Development of Flashcards Game-Based Teaching Media to Improve Accounting Students Understanding of the Use of Accounting Terms

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Abstract. This study aims to develop flashcards game-based teaching media that is effective in improving accounting students' understanding of the use of accounting terms. The method used is Research and Development with the ADDIE development model, which consists of five steps: Analysis, Design, Development, Implementation, and Evaluation. Data collection techniques include direct observation, interviews, questionnaires, and literature studies. The research subjects were accounting students at the Universitas Sulawesi Barat (Unsulbar) who were taking the Introduction to Accounting course. The results of this product development are 70 flashcards containing accounting vocabulary and its explanation. Validation by media experts showed a score of 89%, while validation by material experts reached 93%, which indicated that these flashcards were very feasible to use. The implementation of flashcards successfully increased student engagement, encouraged social interaction, and strengthened understanding of accounting terms. Flashcards proved effective as a learning tool that creates a dynamic and collaborative learning environment. Through this teaching media, it is expected that students can gain a better understanding and improve their ability to use accounting terms effectively.

Keywords: teaching media, flashcards, accounting students

1 Introduction

Education is a fundamental thing that every individual should have. Law Number 20 of 2003 interprets education as a conscious and planned effort to realize the situation and learning process so that students actively improve their potential in terms of spiritual, self-control, personality, intelligence, morals, and skills needed for themselves, for society, nation, and state. In implementing education, learning becomes something that cannot be separated. In the learning process, there is a complex interaction between students, educators, and learning resources in the learning environment. In the context of learning, an effective learning system management is needed to facilitate all parties involved in an effort to facilitate the learning process[1].

In general, in the context of education, the teaching-learning process consists of four main elements, namely students, educators, the environment, and learning materials. These four elements have a significant influence on the achievement of student goals. In learning activities, there are several factors that support the achievement of maximum learning objectives, including learning time arrangements, learning locations, learning media, methods used, supporting facilities, and effective procedures or arrangements for activities [2]. However, these learning goals are impossible to achieve optimally if students do not have motivation that comes from within themselves. High motivation can increase student involvement, perseverance, and learning achievement. Therefore, educators need to use methods that are interesting and stimulate students' interest to strengthen students' motivation and enthusiasm for learning.

Since methods and approaches are means to achieve goals, the success of the teaching and learning process is highly dependent on the learning methods used. Therefore, educators need to understand that the interaction between them and their students must be maintained in quality. Because if educators and students do not interact well, the learning objectives to be achieved will be difficult to realize. In the context of the teaching and learning process, students tend to prefer direct interaction. In addition to being able to increase the enthusiasm for learning, students can also feel a more concrete experience.

Educators need to prepare and plan a learning that involves the use of interactive learning media. This can facilitate the teaching and learning process and has the potential to influence student learning outcomes. However, in reality, the methods commonly used by educators today are often limited to conventional methods such as lectures, Q&A, or group discussions. These conventional methods often result in passive student involvement and limited active participation [3]. As a result, this can reduce the interaction that should occur between educators and students so that it will affect the understanding and learning outcomes of students.

Given the importance of interaction in the teaching and learning process, it is clear that conventional methods that are often used are not sufficient to meet students needs. In the context of accounting education, where understanding terms and concepts is crucial, a more interactive approach becomes important. Educators need to innovate by integrating interactive learning media that are not only interesting but also support active student engagement. Studies have shown that interactive media, such as digital flashcards and educational games, can significantly increase student engagement and retention [4]

This becomes particularly relevant when considering the transition from high school to college. Accounting students often face significant challenges, particularly in understanding more complex accounting terms and concepts. At the high school level, the material taught tends to be more general and not in-depth, so when students enter college, they often feel lost and have difficulty adapting to specific and technical terminology. Many of them feel stressed, because of the demands of understanding concepts they have never encountered before.

