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USING CONTEXTUAL TEACHING-LEARNING FOR ENHANCE COMPETENCY, STUDENT ACHIEVEMENT AND LEARNING OUTCOME IN DEVELOPING THE ACCOUNTING INFORMATION SYSTEM IN INDONESIA

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Abstract: This study aimed to investigate the effectiveness of the contextual teaching-learning method in enhancing students' competency, achievement, and learning outcomes in developing accounting information systems in Indonesia. The research utilized a quantitative approach in the form of a questionnaire distributed to 200 students, and data obtained were analyzed using Partial Lease Square (PLS) statistics. The results showed that the contextual teaching-learning approach improved learning achievement, knowledge development, analysis, problem-solving, modern learning techniques, learning collaboration, and competence of all students. The findings of this research provide new theoretical and practical results in contextual learning and advance the reform of contextual learning. The study also discussed the principles and steps involved in implementing contextual teaching-learning, which includes formulating the problem, developing a hypothesis, testing tentative answers, drawing conclusions, and applying conclusions and generalizations. The conclusion highlights how the contextual teaching-learning approach improves student learning outcomes and fosters active and creative learning, transforming teacher-oriented learning to student-oriented. The limitations and recommendations section identified the need for further research to add samples in different subjects to generalize the results of this study. Overall, this research concludes that contextual teaching-learning is an effective approach in improving learning achievement, student competence, and learning outcomes in accounting information systems courses at the State Polytechnic of Malang in Indonesia.

Keywords: contextual teaching-learning, competency, student achievement, learning outcomes.

Introduction:

The discovery method has recently been widely used in advanced schools as it is a way to develop active student learning, and it allows students to discover and investigate the concepts learned by themselves. The results obtained through this method are long-lasting in memory and not easily forgotten by students, and the self-discovered meanings are understandings that are truly mastered and easily used or transferred in other

situations. By using the discovery strategy, students learn to think analytically and try to solve the problems they face themselves, which enables them to develop habits that can be transferred in real life.

Based on the above description, this research aimed to evaluate the effectiveness of the contextual teaching-learning approach in enhancing students' competency, achievement, and learning outcomes in developing accounting information systems in Indonesia. The study proposed using the contextual learning model teaching-learning in the SIA course at the Accounting Department of the State Polytechnic of Malang Indonesia to improve achievement, competence, and learning outcomes.

The study utilized a quantitative research method, which involved a questionnaire distributed to 200 students who took SIA courses. The data obtained were analyzed using statistics Partial Lease Square (PLS). The study focused on investigating the effectiveness of the contextual teaching-learning approach in improving competency in knowledge, students' skills in understanding concepts and theories of Accounting Information Systems, and learning outcomes with innovative contextual learning and evaluation of application with survey questionnaires.

This research aimed to provide new theoretical and practical results in contextual learning and advance the reform of contextual learning. The study also aimed to discuss the underlying principles and steps required to implement contextual teaching-learning successfully. Overall, this research identified that contextual teaching-learning is an effective approach in improving learning achievements, student competence, and learning outcomes in accounting information systems courses.

