

COMPETENCY OF TVET INSTRUCTOR TOWARD TECHNICAL LESSON IN INSTITUT LATIHAN PERINDUSTRIAN (ILP)

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Abstract

There are many factors that cause poor production quality of TVET graduates and one of them is due to instructor's competency. Therefore, the purpose of this study is to identify the level of mastery for technical aspect, learning and methodology aspects, and humanity and social aspect of TVET instructor toward technical lesson in Institut Latihan Perindustrian (ILP). Besides that, the researchers want to identify the difference in the level of technical aspect, learning and methodology aspect as well as the humanity and social aspects of TVET Instructor competence based on the teaching experience in Institut Latihan Perindustrian. This study is a descriptive survey using a questionnaire as an instrument. Instruments for pilot study were analyzed using Winsteps software with Rasch Measurement Model approach. Total sample involve 126 TVET instructor from southern ILP that selected randomly. The data was analysed using descriptive and inferential statistic. The results show that the level of mastery of TVET Instructor from technical aspect (mean = 4.27), learning and methodology aspects (mean = 4.32) and humanity and social aspects (mean = 4, 10) are at high level. Inference analysis based on DGF (Differential Group Functioning) t-test does not differ in the level of mastery of technical aspects and humanity and social aspects but there is a difference in the level of mastery of learning and methodology aspect between middle-level instructors and experienced instructors.

Keywords: Competency, Instructor, TVET, and Technical lesson

Abstrak

Terdapat banyak faktor yang menyebabkan penghasilan kualiti lulusan TVET yang rendah dan salah satunya disebabkan oleh kecekapan pengajar. Oleh itu, tujuan kajian ini adalah untuk mengenal pasti tahap penguasaan aspek aspek teknikal, aspek pembelajaran dan metodologi, aspek kemanusiaan dan sosial pengajar TVET di Institut Latihan Perindustrian (ILP). Selain itu, penyelidik juga ingin mengenal pasti perbezaan dalam aspek aspek teknikal, aspek pembelajaran dan metodologi serta aspek kemanusiaan dan sosial kompetensi pengajar TVET berdasarkan pengalaman mengajar di Institut Latihan Perindustrian. Kajian ini adalah secara tinjauan deskriptif dengan menggunakan soal selidik sebagai instrumen. Instrumen untuk kajian rintis dianalisis menggunakan perisian Winsteps dengan pendekatan Model Pengukuran Rasch. Sampel keseluruhan melibatkan 126 pelatih TVET dari ILP selatan yang dipilih secara rawak. Data dianalisis dengan menggunakan statistik deskriptif dan inferens. Keputusan menunjukkan bahawa tahap penguasaan pengajar TVET dari segi teknikal (min = 4.27), aspek pembelajaran dan metodologi (min = 4.32) dan aspek kemanusiaan dan sosial (min = 4, 10) berada pada tahap yang tinggi. Analisis inferensi berdasarkan ujian t-DGF (Berbeza Kumpulan Berfungsi) tidak berbeza dalam tahap penguasaan aspek teknikal dan aspek kemanusiaan dan sosial tetapi

terdapat perbezaan tahap penguasaan aspek pembelajaran dan metodologi antara pengajar peringkat menengah dan pengajar berpengalaman.

Kata kunci: *Kompetensi, Pengajar, TVET, dan pelajaran Teknikal*

1.0 INTRODUCTION

The government will focus on four areas; including to transform TVET to meet the industry's demand for skills upgrades and improve the quality of the education system for improvement of student result and institution excellent performances, one of the 10 spikes outlined in the development plan for 2015 is to produce high quality of TVET Graduates who have Strong, skilled, noble, knowledgeable and highly skilled in fulfilling the needs of the developed countries as stated in the Education Development Master Plan (PIPP) (Kementerian Pendidikan Malaysia, 2006; Unit Perancangan Ekonomi, 2015).

As explained in the Eleventh Malaysia Plan (2016-2020), it is expected that 60% of the jobs to be created will require TVET-related skills. Therefore, the creation of a more efficient labor market is necessary to ensure that the quality of the offered employees is equally relevant to the current market needs of the industry and is able to cope with the growing international competition and challenges. Therefore, eight new satellite campuses of the Centre for Instructor and Advanced Skill Training (CIAST) have been set up to increase the number of instructors to be accredited with a Certificate of Vocational Instructor or also known as Vocational Technical Officer from 1,460 persons in 2010 to 3,060 person in 2014 (Jabatan Tenaga Manusia, 2014; Unit Perancangan Ekonomi, 2015).

