

Applying Blended Problem-Based Learning in Accounting Learning in Higher Education; Optimizing the Utilization of Social Media for Learning

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Applying Blended Problem-Based Learning in Accounting Learning in Higher Education; Optimizing the Utilization of Social Media for Learning

Abstract—This study aims to examine the implementation of blended problem-based learning in introductory courses on accounting in order to improve students' critical and creative thinking skills and student learning outcomes. The research design carried out is classroom action research (CAR). The object in this study is Accounting Education students at the Faculty of Economics, Semarang State University. The research was conducted in September-October 2019. The procedure for carrying out CAR consists of planning, implementing, observing and reflecting. CAR is implemented in two cycles. The research data has been gathered using documentation, observation and testing. For data analysis, quantitative and qualitative descriptive methods are used. The researchers have carried out two cycles with each cycle consisting of two lecture meetings. In the first cycle, researchers used Google classroom, mind mapping, online quizzes, and Instagram social media to improve interaction and the quality of lectures by applying blended problem-based learning. Researchers focused on improving students' critical and creative thinking skills in the first cycle. The results showed that the students have good critical and creative thinking skills. In the second cycle, researchers still continued to use Google classroom and combined it with face-to-face lectures using "make a note" assignments and group discussions. Researchers took quantitative measurements to see the success of the treatment. The results showed that students were able to obtain better grades than before being given the treatment.

Keywords— blended learning, problem-based learning, blended problem-based learning, social media, accounting learning

1 Introduction

The use of information technology in the learning process has led to blended learning approaches to be increasingly used in tertiary education around the world [1]. [2] states the increasing interest of educators in implementing blended learning is because it can combine variations of face-to-face learning and online learning. Nevertheless, there are challenges in implementing blended learning, including costs, intellectual property rights, initial conceptions and perceptions, and the practice of blended learning itself. [3] and [4] state the use of information technology in the learning process will facilitate students accessing educational products and services.

Blended learning is very useful for the learning process. Blended learning provides enormous flexibility for students when they study [5]. [6] argue that blended learning

strongly ¹²ports active and meaningful learning. [7] states that "blended learning facilitates the inclusion of online students, enhancing the financial viability of study abroad courses and programs".

Many researchers have demonstrated the application of blended learning in studying economics, accounting, and business. [8] successfully implemented blended learning in property education. He also believes that blended learning can be applied to other material. Likewise, with [7] who utilize online learning for international students. [1] found positive outcomes from the application of blended learning, namely increased conceptual understanding, confidence in learning, and metacognitive reflection upon student learning. [9] succeeded in utilizing an online learning environment (OLE) to improve the ability of students to make presentations in Hong Kong. [10] applied micro lectures as the most effective model of blended learning. The results showed that most students were satisfied with the learning.

¹ Social media can also be used to support learning. [11] found positive results from educators and students who wanted to use mobile devices and social media applications for teaching and learning purposes. Likewise, [12] show that students feel added value when using social media to carry out academic activities. [13], [14], and [15] show that not many lecturers at the Faculty of Economics, Semarang State University (FE UNNES), utilize information technology in lectures. Although [13] have shown the use of WhatsApp (an instant messaging app) for business English learning. [15] provide examples of the use of social media in accounting learning, such as YouTube, Instagram, Facebook, and instant messaging (WhatsApp, Telegram).

This research seeks to develop blended learning in accounting learning in tertiary institutions. The emphasis of blended learning in this study is the use of social media as learning media. The learning method used is problem-based learning (PBL). The PBL method is considered to be in accordance with the characteristics of accounting learning. [16] have developed a learning module based on the PBL approach in learning accounting education research methodologies.

Bearing this background in mind, the formulation of the problem that will be examined in this study is with regard to how blended-problem based learning is applied in accounting learning. It is very important for the application of blended-problem based learning in accounting learning to be developed now. It is hoped that the development PBL-based learning media will produce media that can be applied in lectures so as to improve the quality of the lecture process. In the end, students will be able to obtain better learning outcomes. The use of social media also needs to be implemented in the learning process because students use it very often.