2. Theoretical Framework

2.1. Basic Concepts of Contextual Teaching- Learning

The results of previous studies almost all show a significant effect of the contextual teaching learning method on student achievement and increase student competence and increase the impact of inquiry discovery on knowledge, skills, collaboration, modernization of learning methods, problem solving analysis and improving the learning process (Nuraya, 2020; Afriani 2018; Auliya 2012; TIB 2017; Zahrani 2019; Aprilia 2019; Apriyanti 2015; Aqib 2015; Erickson 2001; Prabawanto 2017; Debora 2012; Pujani 2017; Osman 2018; Kula 2013; Gosong 2008; Hamruni 2015; Hartoyo 2009; Hasibuan 2014; Erwin 2018; Nail
2016; Liu 2020; Indrayati 2017; Indrayati 2019; Indrayati 2021; Indrayati 2020; Indriani 2017; Jauhari 2011; Johnson 2007; Hannum 2010; Kadir 2013; Amin 2011; Komalasari 2012; Lider 2018; Manao 2013; Muhlisin 2012; Muslim 2009; Nilasari 2018; Novitasari 2014; Nuzul 2014; Putra 2017; Budiharti 2010;
Manik 2013; Saputra 2017; Sariani 2012; Emilia 2012; Sudana 2019; Sakti 2014; Bettye 2006; Suarjana 2017; Mertesari 2005; Sufianto 2019; Sugiarti 2012; Suhartono 2018; Surdin 2018; Susialita 2016; Susila 2013; Tantu 2018; Tilaar 2019; Trianto 2014; Dantes 2014; Martini 2015; Desyandri 2019).

2.2. Discovery Contextual teaching-Learning Principles

Contextual teaching- learning refers to the following principles (Trianto 2014) :

1. Oriented to Intellectual Development. The main goal of contextual learning is the development of thinking skills. Thus, this learning is not only oriented to learning outcomes but also oriented to the learning process.
2. Principle of Interaction. The learning process is basically an interaction process, both interactions between students and interactions between students and teachers, even interactions between students and the environment. Learning as an interaction process means placing the teacher not as a source of learning, but as a regulator of the environment or a regulator of the interaction itself.
3. The Principle of Asking. The teacher's role that must be carried out in using this learning is the teacher as the questioner. Because, the ability of students to answer each question is basically already part of the thinking process. In this case, the teacher's ability to ask questions in every step of inquiry is very necessary.

In addition, in this learning, students also need to develop a critical attitude by always asking and questioning the various phenomena they are studying.

4. The Principle of Learning to Think. Learning is not just remembering a number of facts, but learning is a process of thinking (learning how to think), namely the process of developing the potential of the whole brain. Learning to think is the maximum utilization and use of the brain.

5. The principle of openness. Meaningful learning is learning that provides various possibilities as hypotheses that must be proven true. The teacher's task is to provide space to provide opportunities for students to develop hypotheses and openly prove the truth of the hypotheses they propose.

2.3. Steps to Implement Contextual teaching- Learning

The contextual teaching- learning process is carried out through the following stages:

1. Formulate the problem; the skills required are: (a) awareness of the problem; (b) see the importance of the problem and (c) formulate the problem.

2. Develop a hypothesis; The skills required in developing this hypothesis are: (a) testing and classifying the data that can be obtained; (b) see and formulate existing relationships logically; and formulate hypotheses.

3. Testing tentative answers; The skills required are: (a) assembling events, consisting of: identifying required events, collecting data, and evaluating data; (b) compiling data, consisting of: translating data, interpreting data and classifying data; (c) data analysis, consisting of: looking at relationships, noting similarities and differences, and identifying trends, sequences, and regularities, (d) finding answers to hypotheses.

4. Draw conclusions; the skills required are: (a) looking for patterns and meanings of relationships; and (b) formulate conclusions

5. Apply conclusions and generalizations (Hannum.2010)

According to Hosnan (2014) the characteristics or characteristics of contextual teaching- Learning are (1) searching, investigating, exploring and solving problems to create, combine, and generalize knowledge, (2) student-centered, (3) activities to combine new knowledge and old knowledge. which have existed

Contextual teaching learning is learning that helps teachers relate the material being taught to students' real world situations and encourages students to make connections between their knowledge and its application to their daily lives. This involves seven main components of effective learning, namely; constructivism, asking (quetioning), finding (inquiry), learning community, modeling, reflection and actual research. This learning provides more opportunities for students to do, try, and experience for themselves (learning to do), students are not just passive listeners. This learning prioritizes real knowledge and experience (real word learning), high-level thinking, student-centered, active students, critical, creative, problem-solving, students learn fun, fun, not boring, (joyful and quantum learning) and uses various kinds of learning. Learning Resources.

