

# Students' Participation and Motivational Factors in Student-Centered Learning: A Case of Two Malaysian Vocational Institutes

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**Abstract:** The development of a country closely relates to how its national education system is enhanced to address current challenges. Despite an increasing interest in improving the quality of academic-oriented education in Malaysia, research on enhancing the learning quality of Technical and Vocational Education (TVET) remains lacking. Surveying the involvement of TVET students in Student-Centered Learning (SCL), this quantitative study identifies the level of students' learning motivation and some contributing factors to their involvement in SCL activities. The methodology of the study was a quantitative survey design using questionnaires. Respondents were students of Diploma in Electrical Engineering Technology at Institut Kemahiran MARA (IKM) and Kolej Kemahiran Tinggi MARA (KKTM). A total of 296 responses were received and data analysis was performed using descriptive analysis and inferential statistics. In this study, students participated and were highly motivated while working and learning in an SCL environment. There is a strong positive relationship between students' participation or involvement factors and students' motivation. It can be concluded that the implementation of SCL among TVET students requires support from parents and classmates. Therefore, the study provides some recommendations on how to improve the quality of TVET graduates by strengthening these involvement and motivational factors.

**Keywords:** learning participation, learning motivation, SCL, Student-centered learning, TVET

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## 1. Introduction

The development of a country is very closely related to the education system provided by a country to its citizens (Kamble & Gaikwad, 2021). The national education system requires strategic efforts that can enhance the capacity and capability of its practices to a high level of quality and excellence to address current challenges (Sari & Faiz, 2021). This includes Technical and Vocational Education (TVET) which has an important role in producing a skilled local workforce and acting as the engine of national development (Ana, 2020; Rosina et al., 2021; Maryanti & Nandiyanto, 2021; Maryanti & Nandiyanto, 2023).

In line with the ever-changing needs of the industry and market, the capabilities of TVET institutions need to be further enhanced and of high quality to ensure a supply of skilled manpower with a first-class mind (Padzil et al., 2011). Among the institutions that continue to provide a platform to improve the quality and image of skills training is the MARA TVET Institution. This institution was established to produce an industry-based competent workforce and to form a techno-entrepreneur TVET human model. TVET institutions under MARA consist of Kolej Kemahiran Tinggi MARA (KKTM), MARA Japan Industrial Institute (MJII) and Institut Kemahiran MARA (IKM). These institutions not only offer studies at the certificate level but also in various diploma-level fields. This coincides that by 2020, the standard of education in all IKM and KKTM will be upgraded from certificate to diploma level. Several certificate programs have been upgraded to the diploma level, but the Diploma in Electrical Engineering Technology program is a pioneer in the implementation of the Diploma program using the concept of outcome-based education (OBE) that promotes student-centered learning.

Nowadays, technical, and vocational education has also changed from conventional teacher-centered teaching to student-centered learning strategies. This is because

conventional learning methods do not motivate students to think (Nandiyanto et al., 2018; Hidayat et al., 2020). SCL is becoming increasingly important because it can provide opportunities for students to resolve important issues according to context. In the field of education, the concept of student-centered learning is based on constructive learning theory, which is an effective learning method to encourage students to interact with their learning. It is like student-centered teaching practices such as problem-based learning, project-based learning, and case-based learning. Student-centered learning is a learning approach that can personalize individual learning using a competency-based approach (Bilad & Prayogi, 2021), supported by a blended learning environment and online learning, as well as a wider selection of learning resources. SCL will increase motivation, understanding, and in turn make students will enjoy the lessons taught. Student-centered learning can increase the motivation and learning outcomes of social science among school students.

Previous student-centered learning studies were widely conducted at the tertiary level by involving respondents in pre-graduate and postgraduate programs (Sahdan et al., 2017; Ross & Judson, 2018). SCL is seen to have a very good effect on producing graduates with 21st-century skills. However, the background of these skills and vocational students is different than that of university students. Compared to university students, technical and vocational education students have a relatively low level of critical thinking (Deechai, 2019) and have motivational problems in learning (Cents-Boonstra et al., 2019). Polytechnic students found that students are less motivated to learn. This condition is also reported by a recent study by Cents-Boonstra et al. (2019) where students have problems in terms of motivation. This is a challenge that needs to be addressed because maintaining motivation in the teaching and learning process is important because it can affect students' academic achievement.

In line with the improvement of the quality of TVET MARA education, the implementation of diploma programs using the OBE system is emphasized the implementation of student-centered learning. The first cohort of diploma programs with this system are students who are in semester 6 in the field of Diploma in Electrical Engineering Technology and have not yet graduated. These students have been involved in PBP activities from semester 1, but until now the information on student involvement in this PBP environment has not been confirmed. Information on SCL involvement, especially the status and factors of this involvement is important to study to ensure the effectiveness of SCL implementation among IKM / KKTM students. This is to ensure that the learning outcomes of the prescribed program can be achieved.