¹¹

2 Literature Review

2.1 The Concept of Blended Learning

⁹ Blended learning is a combination of face-to-face learning experiences, such as on campus ¹¹assroom contacts, and online learning experiences [5]. [4] proposed a time-based blended learning model, which combines synchronous elements (face-to-face

meetings, video conferences, chats, webinars) with several asynchronous elements (reading, assignments, taking notes, asynchronous research, discussions, and collaboration). [17] argue that blended learning is a supplementary resource that complements traditional teaching. In blended learning, technology is used and student interaction is very high because it is a student-centered approach.

There are many advantages of using blended learning, including its potential to be transformative, to offer opportunities for institutions to develop technology, to enhance thinking skills in the community, and strongly support active and meaningful learning [6]. In addition, blended learning can increase the flexibility of access to learning, meaning that distance is not an obstacle to keep students from participating in learning [5].

2.2 The Concept of Problem Based Learning

Problem based learning (PBL) was first introduced by Barrows and Tamblyn in 1995 in an effort to improve medical education. They stressed that PBL was interpreted as an effort to invite students to think and solve problems in real-life situations. PBL was designed to train health students how to assess and solve clinical problems through systematic learning activities to develop their clinical responses and reasoning. PBL is also known as problem-oriented learning [18]. There are several variations in the application of PBL. Aside from PBL, there is self-directed PBL and small-group PBL [19]. PBL can be applied in hybrid, blended, or online learning concepts [20].

PBL has been widely applied in the learning process in various fields, including business and economics. [21] implemented PBL in entrepreneurial learning and stated that PBL is a very effective method. The experience gained by students was more realistic and relevant. [22] found there to be a positive effect of implementing PBL in learning logistics and supply chain management (LSCM). [23]'s research (2018) indicates that PBL is an effective complementary method in Lean manufacturing. PBL can expose students to actual problems. Likewise, [19] also successfully implemented PBL. It has positive implications because it can integrate theory and practice and is able to increase management students' motivation to learn.

2.3 Utilization of Social Media for Learning

[24] mentioned various forms of social media technology (SMT), namely blogs, wikis, google apps, image sharing, social bookmarking, social networking, social news sites, VOIP and instant messaging, do-it-yourself networks, file sharing, video sharing, location-based applications, and microblogs. Meanwhile, [25] divided SMTs into text-based, media sharing, social networking, mobile-based applications, virtual worlds and games, synchronous communication, and conferencing applications and mash-ups.

[26] states that social learning is very concerned with the use of social media in learning. Social media technology is part of the routine of modern society in various ways, including support and even the replacement of software specifically designed for the acquisition and sharing of knowledge [27]. [28] revealed that the adoption of the use of social media and the web in business and economic learning is considered to be

very slow. Technology-based learning is only used as a support for face-to-face learning.

2.4 Development of Blended Problem-Based Learning in Accounting Learning; Optimizing the Use of Social Media for Learning

Blended learning can be practiced in accounting learning in tertiary institutions. The combination of online learning with face-to-face learning results in a more interactive lecture approach. UNNES has implemented e-learning (E-LENA) over the last 8 years. However, in practice, not many FE UNNES lecturers make good use of these features to support classroom learning. Some of the reasons that emerged include the difficulty lecturers face in applying various features in of E-LENA, the considerable amount of time needed to utilize E-LENA, and lecturers finding it easier and more practical to apply face-to-face learning.

This study aims to design and apply accounting learning that utilizes blended learning and PBL approaches. The researchers call this blended problem-based learning. They also increased the use of social media to support the successful implementation of blended learning. Social media that were widely used by students included YouTube, Instagram, WhatsApp, and Facebook.

[15]'s research showed that YouTube is the social media video format that is most used by students and lecturers for learning purposes. YouTube is often used as a source of learning and media for publication of student work. In addition, [13] demonstrated the benefits of using WhatsApp as the most popular messaging medium in all circles for learning purposes.

