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Assessing the Effectiveness of CARE Hub for Learning Basic Cost Accounting

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Abstract

This study aims to evaluate the effectiveness of the CARE Hub platform in facilitating the learning of basic cost accounting among students in Semester 4 of the Diploma in Business Studies at Politeknik Sultan Salahuddin Abdul Aziz Shah. The CARE Hub, a comprehensive educational resource center, integrates various digital tools and materials, including e-books, 360-degree video, interactive tutorials, and Q&A forums, to enhance the learning experience. This research involved a mixed-methods approach, combining quantitative data from student's group attainment across Course Learning Outcome (CLO) and qualitative feedback through surveys. The findings indicate that the CARE Hub significantly improves student engagement, comprehension, and retention of cost accounting principles. Key benefits identified include a wide range of resources and tools allowing students and lecturers to access e-books and other materials easily, the accessibility of diverse resources, and the ability to track learning progress. However, areas for improvement were also noted, such as the need for more personalized learning experiences tailored to individual users' needs, preferences, pace of learning and enhanced interactivity. Overall, this study highlights the CARE Hub's positive impact on teaching and learning basic cost accounting, emphasizing its potential to improve student engagement and comprehension. Despite these positive outcomes, the variability in responses, particularly in suggestions for improvement, suggests that while the platform is effective, there is potential for further enhancements the study provides valuable insights into student engagement with digital learning tools in accounting education and highlights areas for improvement to maximize learning outcomes

Keywords

Accounting, Interactive, Teaching and Learning

1.0 Introduction

In today's rapidly evolving educational landscape, digital learning platforms have become integral tools for enhancing student engagement and understanding. One such platform, the Cost Accounting Resource Hub (CARE Hub), has been specifically developed to support the teaching and learning of basic cost accounting. The CARE Hub offers a range of interactive features and resources designed to facilitate a more dynamic and effective learning experience in this subject area.

Cost accounting, a fundamental component of business education, presents unique challenges for students and lecturers due to its complex and analytical nature. Traditional teaching methods often struggle to engage students and fully address their diverse learning needs. As a result, educators are increasingly turning to technology-driven solutions to bridge this gap and provide more personalized and interactive learning pathways. The CARE Hub can integrate with traditional classroom settings to provide a seamless hybrid learning experience, ensuring that students benefit from both online resources and in-person interactions.

This study will assess the effectiveness of the Cost Accounting Resource Hub (CARE Hub) in enhancing students' learning outcomes for the Basic Cost Accounting course taken by Semester 4 students of the Diploma in Business Studies at Politeknik Sultan Salahuddin Abdul Aziz Shah. Figure 1 clearly illustrates the structure and features of the CARE Hub platform.

