

Instructor Quality in Nurturing Future Aviation Technologist: HTVET Perspective

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Abstract

Higher TVET graduates play a significant role in realising Malaysia aspiration to become a high income nation and achieving competitiveness in current global fourth industrial revolution. Malaysia country must radically accelerate its human capital development through its education industry particularly in higher TVET education. Instructor teaching skills and competencies is significant to help future technologist graduates in navigating the problems at a workplace and communicate effectively. This study aims to highlight the instructor teaching quality in nurturing future technologist graduates in the aviation industry with investigating the two main components of the instructor. There are teaching quality parameters and also the background of the instructor. This is vital to ensure the instructor have the right quality to prepare the future aviation technologist graduated with the required skills and knowledge in facing the challenges of the industry 4.0. This study adopts quantitative study with distributing 150 questionnaires to the three aviation colleges in Malaysia. Findings suggest the most important parameters in instructor teaching quality are class efficiency, additional work and instructor competency. While the three most important criteria in instructor background are friendly and courteous, academic credentials and also teaching capabilities. This study contributes to the enhancement of the teaching quality theory with coordinating issues on industry 4.0 in aviation sector.

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1. Introduction

Due to the demand for higher quality in aviation or aerospace engineering, the Malaysian Government including Ministry of Education continuously strives to improve its higher technical and vocational education and training (HTVET) standard and practice. Instructor seems to play a very significant role in ensuring future HTVET graduates (whom yet to be called as technologist) is achieving its competency level as required by the industry. Higher TVET institution should not only strengthened their TVET curriculum but also should brush up their instructor teaching skills (Abdul Rahman et al., 2017; Kanwar et al, 2019). A well-coordinated

Cooperation between aviation industry players and TVET instructors is essential for the successful transfer of knowledge and skills development into hands on activity in class. This is significant to produce high quality graduates that could nurture aviation technologist in supporting the needs of fourth industrial revolution or also known as Industry 4.0. Industry 4.0 refer to the integration of physical (workforce) and cyber (internet of things). As such, the role of higher TVET (HTVET) education schemes towards supporting industry 4.0 challenges is significant. HTVET education should be able to produce competent technologist in many field such as aviation, transportation, electric and electronics

and agro. As such, an instructor plays a significant role to shape the future of the competence skilled workforce. The availability of a skilled workforce in all sectors are the pillars of strength who will then determine the success of the fourth industrial revolution (Industry 4.0).

Essentially, TVET graduates is expected to play a significant role in grasping the country's aspiration to be a high income nation. As such, industry led TVET should be strengthened. Therefore, apart from TVET curriculum, teaching quality of the instructor should also take into account. The competencies of these future graduates' technologist should not be able to solve the problem, and master the internet of things; but also be able to foster the culture of workplace, communicate effectively and also manage the resources efficiently.

In any HTVET institution, an instructor is regarded as a content resource. Most content experts share their knowledge through writing, lectures and problem solving case study. When they instruct, they appear as the "sage on the stage" imparting all knowledge to a passive participant (Paylina et al. 2011). The instructor control what need and how deep to be taught. At present, as the fourth industry revolution has exist. Therefore, it is vital for each instructor have a knowledge on this and make sure that whatever they taught can be prepare the students to polish their prior knowledge and talent to learn new skills and knowledge (Wilder, 2012), so that when they graduate, they are familiar with what is happening in the industry.

Having reviewed the past literature, there are many studies that focus on the issue of TVET education but there is still limited study that looks into aviation TVET education (Abdul Rahman et al.2017; Abd Hamid et al 2012). It is acknowledged that engineering including aviation engineering is the most important industry that support Malaysia economic growth towards achieving high income nation.

Research on instructor teaching quality started as early as 1980s and grows popularly on the issue of TVET and industry 4.0 very recently. At present, there are many studies focusing on the quality of instructor but there is still a dearth on the issue of HTVET in aviation field. It is importance to study on the quality of aviation instructor because it is one of the main character to ensure the future aviation graduates are fully equipped with updated and proper knowledge. In any business also, quality is critical to satisfying customer or consumer to retain their loyalty. Quality product or services make an important contribution to long term revenue and profitability, same goes to education industry (Leonard et al., 2003). With that, TVET institution should also take advantage of the enhancement of instructor skills and competencies by increasing their know-how to support existing and future issue on fourth industry revolution as well as by uncovering latest technologies in the aviation industry. As such, instructor play an important role to support Industry 4.0 to ensure the availability of skilled workforce meets

the industry needs. Future technologist should be more diverse and wide-ranging talent. One of the driver needed to shape Malaysia HTVET education is instructor.

