

## THE EFFECT OF EMOTIONAL LEARNING AND INTELLIGENCE MODELS ON ACCOUNTING UNDERSTANDING (EXPERIMENTAL STUDY ON MEDAN VOCATIONAL SCHOOL (SMK) 1 STUDENT)

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### Abstract

The research objective was to examine (1) differences in accounting understanding between students taught using the problem based learning (PBL) learning model compared with students taught using direct instruction (DI) learning models, (2) differences in accounting understanding between students who have high emotional intelligence with students who have low emotional intelligence, (3) the influence of interactions between learning models and emotional intelligence on understanding accounting. The research location is in SMK Negeri 1 Medan. The study population was all students of class 10 (X) - SMK accounting for the year 2018/2019 consisting of 144 students. Sampling uses cluster random sampling, so the study sample is 61 students. This type of research is quasi-experimental with a 2 X factorial research design 2. The collection of research data using questionnaires and learning outcomes tests. The data analysis technique uses two-way ANOVA. The results showed that (1) there was a significant difference in the understanding of accounting between students taught using the problem based learning (PBL) learning model compared with students taught using the direct instruction learning model (DI). (2) There is a significant difference in the understanding of accounting between students who have high emotional intelligence and students who have low emotional intelligence. (3) There is an influence of the interaction between the learning model and emotional intelligence on the understanding of accounting.

Keywords: Understanding of Accounting, Learning Models, Emotional Intelligence

### 1. Introduction

Vocational high school business and management (BM Vocational School) is a school that produces graduates who master management, economics and accounting sciences. One study program that is in great demand by students is an accounting study program. Graduates from accounting study programs are expected to be able to work directly in the fields of finance, government, taxation, banking and other sectors related to accounting. Graduates from this vocational school are said to be of good quality if students who graduate from accounting study programs have a high understanding of accounting. From the results of pre-research observations, not all students have a high accounting understanding, this is evidenced by the number of students who did not reach the minimum completeness criteria (KKM) on three daily repetitions. Even though a high understanding of accounting is needed when students graduating from SMK work in accounting.

The teacher feels confused over the low understanding of student accounting. The teacher has tried to improve the quality of learning by using the direct instruction learning model (DI). But in practice, this direct instruction learning model has not been able to improve students' understanding of accounting, this can be seen from students' low

accounting learning outcomes. When referring to previous research, Sari (2015) concluded that the application of direct instruction learning models was able to improve the understanding of accounting. Thus, there is a gap between the practices carried out by teachers and previous research.

The problem based learning (PBL) learning model is thought to be able to improve the understanding of accounting because this learning model is based on a scientific approach which uses scientific methods in learning. If this learning model is applied to accounting learning, then students will be given a problem that can be in the form of accounting problems or can be in the form of accounting questions to be solved by students. By solving problems or accounting cases given, it is expected that students' understanding of accounting will increase. Alleged increase in accounting is reinforced by the results of previous studies conducted by Martanti and Priantina (2014) that the application of the problem based learning model is able to improve the understanding of accounting and accounting learning motivation.

In addition to selecting the appropriate learning model, one of the factors that is thought to influence the understanding of accounting is emotional intelligence. Goleman (2017) states that emotional intelligence is a person's ability to control feelings and emotions in building relationships with others. Emotional intelligence is thought to be needed to understand accounting because the nature of accounting subjects is not only a theory but also consists of counts. The matter of accounting in accounting requires patience and high emotional control in learning it, if students find it difficult to control their emotions and feelings, it is estimated that students will lose their motivation and interest in learning so that it will have an impact on students' understanding of accounting. From the results of Kusnita (2014), Rokhana and Sutirso (2016), Zulhawati and Ariani (2016), Satria (2017), Wardani and Ratnadi (2017) and Widhiyani ddk (2017) concluded that emotional intelligence has a positive and significant effect on accounting understanding, but their research contradicts the results of research by Utami and Sumaryanto (2013) and Putri, et al. (2017) which concluded that emotional intelligence does not influence accounting understanding, besides Napitupulu's research (2009) states emotional intelligence has a negative and insignificant effect on understanding accounting. Thus, there is a gap between prior research.

