

## The Challenges Faced by The Agriculture Lectures in Improving Teaching Delivery at Malaysia Agriculture Vocational Colleges: A Competency Study

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### Article Info

**Received:**  
28 July 2020

**Accepted:**  
30 August 2020

**Publish**  
01 Sept 2020

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e-ISSN 2682-759X

### Abstract

*This study was conducted to analyse the challenges faced by agricultural lecturers at the Agricultural Vocational College in Malaysia. The objectives of this study is to look into competence in terms of skills and educational practices of agricultural lecturers. Apart from that, this study also examines the obstacles that interfere with the achievement of lecturers' competence. This study was a quantitative study that used a set of questionnaires as a research instrument. The study sample was selected using stratified random sampling method proposed by Krejcie and Morgan. The respondents of this study consisted of 162 lecturers involving five agricultural stream vocational colleges in Malaysia. The data were collected using a questionnaire instrument and analysed using Statistical Package for the Social Science (SPSS version 24) software. The results from the analysis of this study revealed that there are obstacles that interfere with the level of competence of lecturers. Meanwhile, the level of skills of lecturers in achieving positive behaviour was at a moderate level with a mean score of 2.99. However, educational practices possessed by lecturers were at a high level with an overall mean score of 3.05.*

**Keyword:** Competence, Lecturer, Agriculture Vocational College, Obstacles

### Introduction

Agriculture is seen as a business that gives huge prospects to the Malaysian society, which is able to help bridging the socio-economic gap and contribute to the country's economic growth. This field is also seen important for the country's economic growth, reducing dependence on food importers, opening up employment opportunities, providing substantial profits to investors and entrepreneurs, meeting food needs, agro tourism and increasing national income. According to

the Department of Statistics Malaysia (2019), Malaysia has a labour force of almost 15.51 million people where the total workforce in the agricultural sector covers 1,608,300 people. The agricultural sector has played an important role in the social and economic development of the country. Along with the current development, studies in the field of agriculture have been also emphasised by the government through the offering of formal programs under the Ministry of Education Malaysia (MOE), Ministry of Higher Education (MOHE) and the Ministry of Agriculture and Food Industry. The field of agriculture covers a wide and diverse scope as well as various skills besides the development and progress achieved in this field that are also quite encouraging. As an industry stakeholder, lecturers in the field of agricultural education are part of the agricultural workforce development process. Therefore, they need to have extensive knowledge in agriculture (Whittington, 2005).

Skilled and knowledgeable lecturers in the field of agriculture are a remarkable asset in any agricultural education program (Easterly & Myers, 2017; Mark & Trent, 2019). Agriculture is seen as an area of agricultural education that needs to be given attention to increase national production. The issues in agricultural education, which are seen to disrupt the success process, are caused by the lack of qualified and competent lecturers to fill agricultural education programs (Camp Clark & Fallon, 2002; Connors, 1998; Myers, Dyers & Washburn, 2005). This finding is also supported in the study of Blickenstaff, Wolf, Falk & Foltz (2015) who stressed that lecturers need to have the elements of competence such as critical thinking, problem solving and can communicate effectively to ensure that the agricultural graduates produced can meet the market needs. The industry expects that skilled manpower can be produced by educational institutions to be able to meet their needs. This opinion is in line with the speech of Wan Azizah (2019) who said that solid TVET education facilities and services will not give meaning without the industry involvement and it is the hope of the government that the industry can engage more actively so that the latest technology can be shared. To meet the needs of the industry, competency is the key element in ensuring the success of agriculture field in vocational colleges.

Professional skills and lecturers' competence are the important factors in determining the success of a teaching process (King Rice, 2003; Rivkin, 2005; Philipp, 2008). The more advanced the agricultural technology, the higher the impressions and expectations given to agricultural lecturers. Educators are individuals whose role is to produce excellent and high-quality students. According to Booth (1993), Goodwin & Stevens (1993), as well as Anuar Ahmad & Nelson Jinggan (2015), excellent and quality students are produced through an effective teaching and learning process. A lecturer must have the elements of competence to be a good lecturer such as mastering the content of the subject taught, knowledgeable in pedagogy, able to select teaching resources, able to diversify teaching strategies, have technological skills, have good communication skills as well as having the attitudes and personalities such as positive, humour and confident.

