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Accounting Learning for Non-Accounting, an Experimental Study for Creative Industry and MSMEs

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Abstract:
To provide empirical evidence on the use of alternative methods in accounting learning that can be used by MSMEs business peoples and creative industries.The research design chosen was the pre and post-test design with one sample experimental method by giving treatment and manipulating all research variables strictly, so that the results of the study were more valid and could be generalized. This study uses Technology-assisted learning where the delivery of learning material is carried out through audio-visual presentation with the Adobe Flash player applicationThe results of the study indicate that MSMEs business peoples can understand well in terms of analyzing financial transactions and understanding the process of preparing financial statements, namely the income statement and balance sheet. This can be seen from the results of different tests before and after the treatmentThis research was conducted in order to find an alternative solutions to problems in the preparation of financial reports conducted by Small and Micro Enterprises (MSMEs) and creative industry peoples. The difficulties of businesses in understanding conventional accounting/accounting processes that tend to focus on applying principles in applicable standards and are not flexible, have made the preparation of financial statements difficult for business people who have no accounting background. In this study offered methods that are expected to be applied in accounting learning, namely mathematical based methods.

Keywords:*Accounting, non - accounting, MSME's*

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I INTRODUCTION

This research is a continuation of several previous studies. Application of simple mathematical concepts in accounting learning has previously been done with the object of students, students with experimental methods with continuous results need to be tested to find perfection. The results of previous studies indicate that there are differences in the results of the learning process using the mathematical method of learning accounting concepts. High school students who become control groups in this study showed that accounting learning by using simple mathematical patterns is easier understood in journaling process, posting to ledgers, conducting summaries to the process of preparing financial statements (Nauli, 2011, 2013). Hence, researchers want to prove further, whether the application of mathematical-based accounting can also be used at the level of objects that have never in touched or experienced in learning accounting, especially Small and Micro Medium Enterprises (MSMEs) and creative industries.

MSMEs peoples and creative industries are required to apply special Financial Accounting Standards, General Accepted Accounting Principles for MSME's (PSAK EMKM) and the researcher believes that even though this PSAK EMKM has been established and implemented, it is very likely that difficulties can be implemented

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given the tendency of MSMEs peoples that lack of accounting knowledge.

Accounting is one of the applied sciences used in the business world. Therefore accounting majors are seen as majors that can produce graduates who are ready to work. To guarantee the success of accounting learning, there are various influential peoples such as the learning methods used, curriculum, learning tools and so on. This research will focus on learning methods as an important element in the teaching and learning process.

Researchers tried to find various references about learning accounting at the university. At this level, there are many results that show that the accounting learning process needs to be improved. Accounting observers from various countries in the world have given attention and evaluation regarding the process of accounting learning so far including Ingram, 1998 revealing that accounting learning relies more on the shipping process so that the ability of students does not develop in analyzing various types of transactions. In addition, Sangster et al. 2007 highlighted accounting learning which was not be able to encourage students to connect the learning process with real practice in the field. Also supported by research Patten et al. 1990, Pincus, 1997 which states that accounting learning is not be able to provide human resources who have adequate competence in the world of practice. Therefore, Saudagaran, 1996; Rankin et al. 2003 revealed that there needs to be changed in design, methods, and accounting learning curriculum to overcome the above problems.

Difficulties in understanding accounting among students occur because of an incompatibility either the rationality of accounting offered by the instructor and student rationality. The basic concept of accounting that is described through the basic equation of conventional accounting is difficult to be accepted logically, especially for those who do not yet have an understanding of accounting. It was revealed in the book that a new learning method was needed to replace the conventional method which had been assumed to only tell things arranged in the standard (Warsono, 2010; 10).

The statement above is very interesting to be studied further. Therefore researchers want to do research that can confirm the idea. Previous research on mathematical-based accounting learning methods was conducted by Nauli (2011) by comparing the achievements of student groups using conventional methods with groups of students using mathematical-based methods. Previous research used quasi experimental methods. The results showed interesting facts, mathematical-based accounting methods proved to be able to provide a significant increase in student achievement compared to conventional accounting methods.