The selection of appropriate research instruments is important in obtaining research results that can be broadly generalized. When referring to the research conducted by Saputra et al. (2017) using a questionnaire in measuring the understanding of forensic accounting which is the result of treating the cased based learning method, this measurement is thought to be less appropriate because measuring understanding is more suitable using learning outcomes tests. Tests of learning outcomes are thought to be more objective in measuring students and students' understanding in seeing the extent of their accounting understanding. This is in accordance with the statement of education academics namely Arikunto (2012), Susetyo (2015), Sudjana (2016) and Purwanto (2016) which states that measuring understanding uses test results. When using a questionnaire in measuring understanding, the results of the study will be subjective where students and students will use their respective perceptions in assessing their understanding.

## **2. Literature Review and Hypothesis**

### **2.1. Bloom's Taxonomy Theory Anderson Revised**

At first, there were six stages of cognitive ability according to Bloom (in Arikunto, 2012), namely: knowledge, understanding, application, analysis, synthesis, and evaluation. In 1990, this theory was revised by Anderson (in Susetyo, 2015) which consisted of remembering, understanding, applying, analysing, evaluating and creating. This theory states that before a person is able to apply scientific concepts, then someone must understand the concepts of science that will be applied. If this theory is associated with research problems, then vocational school graduates will find it difficult to apply their accounting knowledge while working in accounting, if they do not have a high understanding of accounting.

### **2.2. Understanding of Accounting**

Sudjana (2016) understanding is a cognitive ability that is higher than knowledge where comprehension ability consists of translation, interpretation, and extrapolation. Furthermore, Weygandt et al (2009) stated that accounting is an information system that consists of a process of identifying, recording and reporting economic events experienced by an organization to the users of information that are interested. So the understanding of accounting is the ability to translate, interpret, and extrapolate the economic events of the company which then proceed to the process of recording, summarizing and reporting.

### **2.3. Problem Based Learning (PBL) Learning Model**

Lubis (2015) said that the learning model of problem based learning (PBL) is a learning model that introduces a problem to students to be trained in their ability to be able to think critically and solve problems given to learning. The steps of the problem based learning (PBL) learning model according to Shoimin (2014) are as follows: (1) In the first stage, the teacher notifies the students of learning and motivation goals, (2) In the second stage, the teacher gives problems to students, (3) In the third stage, the teacher assists students in solving problems using the scientific method, (4) In the fourth stage, the teacher provides direction and guidance to prepare the final work which can be a report, (5) In the final stage, the teacher evaluates student work.

### **2.4. Direct Instruction Learning Model (DI)**

Fathurrohman (2015) states that the direct instruction learning model is a learning model that provides opportunities for students to observe, imitate, and remember what their teacher has taught in learning. Shoimin (2014) describes the steps of the direct instruction learning model, namely: (1) The teacher provides learning orientation to students, (2) The teacher provides learning material with presentations and demonstrations to students, (3) The teacher provides initial training to students, (4) The teacher checks the ability of students in the material taught and provides feedback, (5) In the final step the teacher provides guided training and provides an evaluation of the material being taught.

### **2.5. Emotional Intelligence (EQ)**

Goleman (2017) states that emotional intelligence is a skill in building relationships with other people and the ability to understand other people's feelings and one's capabilities in self-recognition, self-control, and self-motivation. There are two factors that influence a person's emotional intelligence according to Goleman (2017), namely: (1) Family environment factors are the environments that first interact with someone when someone

is born, this environment is very influential on someone's emotional intelligence where events occur inside family will form the high and low emotional intelligence of a person, (2) non-family environmental factors is an environment that interacts with someone after a family environment where a person's high intelligence is influenced by events that occur in a non-family environment, examples of non-family environment, namely: environment work, community environment, school environment and so on. Goleman (Wibowo, 2015) outlines five indicators for measuring emotional intelligence, namely: (1) Self-introduction, (2) self-control, (3) motivation, (4) Empathy, and (5) social skills.

## 2.6. Hypothesis

The hypothesis proposed in this study is as follows:

- a. There is a difference in accounting understanding between students taught using the problem based learning (PBL) learning model compared to students taught by using the direct instruction model (DI).
- b. There is a difference in understanding of accounting between students who have high emotional intelligence and students who have low emotional intelligence.
- c. There is an influence of the interaction between learning models and emotional intelligence on the understanding of accounting.