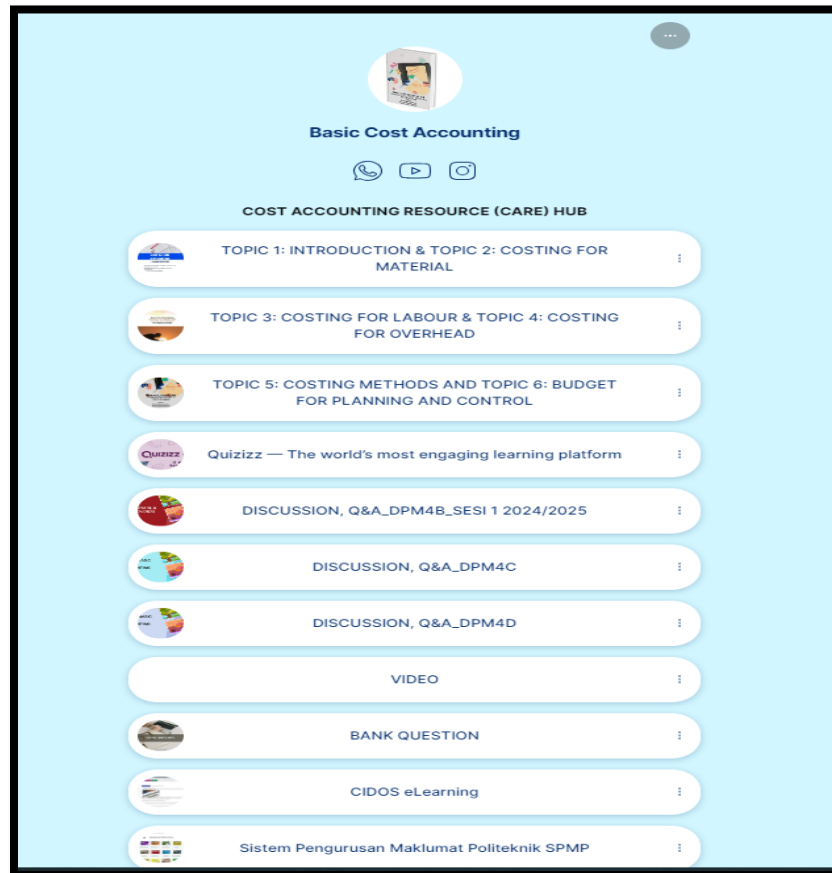


Figure 1: The Cost Accounting Resource (CARE) Hub.

This research employs a mixed-methods approach, incorporating quantitative data from Course Learning Outcome (CLO) scores and qualitative insights from a comprehensive questionnaire survey. The study aims to evaluate the CARE Hub's impact on students' engagement with basic cost accounting concepts. The questionnaire is designed to capture various aspects of students' interactions with the CARE Hub, including frequency and timing of use, preferred features, perceived effectiveness, and areas for improvement. This dual approach enables an in-depth analysis of the platform's strengths and areas for enhancement, ensuring it better meets students' needs.

The findings of this study will provide valuable insights for educators and administrators aiming to optimize instructional methods and effectively integrate digital learning platforms into the curriculum. Through this research, we seek to contribute to the ongoing discourse on the role of technology in education and its potential to transform traditional teaching and learning practices.

2.0 Literature Review

Cost accounting is a challenging subject that requires students to understand and apply complex concepts. Viviers & de Villiers (2020) in "Teaching Methodology in Accounting Education" discuss the idea of teaching accounting paradigm, approaches and methodology. Their research suggests incorporating reflective input and feedback from both students and educators as the world of business and accounting evolves at rapid speed. Implementing new teaching methodologies and instructional methods will support self-regulated and life-long learning and enhance academic performance.

Investigating the effectiveness of resource hubs and learning platforms is crucial to understanding their role in student success. Digital learning platforms are designed to enhance student engagement through interactive and flexible learning experiences. Wekerle, Daumiller, and Kollar (2020) discuss the importance of different learning activities and their relationships to learning outcomes in higher education. Their research found that when technologies were implemented in class, students felt encouraged to engage in more constructive, but also in more passive and active activities compared to when no technologies were used. Furthermore, student engagement in active, constructive, and interactive activities was positively associated with learning outcomes. This highlights the critical role of educational technology in fostering an environment conducive to active learning.

Researchers and educators have long been interested in student motivation because it is closely related to the achievement of desired outcomes. A lack of motivation affects students' ability to gain knowledge and skills, even if they possess outstanding abilities. Motivation is the primary condition for completing a learning task and serves as the driving force behind the educational process (Al-Said, 2023). Motivation can be enhanced through well-designed digital learning platforms, which provide engaging and interactive content, making learning more appealing to students.

According to Ayaz Karimov et.al. (2023), online educational platforms have been shown to enhance students' motivation and learning productivity in various contexts. These platforms can improve student motivation and participation by offering personalized learning experiences and instant feedback. Personalized learning experiences tailor the educational content to the individual needs of the students, thereby improving their engagement and understanding. Almusaed et al. (2023) discuss the role of Artificial Intelligence in Education (AIED) and how it can be used to create more engaging and effective learning experiences. AIED tools can personalize learning, provide instant feedback, and adapt to individual student needs, thus enhancing engagement and motivation.

Educational technology, while beneficial, also presents certain challenges that need to be addressed. Dongho Kim et al. (2020) explore how both student and teacher behaviors influence student attrition in online learning environments that utilize open educational resources. They identify several factors contributing to inconsistent student engagement and attrition. One significant issue is that students often struggle to maintain engagement with these platforms, particularly when faced with challenging problems. This difficulty is intensified by the expectation that students complete a substantial portion of their learning tasks and assignments independently, at their own pace, outside of the classroom. The self-paced learning

model has the potential to result in a decline in motivation and engagement, which may subsequently impact student retention and performance.

