INOVASIA (2) (2023) P-ISSN 2964-9420; E-ISSN 2963-2617

**INOVASIA**

https://jurnal.institutsunandoe.ac.id/index.php/inovasia

# THE CORRELATION OF EMOTIONAL QUOTIENT (EQ) AND COMPLETENESS OF DRAWING TOOLS WITH STUDENT MOTIVATION ON MECHANICAL ENGINEERING DRAWINGS STUDY AT VOCATIONAL HIGH SCHOOL

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Accepted: 01nd Maret 2023. Approved: 30st Maret 2023. Published: 30th Maret 2023

**ABSTRACT**

The purpose of this research is to examine the relationship between emotional quotient and completeness of drawing tools with learning motivation . This research is a correlational research. Based on the results of the study it was found that the majority of students (88%) had fairly high EQ scores, the majority of students (63%) had fairly complete drawing tools and the majority of students (54%) had high learning motivation. This study uses hypothesis testing which is tested by linear regression analysis. The results of the study show that (1) partially EQ has a positive relationship with learning motivation, (2) partially the completeness of drawing tools does not have a positive relationship with learning motivation, and (3) EQ and the completeness of drawing tools simultaneously have a positive relationship positive with student learning motivation. This shows that the higher the level of EQ and the completeness of the drawing tools owned by the students, the higher the student's learning motivation.

*Reseach Paper*

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**Keywords:** Drawing Tools, Emotional, Motivation Vocational.

## INTRODUCTION

Learning as a process is a system that cannot be separated from other components that interact with each other in it. One component in the process is facilities and infrastructure. Fulfillment of good learning facilities can encourage students to study diligently. According to Chaidi & Drigas, (2022) learning facilities are facilities and infrastructure that can facilitate and launch a business. As for what can facilitate and expedite this business can be in the form of goods or money, so in this case the facilities can be equated with existing facilities in schools.

Reading technical drawings is one of the subjects that must be taken by vocational school students in technology and engineering skills. In Almeida, (2020) drawing is a tool to express the intent of an engineering scholar. Therefore drawing is often also referred to as technical language or language for engineering graduates. Therefore the picture must convey the information accurately and objectively.

However, technical drawing requires some drawing tools. The purpose of teaching technical drawing to students will be achieved if the supporting factors are optimized and the inhibiting factors are minimized (Casino-García et al., 2019; Chaidi & Drigas, 2022; Raut & Gupta, 2019). In taking this lesson, several drawing equipment are needed to support students in the learning process, and we often hear that technical drawing is difficult, even though these difficulties can be overcome if supported with complete equipment and also the inner desire that encourages students to learn. As for the drawing tools in the subject of reading technical drawings that students must have include; drawing paper, pencils, compasses, erasers, eraser guards, triangular

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rulers, long rulers, and protractors (Rodrigues et al., 2019).

Motivation can be seen as a chain of reactions that starts with a need, then arises the desire to achieve a goal, causing psychological tension that will direct behavior toward a goal. Arifin, (2019) for example, define motivation as a state in a person (inner state) that encourages, activates or moves and directs or channels behavior toward goals. It is generally known that there are two kinds of motivation, intrinsic motivation and extrinsic motivation. Motivation to learn can be divided into two, namely intrinsic motivation and extrinsic motivation (Wanarti et al., 2016).

These two motivations play a very important role in teaching and learning activities both in the classroom and outside the classroom. What is meant by intrinsic motivation is motivation that comes from within without any stimulation from outside, while extrinsic motivation is motivation that comes from outside. In this research study, the theoretical framework of learning motivation was developed from the intrinsic motivation model by Werdiningsih et al., (2021).

The student's intrinsic learning motivation model consists of three main components, namely; (1) motivation to want to know (such as feeling interested in intellectual activities, a natural urge to continue learning or not procrastinating learning; (2) motivation to want to be successful (such as wanting to succeed in learning, wanting to achieve as well as possible, having persistence in learning ); and (3) motivation for wanting to work together (in groups) with friends) such as liking to communicate with friends, wanting to be noticed by friends or teachers, liking working with friends in doing assignments, liking discussing school assignments) (Riaz et al., 2019).

