

Evaluating Kahoot and Practicum Effectiveness in Enhancing Understanding of Cost and Management Accounting

Author:

Retta Farah Pramesti¹
Rosyani Muthia²
Efri Elsridayani Purba³
Deasy Emalia⁴

Affiliation:

Universitas
Padjadjaran^{1,2}
Universitas Darma
Agung³
Universitas Bengkulu⁴

Corresponding email

retta.farah@unpad.ac.id

Histori Naskah:

Submit: 2025-03-03
Accepted: 2025-04-01
Published: 2025-04-02



This is an Creative Commons
License This work is licensed
under a Creative Commons
Attribution-NonCommercial 4.0
International License

Abstract:

Game-based learning technology such as Kahoot has been widely used in higher education to increase student engagement. However, little research has evaluated its impact on student understanding in Basic Cost and Management Accounting courses. Therefore, this study aims to measure the effectiveness of Kahoot-based learning methods and practice questions in improving student understanding. This study used a pre-test-post-test design without a control group and used a quantitative approach. The research sample comprised 32 students taking the Basic Cost and Management Accounting course. Data were collected through pre-test, post-test, and questionnaire results. Data analysis was conducted using a Paired Sample t-test to see significant differences between the pre-test and post-test and descriptive analysis to assess students' perceptions of the applied learning methods. The results of the Paired Sample t-test showed a significant increase in student understanding after participating in the learning session, with a power analysis result of 72.3% and an effect size of 1,919, indicating a strong learning impact. In addition, the questionnaire results revealed that most students felt that this method helped them understand the material better. However, some students provided input regarding adjustments in the speed of explanation, variations in learning methods, and distribution of teaching materials to improve learning effectiveness. Conclusion: Overall, this study shows that the combination of Kahoot!-based learning and problem practice effectively improves students' understanding of Basic Cost and Management Accounting. The results of this study can be the basis for developing interactive learning methods in higher education to improve the quality of accounting learning.

Keyword: *Cost Accounting, Kahoot, Pre-test-Post-test.*

Introduction

Today, technology-based learning is developing rapidly, providing unlimited access to information and communication. Education from elementary school to higher education is increasingly integrated with technology, as it makes the learning process in the classroom more interactive, creative, and practical through various platforms that enhance student's comfort and engagement (Zoebaidha, 2020). In higher education, technology is used to enrich the learning experience and supports lecturers in implementing more modern teaching methods, thereby increasing student motivation and enjoyment in understanding the material (Saenkhote, 2019). According to the Connecticut Department of Education's State Education Resource Center (SERC), best practices in classroom learning involve creating conditions that foster

student success (Bruno, 2014). Furthermore, the more engaging and interactive a learning process is, the more it fosters students' interest and encourages deep learning of the subject matter (Icard, 2014).

One type of interactive learning increasingly popular in higher education is game-based learning platforms such as Kahoot! Kahoot functions as a formative assessment tool that can be used to intersperse traditional classroom activities, allowing lecturers to present material through engaging multiple-choice quizzes or limited-option questions (Wang, 2020). Launched in 2013, Kahoot has grown rapidly, with over 70 million monthly active users and is utilized by approximately 50% of K–12 students in the United States (Wang, 2020). This platform is widely believed to increase student engagement and enhance their understanding of course content (Wang, 2020). As noted by Cameron and Bizo (2019), Kahoot provides educators with a tool to create learning experiences that are fun, competitive, and memorable. However, despite its popularity, the effectiveness of Kahoot in significantly improving students' conceptual understanding still requires further empirical exploration, particularly in specific subject areas such as accounting and management education.

Although learning technologies such as Kahoot have increased student interactivity and motivation, research evaluating their impact on students' understanding of cost and management accounting concepts remains limited. Many previous studies do not employ robust research designs—such as pre-test and post-test methodologies—to measure learning effectiveness concretely and systematically. Moreover, despite Kahoot's widespread use in university settings, empirical evidence regarding its effectiveness in higher education, particularly in cost accounting, is still scarce. According to Putri et al. (2022), learning strategies that involve discussing practical problems in real-world business scenarios are essential to developing students' technical knowledge and critical thinking and reasoning skills. Similarly, Titisari and Wijayanti (2014) emphasize that practicum-based learning can enhance student motivation, which is closely tied to competence development in accounting education.