## Literature Review

Competence can be interpreted as a tool brought by individuals to perform their tasks. It can be defined differently according to its purposes and approaches used. According to Lyle M. Spencer (1993) in his book entitled "*Competence at Work*", competence is defined as a deep and strong character in an individual that will predict the behaviour of the individual in all given circumstances and tasks. Competence can also be classified as motivation, self-attitude, behaviour, knowledge or cognitive. Meanwhile, according to Sinnot et al. (2002), competence is one of the characteristics of an employee that contributes to a good job performance. Meanwhile, Che Ghani et al. (2018) define competence as a combination of knowledge, ability and experience that allows an individual to perform a task well and perfectly. Boyatzis (1982) defines competence as the basic characteristics of an individual that produces effective work performance and/or

outstanding performance. This is because the level of competence is one of the important assets in the assessment of a job level ability (Sampson & Fytros, 2008).

a. Competence of Agricultural Vocational College Lecturers in Malaysia

TVET educator competence is an issue discussed at the national level as stated in the Eleventh Malaysia Plan (2016-2020). According to Khuzainey & Mustaun (2017), an educator is considered efficient when he has three elements of competence namely knowledge, skills and attitude. Competent employees have the skills, abilities and efficiency in performing their duties effectively while teachers' competence can influence students' learning achievement. Competence generally gives meaning to the ability in terms of knowledge, attitude and skills to do a job brilliantly (Mohd Faiz, 2016). Based on the discussed definition of competence, it has been clearly shown that competence is an important element in the agricultural education system. Through the above discussion, it is clear that competence is a requirement for agricultural vocational college lecturers. Apart from that, the issue of agricultural education is a great challenge for lecturers in the field of agriculture, especially in improving teaching in vocational colleges.

The iceberg competency model is a popular model for researchers in discussing competency-related issues. The Iceberg Competency Model by Spencer & Spencer (1993) is a model that is considered interesting enough to look at the competence elements possessed by individuals. This model describes the factors that determine the competence of an employee and elements that guide the level of competence. In the competency model, there are five elements used namely skills, knowledge, self-image, nature and motives. Briefly, each section has its own elements as below:

- i. Skill: demonstrates behavioural skills that can be performed.
- ii. Knowledge: what a person knows about a specific topic.
- iii. Self-Image: an image exhibited by individuals to portray themselves to others,
- iv. Trait: a character that is relatively permanent and stable in a person's behaviour.
- v. Motive: is a natural and continuous thought as well as a tendency in something that drives, directs and gives birth to one's external behaviour.

b. Challenges and obstacles as a lecturer at an agricultural vocational college

The Education Development Master Plan has stated that the issues and challenges for implementing educational programs are stemmed from the lack of integration between the various programs that causes the effectiveness of a program cannot be measured accurately and comprehensively. Various challenges need to be faced by the Ministry of Education Malaysia (MOE) especially the Division of Vocational Technical Education and Training (BPLTV) in the agenda of transforming the technical and vocational education system in Malaysia. These changes also have a significant impact on the development of agricultural education programs in vocational colleges. Through the study that has been conducted, researchers have identified several challenges and obstacles that affect competence in improving the delivery of teaching. The main challenges in the agricultural education system in vocational colleges are lack of knowledge and skills in the field, lack of knowledge in pedagogy, weakness in English, lack of resources, lack of recognition in services as well as lack of training and industry experience. This finding is supported in the study by Khuzainey & Mustaun (2017) that discussed some of the problems faced by TVET lecturers. Among the problems faced by these lecturers are lack of knowledge in ICT, lack of pedagogical knowledge, lack of proficiency in English as well as training and technical experience. Adamu Hamisu (2017) mentioned that financing factors, lack of infrastructure, lack of teaching materials and equipment are among the factors that contribute to the lack of competence of TVET lecturers in Malaysia. In a study at the University Of Idaho by Blickenstaff

et al. (2015), it was found that lack of resources, lack of in-service training as well as lack of recognition and rewards are major challenges to agricultural lecturers in improving the quality of teaching.