The scrutiny of researchers from various previous research results is very important for efforts to transfer knowledge to Small and Micro Medium Enterprises which are very close to the preparation of financial statements. If the learning process at the university faces difficulties, it will certainly be more difficult if the learning process is faced with the practical world, namely the creative industries and MSMEs, most of which do not have adequate knowledge of accounting properly. Employers can employ accountants for the process of preparing financial statements, but not a few costs will be incurred for these services.

Based on the description above, the researchers wanted to develop the Nauli (2011) research at the level of MSMEs and Creative Industries. This research was conducted to confirm and prove empirically that the method of mathematics-based accounting learning can be applied to sharing levels, especially MSMEs and Creative Industries. In this study, IT-based mathematics learning methods were developed with the use of the Adobe Flashplayer Presentation application. IT-based learning was chosen because according to Allen & Seaman (2006) "... to enhance student learning experiences instructors create interactive

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learning that support multimedia presentations ...".Therefore, to increase respondents' interest in the latest learning methods, a more attractive approach is needed.

II THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Several previous studies have raised themes that are highly debated in learning accounting. All of these debates lead to a conclusion that current accounting learning needs to be evaluated. The reason, because so far there has not been found an accounting learning method that is academically considered effective. Warsono (2009) revealed that the method applied was not appropriate, causing students not be able to master correctly, then the accounting material taught was not easier understood by student rationality because of the discrepancy either accounting rationality offered by educators and student rationality (Warsono, 2010: 8).

According to Suwardjono (2002) accounting is not a difficult lesson but it is also not a fast-paced lesson. Accounting is a lesson that demands reasoning and understanding. Because it demands reasoning, accounting is closely related to rationality and one's thinking. MSMEs peoples certainly learn practically from day to day to calculate how much they earn, what is the cost of good sales from each transaction they do. Even their reasoning is able to calculate or predict earnings in every day. However, when faced with efforts to compile financial reports that are actually very synonymous with their activities, it is difficult to apply. Therefore, the researcher believes that the approach of simple mathematical concepts will be enough to generate accounting rationality. The rationalization or reasoning is how objects are able to understand the debit and credit mechanisms appropriately in analyzing transactions and taking notes in journals. These difficulties ultimately have an impact on the inability of students to master introductory accounting material.

Understanding of debit and credit is important in studying accounting, this understanding can be achieved through an introduction to the basic equations of accounting. The literature book used in most accounting learning does not describe where the accounting equation came from, but directly provides a basic accounting equation model and provides an example of its application to the recording of financial transactions. This is feared to make it only memorize without knowing the accounting principles described in the basic equation. The basic accounting equation describes the basic principle of accounting records, namely double entry bookkeeping or what is known as a paired bookkeeping model. The principle in question is that if we enter an entry in the debit, we must also enter the entry on the credit side as a counterweight. In explaining this principle, instructors are required to be able to provide appropriate reasoning, so students can understand the principle as a concept and not just as a rule that must be obeyed for no apparent reason. If the teacher only introduces the basic accounting equation model and then immediately demonstrates the effect of the transaction on the equation, it is feared that students will memorize the consequences of each transaction on the basic equation without understanding what actually happened to the three elements of the equation (assets, debt and equity).

Conventional Accounting Learning Method

Some accounting textbooks formulate the basic accounting equation as follows: "Assets = Debt + Equity". The argument underlying the above equation is that assets are company resources while debt and equity are sources of funds for the assets. Some other accounting textbooks use the extension accounting equation which is an extension of the previous equation, namely "Assets = Debt + Equity + Income - Cost - Distribution of Owners". The argument that underlies the equation is that assets are resources owned by the company while debt and equity are sources of funding for these assets. Income and

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Costs are part of equity, where income adds equity while owner costs and distribution reduce equity.

Equation 1

Asset = *Debt* + *Equity*

Company Resources — Sources of Funds

Equation 2 (Extension of Equation 1)

Asset = *Debt* + *Equity* + *Income* – *Cost* - *Distribution of Owners*

Company Resources — Sources of Funds

The concept of conventional accounting equations does not justify the cost element which is located on the right side of the accounting equation moved to the left side, this is because based on the principle of business entity, the accounting equation is a special equation not a mathematical equation (Suwardjono, 2002). The principle of business unity in question is that the company is considered as a stand-alone economic business entity, and its position is separate from the owner or other parties who invest their funds in the company (Nauli, 2011).

