Learning Methods for Accounting Students: Explore The Effectiveness of Traditional Learning and Laptop-Based Active Learning

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Abstrak

The main purpose of this study is to explore the effectiveness of Traditional Learning (TL) and Laptop-Based Active Learning (LAL) in the achievement of accounting students' competence. This study is quantitative methods approach comprising of a systematic literature review, data analysis, and experimental studies on the two classes applying a different learning approach. Class A with 40 students applied the LAL approach, while class B with 38 students applied the TL approach. Students in the two classes received different treatments, but the question items tested were the same. This study also uses the independent samples t-test to analyze the hypotheses from the two data groups, both those using TL and LAL learning types. Overall, this study demonstrates that the accounting students' learning achievement is higher when the class uses LAL approach instead of TL approach and that the LAL approach is better than the TL approach, especially on the Descriptive Statistics for Business course at Accounting Department, Islamic University of Indonesia.

Keywords: *Accounting Students; Competence; Learning Method; Traditional Learning; Laptop-Based Active Learning.*

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INTRODUCTION

The rapid development of information and communication technology has offered both influence and challenge in the field of accounting education. Through this development, it is viable to conduct comprehensive education and learning which can cover all social levels without being limited by distance, space, and time (Arif, 2016). This issue becomes a significant challenge for accounting students because it requires the increase of the quality of human resources who are not only able to comprehend the information and communication technology development but also master the skills as well as perform good attitudes to utilize the technology. It is often found that students use electronic devices during the class to log in their social media account, to send SMS, and to browse on the internet (Luckett, Trocchia, Noel, & Marlin, 2017). This condition challenge lecturers to conduct more applicable teaching techniques.

Recently, Cross, Rebele, and Grant (2016) reveals that in the last two decades, the time spent in the collaborative activities (taking over workplace) by managers and employees increases as much as 50% or even more; some organizations report that 80% of work time is spent on interpersonal activities such as meeting, emailing, and phone calling. Viewing from a broader perspective, Grey (2002) opines that the role of the community takes a greater part compared to a business school beyond the knowledge of economy and technique.

It has been ages that the methods used in teaching accounting students are criticized. There is an argument to combine work skills in the real world instead of emphasizing memorization technique in education (Boer, 2000; Burnett, 2003; Dillon and Kruck, 2004; Esmond-Kiger, 2004). Students are no longer requiring theory. Instead, they need to be able to apply what they have discussed (Smart, Kelley, & Conant, 1999). Some literature on accounting education works has long been emphasizing the importance of emotional intelligence for accounting graduates (Tucker, Gullekson, & Esmond-kiger, 2014). The interest of accounting students to work as professional accountants is not influenced by social values and personality (Laksmi & Hafis, 2019). Regarding this criticism, some accounting education researchers such as Herring III, Scheiner, and Williams (1989); Watson et al. (2003); and Paisey and Paisey (2004) have conducted action research to test alternative approaches on accounting curricula.

The utilization of virtual learning as supplementary tools offers additional quality for a broader learning environment (Love & Fry, 2006). Moustafa and Aljifri (2009) state that most researchers investigate the influence of two factors, namely students performance and perception, separately: (a) some Active Learning (AL) techniques and (b) the use of modern education technology. It is still limited that the research investigating the effect of these combined factors is conducted. Most research reports the implementation of the AL approach in accounting courses instead of adopting the comprehensive AL approach on the teaching technique implemented during the courses.

Responding to current challenges in education as mentioned above, varied innovations have been conducted in the learning process in Universitas Islam Indonesia, Yogyakarta. One of them is electronic learning which utilizes computer and Internet network during the learning process. This innovation is conducted because the rapid development of science and technology has supported the learning process to be more effective.

It is found that the learning process of Descriptive Statistics for Business class in Accounting Major of Universitas Islam Indonesia focuses more on the learning method of Traditional Learning (TL). Whereas, in this digital era, the accounting work field prioritizes

the technology to support its business process. The requirement of being able to operate a laptop or computer is significantly needed to meet the demand of working in the accounting field. The TL method seems to disadvantage students who lack competence of data administration, they still use the traditional method. For students with a lack of competence, a competitive condition is always decreasing their learning motivation and threatening them psychologically (Slavin, 1996).