In addition, professional development programs for instructor will be strengthened by intensifying more training programs. The centralized database development of instructional profiles will be carried out to identify the gaps of competence and to provide direction plan for an effective training. (Kementerian Pendidikan Malaysia, 2006; Unit Pelaksanaan dan Prestasi Pendidikan, 2015).

2.0 PROBLEM STATEMENT

Based on the discussion on the background of the study according to the literature review, the researcher found that there were some problems faced by the instructor towards technical lesson. They have been identified as less competent in technical lesson. The lack of technical expertise such as lack of clarity in the practical work process affects students' understanding, since instructors only have good theoretical knowledge they are more likely to provide explanation without demonstration, this is also due to lack of confidence and less skill in operations the machine and equipment. Moreover, TVET instructors also lack the mastery of learning and methodology aspect as well as the mastery of humanity and social aspects. Based on the discussion in background of study, there are three important elements that are still under discussion in terms of technical, learning and methodology as well as humanity and social. In a study conducted by Ali, 2014; Md Harun, 2014; Mustafa et al. (2010) that focus only on 3 competency elements namely attitude, knowledge and skills during the practical teaching in the workshop. Most of the studies do not discuss on issues of teaching experience of instructor that influent their competency. A research is required to see the competency of TVET instructors in the technical aspect, learning and methodology aspect as well as humanity and social aspect. A research study is required to see the competency of TVET instructors in the technical aspect,

learning and methodology aspect, and humanity and social aspect. Therefore, the researcher will conduct a study to identify the level of competency of TVET instructors on technical lesson based on these three aspects at the Institut Latihan Perindustrian (ILP) in the southern part of Malaysia. The purpose of the study is to identify and gain the related information regarding to the competency of TVET instructors on technical lesson based on (i) Technical aspects, (ii) Learning and methodology aspect and (iii) Humanity and social aspect.

3.0 RELATED WORK

There is some related literature for this article in term of technical aspect, learning methodology and humanity and social and the difference level of mastery TVET instructor. all of this related work are discuss below.

3.1 Technical Aspects for Towards Technical Lesson

In this study, the level mastery TVET instructors for technical aspects based on the technical lesson consist of technical knowledge and technical skills. In this study, technical knowledge refers to the knowledge of an individual in a matter related to technical activities that adapts to a theory. Technical knowledge is related to technical methods or procedures of technical work. Therefore, according to Manap, Siaon, Rais, dan Baser (2016), proficiency in theoretical alone is not enough to produce skilled trainers.

Technical skills according to El-Saban (2001) is refers to the efficiency and understanding of a particular activity, especially those involving process or technique. Technical skills are also the ability to use specific knowledge, procedures and techniques in such areas such as in engineering. According to Yahaya, Nor, Ismail, dan Abdul (2010), technical skills are a process that allows the execution of a program or thing to be carried out well, exhibit behaviour, simulate, play a role and enable technical teaching and learning.

3.2 Learning and Methodology Aspect Toward Technical Lesson

Teaching is an activity designed to enhance knowledge, skills and capabilities or change the attitude of a person in order to further gain control over a particular field. According to Mustafa et al. (2010) in the teaching process, the trainee teacher needs to have planning skills before teaching, presentation skills i.e. teaching and assessment skills after teaching.

In addition, according to Kamarudin dan Halim (2013) for the effectiveness of practical teaching that will be delivered by lecturers, the use of teaching aids or the use of machines for teaching should be emphasized and fully implemented, it is important to ensure that trainers clearly understand.

Collaboration between the two parties, instructors and trainers, is crucial in ensuring the safety at the workshop complied. Instructors need to ensure that the work space for the trainee is in line with the number of trainers available (Junior & Pauzi, 2016). This is supported by Fazil dan Amin (2011) state that well-managed and systematic workshops will help the teaching and learning process. The tools and facilities available in the workshop can be used during practical learning and help students improve the learning process (Sharudin, 2008).

3.3 Humanity and Social Aspect Toward Technical Lesson

The results of the analysis have been published by Yahaya, Nor, et al. (2010) has shown that lecturer's leadership has been neglected during the teaching process. Hence, it causes lecturers to be weak in controlling their students or trainees. Kamaruddin dan Ibrahim (2010) stated that

technical subjects are quite complex, the presence of instructors with cheerful images, can reduce the pressure among trainees during their teaching process.