With the viewpoint of the principle of business unity, equity conceptually is the company's obligation to the owner. So that the impact is when a company submits goods or services, then there will be cash flow (assets) that enter the company. Cash in is what is called income. These additional assets will later be returned to the owner if the company is not forwarded or liquidated (Suwardjono, 2002) thus it can be said that income increases equity. Even this reasoning applies to the concept of cost, so it can be said that the cost of reducing equity. Based on this description, the basic equation of accounting cannot be reversed arbitrarily because income and costs are components of equity.

Difficulties in understanding the rationalization of conventional accounting equations

The basic accounting equation of conventional methods often creates difficulties among students, because accounting logic is difficult to accept in a logical manner. We can see in the illustration of the following question; on January 30, the company paid a monthly electricity fee of Rp.500,000, a change in the accounting equation would be

Asset = *Debt* + *Equity* + *Income* – *Cost* - *Distribution of Owners*

Cash is reducing Rp500,000 — Electricity Cost Rp500,000

Analysis of the above transactions is that payment of electricity costs indicates the existence of cash out or reduced, a reduction in cash will be recorded as a decrease in asset value. As for the electricity costs that appear, it shows an addition to the cost element, but because the cost element reduces equity, the cost is recorded as a decrease in the value of costs. With this way of thinking, the accounting equation is maintained. If the basic equation of conventional accounting is used, then students who are just learning accounting will find it difficult to reason the conversion process from adding costs to reducing costs each time making transaction costs, so that there is a high risk of causing errors (Warsono, 2010; Philips et al. 2009) Difficulties in rationalizing these equations trigger students to memorize every transaction of costs.

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Some research conducted by accounting experts produced a proposal to make changes to conventional learning methods that have been used so far. Springer and Borthick (2004) revealed that accounting learning which focuses on memorizing aspects can cause students not able to develop competencies that are actually needed by accounting. Diller (2004) also expresses the same thing that the old accounting curriculum tends to emphasize the aspects of memorization and recording mechanisms so that it does not provide a complete picture of the actual accounting environment. The criticism and input from this expert should be responded well to the progress of developing accounting learning in the future. One interesting learning method to be studied and developed that is expected to be a solution to these problems is the approach to mathematics-based accounting learning.

Mathematics-Based Accounting Learning Methods

Mathematical accounting is not a new concept in accounting learning, because accounting was first compiled based on simple mathematical logic codified by a mathematics professor, Luca Pacioli, in his book Summa de Arithmetica, Geometria, Proportioni et Proportionalita. Accounting is based on the basic accounting equation (PDA) which consists of three elements, namely: assets, debt, and equity.

Rationalization of the basic accounting equation can be explained in a mathematical perspective where assets and costs reflect the types of use of funds (use of funds) are on the left side of the equation, while debt and equity reflect the source of funds or the source of funds on the right side of the equation (Warsono, 2010: 64). The difference in the mathematical perspective is that the cost element and owner distribution are not seen as part of equity, but rather are stand-alone elements as a form of activity to use funds. The rationality of mathematical based accounting equations can be described as follows:

Equation 3 (Modification of equation 2 in the conventional method)

Asset + Cost + Distribution of Owners= Debt + Equty + Income

Use of fund *Source of fund*

Equation 3 is a basic mathematical based equation. The main reason why the cost element and owner distribution can be moved to the left side of the equation is that the elements of income and costs cannot be forced as part of the equity element (Warsono, 2010: 72). Moving the cost element to the left side of the equation is also justified in the rules of the mathematical equation, because the "negative" sign in front of the cost element changes to a "positive" sign after crossing the same sign with. Through the approach to the basic equation of accounting based on mathematical rationality students will wake up automatically. Students easily understand logically in analyzing each transaction that occurs so that they are able to place debited and credit accounts appropriately. This mathematical approach can be used to answer the matter of the previous transaction, that is, on January 30, the company pays for electricity costs in January of Rp.500,000. Changes in the basic accounting equation will be as follows:

Asset + Distribution of Owners + Cost= Debt + Equity + Income

Cash decrease Rp.500,000 — cost increase Rp.500,000

The transaction analysis above is, when a company pays electricity costs reflects the activity of using funds (cash of use) where cash is reduced by Rp500,000 and electricity costs that arise reflect the addition of activities to use funds on the cost element, so that the occurrence of electricity costs is recorded as an increase value of cost.

