The Effectiveness of Technology-Based Accounting Learning Using The Problem-Based Learning Method

Aditya Hermawan[*]

Institut Teknologi dan Bisnis ASIA Malang
*Corresponding author. Email: adityahermawan82@gmail.com

ABSTRACT

This study aims to determine the effectiveness of technology-based accounting learning using the Problem Based Learning (PBL) method. The effectiveness of technology-based accounting learning is seen from the aspects of participant activities in learning, learning participant activities and the results obtained by learning participants. The entire population in this study is students in accounting study programs in various Higher Teaching in the city of Malang totaling 142 people. Data collection techniques use observation and documentation. The results showed that technology-based accounting learning using the Problem Based Learning (PBL) method is effective in improving skills in accounting.

Keywords: Accounting Learning, Problem Based Learning, Learning Effectiveness.

1. INTRODUCTION

Technology-based accounting, or often referred to as "financial technology" (financial technology or fintech), refers to the integration of information and communication technology (ICT) in accounting practices to improve efficiency, speed, and accuracy in managing financial information. It involves the application of various technologies including accounting software, cloud computing, data analytics, artificial intelligence, and blockchain technology (Mutiara, Yulaini, Aradea, 2021).

Technology-based accounting brings about a major transformation in the way companies and accounting professionals manage financial information. This not only increases productivity and accuracy, but also opens up new opportunities for deeper data analysis and better decision-making in a business context.

Technology-based accounting has a close relationship with accounting learning because it changes the way we understand, teach, and apply accounting concepts. Accounting learning in learning institutions integrates technology into the curriculum to prepare students with relevant skills in the digital era (Harahap, 2019; Kurniati, Sugiharti, Mardiani, 2023; Pearl, Yulaini, Aradea, 2021). Technology allows easy access to digital learning resources such as e-books, video tutorials, simulations, and downloadable accounting software.

Accounting learning can be increased through the use of technology-based simulations that simulate real business situations. Technology facilitates collaboration between students and teachers in different geographical locations through online learning platforms (Chyntia, Andirfa, PG, 2021; Harahap, 2019; Pearl, Yulaini, Aradea, 2021).

Thus, technology-based accounting opens up new opportunities in accounting learning by utilizing technological sophistication to increase effectiveness, accessibility, and depth of understanding of accounting concepts (Chyntia, Andirfa, PG, 2021; Haryani, Ahmad, Aradea, 2021; Pearl, Yulaini, Aradea, 2021). This helps prepare students and accounting professionals for success in an increasingly connected and changing business environment.

Accounting learning in Indonesia refers to a learning system that prepares individuals to understand and master accounting concepts, principles, and techniques, as well as to develop the skills needed to work in accounting and finance (Chyntia, Andirfa, PG, 2021; Haryani, Ahmad, Aradea, 2021; Pearl, Yulaini, Aradea, 2021).

Accounting learning in Indonesia continues to grow in line with the demands of an increasingly complex job market and changes in global accounting standards. These programs aim to produce graduates who are ready to contribute professionally in various sectors of the economy, whether in private companies, governments, or non-profit institutions.

2. RESEARCH METHODS

In this study, the indicators used were the activities of teachers in learning, the activities of learning participants and the results obtained by learning participants. The entire population in this study is students in accounting study

programs in various Higher Teaching in the city of Malang totaling 142 people. Data collection techniques use observation and documentation. Data collection in this study uses data pooling which uses data sets from various sources.

Data collection techniques in this study are observation and documentation. In the observation technique, to calculate the average obtained from the observed indicators. After obtaining the score, the following criteria are given:

Table 1 Observation Score Criteria

Final Score	Score Criteria
80 – 100%	Highly Effective
60 – 79%	Effective
40 – 59%	Quite Effective
20 – 39%	Less Effective
0 – 19%	Ineffective

Source: Data processed

In the documentation technique, the test results given by the teacher of the accounting computer subject at the end of each study for three studies are analyzed (checked and scored) to determine the level of achievement of learning outcomes of learning participants. After being scored, the following criteria are given.