Along with the intention of the Majlis Amanah Rakyat (MARA) to produce a national resource force that is competent and has high marketability and is skilled in various fields, then born awareness related learning techniques that need to be improved from teacher-centered learning to student-centered learning. In the implementation

of SCL, there are several factors involved that can be related to the level of motivation of a student. Among the factors involved are individual factors, lecturers, environment, and classmates. Although SCL has been implemented in TVET, the study on the level of student involvement and motivation in the SCL environment is very limited. Therefore, this study was conducted to examine the extent of IKM/KKTM student involvement in SCL and its relationship to student motivation among TVET MARA students.

## 2. Methodology

This study was conducted using a quantitative survey design where data collection is through a questionnaire. This study involved a population of skills students who took the Diploma in Electrical Engineering Technology Program at TVET MARA Institution involving Institut Kemahiran MARA Johor Bahru (Johor), Institut Kemahiran MARA Seberang Perai Utara (Penang) and Kolej Kemahiran Tinggi MARA Pasir Mas (Kelantan). The total population in these three Institutions is 543 students as shown in Table 1.

**Table 1. The total population for Diploma in Electrical Engineering Technology Program students.**

Institutions	Population
IKM Johor Bahru	107
IKM Seberang Prai Utara	143
KKTM Pasir Mas	293
<b>Jumlah</b>	<b>543</b>

Sampling which is the process of selecting respondents from the study population was determined using Krejcie and Morgan. This study involved 296 respondents who are Diploma level students in the field of electricity. The research instrument used for data collection is the questionnaire method. The questionnaire developed for this study consists of three parts, namely part A, part B, and part C. The questionnaire developed refers to the questions used by previous researchers in the field of study. Part A is the demographic of the respondents which include the name, gender, institution of study involved, semester of study and student-centered learning activities that have been done in the courses that have been taken in the study program. Part B is a question related to student involvement in student-centered learning. In this study, student involvement in student-centered learning is based on four research factors, namely individual, lecturer, classmates, and classroom environment factors. Questions in Part B are produced based on previous studies related to student involvement factors in learning. Part C is a questionnaire related to student motivation. The questions in this section are adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and DeGroot (1990).

A pilot study was conducted after the validation process of the three experts was completed. This pilot study was conducted before the actual study was conducted to identify possible weaknesses in the research instrument. This can avoid confusion and misinterpretation of respondents to the questions posed in the research instrument. The minimum number of respondents for the pilot study was 30 people. The

appropriate number of respondents for the pilot study is between 25 to 100 respondents. Thus, a pilot study was conducted involving 30 students of the Diploma in Electrical Engineering Technology at TVET MARA Institute, which consists of 10 respondents from each institute. This is to ensure that the respondents involved in the pilot study have a close resemblance to the characteristics of the sample in the actual study. To obtain the reliability value, the data obtained from this pilot study were analyzed using Statistical Package for Social Science (SPSS). The Cronbach's Alpha ( $\alpha$ ) values for the variables are shown in Table 2.

**Table 2. Cronbach's Alpha (a) Reliability Value.**

Variables	Cronbach's Alpha ( $\alpha$ )	No. of item
Individual factor	0.846	5
Lecturer factor	0.956	5
Classmate factor	0.807	5
Class factor	0.901	5
Motivation	0.969	23

Overall, all the variables studied showed excellent and consistent Cronbach's Alpha ( $\alpha$ ) reliability values. Thus, all items constructed are acceptable and can be used in the actual study. The data obtained from the respondents were reviewed in advance to ensure that all questions were answered completely and met the needs of the study. Incomplete data were dropped from the analysis. This study uses the data analysis method as shown in Table 3.

**Table 3. Data analysis method.**

Item	Data Analysis Method
Demography information	Mean score
Student involvement in TnL	Mean score
Motivation in TnL	Mean score
Relationship between student involvement and motivation	Pearson's Correlation test

### 3. Results

The findings show that 63% of the data were obtained from KKTm Pasir Mas, followed by IKM Johor Bahru with 28% and 9% for IKM Seberang Prai Utara. The respondents of this study consisted of students from different semesters. Most students who answered the questionnaire were students who were in Semester 4 which is 28% of the total study sample. This is followed by students who are in Semester 2 (20%), Semester 3 (17%), Semester 6 (13%), and Semester 1 (12%). The lowest percentage of respondents are students from Semester 5 which is 10% of the total sample.

