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Readiness and Openness to Adapt Technology in the Field of Agricultural Mechanization According to Student Perception

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Abstract

Technical and Vocational Education (TVET) has been outlined as one of the 14 key drivers of change in the 12th Malaysia Plan (RMK-12). Great steps have been taken to reform TVET governance, promote TVET with a new identity and improve the quality of TVET programs. In line with efforts to strengthen TVET, this study was conducted to identify the level of readiness and openness of students in the field of Agro Mechanization Technology at Malaysian Vocational Colleges. Survey research design using a quantitative approach through questionnaires in the form of Google Forms and questionnaires. Mean descriptive analysis was conducted to examine the level of readiness and openness of students in the field of Agro Mechanization Technology at Vocational Colleges. Pearson's correlation inference analysis was also conducted to see the relationship between readiness and openness of students in the field of Agro Mechanization Technology and in terms of gender. The findings of the study show that the level of readiness and openness of students in the field of Agro Mechanization Technology at Vocational Colleges is at a high level. The analysis also found that there is also a significant relationship between readiness and openness of students in the field of Agro Mechanization Technology and in terms of gender. The implications of this study provide useful information to improve TVET education and development, especially in the field of agriculture. As a suggestion for further research, it is suggested that more in-depth research be carried out to understand the factors that affect the level of readiness and openness of students and how these factors can be optimized to improve the quality of vocational teaching and learning. Overall, this study plays a role in supporting initiatives and changes in vocational education, on par with the goals set in RMK-12 to improve the efficiency of TVET in Malaysia.

1. Introduction

The education system plays an important role in improving the capabilities of society and the country. The Ministry of Education Malaysia (MOE) has prioritized Technical and Vocational Education and Training (TVET) to produce graduates who are competent in various fields, including agricultural mechanization technology. TVET is a job-oriented education and training process with an emphasis on industrial practices. Graduates of TVET programs have an advantage because they are equipped with better practical knowledge and skills, making them better prepared to enter the world of work (Aldillah, 2016 & Karimah et al., 2020).

In general, the agricultural sector in Malaysia can be divided into two categories, namely, industrial crops and food crops. On the one hand, industrial crops refer to the production of commodity crops (e.g., oil palm, rubber, tea, cocoa) and are usually grown by large estate companies. On the other hand, food crops refer to the production of vegetables, fruits, tubers, and cereal crops, which are mostly grown by smallholders. Rice cultivation produces one of the most important crops under the food crop category. Rice is a staple food in Malaysia, where there is local production capable of providing 70 percent of self-sufficiency (Fitrianingsih, 2023). Due to shortages in supply, the country needs to import rice from other countries such as Thailand, Vietnam, and India (Sari & Sari, 2022).

In Malaysia, the importance of mechanization and automation technology for increasing crop yields and quality has been highlighted in the National Agro-Food Policy 2011–2020 (NAFP). In this regard, one of the strategies included in the policy is to improve the efficiency of mechanization, automation, and precision of agricultural technology. Mechanization and automation are needed to carry out various field operations involved in rice cultivation. Mechanization in rice cultivation can increase farm productivity because it makes the use of time and labor more efficient (Aldillah, 2016 & Karimah et al., 2020). Furthermore, mechanization also shortens the period to complete critical farm operations, thereby helping to avoid field losses (Purwantini & Susilowati, 2018).

Therefore, the empowerment of programs such as agricultural automation and mechanization in institutions such as Vocational Colleges (KV) should be continued to improve the national economy. In this context, students at Vocational Colleges (KV) play an important role in ensuring the effectiveness of TVET programs. TVET programs at KV focus on practical aspects, with 70% of the curriculum related to vocational skills while the remaining 30% is academic. Students are trained to master the technical skills required by the industry, including in the fields of agricultural automation and mechanization (Yunandar et al., 2020 & Saad et al., 2022). As one of the key areas, agricultural mechanization aims to increase efficiency and productivity in the agricultural sector in Malaysia. This program also supports the National Agro-Food Policy 2011–2020 which encourages the use of modern technology in increasing agricultural yields (Prihatiningtyas, 2023).