Therefore, this study aims to evaluate the effectiveness of practical learning and Kahoot as a learning aid in the Basic Cost Accounting and Management course. The study uses a pre-test and post-test approach to measure changes in students before and after learning in class using Kahoot. In addition, this study also measures the impact of interactive learning on students' understanding in answering practical questions that test the application of theoretical concepts in real scenarios. The material used in this study is An Introduction to Cost Terms and Purposes, which is the basis for understanding basic cost accounting and public management. This research is expected to provide academic and practical contributions to improving learning effectiveness in higher education, especially in cost accounting and essential management. With the pre-test and post-test approach, this study provides empirical evidence on how Kahoot can be effectively integrated into the curriculum to improve student learning.

Literature Review

Learning Technology

Technology-based learning makes the learning process more effective, interactive, and engaging (Zoebaidha, 2020). In addition to providing a more comfortable learning experience for students, technology also assists lecturers in delivering material and evaluating student understanding in greater detail, thanks to analytical features embedded in digital platforms (Saenkhut, 2019). The integration of technology in education continues to grow, with evidence showing that it enhances interactivity, student engagement, and motivation (Fernández & Jácome, 2016; Parra-González et al., 2020).

Grounded in Self-Determination Theory (SDT), educational technology can fulfil three fundamental psychological needs. First is autonomy, as students have more control over their learning process. Second is relatedness, where technology facilitates social interactions among students and lecturers. Moreover, competence is achieved through interactive tools that help students feel successful and effective in mastering learning materials (Ryan & Deci, 2017).

Conventional Collaborative Learning and Gamification

Gamification in education involves incorporating game-like elements to enhance student engagement and learning outcomes (Werbach & Hunter, 2012). Numerous studies have demonstrated that gamification increases intrinsic motivation, provides a fun and safe environment for experiential learning, and helps students build confidence when tackling academic content (Koivisto & Hamari, 2019; Groening & Binnewies, 2019; Xi & Hamari, 2019). While gamification can be applied with or without digital tools, technology greatly amplifies its effectiveness, enabling a more interactive and measurable learning experience (Huang & Hew, 2021).

Using Kahoot in Learning

Kahoot is a quiz-based interactive learning platform that has been widely used to increase student engagement and focus (Wang, 2020). The platform supports competitive and enjoyable classroom dynamics by providing immediate feedback, leaderboards, and post-quiz analytics. These features allow educators to assess student performance on easy, medium, and difficult questions in real time (Pérez-Manzano & Almela-Baeza, 2018). Moreover, Wang (2020) found that using Kahoot for pre-tests and post-tests significantly improves learning effectiveness, with 82.6% of students reporting enhanced understanding through these assessments.

Research Gap

Although numerous studies have explored the general benefits of gamification and the use of Kahoot in education, few have specifically investigated the combined impact of Kahoot and practicum-based learning in accounting education, particularly in foundational subjects like Basic Cost and Management Accounting. Prior research tends to focus either on theoretical learning engagement or the standalone use of gamified platforms (e.g., Koivisto & Hamari, 2019; Wang, 2020) without examining how integrating game-based tools with hands-on practicum models influences students' deep conceptual understanding and application of accounting principles. This study aims to fill that gap by evaluating the effectiveness of interactive Kahoot-based assessments and practicum methods in improving student comprehension and engagement in accounting courses.

Research Methods

This study uses a quantitative approach with a quasi-experimental design using a pre-test-post-test design without a control group. The quantitative approach is used to measure changes in student understanding through pre-test and post-test results and to evaluate the level of effectiveness of Kahoot-based learning through a questionnaire with closed questions and descriptive analysis.

This research design uses a pre-test-post-test, which aims to measure the effectiveness of the learning method based on practical questions and Kahoot in improving students' understanding of the concept of costs in the Basic Cost Accounting and Management course. In this design, students are given a pre-test before the learning session and a post-test after the learning session to determine whether there is an increase in understanding after a learning intervention.

This study's population was students taking the Basic Cost Accounting and Management course at one of the universities in Indonesia. The sample consisted of 32 students, 12 men and 20 women. The sampling technique used purposive sampling, namely, students who actively took the class during the research period.