Regarding the mentioned problems above, this research is empirically aimed at testing the effect of the teaching approach combining active learning with the use of modern education technology (computers or laptops) on students' performance. The researcher is convinced that combining some AL methods with the technology provided to teach accounting students Statistics with more coherent ways will provide students a better opportunity to gain and maintain their statistic knowledge, to own good analytical skills, and to solve problems well. In this research, the researcher tests the effects of the teaching approach on the students' performance. The researcher elucidates this comprehensive teaching approach as Laptop-based Active Learning (LAL). Therefore, the method of TL and LAL are chosen as an experimental research to compare the student's competence achievement. These two learning methods are expected to be able to facilitate students to achieve their competence which later will be compared in the accounting learning process.

LITERATURE REVIEW

Traditional Learning (TL)

Traditional learning is defined as a learning process in which the teacher controls the learning environment. The class management and responsibility are controlled by the teacher who plays as an instructor (giving lecture) and a decision maker (Griffiths, 2002). In TL context, students are viewed as a person with "knowledge holes" that is needed to be informed with knowledge, while teachers/lecturers are the ones who conduct the learning (Novak, 1998). In addition, Doucet et al. (1998) argue that the lecturing type of teaching only provides passive knowledge in the supported external process. In its implementation, the lecturing method supports students to ask questions. However, the lecturers are viewed as "the master of everything" that the approach is classified clearly. In short, the TL approach focuses on teachers. Peek, Winking, and Peek (1995) state that the traditional lecturing technique is preferred by some lecturers because it is viewed as a strategy to build and maintain the class rules and as a justification by new lecturers for not implementing other methods. TL method is also known as the Socrates method because it actively involves students in the learning process to perform better compared to the traditional lecturing technique which views students as passive learners (Smith, 1987).

Active Learning (AL)

Constructivism places students' knowledge construction as the core of the education process. In a constructive learning environment, students are triggered to create their own mental scaffolding and construct their own conceptual model (Barak, Lipson, & Lerman, 2006). Constructivism suggests standard curriculum deletion, direct problem-solving application, and active learning promotion (Bruner, 1990). However, active learning is not a new term. In the beginning of 20th Century, active learning was promoted widely among progressive educators like Dewey (1924). Active learning is commonly defined as a learning method which involves the student in the learning process (Prince, 2004). Active learning consistently supports the idea that students must actively proceed with information to gain meaningful learning. In an active learning, students do not merely receive knowledge

passively. Cognitive and operative skills are more emphasized than only transmitting information (Keyser, 2000).

Active learning requires students to gain meaningful learning and to think of what they are doing (Bonwell & Eison, 1991). This definition can cover traditional activities like doing homework. In its implementation, active learning is referred to activities introduced in the class. The main cores of active learning are students' activities and involvement in the learning process. It is often contrasted to the traditional learning in which students passively receive information from the instructor (Prince, 2004).

Bonwell and Eison (1991) summarize some literature about active learning and conclude that it refers to a better students' attitude and learning in the scope of thinking and writing. According to McKeachie (1990), discussion is one form of active learning, which is more than a traditional lecturing for material retention and motivates students to learn further and to develop thinking skills. Some accounting education researchers have conducted and reported some techniques of AL. Leveson (1999) and Lancaster and Strand (2001) conduct an experiment with cooperative learning in an accounting course and report students' positive responses. However, there is no significant difference in students' performance. The results show that there is a lack of performance assessment method, specific characteristics form the course and instructor training in implementing the AL approach.

Paisey and Paisey (2004) explain a comprehensive analysis of accounting education research published between 1992 and 2001 and conclude that more concern needs to be given to the effect of the learning strategy and the specific educational context in which the strategy is applied on the learning outcome. Sharma (1997) concludes that changing accounting students' learning approach means changing a learning context of reproducing information to a context which supports understanding. The use of technology in assessing students' learning is believed to be an important field for accounting research in the future (Watson et al., 2003). The results of the experiment using varied education technology products in the accounting course show that accounting students own positive attitudes towards the use of technology and that using computer technology will not disadvantage their academic performance (Basile and D'aquila, 2002; Dowling et al., 2003; de Lange, Suwardy, and Mavondo, 2003; Kalbers and Rosner, 2003). Whereas, Kalbers and Rosner (2003) state that the real benefit of integrating modern technology in teaching might not easily be measured. Regarding the integration of AL technique and technology, Rainsbury and Malcolm (2003) reveal that students respond positively.