The hypotheses in this study are:

H1: Contextual learning has a significant effect on learning achievement

H2: Contextual learning has a significant effect on learning outcomes

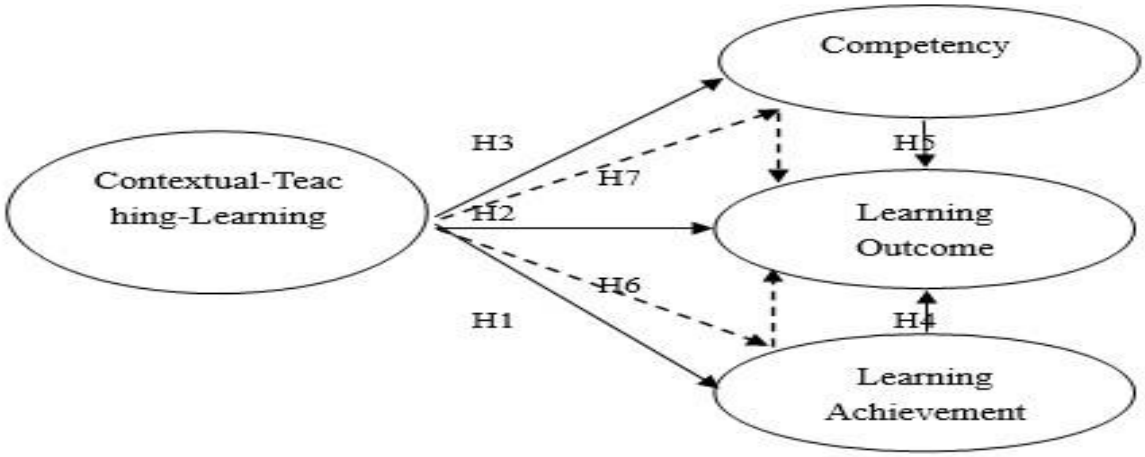
H3: Contextual learning has a significant effect on student competence

H4: Learning achievement has a significant effect on learning outcomes

H5: Competence affects learning outcomes

H6: Contextual learning has an effect on learning outcomes through learning achievement.

H7: Contextual learning has an effect on learning outcomes through competence. The research model is:



$Y1 + Y2 + Y3 = a + b1\ X1 + e$

Figure 1. Concept Research Model

3. Research Methodology

3.1. Classroom action research

Classroom Action Research according to the Lewis Model which is interpreted by Elliot (1991) includes aspects of planning, action, observation and reflection. Classroom action research according to Moleong (2015) is as follows:

Identify problems, discuss problems between researchers and those being studied, examine libraries and problems, redefine problems, choose change and evaluation methods, implement changes. The type of research is quantitative with the subject of 6 classes of students taking SIA courses with a total of 200 active students in the accounting department of the State Polytechnic of Malang Indonesia. The survey research method used data collection techniques by sending questionnaires to all students who took the SIA course with a response rate of 98%. 196 questionnaires were answered. Data processing with SEM-PLS. And measurement with a 5 point Likert scale with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

4. Results and Discussion

DescriptifAnalysisVariable Contextual Learning (X)

Table 1. Descriptif Analysis Variable Contextual Learning (X)

Indicator	**Minimum**	**Maximum**	**Average**	**Std. Deviation**
Learning method SCL, Inquiry-Discovery and Cooperative learning (X1.1)	0	1,00	3,867	0,666

In the Contextual Learning (X) indicator, it is known that the minimum value is 2, the maximum value is 5, the average value (mean) is 3.867, and the standard deviation value is 0.666.

Table 2. DescriptifAnalysisVariable Achievement learning (Y1)

Indicator	**Minimum**	**Maximum**	**Average**	**Std. Deviation**
Achievement learning (Y1)	2,00	5,00	3,714	0,781

In the Achievement learning indicator (Y1), it is known that the minimum value is 2, the maximum value is 5, the average value (mean) is 3.714, the standard deviation value is 0.781.