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According to the researcher, this argument is easier to be accepted by students' reasoning, but to strengthen this statement, further testing is needed.

III RESEARCH METHOD

Furthermore, this research develops previous research. This study uses an experimental method approach, with design within subject design with one group pretest-posttest model (Campbell and Stanley, 1963: 25). Researcher chose this design because it was seen as most suitable for matching group design with the advantages of efficiency in finding respondents, having the best chance of detecting the influence of independent variables with the model as follows:

R1 X R2

R indicates that the research subjects have been randomly placed into groups before being given treatment which is then given a test and R2 results after being given treatment that is introductory accounting learning with mathematical based methods. The magnitude of the effect of treatment can be known more accurately by comparing the results of the pre-test with the post-test.

The experimental group (R1) is a MSMEs actor and in Bandar Lampung selected as a sample, with the criteria of MSMEs having a turnover of no more than Rp. 30,000,000 per month. Researchers also chose MSMEs who were in the average category as the subjects of the study. This characteristic is intended to avoid experience or ever study accounting that is too high and to ensure that the application of accounting learning applications provided is indeed easy to understand for various MSMEs peoples. The experimental group will be given special treatment by applying mathematical-based methods in teaching basic accounting equations, through learning application shows through Adobe flashplayer presentation. The learning process will be carried out for ± 15 minutes.

The researcher will compare the results of the tests from the two groups to find out whether there are differences in the two types of learning methods used. The experimental effect is measured by the difference between R1 and R2. The experimental step in this study can be described as follows:

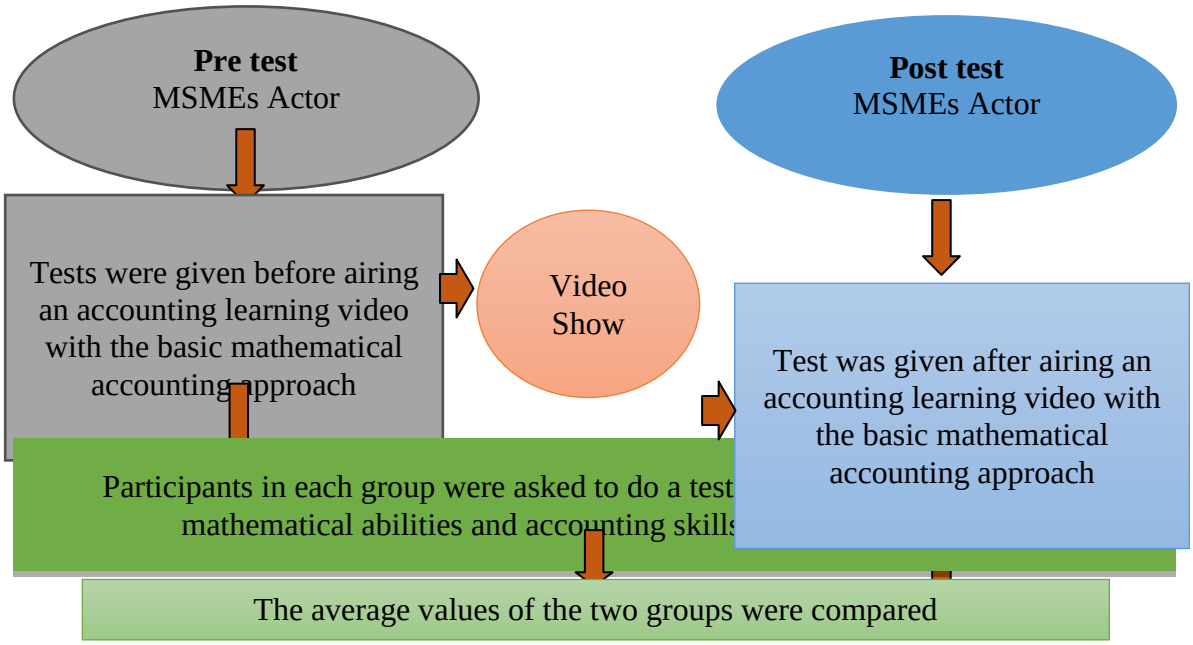

Fig. 2. Experiment to test the hypothesis

Population and Sample

The population of research subjects in this study were MSMEs entrepreneurs in Bandar Lampung. Samples were taken to be the subject of

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experiments. Sampling was done by purposive sampling technique from the small and medium micro business group who joined the Zakat Indonesia Initiative (hereinafter referred to as IZI) Lampung Branch and the Ummah Care Justice Post (hereinafter referred to as PKPU). The researcher determined participants from this group, because IZI and PKPU continued to provide guidance and supervision to MSMEs Peoples who received business development assistance for programs and zakat-giving activities.

Data Analysis Technique

The data analysis method used in this study was to test the hypothesis, by comparing the differences in the average of the two groups. Hypothesis testing uses paired sample t-test. This model was chosen because the researcher took samples in pairs and interconnected with each other (Ghozali, 2008). The researcher determined the age and educational background as a control variable that allegedly could influence the results of this study, to measure the extent to which the influence of the control variables of the researchers conducted the Ancova test.

IV RESULTS AND DISCUSSION

The participants used in this study were MSMEs who produced a lot of tofu, tempeh, sprouts and soybean products in the Gunung Sulah sub-district of Kedaton Bandar Lampung sub-district and the Keteguhan sub-district of East Telek Betung sub-district. Especially for MSMEs in the Teluk Betung Timur sub-district, the majority of businesses that are cultivated are snack food trading businesses such as fried food, seblak and roadside food stalls. Description of participant can be seen in the following 4.1 Table

Table 4.1
Description of Participant

No	Descriptions	Participant
1	**Gender**	
	Male	3
	Female	27
2	**Education**	
	Elementary School	7
	Junior High School	13
	Senior High School	10
3	Age	
	< 30	0
	30 – 40	11
	> 40	19

Source: Data processed,2018

Based on table 4.1, women are more dominant in managing micro, small and medium enterprises in two implementation locations.

Experimental Implementation

35 participants were asked to take part in the experiment by doing the pre-test questions given for 10 minutes. Pre-test questions consist of two types of tests relating to the ability of transactional analysis and tests relating to the ability to compile financial statements. The first test sheet is colored red while the second test sheet is colored yellow. This color differentiation facilitates the process of distributing questions to each participant. In its

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implementation, researchers are assisted by two teams to distribute questions and answer sheets to direct and condition participants so that research can run smoothly and as expected. Technical activities begin with filling in the respondent's data consisting of the respondent's code, age and education, then Paitia shares the pre-test questions with the respondent and then takes 10 minutes to answer the questions. Then, after completing the answer sheet, all respondents were asked to watch the 12-minute accounting learning video. At the end of the show each respondent will be asked to respond to the understanding they have received in the form of questions. If the respondent understands the contents of the video, if the respondent's answer is yes then the direct respondent can work on the test post, while if the answer is no then the respondent will be given a one-time opportunity to repeat the video.

Test Result Analysis

H1 testing using paired sample t-test can be seen in the following table 4.2:

Table 4.2
Results of paired sample t-test for Financial Transaction Analysis Ability

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	19.2423	30	19.84047	3.62236
	POST TEST	44.9848	30	35.98880	6.57063

Paired Samples Test

	Paired Differences					t	Df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
PRE TEST - POST TEST	-25.74	27.86	5.08	-36.14	-15.33	-5.06	29	.000

Source: Data processed,SPSS 16.0

From table 4.2 it can be seen that the average value of statistical testing for hypothesis 1 regarding the ability of MSMEs business peoples in analyzing financial transactions is a difference on average. The average ability to analyze transactions before video screening (treatment) 19.24 while after being shown the transaction simulation video the average post test becomes 44.98. Furthermore, in the table of significance for paired samples test, it is known that the

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significance level of the difference before and after treatment are 0,000. Significance values of 0,000 (p <0.05) indicate that statistically there are significant differences in the mean values both before and after treatment. It can be concluded that hypothesis 1 can be supported [1-19].