3.0 Methods

This study employs a mixed-methods research design to evaluate the effectiveness of the CARE Hub platform in facilitating learning for the Basic Cost Accounting course (DPA20193) at Politeknik Sultan Salahuddin Abdul Aziz Shah. The research integrates both quantitative and qualitative approaches to provide a comprehensive assessment of the platform's impact to the learning outcomes. To accurately assess the effectiveness of educational tools like the CARE Hub, it is important to employ robust evaluation methods. According to Balogh, Munk, and Turčáni (2013), effective e-learning evaluation involves a combination of usage analysis and survey sampling. This approach will be adopted in this study to assess the effectiveness of the CARE Hub through both quantitative course learning outcome (CLO) scores and qualitative feedback.

The respondents in this study were Semester 4 Diploma students enrolled in the Basic Cost Accounting course (DPA20193) for academic session II 2023/2024. A total of 120 students were targeted for the study, with 44 valid responses collected and analyzed. These respondents were selected based on convenience sampling of active classes using the CARE Hub platform for their coursework.

The study employed two principal instruments for the collection of data to evaluate the effectiveness of the CARE Hub. Quantitative data were gathered through an analysis of students' achievements across each Course Learning Outcome (CLO). The CLO results was generated from the Politeknik's Management System (SPMP). This approach aimed to measure academic performance and comprehension of cost accounting principles. By examining grades and group attainment associated with each CLO, the study obtained objective data to assess the efficacy of the CARE Hub in enhancing learning outcomes. Descriptive statistical methods were employed to analyze CLO scores both before and after the implementation of the CARE Hub. This involved conducting a grade analysis and evaluating group attainment for each CLO to summarize overall student performance and improvement.

To complement the quantitative data, surveys similar to those described by Balogh et al. conducted to gather qualitative feedback from students. This will provide insights into their perceptions of the new method and help interpret the quantitative results more comprehensively. The qualitative data were collected using a structured questionnaire designed to gather in-depth feedback from students. The questionnaire, distributed via an online survey on social media, included questions on usage patterns, frequency, perceived learning effectiveness, and preferred features of the CARE Hub. Open-ended questions allowed respondents to provide additional commentary on their overall experience with the platform. The survey was accessible for one week to maximize participation from the 120 students enrolled in the course.

The analysis of quantitative data involved summarizing and interpreting CLO scores to gauge the impact of the CARE Hub on student learning outcomes. Qualitative data were analyzed by identifying common themes and insights related to usage patterns, engagement levels, and perceived effectiveness. This combined approach provided a comprehensive view of how the CARE Hub influenced students' learning experiences and outcomes.

4.0 Results and Discussion

The CARE Hub aims to support students and lecturers by providing resources that facilitate the understanding and application of cost accounting concepts. By offering a variety of learning materials and interactive features, the CARE Hub can cater to different learning styles and preferences, thereby enhancing the overall learning experience. Understanding how students engage with digital learning resources is essential for optimizing these platforms. Implementing these strategies in the CARE Hub could boost student participation and interest in cost accounting, making the learning process more enjoyable and effective.

4.1 Course Learning Outcome Analysis

Course Learning Outcomes (CLOs) are essential for defining what students should know or be able to do upon completion of a course. They provide a clear framework for both instruction and assessment, ensuring that educational goals are met effectively. Evaluating the effectiveness of the CARE Hub involves assessing how well it supports these CLOs. The CARE Hub is designed to enhance students' understanding of the Basic Cost Accounting (DPA20193) course offered in Politeknik Sultan Salahuddin Abdul Aziz Shah, with specific CLOs as tabulated in Table 1.

Table 1: Course Learning Outcomes (CLO) of Basic Cost Accounting (DPA20193)

CLO Item	Course Learning Outcomes Statement
CLO 1	Explain clearly costing theories and cost classifications in the manufacturing environment by applying relevant cost information.
CLO 2	Apply properly the element of costs in ascertainment of cost and preparing the budget in the manufacturing and servicing environment
CLO 3	Discuss precisely various types of budgeting for management planning

A comparison between CLO scores from the previous academic semester which did not use the CARE Hub and the current semester was analyzed. The CLO's group attainment comparison before and after the utilization of CARE Hub is shown in Table 2 and Figure 2.

Table 2: CLO's Group Attainment of the Basic Cost Accounting (DPA20193)

CLO Item	Group Attainment	
	Sesion: I 2022/2023 (before)	Sesion: II 2023/2024 (after)
CLO 1	55%	65%
CLO 2	51%	66.6%
CLO 3	79%	88.5%

Source: Course Outcomes Review Report (CORR) from the Sistem Pengurusan Maklumat Politeknik (SPMP).