Laptop-based Active Learning (LAL)

There have been several studies that have been carried out to integrate wireless technology into the classroom (e.g: Chan, Hue, Chou, and Tzeng, 2001; Sharma, 1997; Siegle and Foster, 2001). It is believed that wireless technology, and wireless laptop specifically, is potential to be an integral component in the teaching and learning process. It is also applied to change the way of classroom communication and of the information stream (Barak et al., 2006). The utilization of wireless laptop will change the learning environment, specifically the class management and activity. The researcher suggests that the classroom is "connected" through the utilization of a computer. It will change the school organization and the definition of a class (Chan et al., 2001). However, some other results show that a wireless laptop can become a source of distraction when it is used for non-learning purposes (Barak et al., 2006).

Griffin (2003) conducts an experiment about neuroscience concept with some computerized technology learning such as using a laptop, LCD, website, PowerPoint presentation, and interactive learning using CD-ROM. Based on the research, it is found that some computerized learning methods applied increase the effectiveness of the learning period and the students' creativity, skills, and critical thinking (Griffin, 2003). Mohler (2001), conducting research about the use of interactive multimedia technology to learn the concepts of the machine in which the learning process utilizes CD and LCD connected to a laptop, concludes that the interactive multimedia technology significantly increases students' understanding of mechanical engineering concepts.

Learning Competence

Academic competence is qualifications possessed by students that cover attitudes, knowledge, and skills which are referred to the national standards. The competency standard is an agreement of competencies needed in a specific work performed by all of the stakeholder. In other words, the competency standard is a framework that must be possessed by a person to accomplish a task or job based on the required knowledge, skills, and work attitudes. Accounting field, which is one of the agreed services (MRA) in MEA, has already possessed certain standards adopted in the Indonesian National Qualifications Framework (KKNI)-based curriculum construction. The mapping of accounting service is organized based on the Regional Model Competency Standard (RMCS) in which the development of the competency standard model uses the approach of the working process function to produce goods and or services.

Hypotheses

Accordingly, the following is the hypotheses are proposed:

H₀: There is no significant difference between TL and LAL teaching approach on the accounting students competence achievement.

H₁: There is a significant difference between TL and LAL teaching approach on the accounting students competence achievement.

RESEARCH METHOD

The students of the Descriptive Statistics for Business class were chosen as the object of the research because the class itself is compulsorily attended by the students of the Accounting Study Program - it also becomes a lecture requirement. This condition shows that this class is important and benefits students. Besides, the Descriptive Statistics for Business class requires students to count often, so the use of laptops is likely to happen. Two classes experimented in this research have the same syllabi and lesson plans, so both classes are feasible to be researched. One class becomes the treatment group receiving the class delivery through Active Learning (AL) and Laptop-based Active Learning (LAL) methods, while the other class becomes the control group receiving only the Traditional Learning (TL) without the use of laptop and AL method.

There were 78 students attending the Descriptive Statistics for Business class in the odd semester of the academic year 2017/2018. The control group (the class using the TL approach) was attended by 38 students, while the treatment group (the class using AL and LAL approaches) was attended by 40 students. The class was conducted in 100 minutes once a week with two different classes and the same lecturer. A lecturer had conducted some classes before and experienced training of the AL approach given by the expert.

The distribution of course delivery in the two groups examined in this research are;
(1) Students in the AL and LAL group mediated by computers also used Google Edu (Google

classroom). It is an integrated Web-based teaching tool which facilitates students to access materials interactively through a computer. Therefore, students have online access to the instructional information and links in the Google Edu site. (2) Students in the TL group accomplished assignments manually (using paper and pencil), while the students in AL and LAL group used a computer and Google Edu to complete assignments and quizzes. Moreover, they also used a prepared spreadsheet template to accomplish assignments. After accomplishing the assignments, they printed and handed the spreadsheet to the lecturer. The content and level of difficulty of the assignments were the same in both groups.

The analysis method used in this research to test the hypotheses was the t-test. The t-test was used to analyze the hypotheses from the two data groups, both the related or not. This research used the independent samples t-test. The data were derived from two measurements or two different observations taken from the different subjects. The t-test was used to investigate the difference of competence achievement between the use of TL and LAL methods with the level of significant of 5%.