Table 4.3
Results of paired sample t-test for the ability to compile the Profit and Loss report and Balance Sheet Report

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	41.6333	30	30.49857	5.56825
	POST TEST	53.7083	30	32.17591	5.87449

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
PRE TEST - POST TEST	-12,07	24,08	4,39	-21,07	-3,079	-2,74	29	,010

Source: Data processed,SPSS 16.0

From table 4.3 it can be seen that the average value of statistical testing of the research hypothesis 2 regarding the ability of MSMEs business peoples to understand the preparation of financial statements is a difference in average. The average ability to understand the preparation of financial statements before video screening (treatment) was 41.63 while after the transaction simulation video aired post-test average became 53.70. Furthermore, in the table of significance for paired samples test, it is known that the significance level of the difference before and after treatment is 0.010. Significant value of 0.010 (p <0.05) indicates that statistically there are significant differences in the mean values both before and after treatment. It can be concluded that hypothesis 2 can be supported.

Next the researchers used two control variables, namely age and education level to see how much the difference was influenced by other peoples. The researcher used the Ancova test to see the relevance of the variable [20-29].

Table 4.4
Control variables to see transaction analysis capabilities
Tests of Between-Subjects Effects

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Dependent Variable: Hasil Pembelajaran

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16022.421[a]	3	5340.807	6.447	.002
Intercept	9038.807	1	9038.807	10.911	.003
Usia	3036.169	1	3036.169	3.665	.067
Pendidikan	10864.829	2	5432.414	6.558	.005
Error	21538.195	26	828.392		
Total	98269.493	30			
Corrected Total	37560.616	29			

a. R Squared = .427 (Adjusted R Squared = ,360)

The Ancova test results show that the age of MSMEs does not affect the ability of analysis of financial transactions, but for education levels can significantly influence the ability of participants to understand and analyze financial transactions[30-32].

Table 4.5
Control variables to see the ability to understand the preparation of financial statements

Tests of Between-Subjects Effects

Dependent Variable: Hasil Pembelajaran

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9821,294[a]	3	3273,765	4,047	,017
Intercept	473,669	1	473,669	,586	,451
Usia	795,539	1	795,539	,984	,330
Pendidikan	9686,688	2	4843,344	5,988	,007
Error	21030,841	26	808,879		
Total	119823,438	30			
Corrected Total	30852,135	29			

a. R Squared = ,318 (Adjusted R Squared = ,240)

The Ancova test results show that the age of MSMEs does not affect the ability of analysis of financial transactions, but for education levels can significantly influence the ability of participants to understand and analyze financial transactions.

V CONCLUSIONS AND SUGGESTIONS

Based on the analysis of the results of testing and discussion, the researcher concluded that the hypothesis states the ability of business people in analyzing transactions and understanding the preparation of financial reports if using mathematical-based methods rather than using conventional learning methods can be supported. The supported hypothesis proves that mathematical learning methods can be used as a solution to overcome the problems faced in accounting learning.

The researcher is aware some of the limitations contained in this study, therefore several evaluations and suggestions that can be given for further research. Firstly, the Adobe Flashplayer

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used to presentation application still needs to be improved, especially in terms of substance/material content and in terms of language selection, display of effects, images, and sounds. The previous application had poor sound quality which was risky, causing participants to be less clear in hearing the material content and instructions delivered. Suggestions for future research are expected to make learning applications more sophisticated, attractive and interactive so as to increase students' interest in learning.

Secondly, different experimental location. The atmosphere of the room that is not the same between the respondents is thought to give a difference in comfort and concentration in carrying out experiments. Suggestions for future research, it would be better if used the same location, thus allowing researchers to properly control various aspects that can affect participant psychology, especially in terms of concentration.

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