Therefore, it is very important to provide proper support for students who are in this transition phase. Based on the challenges faced, researchers are trying to develop interactive learning media that can support their learning process. One of the proposed solutions is the creation of interactive flashcards. Flashcards as learning media in the form of 25 x 30 cm cards containing images [5]. The use of flashcards in learning activities can arouse students' enthusiasm and motivation, as well as help change abstract learning concepts into more concrete ones, train memory skills, and can enrich vocabulary [6]. By using flashcards, students can practice independently or in groups, strengthening their active involvement in learning. In addition, these flashcards can be equipped with multimedia elements, such as

images to increase the appeal and effectiveness of conveying information. With this approach, it is hoped that students will be more prepared and confident in facing academic challenges in the field of accounting.

Although research on the use of flashcards in learning has been done extensively in various fields, the use of flashcards in accounting education is a relatively new approach and has not been explored in depth. Flashcards offer a more interactive and fun way to learn. Unlike conventional methods that tend to be static and passive, flashcards encourage students to be actively involved in the learning process.

One of the novelties offered by flashcards is their ability to turn learning into a game based experience. By integrating game elements, such as time challenges or competition between students, the use of flashcards can increase student motivation and engagement. This game-based aspect not only makes learning more fun, but also gives students the opportunity to learn from their mistakes and improve their understanding in real time.

Additionally, flashcards allow students to focus on specific accounting terms, giving them the flexibility to learn at their own pace and learning style. Unlike more common teaching methods, where students often have to absorb large amounts of information at once, flashcards allow them to break down the material into smaller, more manageable chunks. This is especially important in the accounting context, where terms often have complex meanings and require in-depth understanding.

Flashcard media has been conducted by Zhang [8], where the result show that the use of picture cards can significantly increase student motivation and engagement . Therefore, based on previous research, this research is considered very relevant and a practical solution that can be applied in classroom teaching. Through the development and use of flashcards in learning, it is hoped that the learning motivation and understanding of accounting students regarding the use of accounting terms will increase.

2   Research Method

This research uses a research and development approach.. Where this research is carried out with the aim of producing a product that has benefits and testing the effectiveness of the product. This research will produce a learning media in the form of flashcards as the main product which will later be used as a support in accounting student learning. The author uses the ADDIE Model popularized by Yao (2021) as a development framework in this study, namely Analyze, Design, Development, Implementation and Evaluation [9]. Data collection techniques are carried out using a multi-method approach, namely direct observation, structured interviews, and literature studies. The subjects of this study are accounting students who are studying introductory accounting courses. The purposive sampling technique is used to ensure the right approach. The number of students who are sampled is 20 people. This technique allows researchers to identify and select students who have difficulty understanding and using accounting terminology. This research was conducted at the University of West Sulawesi. The following is a research scheme that has been designed by the author.
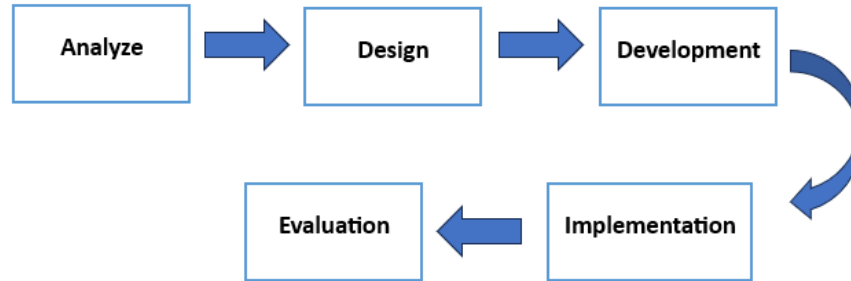
Fig. 1. Research Scheme

To test the feasibility of flashcards, a validation test was conducted by media and content expert validators. The validation data obtained from the media and content expert validators were subsequently analyzed. This research used a Likert scale arranged in the form of statements. The indicators of the statements being measured were given scores from 1 to 5: (5) very feasible, (4) feasible, (3) fairly feasible, (2) not feasible, and (1) very not feasible. The percentage of validation results from the expert team can be calculated using the formula:

$$P = \frac{F}{N} \times +100\%$$

(1)

Description:
    P : Percentage being sought
    F : Total score given by the validator
    N : Total overall score

To determine the feasibility of the flashcard media developed by the researcher, the validation assessment criteria by expert specialists can be seen in the table below:

Table 1. Media Feasibility Criteria

No	Percentage (%)	Criteria
1	81 – 100	Very Feasible
2	61 – 80	Feasible
3	41 – 60	Fairly Feasible
4	21 – 40	Not Feasible
5	01 – 20	Very Not Feasible

3 Result and Discussion

3.1 Analyze

The analysis is divided into 2, namely problem recognition and material formulation. Problem recognition is carried out to identify and understand the challenges that need to be

overcome. This stage is carried out by Needs Identification, namely Knowing what are the obstacles and needs of students, Environmental Analysis, namely Understanding the context in which the learning process takes place, including available resources and student characteristics. As well as Initial Data Collection, namely interviews with lecturers as educators who often interact with students to gain insight into the problems faced and conducting pre-tests to students regarding accounting terminology. Where in this pre-test the average score obtained by students was 67.6 which reflects a fairly good basic understanding, but still shows room for improvement.

After identifying the problem, the next step is formulating the material. This step involves Content Development, namely Determining what material will be included in the flash card, based on the previous needs analysis; Structure and Format, namely Arranging information in an easily digestible format. This includes determining the number of cards, visual design, and the type of information presented, for example, images with text. At this stage, the researcher formulated 70 accounting terms accompanied by images and explanations which will then be developed in flashcard media.

3.2 Design

After the analysis stage is complete, the researcher proceeds to the design phase. In this phase, the main focus is to create a rough design of the flash card media that fits the needs that have been identified previously.

At the beginning of the design, the researcher began by establishing the basic concept of the flash card. This includes choosing a theme, type of material, and how to present information. It is important for the researcher to ensure that all elements designed can support learning objectives and are relevant to the characteristics of the students. After that, the researcher made a simple sketch or initial prototype of the flash card. Here, the organization of elements such as titles, images, and texts are placed strategically to maximize visual appeal and functionality. In this process, the researcher considered various aspects such as the size of the card, the type of font used, and a diverse color palette to attract students attention.

3.3 Development

After the design stage is complete, the researcher proceeds to the development stage. In this phase, the rough sketch that was previously made will be designed in more detail until it is ready to be printed. The development process begins by finalizing the visual design of the flash card. The researcher will use graphic design software to arrange elements such as text, images, and backgrounds. The selection of colors and fonts will be considered to match the theme and appeal to students. The refined design must reflect the information clearly and be easy to understand.

After the design is complete, the researchers conduct a trial by printing several prototype flash cards. This process aims to evaluate the print quality, size, and physical appeal of the cards. The researchers will observe how this media functions in a real learning context, including how students interact with the cards.

At this stage, a product feasibility test is also carried out by media experts and material experts. The results of the product feasibility test can be seen in the following table:

Table 2. Product feasibility test results

No	Validation Aspects	Assessment Result	
		Total Score	Criteria
1	Media	89 %	Very Feasible
2	Material	93 %	Very Feasible
Overall Average		**91 %**	**Very Feasible**

Media experts gave an assessment with a score of 89% , indicating that the design and visual appeal aspects of flashcards were considered very worthy. This reflects that the cards have attractive design elements, high readability, and effective use of multimedia elements, so that they can attract students' interest in the learning process.

Furthermore, the test by the material expert produced a higher score, namely 93% , indicating that the flashcards are very feasible. This score indicates that the content presented in the flashcards is considered very relevant and accurate in accordance with the applicable curriculum. The material expert assessed that the information contained in the card is not only in accordance with the expected level of difficulty, but also supports the learning objectives to be achieved.

The combination of these two scores confirms that the flashcards developed in this study are not only visually appealing, but also educative and effective as a tool in the teaching and learning process. With these positive evaluation results, flashcards are ready to be introduced to students, providing them with a more interactive and enjoyable learning experience.

After going through all these processes, the researcher will print the flash cards in the required quantity to be used in the learning process. With this step, the flash cards are ready to be introduced to the students, providing an effective and interesting learning tool.