Table 4 shows the average overall mean score for student involvement in SCL is at a high level of ( $M = 5.49$ ,  $SD = 0.904$ ). The lecturer factor in student involvement during SCL got the highest mean score ( $M = 5.75$ ,  $SD = 1.091$ ). While the individual factors in student involvement during SCL get the lowest mean score of ( $M = 5.24$ ,  $SD = 1.029$ ). However, based on the mean interpretation, both factors are at a high level.

**Table 4: Student involvement in SCL.**

Student involvement factor	Mean Score	SD	Mean Interpretation
Individual	5.24	1.029	High

Lecturer	5.75	1.091	High
Classmate	5.41	1.074	High
Class	5.56	1.046	High

The analysis of students' level of motivation towards involvement in SCL consists of 23 question items that were analyzed to obtain mean scores and standard deviations. The result shows that Item 16 which is "*I am sure that the knowledge learned is useful to know*" has the highest mean value ( $M = 5.86$ ;  $SD = 1.133$ ). While the lowest mean value ( $M = 4.08$ ,  $SD = 1.381$ ) is in Item 3 which is "*I calm down during the test when I cannot remember the facts learned*" and is at a moderate level. Overall, the mean for motivation was at a high level ( $M = 5.308$ ,  $SD = 0.916$ ).

Pearson correlation test was performed to see if there was a relationship between SCL involvement factors and motivation. The interpretation of the correlation relationship is based on the  $r$ -value. Table 5 shows the relationship between SCL involvement factors and motivation. There is a strong and significant positive relationship between all factors of SCL involvement with motivation. The relationship with the highest  $r$  value is between individual factors with motivation with  $r = 0.760$ ;  $p = 0.00$ . Meanwhile, the classmate factor has a relatively low value of  $r$  compared to other factors with  $r = 0.678$ ;  $p = 0.000$ .

**Table 5: The relationship between SCL involvement factors and motivation.**

Relationship between variables	N	Correlation, $r$	Significant, $p$	Relationship strength
Individual factor	296	0.760	0.000	Strong
Lecturer factor	296	0.714	0.000	Strong
Classmate factor	296	0.678	0.000	Strong
Class factor	296	0.716	0.000	Strong

### 4. Discussion

Students show interest in following all class activities and are actively involved and can give opinions during teaching and learning sessions. This is because students give full attention and are attracted to student-centered learning methods used by teachers as reported by Azman and Ismail (2017). This contrasts with student involvement with conventional methods where lecturers have a perception that students will be actively involved in learning, but instead, students socialize with each other and ignore instructions given by lecturers (Jonasson, 2012). This results in the lecturer assuming that the students are not interested in learning because they do not fulfill the instructions given.

A comparison with each factor shows that the lecturer factor has the highest mean score. This proves that the role of lecturers is important in ensuring that teaching and learning activities take place effectively in SCL. This supports the findings by Van Uden et al., (2014) who stated that students' acceptance and involvement in learning is influenced by the behavior shown by the lecturer. Lecturers need to have skills in planning and implementing SCL activities (Hegarty & Thompson 2019; Niittylahti et al., 2019; Radzali et al., 2018). The findings also show that

students have a good perception of lecturers who like to give advice and provide support to their learning. This is in line with the findings by Hamzah et al. (2013) who showed that good lecturers can increase students' sense of commitment to learning. The openness of lecturers in receiving opinions, especially in discussion sessions contributes to student involvement in student-centered learning (Azman & Ismail, 2017).

The classmate factor, on the other hand, the findings show that students have high engagement because their peers like to share information with them. This situation can be explained by the presence of social media, where a lot of information can be shared, and students do not skimp on sharing learning information. The use of social media in learning encourages the cognitive involvement of students in the classroom and turn leads to the success of their academic performance (Alshuaibi et al., 2018). Students have a good perception of student-centered learning where they can be directly involved with learning activities either doing activities practically or voicing opinions during learning activities. This makes them have a good perception of student-centered learning and therefore choose to be involved in learning activities. Peers can be a positive factor in students' cognitive involvement and student academic achievement. This situation does not occur in conventional learning where there are students who ignore the instructions of the lecturer due to the misconception of the lecturer towards the students (Jonasson, 2012).

In this study, student involvement was also driven by classroom environment factors. A conducive classroom environment can maintain the attention and interest of students to continue learning (Ochayi et al., 2021a; Ekunola et al., 2022; Aderogba et al., 2021; Ahmad, 2021a; Ochayi et al., 2021; Joshua et al. 2022). Clean classrooms encourage students to engage in classroom learning and make the student-centered learning process run smoothly without interruption. The safety aspect in the classroom also contributes to student involvement in student-centered learning. This is undeniable because TVET students are involved in practical activities that are usually done in the workshop. For the respondents in this study, they are directly exposed to very dangerous electrical power if the safety aspect is not emphasized.