Table 3. Descriptif Variable Learning Outcome (Y2)

Indicator	Minimum	Maximum	Average	Std. Deviation
Basic knowledge (Y2.1)	1,00	5,00	4,029	0,753
Analysis &problem solving (Y2.2)	1,00	5,00	4,133	0,621
Modern technical learnig (Y2.3)	3,00	5,00	4,000	0,604
Improvement learning (Y2.4)	1,00	5,00	4,133	0,785
Cooperation (Y2.5)	3,00	5,00	4,343	0,569

Descriptif Analysis Variable Competency (Y3)

Table 4. Descriptif Variable Competency (Y3)

Indicator	Minimum	Maximum	Average	Std. Deviation
Competensy (Y3)	2,00	5,00	4,257	0,772

In the Competency Indicator (Y3), it is known that the minimum value is 2, the maximum value is 5, the average value (mean) is 4.257, and the standard deviation value is 0.772.

4.1. Construct Reliability Validity test results

Evaluation of the validity of the measurement model can be done by looking at the results of the factor load estimates. A variable is said to have good validity to the construct or latent variable if the load is greater than the critical value (≥ 1.96) and/or the standard factor load is 0.50. While the evaluation of the reliability of the measurement model in PLS can use Constuct Reliability (CR 0.70) and Average Variance Extracted (AVE) 0.50 (Solimun, et al. 2020). The recapitulation of the results of the evaluation of validity and reliability can be seen in the following table:

Table 5. Construct Validity & Reliability Summary (Outer Model)

Latent Variable	Observed Variable	Partial Validity (Per Indicator) (LF > 0,5=Valid)		Rank	OverAll validity (Per construct) (AVE > 0,5=Valid)		Composite Reliability (CR > 0,7)	
		Outer Loading	Inf		AVE	Conclusion	CR	Description
Contextual Learning (X)	X1.1	1,000	Valid	1	1,000	Valid	1,000	Reliable
Achievement learning (Y1)	Y1.1	1,000	Valid	1	1,000	Valid	1,000	Reliable
Learning Outcome (Y2)	Y2.1	0,844	Valid	2	0,642	Valid	0,899	Reliable
	Y2.2	0,756	Valid	4				
	Y2.3	0,784	Valid	3				
	Y2.4	0,866	Valid	1				
	Y2.5	0,747	Valid	5				
Competency (Y3)	Y3.1	1,000	Valid	1	1,000	Valid	1,000	Reliable

Based on the table above, it can be seen that the entire reflective indicator value Loading factor 0.50 (Valid), and the AVE value 0.50 (Valid) so that all indicators that measure it are declared valid, while the results of

the reliability calculation show that the Composite Reliability value (CR) 0.70 (Reliable). Thus, it can be concluded that all these latent variables have good and proper indicators.

In addition to evaluating the indicators of Convergent Validity, it is also necessary to test with Discriminant Validity, where the measurement model is assessed based on cross loading measurements with constructs. If the correlation of the construct with the main measurement of each indicator is greater than the other constructs, then the latent construct is able to predict the indicator better than the other constructs.

Table 6. Test Cross Loading *(Discriminant Validity)*

Variable	**Contextual Learning (X)**	**Achievement Learning (Y1)**	**Learning Outcome (Y2)**	**Competency (Y3)**
X1.1	1,000	0,240	0,526	0,235
Y1.1	0,240	1,000	0,508	-0,005
Y2.1	0,487	0,521	0,844	0,450
Y2.2	0,299	0,317	0,756	0,429
Y2.3	0,454	0,285	0,784	0,350
Y2.4	0,402	0,470	0,866	0,434
Y2.5	0,452	0,396	0,747	0,344
Y3.1	0,235	-0,005	0,504	1,000