However, the effectiveness of the implementation of TVET programs depends on the level of knowledge, skills, and readiness of a student. Knowledge refers to the theoretical and practical understanding of modern technologies such as agricultural automation and mechanization. Skills involve the technical ability to operate and maintain modern equipment. Readiness includes motivation, commitment, and willingness to learn and adapt to new technologies. All these elements are needed to ensure that students are prepared to face the challenges of the world of work (Anwarudin et al., 2020; Siregar & Oktaviana, 2020). Therefore, this study focuses on students at KV as the main respondents. The focus of the study is to assess the level of readiness and perception of students' knowledge and skills in the field of Agro Mechanization Technology. This study will also help identify the extent to which the programs offered at KV successfully equip students with the aspects needed to support the development of the modern agricultural industry in Malaysia.

2. Literature Review

2.1 Technical and Vocational Education and Training (TVET) in Malaysia

Technical and Vocational Education and Training (TVET) is a comprehensive system that integrates theoretical classroom learning with practical on-the-job training to equip individuals with the skills required for specific trades and occupations (Chamadia & Mubarik, 2021). This contrasts with traditional education which focuses more on theoretical and academic aspects. TVET aims to create a skilled and semi-skilled workforce in specific fields required by the industry. One of the key aspects of TVET is its practical orientation. TVET programmes usually involve practical training in situations that are close to real-world work situations.

TVET is now widely recognized as a platform for human capital development and economic growth. In this regard, the government has also realized that the future of the country does not only depend on educated individuals but also requires many skilled workers who are able to adapt to the rapid changes in the world of work (Zain, 2008). TVET education and training are provided through various organizations and ministries in Malaysia. Several ministries involved in providing PLTV education and training include the Ministry of Education, the Ministry of Higher Education, the Ministry of Human Resources and Development, the Ministry of Youth and Sports, and Ministry of Community Development (Harun & Munzir, 2020).

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2.2 Vocational College

According to the implementation carried out by the Ministry of Education Malaysia (KPM), the Transformation of Vocational Education (TPV) is a national initiative in technical and vocational education (PTV) that aims to improve the vocational education system. This initiative, which has been implemented since 2013 and will continue until 2020, involves the restructuring of professional high schools and technical high schools into Vocational Colleges (KV). To increase the involvement of skilled workers in the desired fields, this plan is implemented to strengthen the national plan for economic transformation. TPV has changed the Malaysian community's view of vocational education as a program that is in line with national goals.

2.3 Agricultural Mechanization Technology Education

Agricultural mechanization is the replacement of human labour with alternative energy sources throughout the agricultural value chain. Other energy sources include animal energy, fossil energy, and renewable energy. Various theoretical frameworks have been used to explain the progress of mechanisms throughout economic development. Among the theories used are the theory of innovation produced and the theory of the evolution of agricultural systems.

In Malaysia, the use of technology and mechanization in agriculture is growing rapidly and this has led to the creation of programs involving technology and mechanization in agriculture at institutes such as Vocational Colleges (KV). According to studies that have been conducted, there are several states that offer Agro-Mechanization Technology programs at Vocational Colleges (KV) such as Rembau (Negeri Sembilan), Chenor (Pahang), Teluk Intan (Perak) and Lahad Datu (Sabah).

2.4 Student Readiness in Terms of Knowledge and Skills

Student readiness refers to the level of ability, confidence, and desire of a student to actively engage in the learning process and apply the required knowledge and skills. According to Aldridge and Rowley (1999), student readiness can be measured through several dimensions such as knowledge, skills, attitudes, and mental readiness. Students who are prepared tend to show high motivation, resilience in facing challenges, and a proactive attitude towards learning. A study by Abdillah and Musa (2021) shows that student readiness in the context of technical and vocational education is influenced by teaching and learning factors, the environment, and support from instructors and peers. In addition, Norsida (2021) in her study on agricultural youth in Malaysia found that the level of student readiness also depends on early exposure to mechanization technology and practical experience during training. This readiness is important because it affects the effectiveness of students in facing the increasingly complex demands of the industry.

Awang et al. (2008) stated that education and training are ways to produce workers who have the knowledge, skills, and abilities needed in the workplace. Educational institutions or ministries of education can do various things to further improve the knowledge of teaching staff or teachers. Among them is periodic training. This will further improve the knowledge of educators. In the process of practical teaching, this knowledge will be used to be more effective. In a study on the level of knowledge of students in the field of Agro Mechanization Technology in Vocational Colleges, there are several important aspects that need to be considered. First, a study conducted by Hashim (2019) showed that there is a significant relationship between student motivation and their academic achievement in learning using technology. In this context, student motivation to understand agro mechanization technology is important to improve their knowledge in the field.