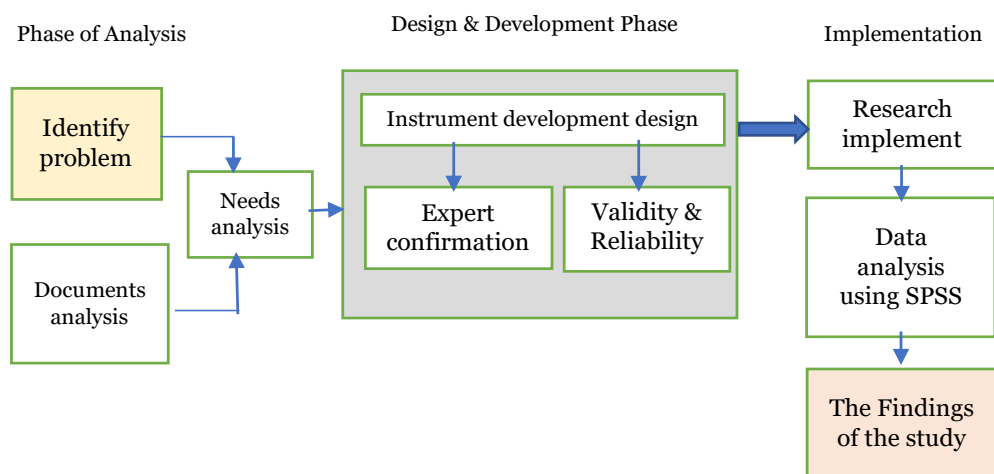
Studies in other countries have found that in agricultural education, many lecturers left this profession within the first five years of their career (Tippens, 2013; Smalley et al., 2019). These findings are in line with the study by Myers et al. (2005), which outlined six challenges that cause them to tend to leave this career namely: i. classroom management, ii. advising FFA, iii. lesson planning, iv. curriculum development, v. managing the amount of paperwork and finance and vi. working with parents, teachers and administrators. In addition, Smalley & Smith (2017) as well as Smalley et al. (2019) have identified that the biggest challenge of agricultural lecturers is lack of time, lack of motivation and no course planning. In addition, Dadang Kurnia & Ilhamdaniah (2013) as well as Faridah et al. (2014) have raised an issue regarding TVET educators that they do not have the latest knowledge and skills with no current developments in the industry. This issue is also a big challenge for agricultural lecturers as the issue of competence is often associated in that field. For example, technological and industrial advances in agriculture itself have grown exponentially as fertilisation activities in agriculture have now used drones. However, the question now is whether or not the syllabus in agricultural education in vocational colleges has introduced the use of drones as one of the equipment in farm mechanisation. This opinion is in line with the lack of industrial training and educational resources that can affect the level of competence of agricultural lecturers in vocational colleges.

## **Methodology**

Quantitative research is a process of research in producing a scientific report to solve problems according to certain disciplines. This study was a form of descriptive study using a fully quantitative approach where the research method used questionnaire instruments and involved the measurement of study variables through statistical descriptions. The research instrument built was intended to study the challenges faced by agricultural stream vocational college lecturers in improving delivery. Data analysis of this study was processed using Statistical Package for Social Science software (SPSS version 24). According to Mohd Majid (2004), statistical data analysis using SPSS programming software can produce accurate calculations. According to Chua (2008), nominal and ordinal scale data expressed in the form of categories are used in the analysis of non-parametric tests. The data obtained were presented descriptively in the form of frequency, percentage, standard deviation and mean.

## **Study procedure**

Systematic research requires a detailed research procedure to facilitate the research process to be conducted. Edmondson & Mcmanus (2007) as well as Norhazirah (2016) emphasised that quality of a research is the extent to which the research is conducted, questions are coordinated in the research and the selection of the best research methods. There were generally three phases used in this study. These phases consisted of the analysis phase, the design and development phase as well as the implementation phase. Each phase is explained in detail through Figure 3 below.