4.2. Hypothesis Testing (Path Analysis)

This section deals with the evaluation of the coefficients or parameters that indicate a causal relationship or the effect of one latent variable on another latent variable. A causal relationship is declared insignificant if the critical ratio (C.R.) is between the ranges of -1.96 and 1.96 with a significance level of 0.05. With the help of the PLS program application, the results of the critical ratio estimation of the structural model are obtained. In summary, the results of the calculation of these coefficients are presented in the following table: Table 7. Results Path Analysis SEM-PLS

Influence Between Latent Variable			**H**	**Path Coefficient**	**t-value**	**p-value**	**Conclusion**
Cause Var.	→	**Consequency Var.**					
Contextual Learning (X)	→	Achieve ent learning (Y1)	H_1	0,240	3,095	0,002	H_1 accepted
Contextual Learning (X)	→	Learning Outcome (Y2)	H_2	0,321	3,758	0,000	H_2 accepted
Contextual Learning (X)	→	competency (Y3)	H_3	0,235	2,612	0,009	H_3 accepted
Achievement Learning (Y1)	→	Learning Outcome (Y2)	H_4	0,433	5,986	0,000	H_4 accepted
Competency (Y3)	→	Learning Outcome (Y2)	H_5	0,430	5,714	0,000	H_5 accepted

It is known that the Contextual Learning (X) variable has a positive influence on Achievement learning (Y1), meaning that the higher Contextual Learning (X) the result will be an increase in the Achievement learning

variable (Y1), where the Path coefficient obtained is 0.24 with a t-value of 3,095. Because the t-value is greater than the critical value (3.095 > 1.96), the statistical hypothesis states that H1 is accepted, meaning that the Contextual Learning (X) variable has a significant influence on the Achievement learning variable (Y1).

It is known that the Contextual Learning (X) variable has a positive influence on Learning Outcome (Y2), meaning that the higher Contextual Learning (X) the result will be an increase in the Learning Outcome variable (Y2), where the Path coefficient obtained is 0.321 with a t-value of 3.758. . Because the t-value is greater than the critical value (3.758 > 1.96), the statistical hypothesis states that H2 is accepted, meaning that the Contextual Learning (X) variable has a significant effect on the Learning Outcome variable (Y2).

It is known that the Contextual Learning (X) variable has a positive influence on Competence (Y3), meaning that the higher the Contextual Learning (X) the result will be an increase in the Competence variable (Y3), where the Path coefficient obtained is 0.235 with a t-value of 2.612. Because the t-value is greater than the critical value (2.612 > 1.96), the statistical hypothesis states that H3 is accepted, meaning that the Contextual Learning (X) variable has a significant effect on the Competence variable (Y3).

It is known that the Achievement learning variable (Y1) has a positive influence on Learning Outcome (Y2), meaning that the higher Achievement learning (Y1), the result will be an increase in the Learning Outcome variable (Y2), where the Path coefficient obtained is 0.433 with a t-value of 5.986 . Because the t-value is greater than the critical value (5.986 > 1.96), the statistical hypothesis states that H4 is accepted, meaning that the Achievement learning variable (Y1) has a significant influence on the Learning Outcome variable (Y2).

It is known that the Competency variable (Y3) has a positive influence on Learning Outcome (Y2), meaning that the higher the Competence (Y3), the result will be an increase in the Learning Outcome variable (Y2), where the Path coefficient obtained is 0.43 with a t-value of 5.714. . Because the t-value is greater than the critical value (5.714 > 1.96), the statistical hypothesis states that H5 is accepted, meaning that the Competence variable (Y3) has a significant effect on the Learning Outcome variable (Y2).

The path coefficients in the structural model as well as the weight value of the manifest variable factors in the measurement model can be described through the path diagram of the measurement model and the structural model below.