The use of social media includes learning media, learning resources, and others. The group discussion feature in WhatsApp or Telegram was utilized to the maximum. Likewise, with the existence of Facebook live features, Instagram TV, IG story, and others. The interaction between students and lecturers, and between the students, increased and learning was more fun and exciting.

[29] showed that the intention of students to utilize mobile learning is very high. The researchers developed a variety of interactive and Android-based learning media as well as learning materials or resources that were easily accessible from student mobile phones. Thus, students found it easier to study, wherever and whenever. The interactive media in question was an IT-based media that combined images, video, sound, and others. Android-based learning media that are increasingly popular continue to be developed. In addition, researchers produced flip books to facilitate access to learning modules.

The learning approach used in this research was PBL. This method is considered suitable to be applied to accounting learning. Students solved various cases and problems so it invited students from the lowest level to the highest level to think.

[30] successfully developed and implemented a combination of blended learning and face-to-face PBL. The method is called blended problem-based learning. [18] found that students' learning attitudes were better although the effect was statistically insignificant. They also found that the problem-solving attitude of the experimental class students was better than the students in the control class and this effect was statistically

significant. [31] combined PBL with 3D virtual worlds so as to create a student experience in a more complex and realistic environment. [32] tried to apply an online problem-based learning approach by integrating games. The results showed the learning to be fun and exciting and able to achieve the stated learning goals.

3 Method

The type and design of the research used is classroom action research (CAR). CAR is a form of reflective study involving steps which are carried out by actors to increase the rational stability of the carrying out of their tasks and to deepen understanding of conditions in learning practices [33]. CAR is intended to fix and improve the quality of learning and help empower teachers to solve learning problems in schools [34].

The object of research was Accounting Education students at the Faculty of Economics at Semarang State University. The research was conducted between September and October 2019. The subject of the development of material in this research was Introduction to Accounting in the 1st semester of the academic year 2019-2020.

The Data collection methods used were documentation, observation, and testing. These methods were used to obtain data from the implementation of the steps in the class that had been carried out. The data analysis method used was quantitative descriptive analysis. The research was seeking to produce interactive learning designs and apply a variety of media and teaching materials that had been produced by utilizing a Google classroom-based learning management system (LMS).

4 Result and Discussion

The research that was carried out sought to develop a blended problem-based learning design in an introductory course in accounting. Classroom action research design (CAR) was carried out in this study by running two CAR cycles. The results of the study are described in the following explanation.

4.1 Results of the Implementation of Cycle I

Plan

Research into the application of blended PBL began with developing lecture tools such as SLP (semester learning plans) and required teaching materials. In cycle I, the target competency is for students to be able to describe the basic concepts of accounting. Learning or study materials include accounting as an information system, the users of accounting information, designation of the accountants, types of company, and basic accounting assumptions. The researchers used google classroom as an e-learning application because it is considered the simplest and easiest to use by lecturers and students. The object of the research is the 2019 International Accounting Education Graduate Program. The researchers also used Instagram social media to publish student work in the form of mind maps. Mind maps are used as media to translate lecture material into

a chart that is more interesting and easier to understand. The plan for this first cycle was to have 2 meetings.

The design of lectures in the first cycle was arranged so that students were able to present the acquired understanding of the basic concepts of accounting in the form of an interesting mind map. The first cycle implementation plan in detail was as follows: the students were formed into groups and asked to study lecture material first, then to make a mind map based on material from various sources that had been studied, and the mind map that was made had to be posted on one of the group members' Instagram accounts. At the second meeting, each group presented the results of the mind map that had been made and explained the material in front of the class which was then continued with a discussion. At the end of the meeting, students worked on a quiz which was used as a means of course evaluation.

For evaluation in this first cycle, researchers used the Google form feature which is integrated with Google classroom in the form of an online quiz. The assessment criteria in the first cycle are the ability to explain accounting as an information system and the ability to explain who the users of accounting information are, the designation of accountants, types of companies, and basic concepts of accounting.

