	Serving technique	1,2,3
		Serving support	4,5,6,7,8,9,10
		Learning Presentation Innovation	11,12, 13
		Presentation equipment	14,15,16
3	App Display Eligibility	Content icon	1, 2, 3,4
		Instructions for Use	4, 5, 6
		Ease of access	7, 8, 9
		Physical Display (Design)	10, 11, 12
4	Language Eligibility	Businesslike	1,2,3
		Communicative	4,5
		Dialogical and interactive	6,7
		Suitability to the level of student development	8,9
		Shortcomings and cohesion of the thought line	10,11
		Use of terms, symbols or icons	12,13, 14

The explanation that follows shows the outcomes of the adri feasibility test calculations for each validator.

Table 6. *Feasibility Aspects* of the Content of the Material and Learning Assessment of the dBUSAR Application

Nb	Indicators	Average	Percentage	Criterion
1	Suitability of the content of the material with the CPL	4,67	93,3%	Highly Worthy
2	Content Accuracy	4,33	86,7%	Highly Worthy
3	KKNI Assessment	4,33	86,7%	Highly Worthy
4	Project Based Learning, Problem Based Learning, Case and Exercises	4,50	90,0%	Highly Worthy
5	Conformity of the content of the assessment with the CPL and materials	4,60	92,0%	Highly Worthy
6	Material support	4,67	93,3%	Highly Worthy
7	Freshness of material	4,56	91,1%	Highly Worthy
	Overall Rating	**4,52**	**90,4%**	Highly Worthy

The aforementioned table indicates that the validator will evaluate seven factors related to the material content and learning assessment's capability. The first signal is the content's suitability for the graduates' learning objectives, which are reflected by three statements: the content that is presented pertinent to the CPL, the content that is thoroughly examined, and the content that is pertinent to the RPS. Based on the computation, it is determined that the Very Feasible group has an average score of 4.67, or 93.3%, on this metric. The accuracy of the content, as indicated by four statements, is the second indicator. Accurate learning video materials, case studies that are current, and easily understandable content received an average score of 4.33, accounting for 86.7% of the very feasible category. The KKNI Assessment, which is represented by three statements, is the third indicator. CBR and CJR Tasks facilitate students' completion of Mini Research, Team Project, and Idea Engineering assignments; sufficient time is allotted for question resolution; and Mini Research, Team Project, and Idea Engineering Assignments enhance students' capacity for original thought. Based on the computation, it is determined that this indicator has an average score of 4.33 and an actual proportion of 86.7% in the Very Feasible category. The existence of discussion rooms in case study discussions to improve students' logical thinking skills in providing social criticism of the phenomenon that occurred is the fourth initiator, which is represented by three statements: Project Based Learning, Problem Based Learning, Case, and Practice. Project Based Learning Tasks are presented in an effective way to improve students' analytical skills and productivity. Problem Based Learning Tasks presented in case studies are effective in improving competence and expertise in applying theories in solving student problems. Based on the analysis's findings, the Very Feasible category has an average score of 4.50 and a 90% percentage value. The content represented by four statements received an average score of 4.6, placing it in the Very Feasible category with a 92% percentage. This is the fifth indicator, which measures how well the assessment content adheres to the CPL. Material Supporters, the sixth indication, are represented by three statements with an average score of 4.67 and a 93.3% Very Feasible percentage. Freshness of the material is the seventh criteria, with three statements representing it. It had an average score of 4.56, placing it in the Very Feasible category with a percentage of 91.1%. With an average score of 4.52 and a percentage of 90.4%, it is evident from the explanation above that the teaching materials and learning assessments of the Gadget Application-Based Marketing Management Course are very practical to use in terms of material content and learning assessments.