The evaluation of the CARE Hub's effectiveness during Academic Session II 2023/2024 revealed notable improvements in student performance across all three Course Learning Outcomes (CLOs). The group attainment percentages for each CLO demonstrated significant gains, reflecting the positive impact of the CARE Hub on student learning outcomes. With regard to CLO1, the proportion of students attaining the learning outcome increased from 55% to 65%, indicating a 10-percentage-point improvement and reflecting a substantial enhancement in students' understanding of fundamental concepts. CLO2 demonstrated an even more pronounced improvement, with attainment rising from 51% to 66.6%, representing a 15.6 percentage point gain. This outcome highlights the CARE Hub's effectiveness in addressing specific learning needs. CLO3, which commenced the academic session at a higher baseline of 79%, improved to 88.5%, a 9.5

percentage point increase. This suggests that even high-performing students benefited from the CARE Hub's resources. Overall, these gains underscore the positive impact of the CARE Hub on student learning, enhancing comprehension and performance across key areas of the course.

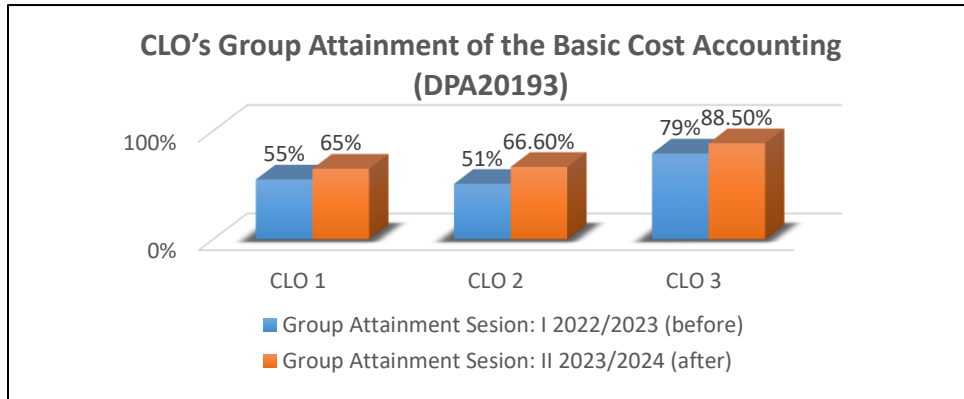


Figure 2: The CLO's Group Attainment of the Basic Cost Accounting (DPA20193) before and after utilizing the CARE Hub.

4.2 Qualitative Feedback

Analysis of the feedback provides a comprehensive understanding of the student's experiences with the CARE Hub, highlighting both its strengths and areas for improvement. The study gathered qualitative feedback from 44 Semester 4 Diploma students enrolled in the Basic Cost Accounting course (DPA20193) at Politeknik Sultan Salahuddin Abdul Aziz Shah. The questionnaire covered various aspects of the CARE Hub, including usage patterns, preferred features, perceived learning effectiveness, challenges encountered and suggestions. The following sections provide a detailed analysis of the responses.

Usage Pattern and Frequency

This question aims to understand the times and circumstances under which students are most likely to use the CARE Hub. Gathering this information helps to identify usage patterns and optimize the platform's features and content availability. Table 3 and Figure 3 shows the responses were as follows:

Table 3: CARE Hub Usage Pattern

Usage Pattern	Frequency	Percentage
Before Class	13	18%
After Class Ended (The same day)	16	22%
During Class	23	32%
At Any Time, Irrespective of Class Schedule	18	25%
I Never Use the CARE Hub	3	3%