From the analysis conducted by Misdi, Aziz, Razzaq, Hashim, dan Baba (2008), technical instructors are not yet fully prepared in carrying out the teaching and learning process of technical subjects in English.

3.4 The Difference Level of Mastery Tvet Instructor Toward Technical Lesson Based On Teaching Experience

Mustafa and Othman (2011) found that working experiences was not a factor that influences the quality of the instructor. The study also found that long-term educators were less likely to receive benefits than those who had recently served. This may be because they feel that training in the service is not comparable to their experience or due to the burn out of the instructor itself. According to Abidin dan Ayudin (2009), these burn-out instructor, despite being given good training but do not give the impression to them compare to an instructor who does not experience burn out symptom. According to Yusof (2006), states that senior teachers or senior instructor certainly have high skills as compared to beginner. Senior instructors have confidence in practical teaching and this will increase students' understanding during technical lesson.

4.0 METHODOLOGY

This study used a descriptive (mean score) and inference (DGF t-test) research design with quantitative approached using questionnaires as research instruments. The study was conducted at five (5) Institut Latihan Perindustrian (ILP) in the southern, namely ILP Ledang, ILP Mersing, ILP Pasir Gudang, ILP Bukit Katil and ILP Selandar. The samples were randomly collected involving 126 numbers of TVET instructors. The level of reliability of the questionnaires was obtained by conducting a pilot study before implementing the actual study. The pilot study was conducted to 30 instructors, the data of pilot study samples analysed using Rasch measurement model approach. The data that obtain from actual study were analysed using Winstep thru item measure and DGF t-test.

5.0 FINDINGS

Finding of this research are shown below.

5.1 Level mastery of technical aspects for TVET instructor towards technical lesson

Result of the analysis shows that the mean score for each item was at a high level, it is between 4.10 to 4.40. The overall mean score for the level mastery TVET instructors for technical aspects is also at a high level, 4.27 with logit min -0.00. The negative value of mean logit indicates the construct of the technical aspect is easy to be agreed by the respondent. This shows that instructors have a high level of mastery over the technical aspects. Table 3 shows the findings for the analysis of TVET instructors' mastery level of technical aspects toward technical lesson in ILP.

Table 1: Summary Analysis of Mean Score for Technical Aspect

Technical aspect	Mean Score	Level
Technical Knowledge	4.27	High
Technical skills	4.27	High

The analysis also shows that both of dimensions have a same value of mean score, 4.27.

5.2 Level Mastery of learning and methodology aspect TVET instructor toward technical lesson

Result of the analysis shows that the mean score for each item was at a high level it is between 4.17 and 4.56. The overall mean score for the level mastery of TVET instructors for learning and methodology aspect was high level, 4.32 with mean logit -0.29. The negative value of mean logit indicates that the construct of the technical aspect is easy to be agreed by the respondent. This shows that the instructors have a high level of mastery for learning and methodology aspects. Table 2 shows the summary analysis of mean score for learning and methodology aspect toward technical lesson.

Table 2: Summary Analysis of Mean Score for Learning and Methodology Aspect

Learning and methodology aspect	Mean Score	Level
Workshop Management	4.47	High
Technical Instruction Method	4.32	High

The analysis also shows that dimension of workshop management (4.47) have high mean score than technical instruction method (4.32).

5.3 Level Mastery of Humanity and social aspect TVET instructor toward technical lesson

Result of the analysis shows that the mean score for each item was at a high level it is between 3.27 and 4.63. The overall mean score for level mastery TVET instructors for humanity and social aspect toward technical lesson was also high; it is 4.10 with mean logit -0.59. The logit mean value indicates that the constructs of humanity and social aspects are easy to be agreed by the respondent. This shows that the instructors have a high level of mastery for humanity and social aspect towards technical lesson. Table 3 shows the summary analysis of mean score for humanity and social aspect.

Table 3: Summary Analysis Mean Score for Humanity and social aspect

Humanity and social aspect	Mean Score	Level
Trainee Management	4.51	High
Teaching Instruction using English	3.45	Moderate

The analysis also shows that dimension of trainee management (4.51) have high mean score than teaching instruction using English (3.45).