The learning motivation of vocational students is of course different for each individual because there are many factors that influence the level of student learning motivation (Pohan et al., 2020). This can be seen from the discipline of students in participating in the teaching and learning process , there are students who are always present in teaching and learning activities and there are also students who often skip classes.

In addition, emotional intelligence is closely related to the learning process. Because to support the smooth learning process requires emotional intelligence that can affect students' learning motivation. In general, learning motivation is influenced by two factors, namely internal factors and external factors. Internal factors are factors that exist within students or often called intrinsic motivation. While external factors are factors that are outside the learners or often called extrinsic motivation.

Emotional Quotient (EQ) is one example of internal factors that have an influence on students' learning motivation. Chong et al., (2020) states that "emotional intelligence makes students more able to motivate themselves. Moreover Wu et al., (2019) states that knowledge is only a skill threshold ability, a person needs it to enter a field. It is emotional intelligence that plays a greater role in producing brilliant learning motivation.

Someone who has high emotional intelligence will be able to control his emotions so that he can optimize his learning motivation. According to Raut & Gupta, (2019), emotional intelligence is a person's ability to manage his emotional life with intelligence (to manage our emotional life with intelligence); maintaining emotional alignment and expression (the appropriateness of emotion and its expression) through self-awareness, self-control, self-motivation, empathy and social skills. The main components and basic principles of EQ developed by Jimenez, (2020) will be used to develop en EQ instruments. The components are: (1) recognizing one's own emotions; (2) managing emotions; (3) self-motivated; (4) empathy; and (5) building relationships.

Based on the above, the writer wants to know the relationship between emotional intelligence and completeness of drawing equipment with learning motivation. From this research, it is hoped that it will be possible to find things that influence students in learning which can later increase learning motivation which indirectly has an impact on

improving student learning outcomes and the image of vocational schools in society, especially for vocational schools that are classified as pilots.

## LITERATURE REVIEW

Previous research has highlighted the importance of Emotional Quotient (EQ) in the academic context, particularly in relation to student motivation and performance. For example, a study conducted by Johnson and Casino-García et al., (2019) examined the correlation between EQ and student motivation in a high school setting. They found that students with higher EQ scores exhibited greater self-motivation and perseverance in their academic pursuits. Building upon this research, the current study aims to explore the specific correlation between EQ, the completeness of drawing tools, and student motivation in the context of mechanical engineering drawings at a vocational high school.

The completeness of drawing tools has been recognized as a contributing factor to student engagement and motivation in technical subjects. In a study by Alashry et al., (2019) focusing on the correlation between drawing tool availability and student motivation in vocational education, it was found that students who had access to a wider range of drawing tools demonstrated increased interest and commitment to their coursework. These findings suggest that the availability and quality of drawing tools play a vital role in shaping student motivation, particularly in the field of mechanical engineering drawings.

Research conducted by Jatav, (2020) delved into the relationship between EQ and student motivation among vocational high school students. They discovered a significant positive correlation between EQ and student motivation, indicating that students with higher EQ levels were more motivated to excel academically. Drawing upon these findings, the present study seeks to expand this understanding by investigating how the completeness of drawing tools interacts with EQ to influence student motivation specifically in the context of mechanical engineering drawings.

A comprehensive review conducted by Jimenez, (2020) explored various factors impacting student motivation in vocational high schools, including EQ and the availability of resources. The study revealed that students with higher EQ scores were more likely to exhibit intrinsic motivation and a sense of purpose in their academic pursuits. Furthermore, the presence of well-equipped and up-to-date drawing tools was found to positively influence student engagement and motivation. These findings serve as a foundation for the current research, which aims to examine the combined effects of EQ and the completeness of drawing tools on student motivation in the study of mechanical engineering drawings at vocational high schools.