Action

Blended PBL in the first cycle could be implemented well during the two meetings. At the first meeting, students in groups solved "problems" by studying lecture material and compiling a mind map. The materials reviewed at the first and second meetings were the basic concepts of accounting and financial statements. Students used their reference books and search material from internet sources to be able to compile an interesting and easy to understand mind map. Students were required to gain a complete and comprehensive understanding of the basic concepts of accounting and financial reports. The researchers prepared materials (stationery etc.) in the form of cardboard paper and color markers for students to use to make their mind maps. The researchers also prepared teaching materials and these were uploaded to Google classroom.

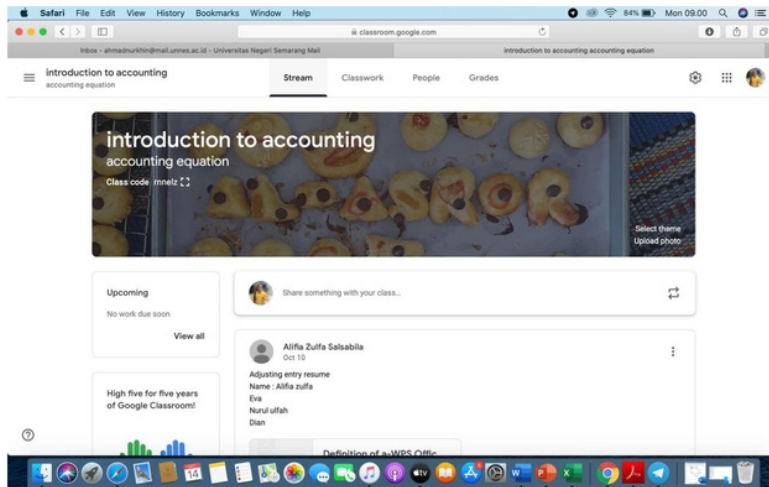


Fig. 1. Initial appearance of Google Classroom

Students were quite enthusiastic about learning the material and then together compile the mind maps. Students were also required to use critical and creative thinking skills to obtain sufficient material and record it down in a picture or chart (mind mapping). Students could complete the task of compiling mind maps at the first meeting which was a lecture lasting 2 hours. The researchers provided assistance and made observations while the lecture was in progress. At the end of the lecture, the students posted the completed mind maps to Instagram social media. Group work pictures and mind map results that had been posted on group members' Instagram accounts can be seen in the following pictures.



Fig. 2. Group Discussion

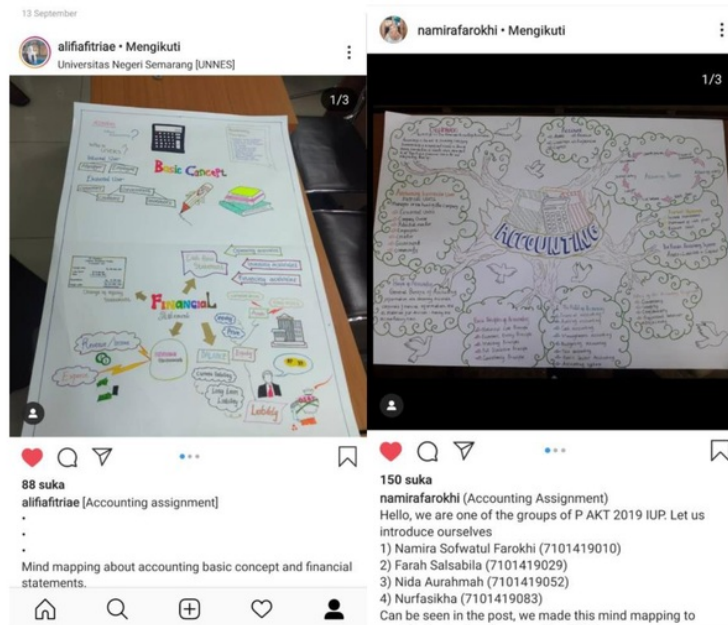


Fig. 3. Posting Work to an Instagram Account

Each group was asked to appoint one member to be the “presenter” at the second meeting. The presenter’s qualifications were the ability to present material in front of the class, master the lecture material discussed, and have sufficient English language skills. The students who were appointed from each group had to study independently to prepare to present their explanation at the second meeting.