Table 2 Formative Test Score Criteria

Final Score	Score Criteria
80 – 100	Excellent
65 – 79	Good
50 – 64	Good enough
30 – 49	Not Good
0-29	Bad

Source: Data processed

Next, the final test scores of learners that have been converted into values in the range 0–100 are summed to be calculated by the average formula:

$$\text{Final Value} = \frac{\text{Number of Scores obtained}}{\text{Number of Learning Participants}} \times 100\%$$

3. RESULTS AND DISCUSSION

The following is data from observations of participants' activities in learning

Table 3 Learning Test Score Criteria

Activity	Final Score	Score Criteria
Pre Learning	78,34%	Good
Mastery of Learning Materials	82,17%	Excellent
Learning Strategy Approach	87,65%	Excellent
Learning that engages Learning Participants	92,44%	Excellent
Utilization of Learning Media	91,87%	Excellent
Average	86,49%	Excellent

Source: Data processed

Table 3 above shows the results of observations of participants' activities in learning activities. Based on the results of Table 3 on teacher activities in learning activities, the Pre-Learning activities show the Good category with a percentage of 78.34% which indicates that the Pre-Learning activities reach an adequate or satisfactory level of quality, with the potential to continue to be improved. The Mastery of Learning Material shows the Very Good category with

a percentage of 82.17% indicating that the subject has a very good understanding of the learning material taught, with a strong ability to understand and master the concepts taught. This reflects the quality of effective and successful learning for the subject. The Learning Strategy Approach activity showed a Very Good category with a percentage of 87.65% which indicates that the approaches and strategies used in learning succeeded in achieving the goals very well. This high level of achievement demonstrates the effectiveness of learning strategies in facilitating efficient student understanding and engagement. In Learning involving Learning Participants shows the Very Good category with a percentage of 92.44% which shows that learning participants are actively involved and participate well in the learning process. This high level of engagement can strengthen learning effectiveness, increase student understanding, and create an interactive and dynamic learning environment. For the Utilization of Learning Media shows the Very Good category with an average percentage of 91.87% which shows that the use of learning media in the learning process is very effective. Good use of learning media can improve the quality of learning, help students understand the material better, and create a more engaging and interactive learning experience. Meanwhile, the average score of the final activity shows the Very Good category with an average percentage of 86.49% which indicates that students or participants of the final activity achieved excellent achievements in the final assessment or evaluation of the activity. A high percentage indicates a high level of quality in the end result of the activity, signifying success in understanding the material or achieving the learning objectives that have been set.

The results of observations of participants' activities in learning activities at each meeting can be seen in table 4 below.

Table 4 Participant Activities in Learning

Meeting	Final Score	Score Criteria
1st Meeting	77,12%	Good
2nd Meeting	79,82%	Good
3rd Meeting	81,02%	Excellent
4th Meeting	86,21%	Excellent
5th Meeting	87,16%	Excellent
Average	82,27%	Excellent

Source: Data processed

The results of observations of participant activities in accounting learning activities at the first meeting showed that participant activities were included in the good category, with a percentage of 77.12% which showed that participant activities at the first meeting reached an adequate or satisfactory level. Although the level of achievement is quite good, there is still room for improvement so that participating activities can be more effective and have a positive impact on the learning process. The second meeting was included in the good category, with a percentage of 79.82% which showed the teacher's efforts in improving the quality and effectiveness of participating activities. Although the assessment is good, there is still room for improvement to achieve a higher level of participant activity at the next meeting. Similarly, the third meeting was included in the very good category, with a percentage of 81.02% which showed continuous efforts from teachers in improving the quality of learning and interaction with learning participants. This high level of achievement reflects good teaching effectiveness and engagement in the learning process. Even though it is already in the "Very Good" category, teachers can still continue to identify areas for improvement in order to achieve higher standards in teaching activities. Furthermore, the fourth meeting was included in the very good category with a percentage of 86.21% which showed a significant increase in the quality of participant activities from the previous meeting (81.02%). This improvement reflects the ability of teachers to adjust and improve the learning approach and the effectiveness of interaction with learning participants. The fifth meeting was included in the very good category with a percentage of 87.16% which showed consistency and continuous improvement in the quality of participant activities from the previous meeting (86.21%). This improvement reflects the ability of teachers to maintain and improve the effectiveness of learning strategies. Based on the results of the recapitulation of data from observations of participants' activities in learning, it was found that technology-based accounting learning with the Problem-based Learning method can be said to be very effective with an average percentage of 82.27%. This can be seen from the average percentage of 82.27%. This high percentage reflects the successful use of technology and problem-based learning approaches in producing good results in the accounting learning process.