## 3. Method

### 3.1. Type of Research

This type of research is quasi-experimental with factorial design 2X2 research design (Nahartyo, 2012). For more details, see the table below:

**Table 1**  
**Research Design**

emotional Intelligence (B)	Learning Model (A)	
	blem Based Learning (PBL) (A1)	Learning Direct Instruction (DI) (A2)
igh (B1)	A1B1	A2B1
iv (B2)	A1B2	A2B2

Information:

- A1 : Problem based learning (PBL)                      A2 : Direct instruction (DI)  
 B1 : High emotional intelligence                      B2 : Low emotional intelligence  
 A1B1: Understanding of accounting students taught with problem based learning (PBL) learning models and having high emotional intelligence.  
 A1B2: Understanding of accounting students taught with problem based learning (PBL) learning models and having low emotional intelligence.  
 A2B1: Understanding of accounting students taught with direct instruction learning models (DI) and having high emotional intelligence.  
 A2B2: Understanding of accounting students taught with direct instruction learning models (DI) and having low emotional intelligence.

### 3.2. Population and Research Samples

The study population was 144 students consisting of four classes. The sampling technique uses cluster random sampling. The number of samples in the study consisted of 61 students divided into two classes namely 31 students from class 10 (X) Ak 2 who were

taught with problem based learning models, while 30 students came from class 10 (X) Ak 4 taught by direct instruction learning models.

### 3.3. Data Collecting Methods

This study uses primary data collected through two research instruments as follows:

- a. Questionnaire is used to measure emotional intelligence. The questionnaire in this study is a combination and modification of the two previous researchers, namely: Pasek (2015) and Sari (2015) which will then be tested again for validity and reliability.
- b. Learning outcome tests are used to measure the understanding of accounting taught by problem based learning models and direct instruction learning models. Before this test is given to the actual respondent, the validity, reliability, distinguishing questions and the level of difficulty of the questions are tested.

### 3.4. Data Analysis Methods

The method of data analysis in this study uses descriptive statistics and inferential statistics. Hypothesis testing uses two-way ANOVA, if there is an interaction between the learning model and emotional intelligence, then it is followed by a post-hoc test. Before the two-way anova test, normality and homogeneity were tested. Data processing uses the help of SPSS version 17 software.

## 4. Result and Discussion

### 4.1. Result

#### a. Research Instrument Test

The results of the questionnaire validity test showed that of the 25 questions tested, three questions were invalid, so only 22 questions were given to the actual sample. The questionnaire reliability test results showed Cronbach's Alpha value of 0.862. Thus, questionnaires for appropriate research are used to measure emotional intelligence.

The results of the validity test of the learning outcomes show that out of the 30 questions tested, 10 items were invalid, so only 20 questions were tested on the actual sample. The results of the reliability test showed a calculated value of 0.82. Thus, the test results of appropriate research are used to measure understanding of accounting.

The results of the different power test questions show that the learning outcomes test has 18 questions having a differentiating problem with good criteria and two questions having a very good criterion. Furthermore, from the results of the difficulty level test questions show that the learning outcomes test has three easy grade questions, 14 moderate level questions, and three difficult standard questions.

#### b. Descriptive Test

After testing the research instruments, then the data is taken in the study sample. The following below are the results of data retrieval described in descriptive statistics, namely:

**Table 2**  
**Descriptive statistics**

	N	Mean	SD	Variance	n.	Max.	Information
ss 10 (X) Ak 2		06	81	0.46			Pre – Test
ss 10 (X) Ak 4		83	23	1.63			
L (Class 10 (X) Ak 2)		81	7	83			Post – Test

(Class 10 (X) Ak 4)	83	4	63			
High EQ	32	5	56			
Low EQ	17	6	97			
High PBL & EQ	31	6	23			
Low PBL & EQ	00	0	57			
High DI & EQ	33	7	81			
Low DI & EQ	33	3	52			

**c. Normality Test**

The results of the normality test indicate that the value of sig. PBL learning model is 0.362, then the sig value. DI learning model is 0.193, then the sig value. High EQ is 0.202, next is sig. Low EQ of 0.064, after that the PBL & EQ learning model is high at 0.807, then the sig value. PBL & EQ learning model Low 0.067, then the sig value. High DI & EQ learning model is 0.295 and sig. the value of the DI & EQ learning model is low at 0.105. Because all values are sig. greater than the value of  $\alpha = 0.05$ , the data in this study have a normal distribution.