## METHODS

This research is a correlational research. The variables in this study are Emotional Quotient ($X_1$) and Drawing Tool Completeness ($X_2$) as the independent variable, while Learning Motivation (Y) as the dependent variable. In this study using a total sample of 78 students. Of the 78 students, all of them were used as research respondents. This research can also be called population research because the subjects studied include all populations.

The instrument used to determine the level of emotional intelligence is the EQ self-inventory with a Likert scale level of 1–4. The level of completeness of the drawing tool is in the form of a checklist sheet with a Guttman scale level of 1 and 0. And to find out the level of learning motivation is self-inventory of motivation with a Likert scale level of 1–4. Prior to use, the instrument was tested on 20 students, then analyzed using product moment correlation . If the value of r is less than 0.444 (N=20), then the item is declared invalid . If each descriptor is not represented by at least 2 statement items then the item is revised, and if each descriptor is represented by at least 2 statement items then the item is declared invalid.

Testing the hypothesis in this study using simple and multiple linear regression techniques . Before testing the hypothesis, a prerequisite analysis test is carried out first.

The prerequisite test is intended to determine whether the regression model is suitable for use on the variables used in the study. The prerequisite tests used in this study are: (1) normality test; (2) multicollinearity test; (3) autocorrelation test; and (4) heteroscedasticity test. The criteria for rejecting and accepting the hypothesis are First , each null hypothesis ($H_0$) to be tested is first formulated in the form of an alternative hypothesis ($H_a$). Second, the significance level (p) is set at 0.05, if $p > 0.05$ then $H_0$ fails to be rejected, but if $p \leq 0.05$ then $H_0$ is rejected. Third, thus if $p > 0.05$ then $H_0$ fails to be rejected so the conclusion uses the formula $H_0$ and if $p \leq 0.05$ then $H_0$ is rejected so the conclusion uses the formula $H_a$ .

## RESULTS AND DISCUSSION

### Data Description

The description of students' emotional intelligence (EQ) is that the majority have a fairly high level of emotional intelligence (EQ) (69%). The majority of students have fairly complete drawing equipment (63%). The majority of students have high student learning motivation (54%).

### Hypothesis test

1. First Hypothesis Test

After the research data were analyzed using a simple regression technique, the value t = 3.971 and Sig. (p) = 0.000 was obtained, thus $H_0$ was rejected, so the conclusion was using the formula $H_a$, namely there is a relationship Emotional Quotient (EQ) with learning motivation .

2. Second Hypothesis

After the research data were analyzed using a simple regression technique, the value t = 0.921 and S ig.(p) = 0.360 was obtained , thus H0 failed to be rejected, so the conclusion was using the formula H0, namely there was no relationship between the completeness of drawing tools and motivation learn .

3. Third Hypothesis

After the research data were analyzed using multiple regression techniques, the F value was obtained = 7.818 and the value of S ig.(p) = 0.001, thus H0 is rejected, so the conclusion uses the formula $H_a$, namely there is a relationship between Emotional Quotient (EQ) and completeness of drawing tools with learning motivation .

## DISCUSSION

### Relationship between Emotional Quotient (EQ) and Learning Motivation

Based on the results of data analysis in the first hypothesis test, partially for the emotional intelligence variable, the value of t = 3.971 is obtained with a value of sig. (p) = 0.000. Thus it can be concluded that there is a positive relationship between emotional intelligence (EQ) and learning motivation in technical drawing reading subjects. This is in line with the results of Lidyana's research (2009) which concluded that there is a positive correlation between emotional intelligence (EQ) and the work motivation of KPSP Setia Kawan Nongkojajar employees. Emotional maturity is indeed one of the things that influence student motivation in learning. Anggraeni & Maryanti, (2021) when you are a young man, you must learn to be able to control your emotions.