The development of HTVET policy in education field is growing across the world including Malaysia. As stated in Tenth (10th) Malaysia Plan, Malaysia requires 37 percent of its workforce to be "highly skilled" by 2015. At the international level, UNESCO or known as United Nations Educational, Scientific and Cultural Organization also focus on TVET. By 2030, UNESCO aims for equality of gender at the higher education to be skilful in technical field and vocational.

Transformation of TVET into HTVET is a determination of re-engineering the existing vocational education system to build a new system of higher vocational education; which will contribute to the high-income country, parallel with the emergence of industry 4.0. In fact, Malaysia has identified the aerospace industry as a strategic industry which has a wide potential in the country's industrialization and technological development program (Fakhrulnizam and Rahman, 2015). In fact, in Malaysia Education Blueprint 2013-2025, one of the key point highlighted is the development of the skills among the students.

Past studies shows a great variety of focus on TVET study such as curriculum, facilities, instructor and conducive environment. In fact, there is an inconsistency in term of methodology adoption and the variable used to examine the service quality in education (Latif et al. 2019, Ali et al., 2016; Leonard et al., 2013). For instance, researchers in education have used SERVQUAL specifically adapted for the education sector (Gatfield, 2000; Wright and O'Neill, 2002). There are also a research that is undertaken into workplace learning, however the issue focus is more on the student or trainee. Little attention is given to facilitator or instructor (Ghonji et al, 2015; Ellinger and Cseh, 2007; Koopmans et al., 2006). This current study aims to look into two main question as below:

1. What are the instructor teaching quality parameter needed in aviation HTVET, from student's perspective in Malaysia?
2. What are the background criteria that leads into instructor teaching quality in the aviation HTVET from student's perspective in Malaysia?

2. Materials and Methods

For the purpose of this study, we subscribe to a quantitative case study method. Multiple quantitative case studies are appropriate method to explore the teaching quality of the instructor in aviation HTVET institution. As mentioned by Abdul Rahman (2012), case study is one of the best method in exploring the unique phenomena. In this study, three (3) HTVET institution were chosen and were named as case study Alpha, Beta and Gamma. The real name of this HTVET institution were kept anonymous for confidential reason. These three

institution were chosen as these three institution is offering aviation or aerospace engineering course and also these three institution are among the top institution for aviation TVET in Malaysia.

This study adopted theoretical sampling method as the sample is chosen in this study is based on what is lacking from previous study. The sampling in this study is come from aviation HTVET institution in Malaysia.

The data collection was performed between March to April 2017. Hundred and fifty (150) questionnaires were distributed to all three institutions as shown in below Table 1. However, only 77% or 116 questionnaires are managed to be collected. This is appropriate response rate as suggested by Barlett et al 2001 and Yin 2017. From 116 questionnaires that been collected, 68% of the total questionnaire collected is been filled up by male students and followed by female which contribute of 32% of the survey given. The reason why the survey are dominated by male is because most of aviation schools ratio of gender is 9:1 which 9 represented male and 1 represented female.

Table 1: Multiple case studies, no of questionnaire distributed and collected

Name of HTVET institutions	No. of questionnaires distributed	No. of questionnaires returned
APLHA	50	40
BETA	50	37
GAMMA	50	39

The questionnaire was designed based on past study by Illias et al (2008) that study on service quality on private higher education institutions. The researcher only focus on the questions with regards to instructor teaching quality. Teaching quality is one of importance elements in order to determined quality of instructors. The data was then analysed using Minitab.

The questionnaires were developed by the researcher based on research done by Illias et. al (2008) on service quality on Private Higher Education Institution. However, the questionnaires are being changed by researcher to suit the researcher research regarding service quality of instructors in multiple aviation schools.

3. Results and Discussion

Instructor teaching quality

Teaching quality can be measured not only by seeing the instructors teaching in class but as well as the intercommunications between the instructors and the students. Since the teaching quality is one of the main factors that affects students' performance, the researcher has focus on two main components which translated into research question as mentioned in the earlier section (introduction section).