**d. Homogeneity Test**

The homogeneity test results show that the sig value. the learning model is 0.513 greater than the value of  $\alpha = 0.05$ , then the sig value. emotional intelligence of 0.801 is greater than the value of  $\alpha = 0.05$ , and the value of sig learning model \* emotional intelligence is 0.933 greater than the value of  $\alpha = 0.05$ . Thus the data in this study have a homogeneous variance.

**e. Two Way Anava Test**

The two-way anava test results show that the sig value. the learning model is 0.042 lower than the value  $\alpha = 0.05$ , then it is also known that the value of sig. the learning model is 0.013 lower than the value of  $\alpha = 0.05$  and the value of sig. learning model \* emotional intelligence of 0.043 is lower than the value of  $\alpha = 0.05$ . Thus all research hypotheses proposed in this study were accepted.

**f. Post Hoc Test**

Because there is an interaction between learning models and emotional intelligence, to see differences in accounting understanding between combinations of each learning model and each level of emotional intelligence, it is followed by a post hoc test. The following below is the result of a post hoc test with the Scheffe formula, namely:

Table 3  
Post Hoc Test Results (Scheffe Test)

Group	Mean	Group	Mean	Sig.	Information
L & EQ High	31	L & EQ Low	00	18	Significant
L & EQ Low	00	& EQ High	33	20	
L & EQ Low	00	& EQ Low	33	47	
L & EQ High	31	& EQ High	33	00	Not Significant
L & EQ High	31	& EQ Low	33	89	
& EQ High	33	& EQ High	33	89	

## 4.2. Discussion

### a. Differences in Accounting Understanding Between Students Taught Using Problem Based Learning (PBL) Models Compared to Students Taught Using Direct Instruction (DI) Models.

This difference is caused by differences in the steps of each learning model. Apart from being different in the steps of the learning model, the differences in learning approaches in each learning model also influence the differences in students' understanding of accounting. From the steps of the problem based learning (PBL) learning model it contains the student center learning approach where students are more required to be independent in learning, in other words learning is more student-centered where students themselves must be active in learning. In contrast to the direct instruction (DI) learning model, from the steps of this learning model it contains a teacher learning center approach where the teacher plays an active role in providing learning material, in other words the teacher's role is more dominant in learning than students.

The direct instruction (DI) learning model is better than the problem based learning (PBL) learning model because this learning model requires teachers to be more active in learning. This was evidenced at the time of observation where students who studied with the direct instruction model (DI) interacted more with the teacher from the beginning of learning to the end of learning, the interaction of students with teachers most occurs when guided training where students are not afraid to ask the teacher about the material accounting that students don't understand. In contrast to the problem based learning (PBL) learning model, students who learn with this learning model only interact with the teacher when at the beginning of learning and at the end of learning when evaluating student work. When students try to solve accounting questions given by the teacher, the teacher is only as a facilitator and supervisor of activities to solve the problems.

The learning model of problem based learning (PBL) influences the understanding of accounting. This is due to the fact that during learning students are given questions in the form of cases or accounting problems that are discussed independently by the students concerned. Because of the self-independence of learning, students themselves do problem solving on the questions given, so students know for themselves how the process of solving the problem given by the teacher. The results of this study support previous research conducted by Martanti and Priantinah (2014) which states that the application of the problem based learning (PBL) model is able to increase motivation and understanding of accounting concepts.

The direct instruction learning model (DI) influences the understanding of accounting because students get guided training by the teacher after the teacher provides accounting material. From the results of observation, teacher communication with students is very close where during training students are not afraid to ask the teacher when they do not understand accounting learning material. If students mistakenly understand accounting material, the teacher will immediately provide an explanation of the error, so that students can improve their understanding of accounting. Thus, the results of this study are in line with Sari's research (2015) which states that direct instruction learning models are able to improve accounting understanding.

