



## RITVET

Homepage: <http://publisher.uthm.edu.my/periodicals/index.php/ritvet>  
e-ISSN : 2785-8138

# Optional and Non-Optional Teacher Competencies from Aspects of Content Knowledge in Vocational College

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DOI: <https://doi.org/10.30880/ritvet.2021.01.01.028>

Received 26 January 2021; Accepted 17 February 2021; Available online 31 March 2021

**Abstract:** The purpose of the study was to identify the competency of option teachers and non-option teachers in terms of knowledge at two vocational colleges of Chenor Agriculture Vocational College and Teluk Intan Agriculture Vocational College. A total of 88 respondents were selected for the study comprising various fields of agriculture. Questionnaire forms were used as an instrument for the study. The data was analyzed using mean values and. The Mann Whitney test was used to identify the difference between the teacher choice and teacher competence in the context of content knowledge. The results showed that the teachers' competence in content knowledge was at a high level with a mean value of 3.04. While the findings of the Mann-Whitney U test supported the suggestion that Option and non-option teacher groups have different levels of content knowledge.

**Keywords:** Competency, Content Knowledge, Option Teacher, Non-option Teacher

## 1. Introduction

A teacher is an individual who has passed professional training to qualify that individual as a teacher Barrick & Powell (2010). Olatain & Mama (2011) explain that a teacher in agricultural science is a person who has knowledge in all areas of life. He should also have high ethical standards while having good relationships with colleagues and students as well as an absolute self. A teacher in the field of agriculture must require preparation within the scope of work to create and see the current development of agricultural technology in line with the needs of the industry. Highly competent teachers are the key to success in providing education to students.

Teacher competence plays a very important role in driving the direction of Technical and Vocational Training Education (PLTV) to be on par with the mainstream. The Ministry of Education Malaysia (MOE) has identified teacher competence as one of the main keys to transforming PLTV. Competence can be defined as the combination of knowledge and skills required for a person to perform a task efficiently (Davis et al., 2004). Competence includes the ability to transfer skills and knowledge about time while working. The competencies of strengths, capacities or abilities can be understood as characteristics of individuals, groups or organizations used while they are in the position held (Mulder, 2011).

Vocational colleges were established in 2012 that offer training skills training compared to academic education. Vocational colleges play an important role in producing a semi-skilled and technical workforce. However, there are limited information on the new duties and competencies required by vocational college teachers (Rafeizah Mohd Zulkifli, 2016). This limited information regarding the duties of vocational college teachers can affect the quality of vocational college programs, just as they are unable to identify the competencies of teachers required by vocational colleges. According to Jailani et al. (2019), the effectiveness of teaching and learning is determined by the knowledge of teachers' vocational content as well as pedagogical decisions. Thus, the aim of this study was to identify teacher background and competence in terms of content knowledge. Therefore, research objectives are:

- To identify the competency level of option and non-option teachers' content knowledge.
- To determine the relationship between educational background and teacher competency level.

## 2. Methods

This study used survey methods to obtain data from the purposive sampling. The survey method is a method used in the collection of information from individual samples where the sample referred is part of the population studied (Kaprawi, 2013). According to Chua (2014), there are several reasons for using this method and among them are comprehensive use, preferred handling method, fast data collection method, use of large sample size, direct information, and generalized study results capability.

### 2.1 Sample of study

A total of 88 respondents were selected as respondents of this study using a purposive sampling method. The characteristics of the selected respondents are:

- Teaching at Chenor Agricultural Vocational College
- Teaching at Teluk Intan Agricultural Vocational College
- Teaching Agricultural Subject

### 2.2 Instrument of study

This research employed a questionnaire form to collect data and information needed for the study. Table 1 shows the distribution of items in the questionnaire. The questionnaire was divided into four parts of parts A and B. Part A was a demographic respondent and part B consisted of items for competency measure of the respondents. Respondents should answer and mark in the section provided in the questionnaire.