Data were collected through:

1. Pre-test, post-test, and learning evaluation questionnaire. The pre-test was conducted before the learning session to measure students' initial understanding of the material An Introduction to Cost Terms and Purposes, while the post-test was conducted after the learning session to measure the increase in their understanding after being given Kahoot-based learning intervention and practice questions.
2. The pre-test and post-test questions have the same material coverage and level of difficulty but are arranged with variations to avoid memory effects.
3. The questionnaire was used to measure the level of student satisfaction with the learning method, consisting of 5 closed questions with a Likert scale (1 = Ineffective, 2 = Less Effective, 3 = Quite Effective, 4 = Effective, 5 = Very Effective), and one open question regarding suggestions for improving learning methods in the future.

Data were analyzed using inferential statistical tests and descriptive analysis. A paired Sample t-test was used to see the significant difference between pre-test and post-test scores, with a 95% confidence level ($\alpha = 0.05$) to determine whether there was a significant increase in understanding after learning. In addition, the questionnaire results were analyzed descriptively to measure the effectiveness of the learning method based on student perceptions, with data presentation in the form of average scores and frequency distributions. Student suggestions were analyzed qualitatively to gain insight into improving future learning methods. Overall, this study used a quantitative method with a quasi-experimental approach, combining pre-test, post-test, and questionnaire to evaluate the effectiveness of Kahoot-based learning in improving student understanding. The study's results will provide information on how this method can improve understanding of the material and how students assess its effectiveness in learning.

Result

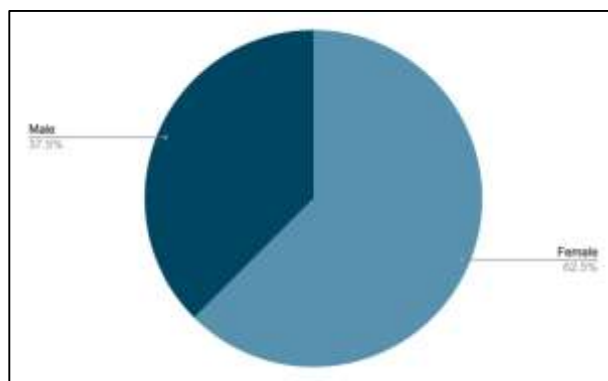


Figure 1. Respondent gender

Based on Figure 1 on the gender of respondents, this study involved 32 students taking the Basic Cost and Management Accounting course in class C, of the 32 students, the proportion of female students was 62.5% or 20 people, and the proportion of male students was 37.5% or 12 people.