**Figure 3:** Study framework for data collection

### Population and sample of study

This study was only generalised to agricultural lecturers who work at the agricultural stream vocational colleges only. In Malaysia, there are only five colleges that offer the program of agricultural education (refer to Table 1). The population size of this study comprised 275 agricultural lecturers from agricultural vocational colleges throughout Malaysia. According to Krejcie & Morgan (1970), the determination of the total study sample is based on the total population. For this study, the sample to be taken was 162 samples. Sample selection was made using stratified random sampling method. This type of sampling method is very suitable for this study as it makes strata to the population according to the percentage, which then randomly select based on the desired percentage. Table 1 shows the distribution of samples by college zone.

**Table 1:** Distribution of samples according to zone

Bil	States	Name of College Vocational	Total Population	Number of Samples
1.	Central Zone	KV Pertanian Teluk Intan	75	44
2.	East Zone	KV Pertanian Chenor	72	42
3.	South Zone	KV Pertanian Dato Lela Maharaja	61	36
4.	East Malaysia	KV Lahad Datu	61	36
5.	East Zone	KV Pasir Puteh	6	4
Total			275	162

*Source: Data from Planning, Research and Development Sector, Vocational Technical Education and Training Division, Ministry of Education Malaysia (2020)*

### Study instrument

This study used a set of questionnaires that have been modified through the study of Blickenstaff et al. (2015). The instrument in this study was formed to identify the obstacles that need to be faced by agricultural vocational college lecturers in improving their delivery of teaching. Apart from that, this instrument was also designed to identify the skills and important aspects in the

delivery practice that they need to have. The construction of this instrument took some opinions from the study of Myers et al. (2005) and Smalley et al. (2019). Content validity means that the content of a measuring instrument is able to obtain feedback on the entire domain of knowledge, skills, attitudes and behaviours measured by the instrument used (Cohen et al., 2000; Azhari, 2016). Meanwhile, facial validity can be defined as the extent to which the measurements made can measure the actual value to be measured. This is to ensure that the instrument built is good and can measure the actual value. In this study, the study questionnaire was reviewed and confirmed by three experts consisting two content validation experts that comprised a lecturer in the field of agricultural education and a Head of Department of Agriculture at a vocational college. As for facial validation, it involved a language lecturer as a face validation expert. The division of questionnaires used is as in Table 2.

Table 2: Study Instrument

Research design		Instrument		No. of items
Quantitative	Questionnaire	Section A	Demography	5
		Section B1	Obstacles	10
		Section B2	Important skills	12
		Section B3	Education practice	10
<b>Total</b>				<b>37</b>

As for the reliability of this instrument, it was shown that the value of Cronbach's Alpha coefficient was 0.87, which indicates that this questionnaire is consistent and has a high reliability. There are five ranges in instrument reliability where Hair et al. (2003) have outlined that a reliability value equal to or greater than 0.7 can be used as a study instrument. However, if it has a value equal to or less than 0.6, it is less appropriate and needs to be modified. In this study, used multiple choice items and four-point scale items were used. Questions that used multiple-choice items consisted of Name of KV on duty, gender, age, name of department and length of service. Meanwhile, to analyse the data from the study respondents, a four-point scale item was used. A four-point scale was used where each scale is given a corresponding score value of 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

This study utilised a four-point scale to allow respondents to make answer choices. The scale in this study was modified according to the ranking of the mean so that the value shown is not too small. The mean ranking was made by taking the highest mean value and the lowest mean value. The highest mean value will be subtracted from the lowest mean value and ranked according to the suitability of the study (Mohd Najib, 1998). Estimates in the mean ranking of this study are shown as follow:

$$\frac{4 (\text{highest mean value}) - 1 (\text{lowest mean value})}{3} = 1.00$$

The frequency levels were re-encoded into three scales as shown below:

Table 3: Ranking of Mean Scores for 4-point Likert Scale

Min	Role Level
3.01 to 4.00	High
2.01 to 3.00	Moderate
1.00 to 2.00	Low

## Results

The main objective of this study was to identify the challenges faced by agricultural lecturers in Malaysia's agricultural vocational colleges. Therefore, based on these objectives, there were three research questions developed as follow:

*Research Question 1:* What are the obstacles faced by agricultural lecturers in improving the delivery of teaching in vocational colleges?

*Research Question 2:* What is the level of skills of agricultural lecturers in achieving positive behavioural competence?