Table 7. Eligibility Aspects of Presenting the dBUSAR Application

Nb	Indicators	Average	Percentage	Criterion
1	Serving Technique	4,33	86,7%	Highly Worthy
2	Serving Supporters	4,43	88,6%	Highly Worthy
3	Innovation and Presentation of Learning	4	80%	Proper
4	Serving Equipment	4,33	86,7%	Highly Worthy
	Overall Rating	**4,27**	**85,5%**	**Highly Worthy**

It is evident from the data in the above table that four indicators describe the aspect of application presentation. The first indicator, which consists of three statements about presenting technique consistency, collapse, and application design obtained an average score of 4.33, placing it in the highly feasible group with an 86.7% proportion. The second indicator is the presentation support, which is represented by seven statements: interesting content, appealing evaluation, user-friendliness, orderly display, visually appealing images and animations, easy-to-use applications that support them, and easily installable dBUSAR applications. These statements received an average score of 4.43, accounting for 88.6% of the very feasible category. The third indicator, which is innovation in learning presentation and is represented by three statements they're learning freedom, student participation, and lecturers acting as facilitators obtained an average score of four, meaning that 80% of the feasible category was met. The availability of feedback, RPS, and feedback availability comprise the fourth indicator, which measures how complete the presentation is. These three claims received an average score of 4.33, which translates to an 86.7% percentage value in the highly feasible area.

Drawing from the aforementioned explanation, it can be inferred that the dBUSAR application received an average score of 4.27 overall, accounting for 85.5% of the extremely feasible category, when it came to the feasibility of presenting it.

Table 8. Feasibility Aspects of dBUSAR Application Display

Nb	Indicators	Avarage	Percentil	Criterion
1	Content Icon	4,50	90%	Highly Worthy
2	Studi Guides	4	80	Proper
3	Ease of Access	4,33	86,7	Highly Worthy
4	Physical Display	4	80	Proper
	Overall Rating	**4,21**	**84,2%**	**Highly Worthy**

Four indications are known to reflect the feasibility aspect of the dBUSAR application display, based on the data in the above table. With four statements—application name design, menu design, font size, and color—the content icon, which is the first signal, received an average score of 4.50 and a 90% in the highly feasible area. The second indication consists of three statements that indicate learning instructions: the desired learning objectives, the directions for using materials, and the instructions for the assessment activity. These statements received an average score of 4, meaning that 80% of the possible points were in the practicable group. The third indicator, accessibility, is represented by the two expressions "practical" and "accessible," and it received an average score of 4.33 in the extremely feasible group, with a percentage value of 86.7. The application's physical appearance, or design, is the fourth indicator. It is represented by four statements: the menu display, the material display, the assessment display, and the video

display. Each statement received an average score of 4, accounting for 80% of the possible category.

It is clear from the foregoing description that using the dBusar application is highly possible based on the viability of the application's overall presentation, which is indicated by four indicators. Obtaining an average score of 4.21 with a percentage value of 84, 2% falls into the extremely achievable category, demonstrating this.

Table 9. Feasibility of Language Aspects

Nb	**Indicators**	**Average**	**Percentage**	**Criterion**
1	Businesslike	4,56	91,1	Highly Worthy
2	Communicative	4,50	90	Highly Worthy
3	Dialogical and interactive,	4,33	86,7	Highly Worthy
4	Conformity with the level of student development,	4,33	86,7	Highly Worthy
5	Harmony and unity,	4,17	83,3	Highly Worthy
6	Use of terms, symbols and icons	4,22	84,4	Highly Worthy
	Overall Rating	4,35	87	Highly Worthy

It is recognized that the linguistic feasibility aspect is represented by six indications based on the preceding table. With an average score of 4.56 and a total percentage of 91.1% in the highly possible category, the first indicator is easy to attain. With an average score of 4.50 and a percentage value of 90, the second indication is communicative and falls into the highly feasible group. With an average score of 4.33 and a percentage value of 86.7% in the extremely feasible category, the third indicator is dialogical and interactive. With an average score of 4.17 and a percentage value of 83, the fourth indicator—conformity with the level of student development—falls into the extremely feasible category with a score of 3. The fifth indication is the severity and straightness, which received an average score of 4.17 and an 8.33 percentile in the highly feasible area. The usage of symbol and icon terms, which has an average score of 4.22 and a percentage value of 84.4% in the highly feasible category, is the sixth indicator.