RESULT AND DISCUSSION

There were 78 participants attending the Descriptive Statistics for Business class. The researcher took samples from the two classes applying a different learning approach. Class A with 40 students applied the LAL approach, while class B with 38 students applied the TL approach. Students in the two classes received different treatments, but the question items tested were the same. Students in class A answered the questions using a laptop in the classroom, while students in class B answered it manually on the paper. Students in class A used Ms. Excel to accomplish the test and then submitted the answer to the Google Classroom. The duration of the test was the same in the two groups. The test was conducted twice at different times. The first test was conducted on 12th April 2018, while the second test was on 27th April 2018. Table 1 shows the demography characteristics of participants.

Table 1. Demography Characteristics of Participants

Demography Characterictis		Number of Participants (Class A)	(%) of class (n=40)	Number of Participants (Class B)	(%) of class (n=38)
Gender	Male	21	53%	15	39%
	Female	19	48%	23	61%

The descriptive analysis results of the accounting students' competence in the Descriptive Statistics for Business class conducted twice with LAL and TL are shown in Table 2. Descriptively, the comparison result of the learning approach using LAL and TL shows that in LAL class has a higher mean value. Descriptive results indicate that the LAL approach has an mean value of 72.37 higher than TL, which is 61.25.

Table 2. The Descriptive Statistic, Normality Test, and Independent t-test

Class (Model)	N	Mean	Std. Deviation	Kolmogorov-Smirnov (Prob.)
LAL	40	72.37	16.90803	0.587
TL	38	61.25	21.05134	0.851
t-statistic		df	Prob.	
TL & LAL	2.58	76	0.012	

The normality test is needed to investigate whether the data being analyzed are normally distributed or not, so the analysis tools of the data can be determined. The normality test used in this research was the Kolmogorov Smirnov test. Based on the normality test shown in Table 2, found that the LAL group possesses data which are normally distributed with the probability of 0.587 ($p > 0.05$). It is the same in the TL group that the probability is $0.851 > 0.05$. Thus in analyzing the data can be done with independent t-test.

Based on the independent t-test results show the value of t-test of 2.58 with the probability of 0.012. Because $0.012 < 0.05$, H_0 is rejected. In other words, there is a significant difference between the learning approach of LAL and TL. The mean score on the LAL approach (72.37) higher than TL approach (61.25). It means that the LAL approach has a higher than the TL approach applied to the Descriptive Statistics for Business class in the Accounting Department of Universitas Islam Indonesia. It can be concluded that the accounting students' learning achievement is higher when the class uses LAL approach instead of TL approach, especially on the Descriptive Statistics for Business class.

Based on the comparison test of LAL approach and TL approach, it shows that there is a significant difference that the competence achievement on the class using LAL approach is higher than that of the class using TL approach. The results of this research support the research conducted by Moustafa and Aljifri (2009), Chan et al. (2001), and Griffin (2003). In the two-time tests, students in the LAL group do test 1 and 2 faster and more accurate. The LAL approach eases the students to be more practical and supports them to strengthen their IT skills. It becomes a valuable ability because nowadays most accounting work fields use the IT-based accounting system. Students can benefit what they have got in the LAL approach in their future job.

On the other hand, the LAL approach still has some limitations for students. In the LAL approach, students' logic of counting can be disadvantaged because they are able to do the test using the formula provided in the Ms. Excel, but they do not practice using the manual formula provided in the TL approach.

With the results of this study, it is important for educators responsible for designing accounting degree programs offering cross-disciplinary options for accounting students and engaging with technology and information science, such as studies conducted by Botafogo (2019). Widespread view that technological development is an important area that must be addressed throughout the accounting curriculum, to expose changes in the marketplace and to enhance graduates' employability.

CONCLUSION

Based on the analysis and discussion of this research, it can be concluded that there is a significant difference in the competence achievement in the LAL and TL approach. The accounting students' competence achievement in the LAL approach is higher than that in the TL approach, especially in accomplishing tests in the Descriptive Statistics for Business course. This research has some limitations. First, the tests are only conducted twice. The quality of the data may not be comprehensively gained. Second, this research is only conducted in the Descriptive Statistics for Business course. The results that accounting students' competence achievement in the LAL approach is higher than that in the TL approach cannot be generalized to the other accounting classes requiring counting.

Regarding to the conclusion and limitations mentioned above, the researcher suggests that the future related research can be conducted in some other accounting classes such as the Introduction to Accounting, Management Accounting, Cost Accounting, Financial Accounting, and Auditing.

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