The second meeting began with presentations and questions and answers on the mind mapping that had been prepared by each group. The researchers had prepared rewards for groups who were able to do the mind mapping and were able to present the results well. Students who represented each group took turns to become a “presenter” in front of the class with the mind mapping tools that had been prepared. The students were able to demonstrate communication skills in front of the class quite well. This could be seen in the confidence they displayed and their mastery of the material discussed. They were able to use the time allotted (approximately 5-10 minutes) to explain the material in front of the class. There were students who added learning resources in the form of a short video and tips on understanding the material (concise elements of financial statements). This showed that the students had the ability to think critically and creatively in solving “problems” posed by the lecturer. The students were able to find the right sources and then were able to present them through mind mapping and explain them in front of the class.



Fig. 4. Students Presenting Their Work

The lecture process was continued by completing an online quiz that had been prepared by the lecturer (researcher). By utilizing a Google form that was integrated with Google classroom, researchers compiled online quizzes and could be done by students quickly and accurately. Students were able to complete online quizzes in a period of 10-15 minutes with five multiple choice questions. There was a problem with the internet connection and English language skills were needed to complete this online quiz. However, in general, students were able to complete it well. The results of the online quiz can be seen in the following image.

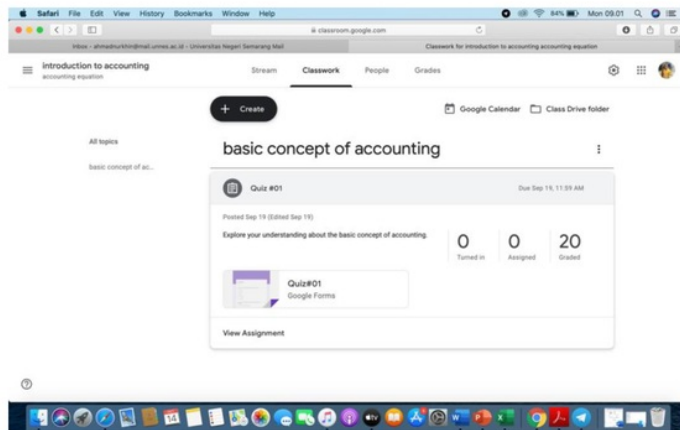


Fig. 5. Display of Online Quiz Timeline

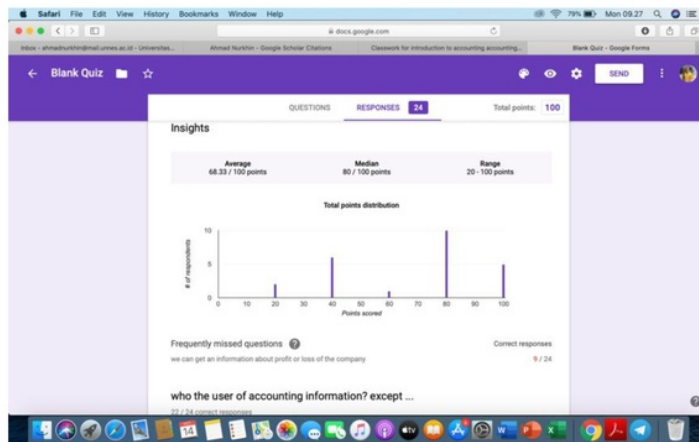


Fig. 6. Display of Online Quiz Results

The students and lecturers discussed the online quizzes together. The results of evaluations using online quizzes indicated that there were variations in the students' ability to understand material about the basic concepts of accounting and financial statements. Students had some difficulty in distinguishing between types of financial statements.