As can be seen from the previous explanation, the six indicators that describe the overall aspect of linguistic feasibility received an average value of 4.35, meaning that 87% of the data fell into the extremely feasible group. Validators have, nevertheless, provided a number of suggestions for enhancing the Teaching Materials application and learning assessment using an AI-powered mobile application (dBUSAR). The table below displays this input:

Table 10. Input from Validators

Nb	**Validator**	**Commentary**
1	Media Expert Validator	1. Change the appearance of the app icon 2. The color should be changed to brighter and the line on the icon border should be removed
2	Material Expert Validator	1. Some ambiguous material content to be corrected or deleted according to the suggestions in the revised results and re-check the words that are typo. 2. The material icon in the application should be designed in the form of a coloumn without a border 3. In addition to digital teaching materials, you should also make printed teaching materials that have been registered with ISBN
3	Linguist	1. The sentences used are adjusted to the EYD to make it easier to understand

Validator	2. Learning assessment should be divided into diagnostic, formative and attitude assessments

Based on the input from the validator, improvements and revisions were made to the dBUSAR application in accordance with the input that had been submitted by the validator. The improvements aim to beautify the appearance of the dBUSAR application, in the form of:

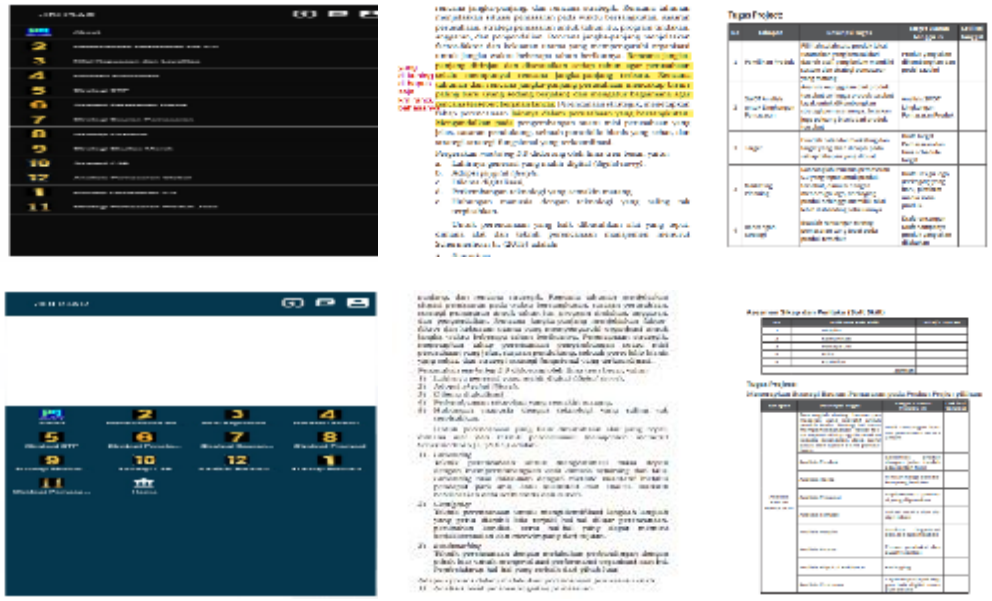

Fig. 12. Before (above) and After (below) Revision Materials, Asessment and Aplication

The last stage of this research is make a printed book from the material and register the ISBN of the printed book, which is in the form of a book of teaching materials that have been used as teaching material application materials.