Emotional intelligence (EQ) is generally defined as a person's ability to recognize one's emotions, manage one's emotions, empathize and build relationships with others. If these five dimensions are well mastered by someone, they can encourage their commitment to the organization. This is possible because the dimensions contained in EQ can guide a person to understand his position correctly in the dynamics of an organization or society, including self-motivation, empathy and building relationships with others for the common good.

Chong et al., (2020) states that emotional intelligence makes students more able to motivate themselves. Furthermore, he states that knowledge is only a skill threshold ability, a person needs it to enter a field". It is emotional intelligence that plays a greater role in producing brilliant learning motivation. There are many advantages to be gained when a learner has adequate EQ. First, EQ can be a tool for self-control so that a learner does not fall into stupid actions that are self-defeating.

Second, EQ can be used as a good way to build student relationships with the people around them. With good relationships based

on EQ, students get more sympathy and support from parents, teachers and friends as well as togetherness in the learning process. And as a result of a good relationship the results will increase the learning motivation of these students.

As explained above that emotional intelligence (EQ) is an innate ability. So if all components support the development of emotional intelligence (EQ) owned by students, students will be able to increase their own motivation. Among the things that can support the development of emotional intelligence (EQ) are the students themselves, instructors/teachers, learning media, learning facilities and parents.

Emotional intelligence as a form of intelligence that involves the ability to perceive one's own and other people's feelings and emotions to distinguish them and use this information in determining one's thoughts and actions. The role of emotional intelligence (EQ) has the potential to influence learning motivation because emotional intelligence (EQ) relates to a person's ability to recognize one's emotions, manage one's emotions, motivate oneself, empathize and build relationships with others.

**Relationship between Completeness of Drawing Tools and Learning Motivation**

Based on the results of data analysis in the second hypothesis test, partially for the variable completeness of the drawing tools obtained a value of t = 0.921 with a value of sig.(p) = 0.360. Thus it can be concluded that there is no positive relationship between the completeness of drawing tools and learning motivation. The absence of this relationship is because the variables being searched for correlation do not have firm ties, each variable tends to be independent (free) (Casino-García et al., 2019; Chaidi & Drigas, 2022).

These findings are contrary to previous research, Pohan et al., (2020) concluded there is a significant relationship between learning facilities and learning motivation. From these findings it can be indicated that the higher or lower the level of completeness of the drawing tools owned by students does not affect the high or low level of student motivation in the subject of reading technical drawings.

Drawing equipment owned by students is actually part of the external factors that can influence learning motivation, students who have more complete drawing tools should have higher learning motivation than students who have incomplete drawing tools, because with complete drawing tools students it will be easier to do the picture assignments given by the teacher.

The findings of this study are in line with Wanarti et al., (2016) which states "there is no significant relationship between the conditions and atmosphere of lecture halls and learning facilities and student learning motivation. External factors that influence learning motivation are not only the completeness of student drawing tools. Motivation to learn can be influenced by the quality and methods used by the teacher, the weight of the material being taught, the atmosphere and conditions of the school room and other learning facilities in the school. It can be said that there are many external factors for students to be able to study well, if these factors support the student's learning motivation will also be maximized.

The role of the determining factors is not always the same and fixed. The magnitude of the contribution of one factor will be determined by the presence of other factors and is highly situational, that is, it cannot be predicted accurately due to the involvement of very varied other factors. So many external factors affect student motivation. The completeness of drawing tools owned by students is one factor, but other factors are also very influential, especially depending on where the students are and develop in their lives. Between one environment and another can be different factors.

In this study it can be proven that the external factors that influence the motivation to learn are interrelated with one another. If only one part is taken, then the result will not have a significant effect. Completeness of drawing tools is only a small part of external factors, namely learning facilities that can support the learning process. The completeness of drawing tools is one of the aspects taken by researchers in their research studies. In this case the completeness of the

drawing tool is an external factor that influences learning motivation.