Skills refer to the ability to perform a task skill fully. These skills are often learned through repetition and practice (Spencer & Spencer, 1993). Deegan et al (2015) mentioned that teaching practical skills in agriculture requires appropriate instructions to enable students to follow the process and repeat the skills. Traditional methods in PDP require a high level of teacher competence to demonstrate appropriate practical skills to students. If educators are forced to change the method of teaching practical skills to a more skill-based method, it requires facilities (skill acquisition facilities) and a learning approach in training that involves more active and exploring student-centered methods (Deegan et al., 2015).

2.5 Student Openness

Openness in the context of education refers to an individual's attitude and desire to accept new ideas, information, and experiences. The definition of openness can be seen as a person's ability to accept various views and approaches in the learning process. According to Rahma and Ernawati, openness is one of the 21st century competencies that involves communication, collaboration, and critical thinking (Rahma & Ernawati, 2024). This openness is not only important in an academic context but also in social interaction, where open individuals are more likely to collaborate and communicate effectively. In this context, openness can be seen as the basis for effective and innovative learning.

In the context of agro-mechanization, openness to technology can be seen through students' acceptance of modern agricultural tools and machines. A study by Takanjanji and Kaka showed that individual characteristics, including education and experience, influence the acceptance of technology in agriculture (Takanjanji & Kaka, 2022). This indicates that vocational education that emphasizes the use of technology in practical training can increase students' openness to agro-mechanization technology.

3. Methodology

This research is quantitative descriptive research that begins by identifying issues that require research on the issue. Then, data is collected from sources such as academic publications, books, and previous research papers. Once the necessary information is obtained, a research instrument will be created to facilitate the research. The instrument that will be used in this study is a Likert-scale questionnaire. Questionnaires are a very effective method for collecting data from a diverse group of participants, in a relatively short period of time (Azman & Musthapa, 2015). Participants will receive a questionnaire with various questions related to the objectives of the study. The research data was analysed using the SPSS program to obtain the results of the study data analysis. This strategy facilitates the researcher in obtaining the necessary information related to the research questions that were created because the sample was obtained from students of Malaysian Vocational Colleges. In addition, stratified random sampling will be used for this research because it is in accordance with the need to ensure representation in subgroups originating from KV. In this research, correlation analysis techniques are also used to see if there is a relationship between the level of readiness and openness that has been obtained.

4. Findings and Discussion

The study findings showed that the number of male students was 140 (83.8%), while the number of female students was 26 (16.2%). The study findings showed that the gender composition among the respondents was unbalanced between males and females where males were more dominant. A study by Zakaria et al. emphasized that in the context of vocational education, there is a need to understand the factors that influence gender selection in certain fields, including the need to increase the participation of female students in technical and vocational programs (Zakaria et al., 2020).

A total of 85 students (50.9%) were in the Year 1 category, making this group the majority among the respondents. Meanwhile, 35 students (21.0%) were in the Year 2 and 4 categories. For the Year 3 category, there were only 10 students (6.1%) who were included in this group. In addition, the study findings also showed that the majority of respondents were in the Year 1 category. This finding is in line with studies that show that Year 1 students have a positive perception of the programs offered at the college, which shows that they feel more involved and enthusiastic about learning at the early stages of their studies (Anuar et al., 2022).

A total of 24 students (14.6%) were from KV Dato' Maharajalela, Negeri Sembilan, while 60 students (36.0%) were from KV Teluk Intan, Perak. In addition, there were 54 students (32.6%) from KV Chenor, Pahang and finally 28 students (16.8%) were from KV Lahad Datu, Sabah. Furthermore, the study findings show that the involvement of students from the 3 KVs shows a balanced percentage of involvement. This finding is supported by studies that show that the recruitment of students from various vocational colleges is important to understand the social and academic dynamics among students (Masri et al., 2022).

Overall, the demographic analysis of respondents provides a comprehensive picture of the profile of agro mechanization technology students in KV and how readiness and how these demographic factors can influence their inclination towards the field. This finding is important for planning more effective educational interventions and support programs in increasing student interest in the field of Agro Mechanization Technology among students.