Prior to this study, the teacher had applied the direct instruction learning model (DI) but had not succeeded in increasing students' understanding of accounting. After tracing the cause, it turns out that the teacher incorrectly implemented the steps of this learning model, it turns out the teacher on the application of this learning model before this research was conducted, only lecturing learning material and discussing accounting questions, without conducting guided exercises in accordance with the steps direct instruction learning model (DI). Thus, it can be concluded that the application of the direct instruction (DI) learning model correctly and correctly can improve students' understanding of accounting.

**b. Differences in Accounting Understanding Between Students Who Have High Emotional Intelligence and Students Who Have Low Emotional Intelligence.**

The reason for this difference is that students who have high emotional intelligence have better self-awareness than students who have low emotional intelligence. Students who have high emotional intelligence are able to recognize feelings in themselves and know the limits of their own abilities, so students dare to ask the teacher when students do not understand the accounting material taught by the teacher. Unlike students who have low emotional intelligence, students are not able to recognize feelings in themselves, do not know the limits of their abilities, besides students are not confident in learning accounting, so when working on accounting questions students are not confident in their abilities.

The next difference is that students who have high emotional intelligence have better self-control than students who have low emotional intelligence. This is evidenced, when accounting learning is underway, students who have high emotional intelligence are more patient in working on the questions - accounting questions given by the teacher, when students who have high emotional intelligence make mistakes, the students are not immediately emotional and try again to work on the problem until right. Unlike students who have low emotional intelligence, when students make mistakes, students feel upset and emotional because the work done by students is wrong.

Students who have high emotional intelligence have higher motivation than students who have low emotional intelligence. Students who have high emotional intelligence are able to encourage themselves to be better than before, this is shown by students when accounting study time, students who have high emotional intelligence are not discouraged in learning accounting and want to get good learning outcomes so students always increase the understanding of accounting continuously by learning. In contrast to students who have low emotional intelligence, students who have low emotional intelligence do not have high motivation, so the urge to be better than before is very little, this is evidenced, when teacher learning must motivate students who have low emotional intelligence to have enthusiasm to solve accounting questions given.

In terms of empathy, students who have high emotional intelligence are able to accept the views of other students when discussing, and are sensitive to the feelings of other students, besides that students who have high emotional intelligence can help other students who have difficulty in learning accounting by teaching and give instructions to students who have difficulty. In contrast to students who have low emotional intelligence, students who have low emotional intelligence find it difficult to accept the views of other students when discussing, this is evidenced during group



discussions, students who have low emotional intelligence find it difficult to listen to other students' opinions and tend to prioritize their opinions, so that when there is a learning group of students who have low emotional intelligence more likely to work alone and emotionally when discussing.

When viewed from social skills indicators, students who have high emotional intelligence are able to communicate messages to others well and convince others, this is evidenced when students present the results of group discussions, students who have high emotional intelligence are very confident and can convey information accounting well for other students. When group work is done, students who have high emotional intelligence are able to arouse the enthusiasm of group members to hold discussions, and can be a good enforcer when there are differences of opinion between students during group work. In contrast to students who have low emotional intelligence, students who have low emotional intelligence have difficulty communicating information and are not confident when appearing to present the results of group and individual work. In addition, students who have low emotional intelligence are not able to motivate group members when group work is done and are not able to be good enforcers when there are cross-opinions between group members, this is because students who have low emotional intelligence find it difficult to accept other students' perspective on a problem.

The results also found that there was an influence of emotional intelligence on the understanding of accounting where the higher the emotional intelligence of students, the higher the understanding of accounting. When viewed from previous research, the results of this study are in line with previous research conducted by Kusnita (2014), Rokhana and Sutirso (2016), Zulhawati and Ariani (2016), Satria (2017), Wardani and Ratnadi (2017) and Widhiyani et al (2017 ) states that emotional intelligence has a significant and positive effect on the understanding of accounting.