If seen from several factors, the completeness factor of drawing tools is an integral part of learning facilities, so learning facilities also affect learning motivation. But in fact the learning facility factor is not related to learning motivation, because learning facilities are a small factor of external factors that affect student learning motivation.

So from this description it can be concluded that the ownership of these drawing tools does not show a relationship with student learning motivation, even though students have complete drawing equipment, they do not necessarily have high learning motivation as well, and vice versa.

**The relationship between Emotional Quotient (EQ) and the completeness of drawing tools with learning motivation**

From the results of data analysis for testing the third hypothesis, simultaneously for the variable emotional intelligence (EQ) and the completeness of the drawing tool, the value of F = 7.818 and the value of Sig.(p) = 0.001 are obtained simultaneously. Thus it can be concluded that there is a positive relationship between emotional intelligence (EQ) and the completeness of drawing tools with students' learning motivation in the subject of reading technical drawings for Vocational School students.

It is proven that the role of EQ and the completeness of drawing tools also have an important influence on increasing learning motivation. In line with the results of Chaidi & Drigas, (2022) which concluded that there is a positive correlation between emotional intelligence (EQ) and the work motivation of KPSP Setia Kawan Nongkojajar employees . Based on the findings of this study, it states that the high and low motivation of a student can be influenced by his emotional intelligence, students who have high emotional intelligence are more able to motivate themselves. Aprianto et al., (2022) says motivation will cause a change in the energy that exists in humans, so that it will cling to problems of psychiatric symptoms, feelings and emotions. This is related to the opinion of Chong et al., (2020) which states that emotional intelligence makes students more able to motivate themselves.

The magnitude of the effect of emotional quotient and the completeness of drawing tools on learning motivation can be seen in the results of the regression analysis model summary , which obtained an R value of 0.415 which shows the relationship of the two independent variables with the independent variable and Rsquare of 0.173 which indicates that the independent variables has an effect of 17.3% on learning motivation, while the remaining 83.7% is influenced by other variables outside the variables studied.

The regression coefficient value of the emotional quotient is higher than the regression coefficient value of the completeness of the drawing tool. This value indicates that the Emotional Quotient has a greater contribution than the completeness of drawing tools to increasing learning motivation in technical drawing reading subjects. This means that students' learning motivation will increase if students have good enough emotional intelligence rather than having high completeness of drawing tools. However, the Emotional Quotient and the completeness of drawing tools still have a positive relationship with students' learning motivation in the technical drawing reading subject at PU Malang Vocational High School.

## CONCLUSION

From the results of this study it can be concluded that: (1) There is a positive relationship between emotional quotient (EQ) and learning motivation; (2) There is no positive relationship between the completeness of drawing tools and learning motivation; (3) There is a positive relationship between emotional quotient (EQ) and completeness of drawing tools with learning motivation.

Based on the findings in this study, the researcher intends to convey the following suggestions: (1) It is hoped that there will be real coaching on emotional quotient (E Q), for example by holding seminars/counseling to hone EQ, as well as adding image equipment so that you can optimize more in the process of learning to draw techniques such as; rapido,

tracing paper, curved curve mall, and letter & number mall in SMK ; (2) Teachers are expected to be able to develop and optimize students' emotional intelligence which plays a role in growing students' motivation in the learning process; (3) Vocational High School students are expected to be able to develop students' personal abilities which can stimulate their motivation in learning, know the purpose of being a student so they can learn without feeling forced, and add drawing tools for those who are not yet complete; and (4) It is hoped that there will be other researchers who can develop this research by looking at different variables or elsewhere and developments in the field of education in the form of modules and media so that they can help increase student learning motivation.

**Author's declaration**

**Authors' contributions and responsibilities**

The authors made substantial contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation and discussion of results. The authors read and approved the final manuscript.

**Funding**

Write down the research funding, if any.

**Availability of data and materials**

All data are available from the authors.

**Competing interests**

The authors declare no competing interest.

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