Pre-test and post-test results

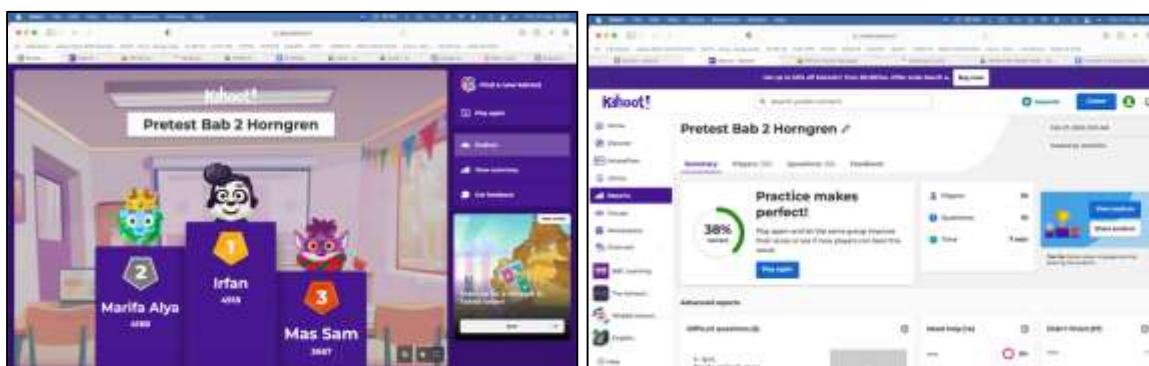


Figure 2. Pre-Test Result

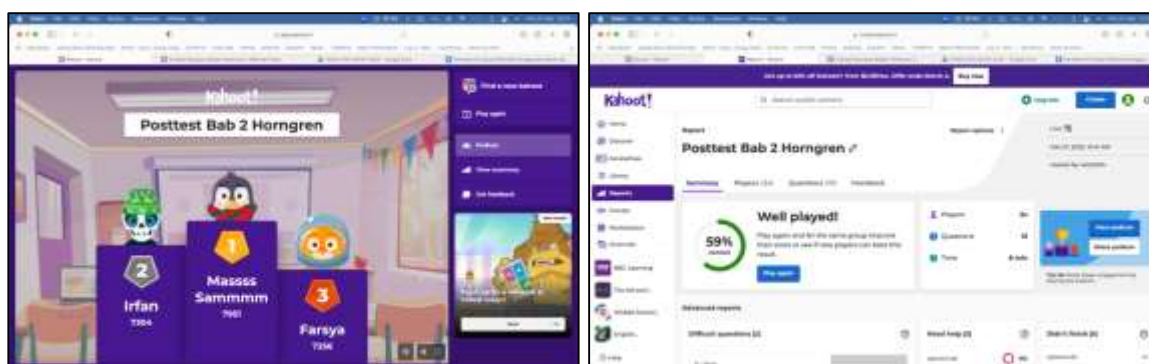


Figure 3. Post-Test Results

Figure 2 shows the results of the Horngren Chapter 2 pre-test conducted through the Kahoot platform. The highest score was obtained by Irfan, with 4918 points, followed by Marifa Alya, with 4168 points, and Mas Sam, with 3667 points. In addition, the overall report from the pre-test showed that the success rate of participants in answering questions was only 38%, indicating that students' initial understanding of the material still needs to be improved.

After the learning and practice session, students retok the Horngren Chapter 2 post-test through Kahoot. The results showed a significant increase in scores. In the first place, Mas Sam managed to get 7931 points, followed by Irfan with 7304 points, and Farsya with 7256 points. The post-test report showed an increase in the success rate to 59%, indicating increased understanding after the learning and practice sessions.

Based on comparing the pre-test and post-test results, the learning method used, including the Kahoot interactive platform, successfully improved students' understanding of the material. The increase in individual scores and the overall success percentage indicate that this approach is effective in helping students better understand the concepts in Horngren Chapter 2. To further improve the results, additional practice sessions or variations of other learning methods can be implemented to optimize student understanding.

Power Analysis Table						
	N ^b	Actual Power ^c	Power	Test Assumptions		
				Std. Dev. ^d	Effect Size	Sig.
Test for Mean Difference ^a	4	.723	.7	14.01	1.919	.05

a. Two-sided test.
b. Number of group pairs.
c. Based on noncentral t-distribution.
d. Standard deviation of the mean difference.

Figure 4. Results of the Paired Sample T Test Statistical Test

Based on Figure 4 regarding the results of the paired sample t-test statistical test, it is shown that there is an actual power of 72.3%; this study has a pretty good ability to detect fundamental differences, although it has not reached the recommended limit of 80%. The considerable effect size (1,919) indicates that the difference between the pre-test and post-test significantly impacts the learning intervention on the pre-test and post-test results.

Practical Questions Learning

Tugas Individu

◆ **Jalan Singkat**

Lalu, sebuah perusahaan yang memiliki transaksi sebagai berikut:

- Biaya tenaga dan tenaga yang dijual di departemen produk Lulu
- Perawatan komputer yang digunakan untuk memperbaiki situs webnya
- Perawatan komputer yang digunakan untuk pengujian kualitas komponen-komponen dalam sistem proses produksi
- Gaji untuk personel pemasaran yang mempromosikan kampanye iklan koran lokal
- Biaya untuk membeli air minum untuk dikonsumsi oleh insinyur pemasaran lokalnya.

Instruksi:

Klasifikasikan setiap transaksi (a-e) sebagai *inventoriable cost* atau *period cost*. Sertakan alasannya!

◆ **Essay**

- PT Asgita memproduksi tiga produk rumah berbeda yaitu Tula, Yajota, dan Dalatana. Setiap produk memiliki jalur produksi sendiri di pabrik tersebut. Berikut informasi untuk Agustus 2023 adalah sebagai berikut:

	Tula	Yajota	Dalatana
Direct material costs	\$80	\$60	\$25
Direct manufacturing labor costs	\$20	\$23	\$10
Manufacturing overhead costs	\$40	\$70	\$23
Unit yang dihasilkan	125	150	140

Instruksi:

Hitunglah manufacturing cost per unit untuk setiap produk yang dihasilkan pada Agustus 2023.