The lecturer continued the lecture by reviewing the material being studied and the learning process so far. Lecturers expressed appreciation for the performance and seriousness of students in solving problems through the online quiz. The lecturers gave rewards to all students in the form of water bottles. The group that had the highest score based on the results of mind mapping and presentation received a better reward than the other groups.

Observation

The observations that were made in the first cycle focused on the students' ability to engage in problem solving and the ability to think critically and creatively. The researchers observed the activeness and response of students who attended the lecture until the completion of assignments and other activities. The students were very enthusiastic about attending the lecture in the first cycle. The researchers provided an overview of the implementation of the lecture at the beginning, including activities and assignments. The students showed enthusiasm and were earnest about following the lecture process step by step. The students did not hesitate to ask about what to do.

In the first assignment, namely compiling mind maps as a medium for tackling problems that must be resolved, students were able to work together with their respective groups to find learning resources and then turn them into mind maps. Each group was able to work well and able to complete the task correctly. Students' critical and creative thinking skills could be observed when they were searching for learning resources, composing their mind maps, and presenting group work in front of the class.

Students' critical abilities were shown when they were finding material from various sources via the internet. Each group read the material found carefully to gain a comprehensive understanding of the "problem" that had to be resolved namely regarding the basic concepts of accounting and financial statements. Students discussed the material obtained with the other members of their group. The aim was to understand the material being studied. Group members who understood more quickly were able to guide other group members.

The next thing to do was to make a mind map. Each group was able to discuss the mind mapping framework that would be created. Then each group member received their respective tasks to jointly complete the mind mapping project. The creative abilities of students were honed in completing the task of making the mind maps. This was evident from what they were able to complete. The mind maps made by students were quite good and creative. The content or material listed in the mind maps was quite complete. Students were able to present the material well in the form of mind maps.

The last observation the researcher made was at the presentation stage. Each group appointed their representatives as "presenters". Each group was able to present the mind mapping it had produced well and creatively. There were groups that added media such as videos and tips and tricks to understand the lecture material easily. Student also demonstrated good confidence in presenting what they had produced in front of the

class. Students were very enthusiastic and confident. The English language skills still need to be improved, but, despite this, it could be categorized as sufficient.

Reflection

The first cycle went well. However, there were some things that needed to be fixed. The researchers still needed to understand well the method being applied. Implementing blended PBL is not easy. Students must be able to comprehend the "problems" that must be resolved in face-to-face lectures combined with online lectures. The weakness seen in the first cycle was the researchers' mastery of utilizing Google classroom. This was not surprising because the researchers had only just learned the features of Google.

Utilization of the social media app called Instagram was quite appropriate as a medium for the publication of the work produced by students. The students were also able to enjoy lectures with starting from doing the mind mapping to presenting their work. The ability of the students in terms of cooperation and communication skills fell within the good category. Likewise, the students' ability to think critically and creatively were categorized as good. Evaluation in the first cycle focused on measuring these abilities. There was an online quiz done by students but it only measured students' understanding after treatment. Additionally, quantitative measurements of student cognitive abilities were needed in the implementation of the next cycle, both before and after the treatment was given to the students.

4.2 Cycle II Implementation Results

Plan

The basic competency achieved in the second cycle was that students were able to compile financial statements of service companies through the accounting cycle. Learning indicators included students being able to identify and analyze transactions, record transactions in a journal, categorize accounts, prepare a trial balance, prepare adjustments, and prepare financial reports. The design of the learning process in the second cycle was not too different from the implementation of the first cycle. However, in the second cycle the researchers tended to implement the lecture method to provide an initial understanding of the material and also give emphasis to the material that students had learned. The researchers still used Google classroom as an online learning medium.