5.4 The difference level of mastery for the technical aspects of the technical lesson TVET Instructor based on teaching experience

The researcher uses the DGF (Differential Group Functioning) analysis to identify the differences in level mastery for technical aspects toward technical lesson based on teaching experience at the Institusi Latihan Perindustrian (ILP). Table 4 show the summary analysis of the difference level of mastery TVET Instructor for technical aspects.

Table 4: DGF t-test analysis on the differences in level mastery for technical aspects based on teaching experiences.

Teaching Experiences		Value of p (p<0.05)	Value of t (t>2.00)	Description
< 1-3 year	4-7 year	0.4244	-0.80	There was no significant difference
< 1-3 year	> 7 year	0.9520	-0.06	There was no significant difference
4-7 year	> 7 year	0.3545	0.93	There was no significant difference

Based on the result of analysis that show in Table 4, it can be conclude that there is no significant differences in level mastery for technical aspects toward technical lesson based on teaching experience at the Institusi Latihan Perindustrian (ILP).

5.5 The difference level of mastery for the learning and methodology aspect toward technical lesson among TVET Instructor based on teaching experience

The researcher used the DGF (Differential Group Functioning) analysis to identify the differences in the level mastery TVET instructor for learning and methodology aspect toward technical lesson based on the teaching experience at the Institut Latihan Perindustrian (ILP). Table 5 shows a summary analysis of difference level of mastery TVET instructors for Learning and methodology aspect.

Table 5: DGF t-test analysis on the differences in level mastery for learning and methodology aspects based on teaching experiences.

Teaching Experiences		Value of p (p<0.05)	Value of t (t>2.00)	Description
< 1-3 year	4-7 year	0.9896	0.01	There was no significant difference
< 1-3 year	> 7 year	0.0020	3.10	There is a significant difference
4-7 year	> 7 year	0.0116	2.54	There is a significant difference

Based on the data in Table 5, analysis is conducted to identify the significant differences level of learning and methodology aspect between two groups. The data of analysis between teaching experiences <1-3 year and > 7 year and teaching experiences 4-7 year and > 7 year both of comparison (between 2 group) show there is a significant different (t value more than 2 while the p value is less than 0.05). It can be concluded that there is a significant difference in the mastery of aspects of teaching and methodology of TVET instructors based on teaching experience at the Institut Latihan Perindustrian (ILP).

5.6 The difference level of mastery for the humanity and social aspect toward technical lesson among TVET Instructor based on teaching experience

The researcher used the DGF (Differential Group Functioning) analysis to identify the differences in the level of mastery for humanity and social aspect toward technical lesson based on the teaching experience at the Institut Latihan Perindustrian (ILP). Table 8 shows a summary analysis of difference level mastery TVET instructors for humanity and social aspect.

Table 6: DGF t-test analysis on the differences in level mastery for humanity and social aspects based on teaching experiences.

Teaching Experiences		Value of p (p<0.05)	Value of t (t>2.00)	Description
< 1-3 year	4-7 year	0.8903	-0.14	There was no significant difference
< 1-3 year	> 7 year	0.1449	-1.46	There was no significant difference
4-7 year	> 7 year	0.3167	-1.00	There was no significant difference

Based on the result of analysis that show in Table 8, it can be conclude that there is no significant differences in level mastery for humanity and social aspects toward technical lesson based on teaching experience at the Institusi Latihan Perindustrian (ILP).

6.0 DISCUSSION

6.1 Level mastery of technical aspects for TVET instructor towards technical lesson

Based on the results of the study, show that the level mastery TVET instructors for technical aspects towards technical lesson in ILP are high. Both dimensions of technical construct share the same level (high), this indicates that the instructor competent in terms of knowledge and technical skills, having a balanced level of mastery for both dimension can help the instructor to handle the technical lesson effectively to the trainee. According to Manap, Rasidayanty Saion, Zainordin Rais, & Jamil Baser (2016) to produces skilled trainees the instructor must proficiency in theoretical and technical skill. This is supported by Jaafar, Hizam & Zafir (2000), effective technical lesson in workshop or lab are important to help the trainers to understand and mastery the knowledge and skills that have taught by the instructor.

Overall, even though the result of analysis shows that the level mastery TVET instructor for technical aspect is high; researchers have argued that instructors need to keep updating and improve their skills over time as technology nowadays changes rapidly and the changing of technology cause changes in expertise.