**Table 1: Questionnaire**

Part	Aspect	Scale	Number of question
A	Demographics	Nominal	2
B	content knowledge	Likert	10
Total item			12

### 2.3 Data analysis

Table 2 shows that the data analysis method used a descriptive statistical method using the respondents' total mean score and analyzed to answer the first and second research questions. For the second research question, the data were analyzed using the Mann Whitney U Test.

**Table 2: Data analysis methods**

Number	Research question	Data Analysis
1	What is the competency level of option and non-option teachers in terms of content knowledge?	Mean
2	Are there differences between teacher options and teacher competencies?	Mann-Whitney U Test

### 3. Results and Discussion

The data obtained from this study were analyzed using descriptive and inferential methods to explain the findings of the study based on the research questions. The data from the study is shown in the table for better understanding.

The respondents of the study involved teachers from Chenor Agricultural Vocational College and Teluk Intan Agricultural Vocational College. A total of 88 teachers from both schools became respondents in this study. The background characteristics studied included the teachers' options. Table 3 shows the distribution of teachers based on their options.

**Table 3: Distribution of teachers by option**

Category	Frequency	Percentage
Option Teacher	60	68.2
Non-option Teacher	28	31.8

Based on Table 3, the percentage value shows that 68.2% are option teachers in agriculture while 31.8% are non-option teachers. For the level of competency level of option and non-option teachers in terms of content knowledge, the descriptive findings based on the mean of scores are shown in Table 4.

**Table 4: Teacher competence in content knowledge**

Bil	Items	Min	Tahap
1	Teaching in line with the technology used in industry	3.02	high
2	Teach according to the basic concepts of agriculture required by industry	3.03	high
3	Teach according to the latest technological requirements in accordance with curriculum	3.05	high
4	Constantly renewing agricultural knowledge by reading the agricultural journal	3.03	high
5	Constantly renewing knowledge by contacting industry experts	2.88	average
6	Regularly attend in-service training to increase agricultural knowledge	2.98	average
7	Teaching according to industry-related jobs	3.08	high
8	Teaching according to the scope of work required by industry	3.18	high
9	Teaching according to market needs in industry	3.14	high
10	Be aware of changes in agricultural technology in industry	3.06	high
<b>Total</b>		<b>3.04</b>	<b>high</b>

Based on Table 5, the option teachers have the highest content knowledge.

**Table 5: Summary of Mann-Whitney U Test results for content knowledge**

Group	U	Mean Rank	Sum of Ranks
Option Teacher	60	37.17	2230.00
Non-option Teacher	28	60.21	1686.00

Table 6 shows the Mann-Whitney test statistic to identify the difference if it is high enough to reach the significance value.

**Table 6: Mann-Whitney test for content knowledge**

	content knowledge
Mann-Whitney U	400.00
Wilcoxon W	2230.00
Z	-5.202
Asymp. Sig. (2-tailed)	0.00

The SPSS analysis used showed a Z score of -5.202 and a 2-tailed p-value of 0.00. This would normally be considered a significant result (the standard alpha level is .05). Therefore, the null hypothesis was rejected. The result of the Mann-Whitney U test supported the proposition that option and non-option teacher groups have different levels of content knowledge.

#### 4. Conclusion

The content knowledge provided teachers with a clear perspective of theories and facts that needed to be taught. Overall, vocational college agriculture teachers met the requirements of the vocational college implementations. Teachers taught based on the needs of the industry and this concept was in line with the implementation of the vocational colleges which was to increase Malaysia's skilled workers. However, teachers were found not to upgrade their knowledge by contacting the industrial experts. This is very important because agricultural technology is constantly changing in the industry. The lack of knowledge upgrading with the industry may be due to the lack of exposure and cooperation between vocational colleges and industry. Therefore, the vocational college teachers need to be prepared for the challenges that will be faced by upgrading the knowledge and skills to enter the realm of vocational college.

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