*Research Question 3:* What is the level of education practice possessed by agricultural lecturers in improving the delivery of teaching in vocational colleges?

### Demographic analysis of respondents

Descriptive statistical analysis was conducted to analyse the data obtained through a complete questionnaire. A total of 162 questionnaires were processed in this study involving lecturers of agricultural vocational colleges in Malaysia. Demographic information of the respondents obtained was analysed by SPSS version 24 using frequency and percentage distribution. Table 4 shows respondents' information based on gender. The results of the questionnaire found a total of 63 male lecturers (38.9%) and 99 female lecturers (61.1%) as the respondents in this study.

Table 4: Demographic information of respondents

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	63	38.9%
Female	99	61.1%
<b>Total</b>	<b>162</b>	<b>100%</b>

The number of respondents based on teaching experience can be seen in Table 5. The results of the questionnaire found that 55 lecturers (34.0%) have served less than five years. Forty-three lecturers (26.5%) were those who have served between six to ten years. Thirty lecturers (18.5%) have served for 11 to 15 years. Twenty-five lecturers (15.5%) have served between 16 to 20 years and nine lecturers (5.5%) have served more than 21 years and above.

Table 5: Length of service of the respondents

<b>Length of service</b>	<b>Frequency</b>	<b>Percentage</b>
1-5 years	55	34.0%
6-10 years	43	26.5%
11-15 years	30	18.5%
16-20 years	25	15.5%
21 years and above	9	5.5%
<b>Total</b>	<b>162</b>	<b>100%</b>

## Study analysis

*Research Question 1:* The first research question was to find out the obstacles faced by agricultural lecturers in improving their delivery of teaching. Table 6 shows the findings of the study involving mean, standard deviation and level.

Table 6: Mean, SD dan level of obstacles faced

Item	Min	SD	Level
Lack of resources for educational materials	2.86	.552	Moderate
Lack of knowledge and understanding of alternate teaching approaches	2.59	.529	Moderate
Lack of education related to teaching	2.53	.559	Moderate
Lack of training related to teaching	2.68	.647	Moderate
Lack of motivation	2.40	.583	Moderate
Lack of recognition or rewards for teaching	2.68	.542	Moderate
Lack of ICT knowledge and skills	2.64	.520	Moderate
Lack of pedagogical knowledge	2.37	.509	Moderate
Lack of knowledge in teaching English	2.81	.529	Moderate
Lack of training skills and work experience	2.67	.629	Moderate

*Research Question 2:* To answer the second research question, 12 items were used in this study. The mean for this whole item was ( $M = 2.99$ ), which is at a moderate level. Table 7 shows the results of the study to observe the data on the level of skills of agricultural lecturers in achieving positive behavioural competence. The analysis of the study shown is in the form of mean, standard deviation and level.

Table 7: Mean, SD and skill level possessed

Item	Min	SD	Level
I have problem solving skills	2.72	.615	Moderate
I have the ability to think critically	2.91	.516	Moderate
I can communicate effectively through writing	2.95	.457	Moderate
I can communicate effectively through speech	2.96	.521	Moderate
I have decision making skills	3.05	.414	High
I know how to interpret data and draw correct conclusions	3.04	.422	High
I can work in a team	3.20	.419	High
I can do multitasking	3.06	.531	High
I have leadership abilities	3.03	.438	High
I have management skills	3.06	.364	High
I have conflict-solution skills	2.96	.430	moderate
I can manage the budget	3.04	.430	High



*Research Question 3:* Table 8 shows the mean and level of education practices possessed by agricultural lecturers in improving their delivery of teaching in vocational colleges. Overall, the data shows that the level of educational practice possessed by lecturers was at a high level that is ( $M = 3.05$ ). A large number of lecturers showed a tendency to agree that they have good educational practices in improving delivery and teaching in vocational colleges. The analysis can be seen in Table 6.