Student involvement with individual factors is at a high level but has the lowest mean score compared to other involvement factors. This shows that the individual involvement of students has to do with the ability and confidence of students towards themselves and the learning process that takes place. This may be because most TVET students have a perception that their learning ability is low (Chiang & Lee, 2016).

Overall, the lecturer factor is the highest in encouraging student involvement in student-centered learning among IKM / KKTm students. This shows that lecturers need to play their role in encouraging student involvement in student-centered learning by ensuring that they are equipped with the skills to deliver student-centered learning activities more effectively.

Overall, students have a high level of motivation for involvement in SCL ( $M = 5.308$ ,  $SD = 0.916$ ). There are four items at a moderate level while the rest are at a high level. The item that gets the highest score is "*I am sure that the knowledge learned is useful to know*". This shows students are more motivated if they are clear with their learning. Therefore, TVET students find it more fun to do practical work than to learn theory. These findings are in line with the findings of a study conducted by Makhtar et al. (2016). Through practical work, students can feel and do the activity as opposed to learning the theory that requires them to think and imagine something. Students are more confident with their learning when they feel proficient with the given learning activities. This study shows that the level of student motivation is high when they are exposed to "On the Job Training" (OJT).

Students have a moderate level of motivation when asked questions related to the test. The level of motivation with the lowest score is on the item "*I calm down during the test when I cannot remember the facts learned*". However, restlessness and restlessness during exams can occur not only to TVET students but also to other students in institutions of higher learning who are known to have a much better cognitive level than TVET students. This is in line with the findings by Makhtar et al. (2016) who found that TVET students prefer practical work over theory. The findings also show that, although students' motivation is at a high level to engage in student-centered learning, students show low self-concept. This situation is especially noticeable when asked the question that they are smarter than other students. This can be attributed to the culture of the community that is always humble or may also be due to low self-esteem because of the public perception of TVET education.

The findings from the study showed that there is a strong relationship between all the factors involved ( $r = 0.760$ ,  $p = 0.00$ ). Individual factors have a strong positive relationship with motivation. This shows that the higher the student's confidence in self-efficacy in learning, the more likely the student is to have a high level of motivation. Therefore, students' level of motivation can be expected from their level of confidence in self-efficacy. This supports the findings of a study conducted by Makhtar et al. (2016) where students have a high level of intrinsic motivation when performing technical skills work.

The relationship of lecturers with student motivation also shows a strong positive relationship (Permana et al., 2021; Suhana et al., 2022; Ahmad, 2021; Hernawati et al., 2021). This shows that the better the support and attention from the lecturers, the more likely the students to have high motivation. Therefore, the level of student motivation can also be expected from the support and attention of the lecturers given during the teaching and learning sessions. This study is in line with the findings of Sadiq (2020), students are more motivated by the presence of teachers who act as facilitators in their learning. This shows that the big role played by teachers is very important and is a major driver of student motivation to learn.



The findings also show a strong positive relationship between several factors:

- (i) classroom environment factors (Malaguial et al., 2021; Ekunola et al., 2022; Aderogba et al., 2021; Ahmad, 2021; Ochayi et al., 2021)
- (ii) student's interest (Dermawan et al., 2021; Fadhillah & Maryanti, 2021; Putri et al., 2021; Hashim et al., 2021; Ardiana et al., 2022; Kamila & Sakti, 2022)
- (iii) student's motivation (Permana et al., 2021; Suhana et al., 2022; Sopian et al., 2022; Hernawati et al., 2021; Tarmawan et al., 2021).

This shows that the more conducive and safer the classroom environment the more likely students are to have high motivation. Therefore, the level of student motivation can also be expected from the TVET classroom environment. Although the classmate factor has the lowest correlation value compared to other factors, it still has a strong positive relationship with student motivation. This indicates that the more positive the classmate, the more likely the student is to have high motivation. Thus, the level of motivation can also be expected from the peer factor. Overall, the level of student motivation toward student-centered learning can be identified through the four factors involved in the study.

## 5. Conclusion

In general, the level of involvement of IKM / KKTM students in the activities carried out is high. The main factor that contributes to involvement in a student-centered learning activity is the lecturer. Lecturers play a role in ensuring that student-centered learning is successfully implemented effectively and gets good involvement from students. Therefore, lecturers need to be ensured to have skills in implementing student-centered learning. From this study, it can be concluded that the implementation of student-centered learning by IKM and KKTM shows its effectiveness and should be continued, even need to be improved from time to time. Emphasis should be given to the four factors studied, namely students, lecturers, classmates, and the classroom environment. In addition, IKM / KKTM students also have high motivation in a student-centered learning environment. This shows a positive effect on the efforts of IKM / KKTM to improve the quality of TVET graduates.

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