Table 1 shows a descriptive analysis of student readiness about knowledge in the field of Agro mechanization Technology in Malaysian Vocational Colleges. The study findings show that the level of student perception about knowledge in the field is at a high level, with an average mean score of 3.53 and a standard deviation of 0.996. The findings of this study show that the overall mean result on the aspect of student knowledge in the field of Agro Mechanization Technology in Vocational Colleges is at a high level, namely 3.53. The results of the study according to the level of student knowledge, the item that obtained the highest mean P2 in knowledge refers to the element of knowledge about the basics of agricultural mechanization technology. A study by Aleru and Lazarus (2021) emphasizes the critical role of vocational agricultural education in developing student skills in mechanization technology, emphasizing that agricultural education workshops play an important role in equipping students with the knowledge and competencies needed to be independent in agricultural practices. This is in line with the assertion that students from vocational colleges, especially those taking this field, exhibit a strong basic understanding of agricultural mechanization technology. A descriptive analysis of the level of readiness of agro mechanization technology students in Malaysian Vocational Colleges in terms of knowledge and skills.

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Table 1 *Descriptive analysis of student readiness from the knowledge aspect*

Item Code	Item	Mean Item	Standard Deviation	Mean Level
P1	Learn about the basics of agricultural automation technology	3.80	0.897	High
P2	Knowing about the basics of agricultural mechanization technology	3.92	0.860	High
P3	Understanding the concept of precision farming	3.60	0.927	High
P4	Be able to explain the use of drones in agriculture	3.39	1.071	Medium
P5	Knowing how soil sensors work in automation systems	3.34	1.037	Medium
P6	Knowing about the use of GPS in agriculture	3.29	1.079	Medium
P7	Understanding the concept of automatic irrigation systems	3.72	1.014	High
P8	Able to explain how an automatic tractor works	3.84	0.962	High
P9	Learn about plant disease detection technology	3.34	1.104	Medium
P10	Understand how smart irrigation systems work	3.37	1.058	Medium
P11	Learn about agricultural information management systems	3.54	0.957	High
P12	Knowing about IoT applications in agriculture	3.36	1.091	Medium
P13	Understanding how soil moisture measuring devices work	3.68	0.979	High
P14	Learn about smart greenhouse technology	3.46	0.957	High
P15	Able to explain automatic climate control systems	3.27	1.103	Medium
P16	Learn about automatic fertilization technology	3.66	0.886	High
P17	Understanding the concept of automatic water management	3.60	0.972	High
P18	Learn about automated plant monitoring systems	3.43	0.993	High
P19	Knowing about the vertical farming system	3.33	0.986	Medium
P20	Learn about automatic drip irrigation techniques	3.66	0.983	High
	Overall	3.53	0.996	High

Next, Table 2 shows a descriptive analysis of students' readiness for skills in the field of agro mechanization technology in Malaysian vocational colleges. The findings of this study, based on the overall mean results for the skill level of students in the field of Agro Mechanization Technology in Vocational Colleges at a high level of 3.45. The results of the study according to the level of student skills, the item that obtained the highest mean was K2 which refers to the element of ability to maintain agricultural mechanization equipment. While the results of the study with the lowest mean score was item K6 which refers to skills related to the ability to operate GPS systems in agriculture. A study conducted by Paman et al. (2023) examined the competencies required to operate and maintain farm machines. The findings of the study showed that students who have received sufficient training and have knowledge about agricultural machinery are more skilled in operating these machines.

Table 2 *Descriptive analysis of student readiness in terms of skills*

Item Code	Item	Mean Item	Standard Deviation	Mean Level
K1	Can maintain agricultural automation equipment	3.73	0.877	High
K2	Can maintain agricultural mechanization equipment	3.86	0.961	High
K3	Can use precision farming applications	3.42	1.034	High
K4	Can use drones for field mapping or in agriculture	3.30	1.053	Medium
K5	Can maintain ground sensors	3.27	1.075	Medium
K6	Can operate GPS systems in agriculture	3.19	1.067	Medium
K7	Can operate automatic irrigation system	3.45	1.047	High
K8	Can operate an automatic tractor	3.81	1.088	High
K9	Can use plant disease detection technology	3.32	1.045	Medium
K10	Can maintain a smart irrigation system	3.27	1.074	Medium
K11	Can use agricultural information management system	3.45	1.006	High
K12	Can use IoT applications in agriculture	3.22	1.107	Medium
K13	Can operate a soil moisture meter	3.57	1.052	High
K14	Can operate a smart greenhouse	3.37	1.052	Medium
K15	Can operate automatic climate control system	3.26	1.073	Medium
K16	Can operate automatic fertilization system	3.57	0.993	High
K17	Can operate an automatic water management system	3.55	1.006	High
K18	Can maintain an automated plant surveillance system	3.47	0.945	High
K19	Can handle vertical farming technology	3.40	1.020	Medium
K20	Can operate an automatic drip irrigation system	3.57	0.999	High
	Overall	3.45	1.029	High