In this study, seven instructor teaching quality parameter has been examined. There are as shown in Figure 1 below. There are seven components namely instructor well organized, class efficiency, clear explanation, knowledgeable or competency, group activities, assignments and additional examples are highlighted in below Table 2. The parameter that is known as well organised can be defined as well preparation performed by the instructor before the class. Readiness and preparations here means that the instructors are fully prepared on what he/she going to teach and know what and how to relate one and another. From the data, most of the respondents are satisfied with the preparation and readiness of the instructor.

Class efficiency refer to class time was used in an efficient and productive manner by the instructor. Efficient mean achieving maximum productivity with minimum wasted of effort, instructors are using the class time within the allocated time and able to achieve or producing significant amount of result. Clearly explain refer to the situation where the instructor are able to explain clearly to the students in which make them able and easy to understand the subject that their taking. Using additional example is also one of the parameter under instructor teaching quality. Group activities work here refer to activities such as presentation, discussion and others relevant activities that involved a group of students in one time. Competence and knowledgeable are also one of the instructor criteria by saying that the instructors know what are their teaching as well as deeply understand the subject that their teaching. Enough assignment and quizzes is also instructor teaching quality where it represents how frequent the instructor give the students the assessment.

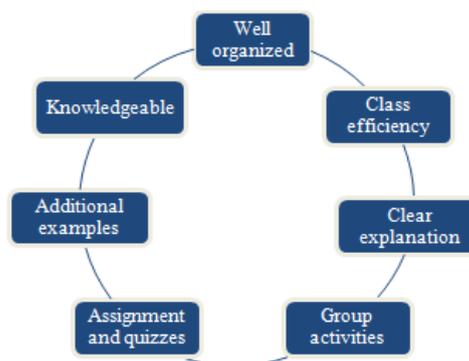


Figure 1: Seven Criteria - Instructor Teaching Quality

Table 2: Mean value for Instructor teaching quality

Instructor teaching quality	Mean Value
Well organised	4.129
Class efficiency	4.216
Clear explanation	4.095
Additional examples	4.190

Assignments	4.138
Group activities	4.147
Knowledgeable/ competence	4.155

Source: The authors

From the findings that is shown in Table 2, the most important teaching quality instructor are the one that is highlighted in Bold figure. There is class efficiency with mean value 4.216, followed by ability of the instructor to give additional examples in class with mean value 4.190 and also knowledgeable/ competence with mean value 4.155.

Instructor Background and Teaching Quality

In answering research questions two with regards, instructor background and teaching quality, here are the results. As can be seen in Table 3 below, the three most important factor in instructor background are academic credentials with the highest mean value 4.388, followed by friendly and courteous instructor with mean value 4.319; and followed by teaching capabilities with mean value 4.266.

The studies of instructor background is to find out either the background of the instructors really makes an important roles to make one instructors as a quality instructors indirectly can affects students' performance. Moreover, by having the right instructors to became knowledge provider to the students it will make sure that the students are well equipped with the right knowledge and skills before their going into real job situations. The studies of instructor's personalities also contribute to the factors of qualities instructors. This is because by having a good personality, the instructors can attract the student's interests toward the subjects their learnt. Furthermore, instructor's personalities not only been seen by outside but also from inside of the instructors such as the sincerity of teaching the students is also considers as the personalities of the instructors.

Table 3: Mean value for instructor background

Instructor background	Mean Value
Friendly and Courteous Instructor	4.319
Academic credentials	4.388
Teaching capabilities	4.266
Sincerity of Instructor	4.181
Capacity to solve problem	4.216
Availability of instructors	3.888
Interest and enthusiasm of instructor	4.259

4. Conclusions

As a conclusion, we would say this study is among the earlier study that looks into aviation teaching quality at higher TVET institution in Malaysia. We would say that this study enhances current understanding on the teaching quality attributes among the HTVET instructor. This study also could benefit the other HTVET institution by offering the parameters that is related to instructor quality where the instructor or institutions generally can improve the quality of their teaching and background of the instructors not only in aviation HTVET in Malaysia, but also in HTVET in another sector such as electrical engineering, agro, information and communication technology and others.

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