The results of observations on the activities of learning participants in learning in the accounting computer laboratory are as follows

Table 5 Participant Activities in Learning

Meeting	Final Score	Score Criteria
1st Meeting	72,15%	Good
2nd Meeting	74,67%	Good
3rd Meeting	78,09%	Good
4th Meeting	80,43%	Excellent
5th Meeting	82,97%	Excellent
Average	77,62%	Good

Source: Data processed

The results of observations of participant activities in accounting learning activities at the first meeting showed that participant activities were included in the good category, namely with a percentage of 72.15% which showed an adequate level of involvement of participants in the learning process at the meeting. The second meeting was included in the good category, with a percentage of 74.67% which shows that most participants have engaged in learning activities well, but there is potential to increase interaction, understanding, and contribution of participants in the learning process. Teachers may consider using a more interactive approach, such as group discussions, case studies, or the use of technology to increase participant engagement. Similarly, the third meeting was included in the good category, with a percentage of 78.09% which shows that most participants are engaged in learning activities well, but there is room for improvement in participant interaction and contribution. Teachers can continue to develop more interactive and engaging learning approaches, such as the use of case studies, group discussions, or simulations. By increasing participant participation, learning can be more effective and have an impact on understanding and mastery of the material. Continuous evaluation of participant activity and response to individual needs will help improve the learning experience in future meetings. Next in the fourth meeting included the very good category with a percentage of 80.43% which showed that most participants were actively involved in learning activities, which contributed to the effectiveness and success of learning. Even though it is already in the "Very Good" category, teachers can continue to strive to improve the quality of interaction and participant contributions by using more innovative and interactive learning strategies. Increased participant engagement in learning can improve understanding and mastery of the material, as well as create a more dynamic and meaningful learning environment for participants. The fifth meeting was included in the very good category with a percentage of 82.97% which showed a significant increase from previous meetings (80.43%), which showed better participant involvement and participation in the learning process. The percentage reflects a high level of quality in participant engagement in learning, which contributes to the overall effectiveness of learning. This increase can be attributed to the teacher's efforts in implementing interactive learning strategies and supporting active participant participation. Based on the results of the recapitulation of data from observations of participants' activities in learning, it was found that technology-based accounting learning with the Problem-based Learning method can be said to be effective with an average percentage of 77.62%. Reflecting a good success rate in learning, there is still room for improvement to reach higher levels. The effectiveness of this learning can be attributed to the use of technology in supporting the learning process, such as the use of accounting software or other online tools, as well as the application of Problem Based Learning methods that encourage active problem solving by participants.

The learning outcomes of learning participants are indicators of effectiveness in learning. The scores of learning participants through tests given by teachers are presented in the frequency distribution list as follows:

Table 6 List of Distribution of Technology-Based Accounting Learning Test Scores

Score	Test Score 1	Test Score 2	Test Score 3	Average	Score Criteria
80 – 100	87,62	84,33	91,82	82,92	Excellent
65 – 79	77,68	75,68	78,16	77,16	Good
50 – 64	0	0	0	0	Good enough
30 – 49	0	0	0	0	Not Good
0-29	0	0	0	0	Bad
Rata-Rata	82,65	82,01	84,99	80,02	

Source: Data processed

From the table above, it can be seen that the scores of learning participants in the first test are categorized as Very Good with an average score of 82.65 which shows that most participants have succeeded well in mastering the material

tested in the first test. A score that reaches the "Excellent" category indicates a strong level of understanding and mastery of the learning material. An average score of 82.65 indicates that most participants have achieved a satisfactory level of achievement in the first test. However, this evaluation can also be used as reflection material to identify areas that still need to be improved or improved in future learning. The second test was also categorized as Good with an average score of 82.01 which shows that there is room for improvement in understanding and mastery of the material. An average score of 82.01 indicates that most participants have been able to master most of the material tested in the second test. This evaluation can be used to evaluate the effectiveness of learning and identify areas that need improvement or improvement in the learning process. And in the third test it was categorized very well with an average score of 84.99 which showed that participants had succeeded very well in mastering the learning material. An average score of 84.99 indicates an improvement in understanding and mastery of the material from the previous test. These outcomes reflect the effectiveness of learning and the progress of participants in achieving learning objectives. The final average score on the distribution list of technology-based accounting learning test scores was 80.02. The average score reflects good quality in the final results of the learning test. Although an average score of 80.02 can be considered satisfactory, there are variations in participants' achievements that need to be further evaluated. Teachers can use this information to evaluate learning effectiveness and identify areas for improvement or improvement in the curriculum or learning method.