Table 3 shows a descriptive analysis of students' openness to the field of Agro Mechanization Technology in Malaysian Vocational Colleges. The study findings show that the level of student readiness for the field among respondents is high, with an average mean score of 4.01 and a standard deviation of 0.901. Among the items that recorded the highest mean score was item S6, which is "Confidence that drones can help in farm management" (mean score 4.22, SD=0.861). The study findings show that the level of student readiness for the field of Agro Mechanization Technology among respondents is high. This shows that respondents have a high willingness to venture into the field. The results of the study according to the level of student readiness, the item that obtained the highest mean was S6 with reference to the element of confidence in drone tools that can help in farm management. A study by McCarthy (2023) discussed the potential of drone technology in increasing agricultural efficiency and reducing food insecurity, especially in the context of smallholder agriculture. Findings show that respondents, including students and farmers, recognize the value of drone data in improving farm management practices, which is in line with McCarthy's (2023) statement regarding confidence in drone tools for farm management. The study highlights that drone technology can provide detailed and accurate farm imagery, inform crop management decisions, and identify areas for improvement.

Table 3 *Descriptive analysis of student openness*

Item Code	Item	Mean Item	Standard Deviation	Mean Level
S1	Convinced that automation technology is essential for modern agriculture	4.08	0.914	High
S2	Willing to learn about new technology in agriculture	4.11	0.890	High

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S3	Believe automation can increase agricultural productivity	4.14	0.833	High
S4	Willing to attend training on mechanization technology	4.05	0.916	High
S5	Believe precision farming technology can reduce operating costs	3.93	0.895	High
S6	Confident that drones can help in farm management	4.22	0.861	Very High
S7	Believe the use of GPS can increase farm efficiency	4.05	0.889	High
S8	Willing to learn about automation technology	3.86	0.903	High
S9	Confident that sensor technology can increase crop yields	3.95	0.910	High
S10	Confident that smart greenhouses can improve plant quality	4.06	0.892	High
S11	Be prepared to maintain automation equipment	4.02	0.874	High
S12	Believe automatic plant surveillance can prevent disease	3.93	0.918	High
S13	Believe automatic water management can save water resources	4.08	0.921	High
S14	Confident that IoT applications can improve farm management	3.88	0.946	High
S15	Confident weather monitoring technology can help better farm management	4.01	0.881	High
S16	Confident that the use of soil moisture measuring devices can increase crop yields	3.99	0.914	High
S17	Be prepared to maintain sophisticated automation equipment	3.97	0.943	High
S18	Confident that the automatic control system can increase efficiency in the storage of agricultural products	3.95	0.929	High
S19	Convinced that the vertical farming system can increase the efficient use of space	3.90	0.919	High
S20	Ready to adapt drip irrigation technology in everyday life	3.99	0.874	High
	Overall	4.01	0.901	High

This study also conducted an analysis of the relationship between the level of readiness and openness in agro mechanization technology in Malaysian Vocational Colleges according to student perceptions. Based on Tables 4, 5 and 6. the findings of this study illustrate that there is a positive correlation between the level of knowledge, technical skills, and attitudes in the context of the study. A positive correlation indicates that the higher the level of knowledge, the higher the related skills and attitudes (Morgan et al., 2019). The same is true if the opposite is true. The importance of this positive relationship can be outlined in several aspects. First, when students have strong knowledge in a field, they tend to have better skills in applying that knowledge. In addition, the positive relationship also shows that students' attitudes towards a particular topic or field are influenced by the knowledge and skills they possess (Morgan et al., 2019). Students who have extensive knowledge and good skills in a field tend to show a positive attitude towards that field.