Table 8: Mean, SD and level of lecturer education practice

Item	Min	SD	Level
I can:			
improve students' reading / writing	3.08	.334	High
teaching in various learning methods (learning style of students)	3.04	.392	High
encourage the development of critical thinking skills	3.05	.414	High
use hands-on problem solving	3.12	.359	High
I used:			
peer evaluation to improve teaching delivery	2.99	.343	Moderate
related tasks solve problems in real life	3.15	.373	High
web-based technology for managing courses	2.86	.484	Moderate
cooperative learning (projects and group assignments)	3.11	.352	High
student evaluations to improve teaching	3.05	.443	High
technology in teaching	3.09	.399	High

## Discussion and Conclusion

This study is a competency study that focuses on the challenges faced by agricultural lecturers in improving their teaching delivery at the Malaysia's agricultural vocational colleges. This study also examines the level of skills of agricultural lecturers in achieving positive behavioural competence. Referring to the mean for the part of the obstacles faced by agricultural lecturers in improving the delivery and teaching, all items were at a moderate level. Data analysis showed that lack of resources for educational materials ( $M = 2.86$ ,  $SD = 0.552$ ) was reported as the biggest obstacle to improving teaching with 125 lecturers agreeing with the item followed by lack of knowledge in teaching English ( $M = 2.81$ ,  $SD = 0.529$ ) in which 121 lecturers agreed with the obstacle. These findings are in line with Zaid's (2017) study, which stated that among the problems in the teaching and learning delivery process is due to lack of educational materials. This opinion is also supported in the study of Blinckenstaff et al. (2015) revealing that students in the agricultural faculty of the University of Idaho agreed that lack of resources was a factor that hindered the success of the faculty. Next, the second obstacle that caused the increase in

competence of agricultural lecturers was the lack of knowledge in teaching English. The analysis of this study is in line with the study by Khuzainey Ismail & Mustaur (2017) who stated that TVET teachers have problems in teaching as they are not proficient in English. However, for other items, the lecturers' agreement to other obstacles was moderate.

The next discussion was about the level of skills of agricultural lecturers in achieving positive behaviour. Overall, the level of skills of lecturers in the agricultural vocational colleges to achieve positive behavioural competence was at a moderate level ( $M = 2.99$ ); nevertheless, some levels of skills were at a high level. Analysis of findings of this study found that lecturers in agricultural vocational colleges can work in a team. These findings clearly indicate that lecturers are always ready to work with colleagues, parents and management to improve the delivery in teaching. Lecturers were also found to have leadership skills and able to do multitasking. However, several things were identified that interfere with the lecturers' skill level such as problem-solving skills and critical thinking ability.

The final discussion in this study was on the level of education practices possessed by agricultural lecturers in improving the delivery of teaching in vocational colleges. Overall, the data shows that the level of educational practice possessed by lecturers was at a high level ( $M = 3.05$ ). These findings indicate the tendency of lecturers to agree that they have good education practices especially in improving delivery. The data shows that a total of 142 lecturers agreed that they use related tasks to solve problems in real life. This situation shows that agricultural lecturers apply TVET skills in real life, which is in line with the opinion by Myers et al. (2015) who stated that agricultural students need to be exposed to real life in hands on activities. Lecturers in agriculture at vocational colleges also use cooperative learning in projects and group assignments in their learning activities. Apart from that, agricultural lecturers also agreed that they utilise technology in teaching and making student assessment to improve the quality of teaching.

Overall, the job as a lecturer in agriculture, especially in vocational colleges, is something that is challenging in terms of competence. The field of agriculture is a vast and interesting field to explore. Lecturers in the field of TVET especially agriculture need to have creativity and critical thinking. Apart from that, lecturers also need to be efficient in managing learning activities especially in hands-on activities. Good relationships with colleagues, students, parents and management need to be instilled in the lecturers. This positive situation is expected to make them competent individuals in implementing the teaching process. It is hoped that the findings of this study can be used as a guide by relevant parties especially the Vocational Technical Education and Training Division in designing programs related to the competence of TVET instructors, particularly in the field of agriculture. Furthermore, this study is expected to be a reference to researchers in the field of agricultural education since the search results showed that studies related to agricultural education in agricultural vocational colleges are inadequate. For future studies, there are several changes that can be implemented. For example, the study on competence of new lecturers in the field of agriculture in agricultural vocational colleges using a combination of quantitative and qualitative methods. The assessment of the competency program of agricultural lecturers needs to be carried out in a planned manner in achieving the vision and mission that have been formulated.

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