- PT Rasia Heaters memiliki data-data biaya untuk September 2023 sebagai berikut:

Direct materials inventory 01/09/2023	\$143
Pembelian Direct materials	\$432
Penggunaan Direct materials	\$365
Total manufacturing overhead costs	\$475
Finished manufacturing overhead costs	\$267

Total manufacturing costs incurred selama September 2023	\$1,610
Work-in-process inventory 01/09/2023	\$235
Cost of goods manufactured	\$1,285
Finished goods inventory 01/09/2023	\$130
Cost of goods sold	\$1,770

Instruksi:

Hitunglah biaya-biaya berikut ini:

- Direct materials inventory 31/09/2023
- Fixed manufacturing overhead cost untuk September 2023
- Direct manufacturing labor cost untuk September 2023
- Work-in-process inventory 31/09/2023
- Cost of finished goods tersedia untuk dijual pada September 2023

- Selama bulan Desember 2023, PT CATs memiliki detail informasi sebagai berikut:

Direct materials Inventory 30/11/2023	Rp. 22.000
Direct materials Inventory 31/12/2023	Rp. 26.000
Pembelian Direct Materials	Rp. 75.000
Work in process 30/11/2023	Rp. 21.000
Work in process 31/12/2023	Rp. 20.000
Finished goods 30/11/2023	Rp. 18.000
Finished goods 31/12/2023	Rp. 23.000
Direct Manufacturing Labor	Rp. 25.000
Indirect Manufacturing Labor	Rp. 15.000

Instruksi:

- Buatlah *schedule cost of goods manufactured* untuk bulan Desember 2023!
- Hitunglah *prime cost* dan *conversion cost* atas produksi PT CATs pada bulan Desember 2023!

Figure 5. Practical Questions in Learning

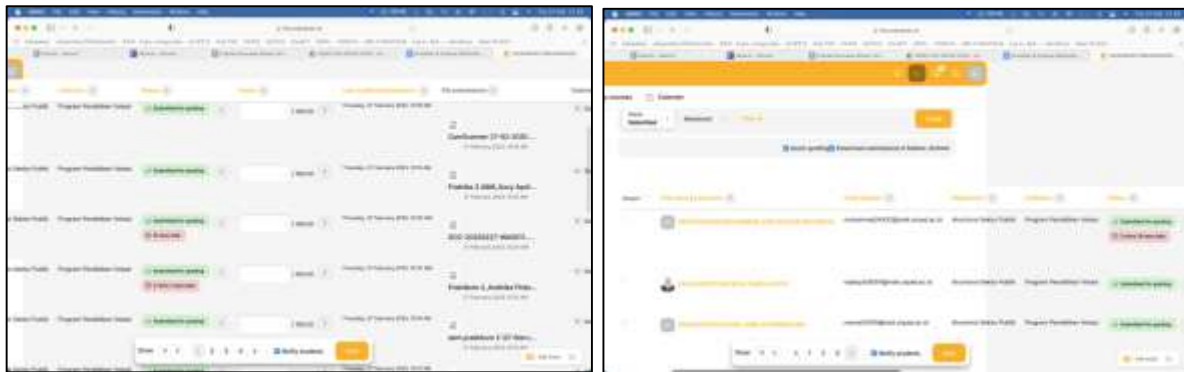


Figure 6. Collection of Practical Assignments

Based on Figure 5, the types of practical questions carried out in learning are in the form of 5 short answer questions and 3 essay questions with calculation answers related to the classification of inventory costs or period costs and an understanding of the calculation of production costs, manufacturing costs per unit and the value of inventory cost of goods manufactured. These questions are designed to increase the relevance of learning to real-world business practices. Meanwhile, Figure 6 shows a container for collecting practical assignments on the campus learning platform called live unpaid; most students collect assignments before the assignment deadline, while others are constrained by the network so that they are submitted late within 1-5 minutes.

The learning method based on practice and collected directly can improve critical thinking skills and implement real theoretical learning that students already know, which can improve the practical skills needed in the world of work.

Student questionnaire results



Figure 7. Student Understanding After Learning

Based on the survey results in Figure 7, most students felt that they understood the material An Introduction to Cost Terms and Purpose after participating in the learning. As many as 62.5% of students gave a score of 4, indicating that they felt they understood the material taught quite well, while 18.8% gave a score of 5, meaning they understood the material very well. Only 18.8% of students gave a score of 3, indicating that

their understanding was still sufficient but not optimal. No students scored 1 or 2, meaning that no students had extreme difficulty understanding the material after the learning session.