Table 4 *Mean, standard deviation and correlation results for student knowledge, skills and attitude levels*

Variable	Students Knowledge	Students Skill	Students Attitude	Mean	Standard Deviation
Students Knowledge	1	0.62**	0.41**	3.53	0.996

Table 5 *Mean, standard deviation and correlation results for student knowledge, skills and attitude levels*

Variable	Students Knowledge	Students Skill	Students Attitude	Mean	Standard Deviation
Students Skill	0.62**	1	0.42**	3.45	1.029

Table 6 *Mean, standard deviation and correlation results for student knowledge, skills and attitude levels*

Variable	Students Knowledge	Students Skill	Students Attitude	Mean	Standard Deviation
Students Attitude	0.41**	0.42**	1	4.01	0.901

In addition to conducting a relationship analysis of the level of readiness and openness, this study also conducted a relationship analysis from the aspect of gender. Based on the analysis conducted in Table 7, there is a significant and positive relationship between the level of readiness and openness among male students in the field of Agro Mechanization Technology at Vocational Colleges. The correlation value $r = 0.65$, $p < 0.01$ shows that the higher the level of readiness of a student, the higher their level of openness. This is in line with the theory that students who are ready to receive new knowledge and skills in the field of Agro Mechanization Technology are more likely to be open-minded in facing technological changes and challenges in the industry. In addition, the mean value of male readiness is 3.49 with a standard deviation of 0.767, while the mean of openness is 4.01 with a standard deviation of 0.901, which shows a slightly higher level of openness compared to readiness.

For female students, it can be seen in Table 8 that the relationship between the level of readiness and openness is stronger with a correlation value of $r = 0.77$, $p < 0.01$. This value shows a high and significant correlation, indicating that female students who are more prepared in learning agro mechanization also have a higher openness to technological developments and innovations in this field. Similar to male students, the mean for female students' readiness is 4.23 with a standard deviation of 0.866, while openness recorded a mean of 5.12 with a standard deviation of 0.925. The significant difference in the strength of the correlation between males and females reflects that female students are more likely to associate their readiness with openness to new technologies.

Table 7 *Mean, standard deviation and correlation results for the level of readiness and openness of students in agro mechanization technology at vocational colleges for male students*

Variable	Readiness	Openness	Mean	Standard Deviation
Readiness	1	0.65**	3.49	0.767
Openness	0.65**	1	4.01	0.901

Table 8 *Mean, standard deviation and correlation results for the level of readiness and openness of students in agro mechanization technology at vocational colleges for female students*

Variable	Readiness	Openness	Mean	Standard Deviation
Readiness	1	0.77**	4.23	0.866
Openness	0.77**	1	5.12	0.925

5. Conclusion

This finding plays an important role in understanding the dynamics of learning and development of students who take this field. The results of the study show that the knowledge of students in the field of Agro Mechanization Technology at Vocational Colleges is at a high level, with the highest mean obtained in the aspect of knowledge about the basics of agricultural mechanization technology and the lowest mean in the ability to explain automatic climate control systems. This gap indicates that while students have a strong grasp of fundamental machinery, they are still struggling with advanced, automated technologies. This may be due to the complexity of climate control systems, which require an understanding of both agriculture and electronics. Furthermore, there might be a lack of advanced smart-farming equipment at the colleges for practical training. To fill this knowledge gap, it is recommended that vocational colleges update their training modules to include more hands-on exposure to automatic climate control systems and collaborate with the modern agriculture industry for practical exposure.

Similarly, the skills of students are at a high level, with a good emphasis on the skills of maintaining agricultural mechanization equipment. The attitudes of students in the field of Agro Mechanization Technology are also recorded at a high level. The positive relationship between the aspects of readiness that include knowledge, technical skills and the aspects of openness that include attitudes found in this study are in line with previous research. The same is true of the relationship in terms of gender differences. This finding has significant implications, especially in the preparation of more effective and inclusive vocational education programs. It is necessary to give special attention to the development of deeper knowledge and skills, while understanding the factors that influence student attitudes. Teachers and educational stakeholders need to understand the needs of students in the field of Agro Mechanization Technology and provide appropriate support.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors acknowledge contributions to the paper as follows: Alysha Auluck Amarjit Singh: ***Literature review, methodology and data collection.*** *Khairul Anuar Abdul Rahman:* ***Drafted the manuscript and provided major revisions, formal analysis, and validation.*** *Norazrena Abu Samah:* ***Review and editing.*** *Azita Ali:* ***Review and editing.***

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