But the results of this study contradict the research conducted by Utami and Sumaryanto (2013) and Putri et al (2017) stating that there was no effect of emotional intelligence on accounting understanding. The reason for this difference is because the two studies state that emotional intelligence is not a major factor in determining one's accounting understanding. The results of this study are also not in line with the research conducted by Napitupulu (2009) which concluded that emotional intelligence has a negative effect on the understanding of accounting. In other words, the higher emotional intelligence, the less understanding of accounting. The cause of the differences in the results of this study is the indicator of emotional intelligence used by previous researchers with the indicators used in research now different. Napitupulu's research (2009) uses the driving, limiting and eliminating indicators proposed by Ree and McBain (in Napitupulu, 2009), while the current research uses indicators of emotional intelligence that are raised by Goleman (2017) namely self-recognition, self-control, motivation, empathy and social skills.

**c. There is an Effect of the Interaction Between Learning Model and Emotional Intelligence on Understanding of Accounting**

The results of the study found that there was an influence of the interaction between the learning model and emotional intelligence on the understanding of accounting. This means that the success of a learning model depends on the level of emotional intelligence possessed by each student.

Students who have high emotional intelligence are taught according to the problem based learning (PBL) learning model and direct instruction learning model (DI). Students who have high emotional intelligence have better self-control, self-recognition, motivation, empathy and social skills than students who have low emotional intelligence, so students are able to follow the second steps of this learning model well.

Students who have low emotional intelligence are not suitable for learning with problem based learning (PBL) learning models. This is because the learning approach used in this learning model is a student-centered learning approach where students themselves have to look for accounting material and discuss accounting questions independently, in this learning model the teacher only introduces problems and evaluates student learning outcomes, while the process of seeking knowledge is entirely the responsibility of each student. So student and teacher interactions only occur at the beginning of learning and at the end of learning.

Students who have low emotional intelligence are better taught by using the direct instruction learning model (DI) because students who have low emotional intelligence will get enough attention from the teacher where the teacher gives a lot of guided training to students, besides the teacher who is active in learning always supervises students. In other words, the teacher fully controls the learning material to be taught, so learning students who have low emotional intelligence are more directed and in accordance with the wishes of the teacher.

From the results of the previous description and the results of the post hoc test, it is known that several things can be described as follows:

- 1) Students who have high emotional intelligence can be taught using the problem based learning (PBL) learning model and direct instruction learning model (DI).
- 2) Students who have low emotional intelligence are not suitable to be taught by using the problem based learning (PBL) learning model.
- 3) Students who have low emotional intelligence are better taught by using the direct instruction learning model (DI).

## **5. Conclusion and Suggestion**

### **5.1. Conclusion**

From the description of the results and discussion of the research, there are several conclusions that can be elaborated, namely as follows:

- a. There is a significant difference in the understanding of accounting between students taught by using the problem based learning (PBL) learning model compared to students taught by using the direct instruction learning model (DI).
- b. There is a significant difference in the understanding of accounting between students who have high emotional intelligence and students who have low emotional intelligence.
- c. There is an influence of the interaction between the learning model and emotional intelligence on the understanding of accounting.

### **5.2. Limitation**

This research has been carried out carefully and meticulously, but this study is also inseparable from the limitations of the study, namely as follows:

- a. At the first meeting until the third meeting the teachers still did not master perfectly how to treat the problem based learning (PBL) learning model and the

direct instruction learning model (DI). This is evidenced when the teacher is teaching, the teacher always opens the plan for implementing learning to see the steps of the learning model, so that the implementation of the new learning treatment model runs effectively when entering the fourth meeting.

- b. This study has limitations where it is only able to explain the influence of learning models and emotional intelligence on the understanding of accounting, therefore there are still many other variables that influence the understanding of accounting.
- c. Until now there has been no standardized test to measure emotional intelligence, so this study uses a questionnaire adopted from two previous studies which are then tested for validity and reliability.

### **5.3. Suggestion**

Based on the results of the study, the suggestions that can be given are as follows:

- a. For teachers who teach basic accounting before applying the learning model it is recommended that they master the steps of the learning model well so that the application of the learning model can be carried out effectively.
- b. For further researchers who are interested in conducting similar research can add variable intellectual intelligence, moderate emotional intelligence, spiritual intelligence, learning facilities, interest in learning, learning styles, academic potential and so on.
- c. For further researchers who want to use this research questionnaire in measuring emotional intelligence, researchers are then suggested to re-examine the questionnaire of this study, especially on language validity and construct validity or consult directly with psychologists to get a standard questionnaire and optimal measurement results.

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