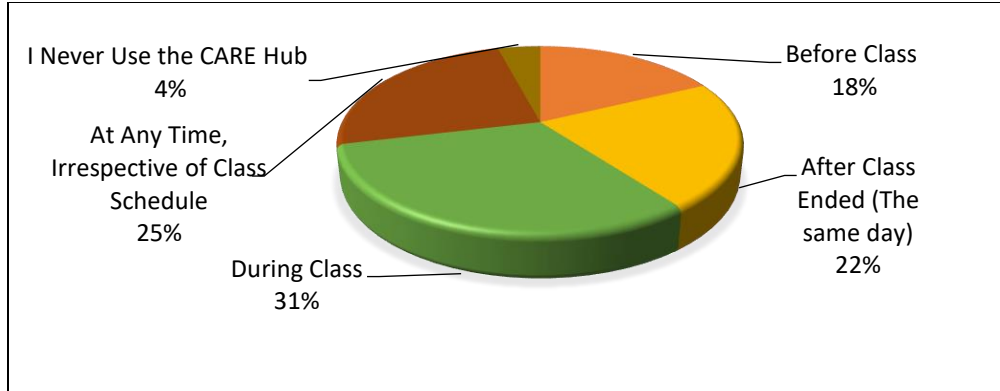


Figure 3: CARE Hub Usage Pattern

Respondents were asked when they mainly access the CARE Hub and respondents could select more than one usage preference. The results show a variety of usage times, with the CARE Hub being used most during class time (32%), indicating that students are actively using the platform to support their in-class learning activities. The results also show that 25% of students use the CARE Hub at any time, regardless of the class schedule, suggesting a flexible usage pattern that fits their individual study habits. In addition, 16% used it after class ended (at the same time), possibly to review and reinforce what was taught during class, and 18% used it before class; this usage likely helps students prepare for upcoming classes. Meanwhile, 3% said they never use the Care Hub and didn't provide any information about why they don't use it. Participants also asked about their frequency of using the CARE Hub from daily to a month. The responses are shown in Table 4 and Figure 4.

Table 4: Usage Frequency

Usage Frequency	Frequency	Percentage
Daily	8	18%
Several Times a week	19	43%
Once a week	8	18%
Few Time a month	5	11%
Less than once a month	4	9%

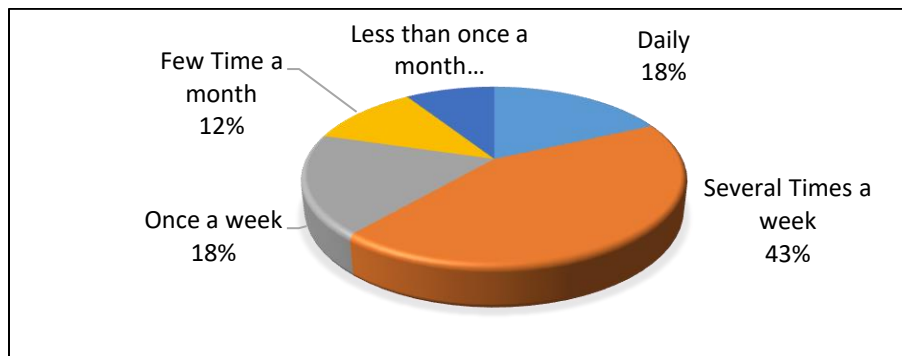


Figure 4: CARE Hub Usage Frequency

The findings indicate that the majority of students utilize the CARE Hub on a frequent basis, with 43% reporting that they access the platform several times a week. This suggests a high level of reliance on the platform for academic purposes. Conversely, 18% of students reported utilizing the CARE Hub daily and once a week, indicating that the majority of students integrate the CARE Hub into their weekly study routine.

on a regular basis. A smaller percentage, 11%, reported using the platform less than once a month, and 9% reported using it less than once a week, suggesting occasional use. This suggests a need for further investigation into the barriers preventing regular engagement.

Preferred Features

Preferred features refer to the attributes or functionalities that users most desire or value in a product, service, or system. The CARE Hub provides diverse resources to encourage greater student involvement and engagement. Respondents highlighted the features of the CARE Hub they found most helpful as illustrated in Table 5 and Figure 5.

Table 5: Preferred Features

Resources	Frequency	Percentage
e-books	16	36%
Video	14	32%
Interactive Quizzes	3	7%
Discussion and Q&A Forum	5	11%
Bank Question	6	14%