Figure 8. Effectiveness of Pre-test and Post-test in Measuring Understanding

Figure 8 shows that most students feel that using pre-tests and post-tests is very helpful in measuring their understanding of the material being taught. As many as 56.3% of students gave a score of 5 (very effective), while 31.3% gave a score of 4 (adequate), which shows that this method is considered quite good in helping to reflect on their understanding. However, 9.4% of students gave a score of 3 and 3.1% gave a score of 2, which shows that there are still a small number of students who feel that the pre-test and post-test are less effective in measuring their understanding.



Figure 9. Effectiveness of Interactive Learning Using Kahoot

Figure 9 explains that the interactive learning method using Kahoot received a positive response from students. As many as 53.1% of students scored 5, indicating that they strongly agree that Kahoot helps understand concepts better than other learning methods. In addition, 21.9% gave a score of 4, meaning this method is quite effective. However, 15.6% gave a score of 3 and 9.4% gave a 2, indicating that some students feel this interactive learning has not fully helped them understand the concepts taught.

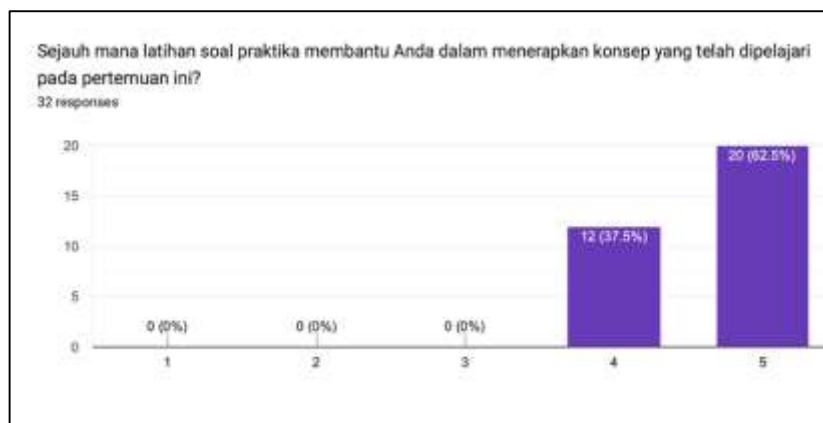


Figure 10. The Influence of Practical Exercise Questions on Concept Understanding

Based on Figure 10, the practical exercises benefit students in applying the concepts they have learned. As many as 62.5% of students scored 5, indicating that the practical exercises improve their understanding. As many as 37.5% gave a score of 4, which means that most students feel that these practical exercises are pretty helpful for them in understanding and applying the material that has been taught. No students scored below 4, indicating that practical exercises are a very effective method of supporting learning.

Overall, the questionnaire results showed that the learning methods applied, including the use of Kahoot, pre-test-post-test, and practice questions, were considered adequate by most students. However, there were several inputs related to improving the effectiveness of learning, such as the speed of explanation, variation of methods, and distribution of learning materials after class sessions.

Based on learning suggestions from the results of the open questionnaire given by students, students expressed that the speed of explanation of the material in lectures still needed to be adjusted, especially in the practical part. Some students felt the material was taught too quickly and had difficulty understanding the in-depth concepts. Therefore, they hope that the explanation can be done more slowly, especially in the practical session, which requires a deep understanding of the application of concepts. With additional time for discussion, students will find it easier to absorb the material and understand the steps in working on the questions better.

In addition, interactive-based learning methods such as Kahoot! are very popular with students because they increase their involvement in learning. However, they suggested that the questions and correct answers be shared on the Live UNPAD platform or WhatsApp group so that they can review the material independently. Students also hope that there will be more variations in learning methods so that the classroom atmosphere is not monotonous and to maintain ice breaking so that lectures remain fun and not dull. In addition, they want more practice questions and case examples that can help them understand the application of the material more clearly and contextually.

Regarding the time to work on the practical questions, students feel that the duration is sometimes too short, so they have difficulty completing them optimally. They hope there will be additional time so they do not feel rushed when doing the exercises. In addition, some students also have difficulty understanding the terms in English, so they propose additional or alternative explanations in Indonesian to facilitate understanding.

Meanwhile, regarding the workload, some students feel that the number of assignments given is quite a lot and hope that the assignments can be reduced or given in stages. Overall, students consider that the learning methods used are interactive and fun, with Kahoot as one of the effective media in improving their understanding of the material. They hope that future learning can further help them understand and master the concepts taught better.