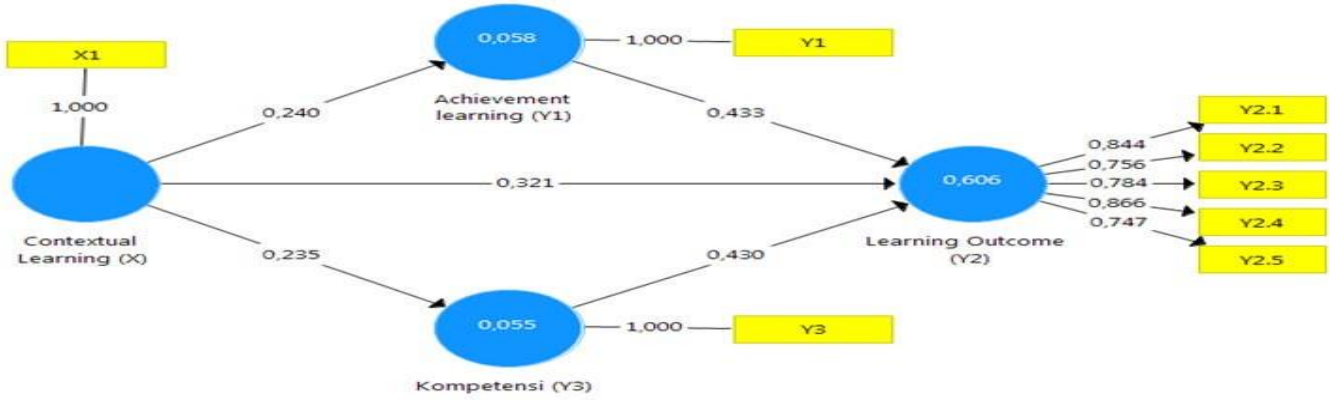


Figure 2. Result Path Diagram

Y2 = 0,321 X + 0,433 Y1 + 0,430 Y2

Y1 = 0,240 X

Y3 = 0,235 X

Based on the Path Diagram above, it can be seen that the most dominant variable in influencing Learning Outcome (Y2) is Achievement learning (Y1) with the highest path coefficient of 0.433, while Achievement

learning (Y1) is more dominantly influenced by Contextual Learning (X) of 0.240, where the Contextual Learning (X) variable in this study is proxied (represented) on the measurement of the SCL, Inquiry-Discovery and Cooperative learning (X1.1) learning methods, so that the value of the loading factor in the construction of the Contextual Learning (X) variable is 1,000 or 100%, it means that the measurement of Contextual Learning (X) variable is fully represented by the measurement of SCL, Inquiry-Discovery and Cooperative learning (X1.1) learning methods. Thus, if the management wants to increase the value of the Learning Outcome (Y2) variable from Contextual Learning (X) through Achievement learning (Y1), statistical recommendations as material for evaluating strategic policies, especially regarding key indicators that need to be prioritized for improvement are the measurement of the SCL learning method, Inquiry-Discovery and Cooperative learning (X1.1).

4.3. Analysis of Mediation Variables (Indirect Effect)

The analysis of the mediating variable can be done through two approaches, namely the difference in coefficients and the multiplication of the coefficients. The coefficient difference approach uses an examination method by analyzing with and without involving mediating variables. While the multiplication method is carried out by the Sobel method. In this case, the detection is done by using the coefficient multiplication approach and the Sobel test. After going through the analysis process, the results of the coefficient multiplication are known as described below.

Table 8. Indirect influence between latent variables

Indirect influence	**H**	**Count**	**Results**	**t-count**	**p-value**	**Description**
Contextual Learning (X) on Learning Outcome (Y2) through Achievement learning (Y1)	H_6	0,24 x 0,433	0,104	2,716	0,007	H_6 accepted
Contextual Learning (X) on Learning Outcome (Y2) through competency (Y3)	H_7	0,235 x 0,43	0,101	2,239	0,026	H_7 accepted

Based on the table above, it can be seen that the indirect influence of latent variables on the intended latent variables is as follows:

1. The indirect effect of Contextual Learning (X) on Learning Outcome (Y2) through Achievement learning (Y1) is 0.104 with a t value of 2.716 > 1.96 (Significant).
2. The indirect effect of Contextual Learning (X) on Learning Outcome (Y2) through Competence (Y3) is

0.101 with a t value of 2.239 > 1.96 (Significant).