The researchers carried out this second cycle in two lecture meetings. For the first meeting, the indicator was that the students would be able to analyze trans steps, take notes in a journal, categorize accounts, and prepare a trial balance. The second meeting discussed adjustments and work sheets and the preparation of the trial balance after adjustments. The material learned in the second cycle was very complex and required a fairly high degree of concentration by students. The researchers had prepared teaching materials, practice questions, assignments, and evaluation questions, in order that the implementation of the second cycle would run interestingly and pleasantly.

Action

The blended PBL method applied in the second cycle can be described as follows in Table 1.

Table 1. Implementation of Blended PBL in the Second Cycle

Meeting	Description of Steps
First	<p>The material presented was a journal, general ledger, and a trial balance. The researchers used the PBL method in the first meeting combined with the discussion lecture method. The researchers explained the material using the discussion lecture method for 1 hour of the lecture. They provided examples of problem solving. They provided practice questions to be solved by students individually. The researchers discussed the matter of training with students.</p>
Second	<p>The material discussed at the second meeting was about adjustments. The researchers applied blended PBL by utilizing Google classroom. They provided learning materials to the students. As a group, students were asked to study this material and then complete the "make a note" assignment. The students were invited to search for material from other sources in order to gain an easier and comprehensive understanding. They uploaded "make a note" tasks that had been completed according to the Google classroom time line. Researchers provided responses to these posts.</p> <p>The lecture continued with a quiz. The students individually completed the "problems" about adjustments in this quiz within 10 minutes. Corrections to the quiz were carried out together. Then the lecture continued with an explanation of the material by the researchers. After the quiz was finished, the researcher explained the material on adjustments with teaching materials that had been previously distributed.</p> <p>The researchers gave a second quiz after completing the explanation. However, students were asked to pass on their understanding of the material just explained before the second quiz was carried out. The second quiz was also done individually and then discussed together. Students knew the progress of the results achieved in the first and second quizzes. Some students were satisfied because they understood enough, while others still lacked understanding.</p> <p>At the end of the meeting, the students solved the third "problem" about adjustments in groups. Group members who got good grades (meaning they understood the study materials) were obliged to provide an explanation to other group members. Students were enthusiastic about solving problems in groups. Students asked genuine questions that were not understood by other students.</p>

The researchers gave a quiz twice during the second cycle to find out about the students' understanding before and after the steps. Both quizzes discuss the "problem" of adjustments. The average value obtained by students on the first quiz is 37.5 and increased to 63.5 on the second quiz. There were four students (25%) who scored 0 on the first quiz. On the second quiz, there were no students who received a score of 0.

However, there were two students who experienced a decline in their score on the second quiz compared to the first quiz. Meanwhile, there were eight students (40%) who experienced a sharp increase in the scores obtained on the second quiz compared to the scores from the first quiz. The results of the evaluation in the second cycle showed that the treatment given by the researchers was quite successful in terms of the increase in scores obtained by students. However, the average score obtained on the second quiz (after treatment) still shows an unsatisfactory level of understanding.

Documentation of the implementation of the second cycle can be seen in the following pictures.