Conclusion

This study shows that the use of interactive learning methods based on Kahoot and practice questions in the Cost Accounting and Basic Management course has a positive impact on students' understanding. The results of the Paired Sample t-Test statistical test showed a significant increase in students' understanding after being given a learning intervention. The increased pre-test and post-test scores and the effectiveness measured through power analysis indicate that this method can be used as an effective learning strategy. In addition, the results of the questionnaire showed that the majority of students felt helped by this method, especially in increasing engagement, conceptual understanding, and motivation in learning.

Although this method is effective overall, several challenges still face its implementation. Several students expressed that the speed of explaining the material needs to be improved, especially in the practicum session, which requires a deeper understanding. In addition, there are still students who feel that the time to work on the questions is too short, so they have difficulty completing assignments optimally. The language factor is also an obstacle for some students in understanding English terms. Therefore, adjustments and improvements are needed to further increase the effectiveness of this method.

Research Limitations

This research can still be developed further by adding a control group so that the pre-test-post-test results can be compared with groups that do not use Kahoot!-based learning methods. In addition, this research can be expanded with a larger sample and include several classes to increase the validity of the results. Improvements can also be made in terms of delivering the material by providing more discussion time or using simpler language to improve students' understanding of complex concepts. In addition, further researchers can explore the use of other technologies besides Kahoot!, such as Quizizz or Mentimeter, to see if there are more effective methods for improving students' understanding.

Reference

- Bruno, A. (2014, March). Best practices in education. Retrieved from http://ctserc.org/s/index.php?option=com_content&view=section&id=8&Itemid=28
- Cameron, Kristie E. & Bizo, Lewis A. (2019). Use of the Game-Based Learning Platform KAHOOT! To Facilitate Learner Engagement in Animal Science Students. *Research in Learning Technology*, 27, 1-14
- David, L., & Weinstein, N. (2024). Using technology to make learning fun: technology use is best made fun and challenging to optimize intrinsic motivation and engagement. *European Journal of Psychology of Education*, 39(2), 1441-1463.
- Huang, B., & Hew, K. F. (2021). Using gamification to design courses. *Educational Technology & Society*, 24(1), 44-63.
- Icard, S. B. (2014). Educational technology best practices. *International Journal of Instructional Technology and Distance Learning*. 11(3), 37-41. Retrieved from http://itdl.org/Journal/Mar_14/Mar14.pdf#page=41

-
- Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management*, 45, 191-210.
- Putri, S. F., Nanda, H. I., Luthfiani, A. D., & Fauzan, S. (2022). Edu-Tax21: Integrasi Program Pembelajaran Pajak dengan Keterampilan TIK di Perguruan Tinggi. *Ekuitas: Jurnal Pendidikan Ekonomi*, 10(2), 382-391.
- Pérez-Manzano, A., & Almela-Baeza, J. (2018). Gamification and transmedia for scientific promotion and for encouraging scientific careers in adolescents. *Comunicar: Media Education Research Journal*, 26(55), 93-103.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860.
- Samboteng, L., Nadeak, B., Razati, G., Abidin, A. Z., & Rachman, R. S. (2023). The Effectiveness of Pre-test and Post-test Using Kahoot in Increasing Students' Attention. *Al-Ishlah: Jurnal Pendidikan*, 15(1), 203-210.
- Titisari, K. H., & Wijayanti, A. (2014). Model Pembelajaran Praktikum Akuntansi untuk Meningkatkan Aktivitas Belajar Mahasiswa. *Model Pembelajaran Praktikum Akuntansi untuk Meningkatkan Aktivitas Belajar Mahasiswa*.
- Wang, A. I., & Tahir, R. (2020). The effect of using Kahoot for learning—A literature review. *Computers & Education*, 149, 103818.
- Werbach, K., & Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Wharton Digital Press.
- Zainuddin, Z., Chu, S. K. W., Shujahat, M., & Perera, C. J. (2020). The impact of gamification on learning and instruction: A systematic review of empirical evidence. *Educational Research Review*, 30, 100326.
- Zoebaidha, S. (2020). Penggunaan media prezi dan kahoot serta pemberian reward sebagai upaya meningkatkan hasil belajar akuntansi. *Kwangsan: Jurnal Teknologi Pendidikan*, 8(2), 213-233.