4. CONCLUSION

The conclusion of the evaluation results presented is that the final activity in accounting learning showed excellent achievement with an average percentage of 86.49%, reflecting a high level of quality in the final results of the activity. This high percentage indicates success in understanding the material or achieving the learning objectives that have been set. This indicates that the participants of the final activity as a whole have achieved good standards in the final assessment or evaluation of the activity.

In addition, the results of the recapitulation of observation data on participants' activities in technology-based accounting learning with the Problem Based Learning method showed that this learning was very effective with an average percentage of 82.27%. The successful use of technology and problem-based learning approaches in the accounting learning process is reflected in this high percentage. This shows that this approach works to produce good results in facilitating the understanding and mastery of accounting material.

However, the evaluation of the learning also shows that there is still room for improvement, as reflected by the average percentage of 77.62% in technology-based accounting learning with the Problem Based Learning method. While the effectiveness of this learning is quite good, there is an opportunity to reach higher levels through adjustment of learning strategies and continuous evaluation of participants' needs. This evaluation can help teachers evaluate learning effectiveness, identify areas that need improvement, and develop more effective strategies to achieve optimal results in technology-based accounting learning.

REFERENCES

Chyntia, Eka; Andirfa, Mulia; PG, Eko Gani (2021). Efektivitas Pembelajaran Daring Pada Program Studi Akuntansi Selama Pandemi Covid-19 Di Kota Lhokseumawe, Jurnal Pendidikan Ekonomi dan Kewirausahaan, 4(2), 71-76. http://dx.doi.org/10.24014/ekl.v4i2.14709

Haryani, E., Ahmad, S., & Aradea, R. (2021). Analisis Faktor-Faktor Penyebab Rendahnya Daya Serap Siswa pada Pelajaran Akuntansi. Journal of Education Research, 2(2), 82–88. https://doi.org/10.37985/jer.v2i2.51

Harahap, S. H. (2019). Analisis Pembelajaran Sistem Akuntansi Menggunakan Draw.Io Sebagai Perancangan Diagram Alir. Prosiding Seminar Nasional Multidisiplin Ilmu Universitas Asahan 2018 https://doi.org/10.31227/osf.io/nj5cx

Kurniati, Fitrina; Sugiharti, Harpa; Mardiani, Rika. (2023). Eduval: Virtual Accounting Learning sebagai Digitalisasi Media Pembelajaran dalam Proses Pembelajaran Akuntansi. Jurnal Pendidikan Akuntansi dan Keuangan, 11(1), 33–40. https://doi.org/10.17509/jpak.v11i1.53926

Mutiara, N. A. A., Yulaini, E., & Aradea, R. (2021). Analisis Kemampuan Siswa dalam Menyelesaikan Soal-Soal Persediaan Metode Fifo, Lifo dan Moving Average Mata Pelajaran Akuntansi Keuangan. Journal of Education Research, 2(2), 69–73. https://doi.org/10.37985/jer.v2i2.49

Mulyani, Heni; Purnamasari, Imas; Rahmawati, Fuji (2019). Analisis Kesiapan Mengajar Program Pengalaman Lapangan Mahasiswa Pendidikan Akuntansi Melalui Pembelajaran Mikro. Jurnal Pendidikan Akuntansi dan Keuangan. 7(2). https://doi.org/10.17509/jpak.v7i2.18086

Salsabella, Dhea Clara and Pujiati, P and Fanni Rahmawati, Fanni (2022) Analisis Kebutuhan Pengembangan Media Pembelajaran Interaktif Dalam Upaya Meningkatkan Kompetensi Akuntansi. Economic Education And Entrepreneurship Journal, 5 (1). 35-43. http://dx.doi.org/10.23960/E3J/v5i1.35-43

Yogi, N. D. M., Mardi, M., & Pratama, A. (2023). Pengembangan Pembelajaran Daring dan Media Online terhadap Kemandirian Belajar yang Dimediasi Motivasi Belajar Siswa SMA. Journal of Education Research, 4(3), 1101–1118. https://doi.org/10.37985/jer.v4i3.304