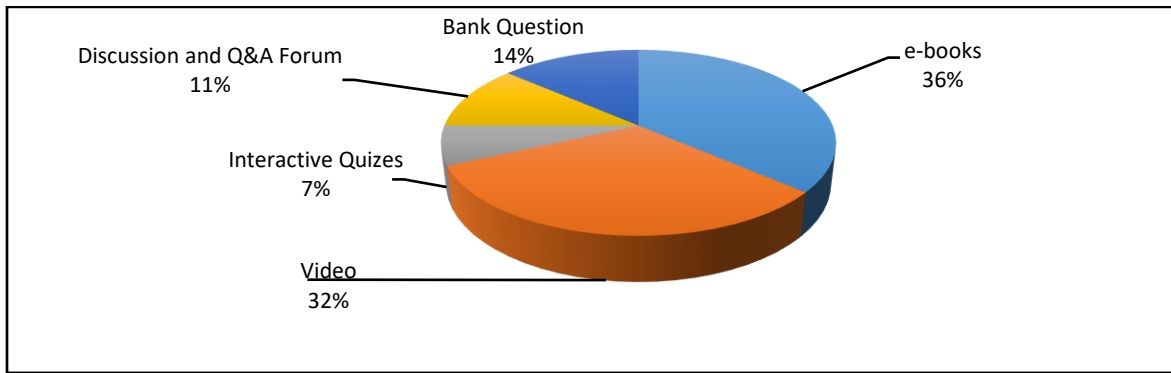


Figure 5: Preferred Features

The findings revealed that 36% of students identified e-books as the most useful feature. The accessibility of digital textbooks facilitates convenient access to course materials, thereby enhancing the flexibility of the learning process. A total of 32% of students expressed appreciation for the video resources, citing their effectiveness in facilitating comprehension of intricate cost accounting concepts. These videos offer visual and auditory learning opportunities, catering to diverse learning styles. Additionally, 11% of students identified the discussion forums and Q&A sections as a valuable resource. These interactive features facilitate peer-to-peer learning and provide a platform for students to address their queries in real time. Furthermore, 14% of students found the past semester's bank questions to be a valuable reference tool.

Challenges Encountered While Using the CARE Hub

Students faced several challenges while using the CARE Hub. The most common issue, reported by 26% of students, was technical problems such as website bugs and login issues, which disrupted their learning experience. Another 16% of students struggled navigating the platform, finding it difficult to locate resources and use features efficiently. Similarly, 16% of students indicated that the platform lacked relevant content, limiting its effectiveness as a learning resource. Additionally, 9% of students found the user interface to be poor, making the platform less intuitive and harder to use. However, 33% of students reported a seamless experience, suggesting that while the platform works well for some, significant improvements

are needed to enhance the experience for others. Table 6 below illustrate the distribution of these challenges among the students, providing a visual representation of the areas that need improvement:

Table 6: Challenges Encountered while using the CARE Hub

Challenges	Frequency	Percentage
Technical Issues (e.g., website bugs, login problems)	14	26%
Difficulty Navigating the Platform	9	16%
Lack of Relevant Content	9	16%
Poor User Interface	5	9%
None	18	33%

Feedback from Users of the CARE Hub

Based on student feedback, several key areas have been identified where the CARE Hub could be enhanced to increase its effectiveness as a learning platform. These suggestions are designed to address the challenges highlighted by users, ensuring that the CARE Hub better aligns with the needs of its students. To further strengthen user satisfaction, it is crucial to leverage the aspects of the platform that are already working well and ensure these strengths are consistently applied across all areas of the platform. Gathering more detailed feedback from users who have had positive experiences will also help in identifying what they find most effective, providing valuable insights for broader platform improvements. Figure 7 below illustrates the feedback collected from CARE Hub users.

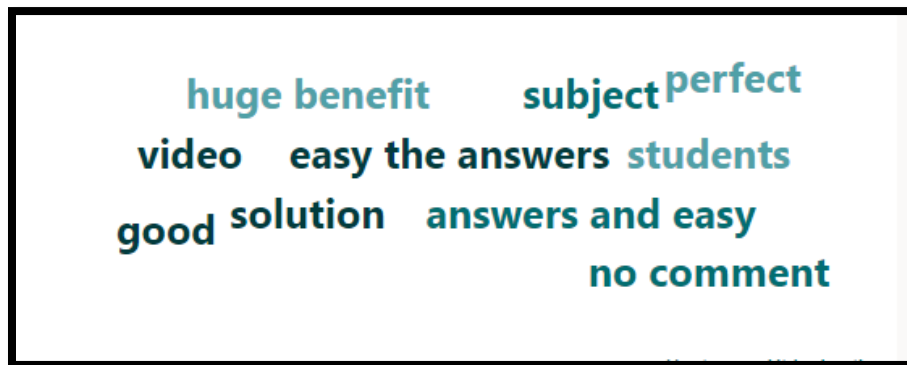


Figure 6: Feedback from Users of the CARE Hub

Wide Range of Resources and Tools

Despite the challenges some users have faced, the CARE Hub has received significant positive feedback, particularly in areas that underscore its value as a learning tool for students. Many students have highlighted that the CARE Hub offers substantial benefits to their learning experience. They appreciate how the platform consolidates a wide range of resources and tools, making it easier to access the necessary materials for their studies. The CARE Hub has proven to be particularly effective in providing students with additional support outside the classroom, enabling them to reinforce and expand upon what they’ve learned during lectures.