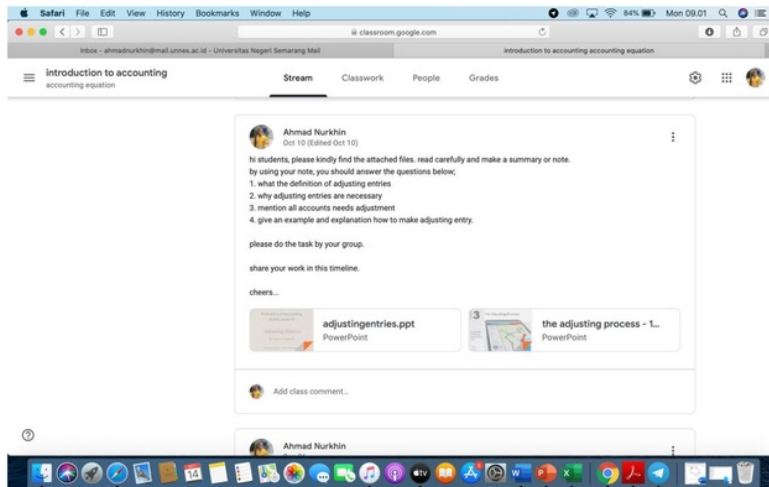


Fig. 7. Display of Posted Material and Assignments

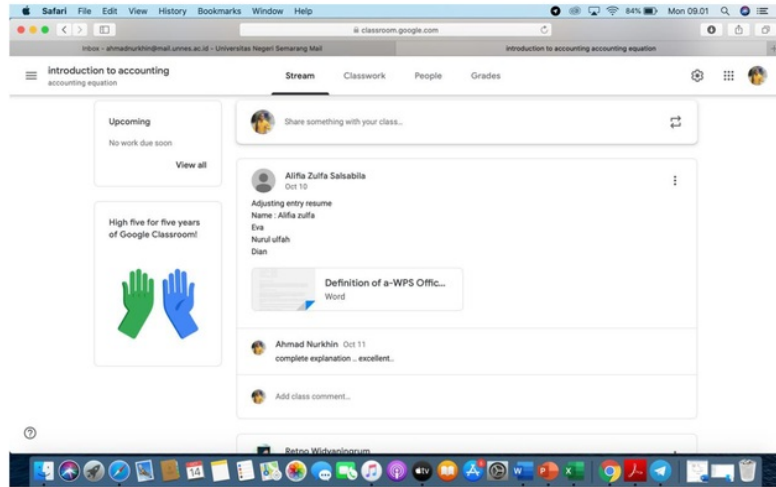


Fig. 8. Display of Student Postings on the "Make a Note" Assignments



Fig. 9. Students completing the quiz.

Observation

Observation of the implementation of the second cycle conducted by the researchers were intended to see the enthusiasm and level of student participation when attending lectures. The students were still very enthusiastic about attending lectures. Activities and assignments that were quite different and it was a challenge for students to complete them well. Students were able to increase their confidence and not hesitate to ask their lecturers about problems they were experiencing. Students were able to complete assignments in groups similar to group learning to understand the material on adjustments and then compile "make a note" writing together and post it to Google classroom.

Reflection

The implementation of the second cycle in the application of blended problem-based learning was able to run well. There measurements of success were different from the first cycle. For the second cycle, the researchers used quantitative measurements to see the level of success. And they found that the treatment given in the cycle was quite successful although less than satisfactory. This can be seen in the increase in grades obtained by students before and after treatment.

The researchers still consider that the blended learning conducted in the second cycle was still not optimal. They only used Google classroom to upload and post material and work from the students. There was no maximal inter step between lecturers and students or between students through utilizing the existing features in Google classroom. However, the researchers noted that the enthusiasm and the level of student participation in lectures had increased. Students were very motivated and enjoyed the lectures.

5 Conclusion

This research has been carried out by applying the blended PBL method applied to the Introduction to Accounting course in the 1st semester in the 2019-2020 academic year. Both stages of the research could be carried out quite well and it ran smoothly. The researchers carried out two cycles and each cycle comprised two lecture meetings. In the first cycle, researchers used Google classroom, mind mapping, online quizzes, and Instagram social media to improve inter step and the quality of lectures by applying blended problem-based learning.

The researchers focused on improving students' critical and creative thinking skills in this first cycle. And the results show that students had good critical and creative thinking skills. In the second cycle, researchers still continued to use Google classroom and combined it with face-to-face lectures with "make a note" assignments and group discussions. The researchers conducted quantitative measurements to see the success of the treatment. The results show that students are able to get better grades than before the treatment was given.

Researchers have demonstrate that blended PBL can improve the students' abilities. However, the application of blended problem-based learning in the second phase of research is still not maximal. Researchers should still be able to maximize the features of Google classroom so that learning is more interesting and enjoyable. In addition, researchers should be able to prepare better materials and teaching materials. It is

hoped that future researchers will be able to improve the ability of online learning management systems so they can better implement blended PBL.

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