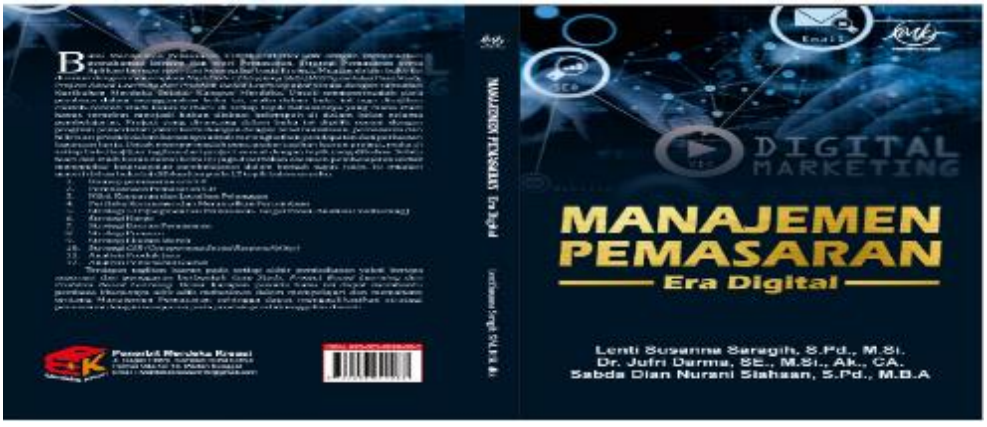

Fig. 13. Cover After Revision

The study's findings are consistent with studies by Molenar et al. (2021), Fauziyanti (2023) which claimed that artificial intelligence is beginning to be used in classroom instruction. According to Tjahyanti et al. (2022), education in the modern day must thus benefit from the development of technology that make it easier for teachers or students to accomplish their work.

This is in line with what was expressed by Mufid et all (2022), Mufidhoh (2023) who said that Artificial Intelligence is often used for the purpose of automatic assessment and assessment of questions through online platforms, where educators and instructors no longer need to create questions and correct answers manually, because AI systems can work according to pre-programmed instructions and can learn from user habits. Artificial intelligence (AI) used responsibly and appropriately can enhance the quality and accessibility of education by enabling students to learn more effectively and individually. Other tools that can support autonomous learning include voice assistants, automated assessments, virtual tutors, smart content, and digital teaching materials (Yuangga & Sunarsi, 2020)

5. Conclusion and Recommendations

Conclusion

Based on the outcomes of the feasibility test, four assessment aspects were used to evaluate the dBUSAR application: the material's content feasibility, the application's presentation feasibility, the appearance aspect feasibility, and the language aspect feasibility. Based on the research findings, it can be inferred that the dBUSAR application has received positive feedback from the three validators that evaluated it. This is evident from the evaluation conducted by linguists, media experts, and material experts, who provided an average evaluation of 90.7% for the viability of the content, 91.7% for the presentation of the application, and 87.2% for the display of the application. Additionally, the overall aspect of language feasibility, which is represented by six indicators, received an average score of 4, 35, with a percentage value of 87, 1% falling into the very feasible category.

The findings of the research entitled Development of AI-based Teaching Media in the Mathematics Learning Evaluation Course using Chat GPT, Fliki, Toonme, and D-ID apps, carried out by Sari and Avianty (2023), are consistent with the conclusions of this study. It is advised to implement the use of AI in learning media in other courses since research on the development of AI-based teaching media has shown that these resources are workable and efficient for use in mathematics learning evaluation courses. Yasa et al. (2021) similarly stated as much in their study, Increasing Student Learning Spirit Through Interactive Multimedia in Science Subjects. The study's findings imply that interactive multimedia can be used in the classroom.

Recomendation

The author offers several recommendations based on the study's findings, including the following:

1. It is advised that artificial intelligence-based gadget applications be used in all Marketing Management course learning at the Faculty of Economics, Unimed, as these resources can enhance student learning outcomes;
2. Internet access on campus should be improved to facilitate easier access to teaching materials, particularly for learning assessments that require the researcher's determined amount of time.

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