This positive feedback underscores the platform's role as a comprehensive educational resource. By centralizing course content, assignments, and learning aids in one easily accessible location, the CARE Hub

has become an integral part of students' academic routines. It supports more flexible study schedules, allowing students to learn at their own pace and revisit challenging concepts as needed. This flexibility and accessibility are crucial for accommodating diverse learning styles and needs, making the CARE Hub an invaluable asset to students.

Easy Access to Answers

Moreover, the CARE Hub excels in providing easy access to answers and explanations for various topics within the Basic Cost Accounting course. Students have noted that the platform's organized structure and clear presentation of information make it straightforward to find the answers they need, whether they are completing assignments, preparing for exams, or seeking to clarify doubts. The ease with which students can find answers on the CARE Hub significantly enhances its effectiveness as a learning tool. By streamlining the process of locating information, the platform reduces the time students spend searching for resources, allowing them to focus more on understanding and applying the concepts. This efficient access to information not only boosts students' confidence in their studies but also encourages independent learning, empowering students to explore and resolve their queries on their own.

Videos

Some students have expressed a desire for more video content within the CARE Hub. They believe that incorporating additional videos could significantly enhance their understanding of complex topics in the Basic Cost Accounting course. Videos can provide visual and auditory explanations, making abstract concepts more tangible and easier to grasp. This type of content is especially beneficial for visual learners who find it easier to process information through demonstrations and examples.

Furthermore, videos can break down intricate procedures or calculations into step-by-step guides, allowing students to follow along at their own pace. The inclusion of videos would also enable students to revisit challenging sections as many times as needed, fostering a deeper comprehension of the material.

By expanding the video content available on the CARE Hub, the platform could cater to a wider range of learning preferences, offering a more diverse and engaging educational experience. This addition would not only support students struggling with certain concepts but also enhance the overall learning experience by making the content more dynamic and interactive.

Overall Experience

The overall feedback on the CARE Hub was positive, with 80% of students appreciating the comprehensive nature of the resources available. The integration of various digital tools, such as e-books, video lectures, and Q&A forums, was seen as a significant advantage in facilitating the learning of cost accounting concepts. Despite the reported challenges, the platform was deemed effective in improving student engagement, comprehension, and retention of cost accounting principles.

5.0 Conclusion

Although the CARE Hub was generally well-received, several challenges emerged from the feedback provided by respondents. Addressing these challenges is crucial for improving the CARE Hub's effectiveness. The study's findings are based on a moderate sample size of students at Politeknik Sultan Salahuddin Abdul Aziz Shah, which may limit the generalizability of the findings to other educational

contexts. Additionally, the analysis focused on course learning outcomes from two academic sessions, without considering the weighted continuous assessments such as tests (30%), practical exercises (10%), and reflective journals (10%).

The presence of a small percentage of non-users within the sample is notable, though their engagement with the CARE Hub was limited. The lack of feedback from these non-users presents both a challenge and an opportunity for further investigation. Potential barriers for non-users could include technical difficulties, compatibility issues, or insufficient internet connectivity. There may also be gaps in awareness or understanding of how to effectively use the CARE Hub, possibly due to inadequate orientation or training. Additionally, some students might not perceive the CARE Hub as a valuable resource, possibly preferring alternative study methods or materials. While the majority of students actively benefit from the CARE Hub, the small percentage of non-users underscores the need for ongoing feedback and improvements to ensure broader and more effective usage of the platform.

Almusaed et al. (2023) outline various strategies for increasing student engagement through AIED, such as gamification, adaptive learning paths, and interactive content. Implementing these strategies in the CARE Hub could boost student participation and interest in cost accounting, making the learning process more enjoyable and effective. These capabilities can be leveraged in the CARE Hub to tailor educational content to each student's needs, improving their learning outcomes.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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