From these results it can be concluded that the two mediating variables, namely Achievement learning (Y1) and Competence (Y3) are declared capable of mediating the effect of Contextual Learning (X) on Learning Outcomes (Y2).

4.4. Correlation Analysis

The results of the correlation analysis between latent variables are as in the following table.

Table 9. Latent Variable Correlations

	X1	Y1	Y2.1	Y2.2	Y2.3	Y2.4	Y2.5	Y3
X1	1,000	0,240	0,487	0,299	0,454	0,402	0,452	0,235
Y1	0,240	1,000	0,521	0,317	0,285	0,470	0,396	0,005
Y2.1	0,487	0,521	1,000	0,568	0,550	0,644	0,538	0,450
Y2.2	0,299	0,317	0,568	1,000	0,487	0,633	0,386	0,429
Y2.3	0,454	0,285	0,550	0,487	1,000	0,628	0,531	0,350
Y2.4	0,402	0,470	0,644	0,633	0,628	1,000	0,542	0,434
Y2.5	0,452	0,396	0,538	0,386	0,531	0,542	1,000	0,344
Y3	0,235	0,005	0,450	0,429	0,350	0,434	0,344	1,000

Based on the table above, it can be seen the correlation between research variables. In general, all of the correlation values above are positive, meaning that the higher the causal variable, the higher the effect variable.

5. Discussion

This research is about the effect of contextual teaching-learning on the basis of student centered learning, inquiry and discovery learning to improve competency, student achievement and learning outcomes with the findings showing a significant effect of contextual teaching-learning on competency, achievement and learning outcomes as well as achievement learning and competency is successful as a mediating variable in the effect of contextual teaching-learning on learning outcomes with a significant effect. This research supports the results of previous studies, including Nuraya, 2020; Afriani 2018; Auliya 2012; TIB 2017; Zahrani 2019; Aprilia 2019; Apriyanti 2015; Aqib 2015; Erickson 2001; Prabawanto 2017; Debora 2012; Pujani 2017; Osman 2018; Kula 2013; Gosong 2008; Hamruni 2015; Hartoyo 2009; Hasibuan 2014; Erwin 2018; Nail 2016; Liu 2020; Indrayati 2017; Indrayati 2019; Indrayati 2021; Indrayati 2020; Indriani 2017; Jauhari 2011; Johnson 2007; Hannum 2010; Kadir 2013; Amin 2011; Komalasari 2012; Lider 2018; Manao 2013; Muhlisin 2012; Muslim 2009; Nilasari 2018;

Novitasari 2014; Nuzul 2014; Putra 2017; Budiharti 2010; Manik 2013; Saputra 2017; Sariani 2012; Emilia 2012; Sudana 2019; Sakti 2014; Bettye 2006; Suarjana 2017; Mertesari 2005; Sufianto 2019; Sugiarti 2012; Suhartono 2018; Surdin 2018; Susialita 2016; Susila 2013; Tantu 2018; Tilaar 2019; Trianto 2014; Dantes 2014; Martini 2015; Desyandri 2019).

6. Conclusion and Implication

The conclusion of this study is that the contextual teaching-learning method has a significant effect on learning achievement, learning outcomes and competency. And competency and achievement learning are successful as mediating variables that significantly affect contextual teaching-learning on learning outcomes. The implication of this research is that contextual teaching-learning can improve learning achievement, student competence and learning outcomes in learning Accounting Information Systems courses at the State Polytechnic of Malang for the better.

7. Limitations and Recommendations

The limitation of this study is that the population is only in the System . course Accounting Information at the

State Polytechnic of Malang with a sample of 196 students. For future research is expected to add samples in the same study with different subjects to be able to generalize the results of this study.

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