Fig. 2. Flashcards Printout Result

3.4 Implementation

After the development stage is complete, the researcher proceeds to the implementation stage. In this phase, the flash card teaching media that has been designed and printed will be introduced and used in the learning process in the classroom. The implementation process is carried out through three stages:

3.4.1. Preparing for use

Where the researcher and the teacher prepares learning materials that will be carried out using flash cards. This includes determining the teaching methods that will be used, such as games, discussions, or other interactive activities,

3.4.2. Introduction to students

Before implementing, it is important to inform students about how to use flash cards and their benefits. This explanation helps students to better understand the purpose of using them in a learning context.

3.4.3. Use in Learning Activities

Flash cards are used during learning sessions. Studentss can actively participate through various activities, such as answering questions, playing puzzles or working in groups. This interaction is expected to improve students' understanding and memory.

By implementing this, it is hoped that flash card teaching media can provide a positive impact on the learning process, making it more interactive and interesting for students

3.5. Evaluation

After the implementation of flashcard media in accounting learning, an evaluation was conducted using the observation method to assess the effectiveness of this tool in improving students' understanding of accounting concepts. Observations were conducted during 3 learning sessions involving the use of flashcards, focusing on student interaction, involvement, and understanding of accounting terms.

During the learning session, observers recorded students' behavior when using accounting flashcards. The observation results showed that students showed a high level of engagement. They appeared enthusiastic when using flashcards to identify accounting terms such as "assets," "liabilities," "equity," and "journal." Students not only learned the definitions, but also discussed the application of the terms in the context of financial statements.

In small groups, students used flashcards to test each other's understanding. Observers noted that students frequently engaged in discussions about concepts such as "generally accepted accounting principles" (GAAP) and "depreciation methods." These social interactions were very productive, with approximately 80% of students actively participating in explaining and demonstrating their understanding. This supported the development of collaborative and communication skills that are essential in the study of accounting. Students also responded positively to the material presented via flashcards. When asked about accounting terms they had learned, many students were able to correctly explain the concepts, such as the difference between "current assets" and "fixed assets." These observations suggest that flashcards were effective in reinforcing students' recall and understanding of complex accounting terminology.

In addition to evaluation through observation methods, this study also involves the implementation of a post-test to measure the increase in student understanding after the use of flashcards in accounting learning. The post-test was conducted after three learning sessions using flashcards, with the aim of assessing the effectiveness of this media in improving student learning outcomes.

The post-test consisted of questions similar to the pre-test, covering various accounting terms and concepts that had been taught. The results of the post-test showed significant achievement, with the average score obtained by students reaching 80.9 . This score reflects a substantial increase compared to the pre-test score of 67.6, indicating that the use of flashcards contributed positively to students' understanding.

Overall, from the evaluation results, it can be concluded that the implementation of accounting flashcard media has succeeded in increasing student engagement, encouraging social interaction, and strengthening understanding of accounting terms. Flashcards have proven effective as a learning aid that can create a dynamic and collaborative learning environment. The results of this development research are in line with research (Shafa, Siregar, & Hasanah, 2022) which states that the use of flashcard media will improve student learning outcomes [8]. Similar research was also conducted by Parawansa, Haryanto, and Mulyani (2022) which stated that the learning process using Flashcard media showed a very good response, because many students were active and enthusiastic about reading when using Flashcards [10]. These findings provide a strong basis for recommending the use of flashcards in accounting teaching in the future, as well as opening up opportunities for further research on innovation in the use of this tool.

4 Conclusion

This study shows that the use of flashcards in accounting education has a significant positive impact on students' understanding of accounting concepts and terminology . The results of observations and post-tests showed an increase in students' involvement and ability to identify and apply accounting terms. The average post-test score of 80.9 indicates that flashcards can be an effective learning tool in strengthening students' memory and understanding.

The implications of using flashcards are not limited to accounting learning. This method has the potential to be applied in various learning areas. In a broader educational context, flashcards can be used to facilitate active learning, encourage student engagement, and enhance understanding through social interaction. As such, this research may influence teaching methods more broadly, encouraging educators to integrate interactive learning tools into their curricula.

Overall, this study confirms that interactive media such as flashcards have great potential to enrich students' learning experiences. With proper development and application in various educational contexts, flashcards can be an effective tool in improving learning outcomes and preparing students for future academic challenges.

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