6.2 Level Mastery of learning and methodology aspect TVET instructor toward technical lesson

Based on the results of the study, show the level mastery TVET instructors for learning and methodology aspects toward technical lesson are a high. The result for dimension of workshop management shows that the most items that mastered by the instructors is the reminder trainees to ensure the workshop in good condition which is neat and make sure the materials and tools that use by them or after teaching sessions must be reorganized. This shows that TVET instructors always make sure the workshop is in a manageable, organized and systematic state.

Furthermore, the findings show that items for the dimensions of technical instruction method that most dominated by item instructor are handling technical lesson by related it with their own experiences. This demonstrates that the instructor is comfortable using their own experiences by relate it with the contents of the lesson, it also help trainees to have better understanding the content of lesson. As discussed by Burns (2008) and Lewis (2001), instructors feel more comfortable controlling their teaching lesson by applying their own experiences at field.

Overall, even though the result show that instructor has high level mastery for learning and methodology there are item that researcher thinks important and always need to aware by the instructor is to ensure that the appropriate work space and the second item is ensure adequate equipment and materials with the number of trainees. Junior and Pauzi (2016) says that instructors need to ensure the work space for trainees is in line with their number of trainers available to ensure learning and teaching process are effective and safe. Sharudin (2008) states that the suitable number of equipment and facilities that available in the workshop will help instructor to improve their lesson and help the trainee to have better understanding to the lesson.

6.3 Level Mastery of humanity and social aspect TVET instructor toward technical lesson

Based on the results of the study, show the level mastery TVET instructors for humanity and social aspects toward technical lesson are a high. The finding of the study for the dimensions of the trainee management, the items most mastery by the instructor is the item to ensure the trainee adheres to the safety measures at the workshop. This shows that instructors are concerned about the safety and discipline of the trainees before they enters the workshop or engages in practical work, at the same time the instructor also exhibits the act as directed to the trainer. It shows the leadership of an instructor when they handle their trainees, Mahadi (2006) said instructors show to their trainee professionally and highlighting the features they want to apply to their trainees when the trainee finished their study and ready to worked.

The findings show that the dimensions of teaching instruction using English are at a moderate level. This shows that there are some of the instructor masters in English but unsure and not confident to give the instruction or conduct the class with English. This is supported by Wan Kamaruddin dan Ibrahim (2010) which states that most technical lecturers still do not use English as the medium of instruction as they feel that their English is poor and lack of confidence in English.

The researcher believes that instructors should begin to apply teaching instruction using English gradually to trainee by make exposure using simple terms in English and continue to another level. As we know about the investment condition in Malaysia, lack of mastery in English has consistently been a major obstacle to firms or industries, as most of new workers lack the capacity to analyse and solve problems that involve uses of English.

6.4 The difference level of mastery for the technical aspect, learning and methodology aspect as well humanity and social aspect toward technical lesson among TVET Instructor based on teaching experience

The results of the research question fourth (4), the fifth (5) and the sixth (6) will be discussed simultaneously. The researcher found that research question fourth (4) technical aspects and research question sixth (6) humanity and social aspects there is no significant differences in level mastery for both aspects toward technical lesson based on teaching experience while research question fifth (5) aspects of learning and methodology, there is a significant differences level mastery TVET instructor for learning and methodology aspect based on teaching experience at Institut Latihan Perindustrian (ILP).

For technical aspect (research question 4) as well as humanity and social aspect (research question 6) there is no significant difference in the level mastery TVET instructor based on teaching experience, according to Azizi Yahaya et al., (2010) states that an instructor should master technical skills first to ensure the teaching lesson be done with clear and easily understood by the trainee. This explains that although an instructor is beginner, by attend the training that offered by the Jabatan Tenaga Manusia (JTM) through the Skills Improvement Program for ILJTM instructors has helped them to become proficient in the technical aspects.

Mustafa dan Othman (2011) said that in-service training can improved instructor performance through knowledge, practical and theoretical skills, so the instructor performances cannot be determine by their teaching experiences. In addition, according to Abidin dan Ayudin (2009), senior instructor who suffer burn out symptom, despite being given good training it do not give them an impression as instructor who do not suffer with burn out symptom.

This statement is supported by Narimawati (2007) that stated the beginner instructor or teacher need to undergo training to compatible with senior instructor. However from this study shows, senior instructor have the same level mastery for humanity and social aspects with beginner instructor, it happen because of less motivation to teach and control the students by senior instructor. Especially when they think their wages are not equivalent to their experience and skills, it caused of lack of motivation to improve and maintain their skills.

For discussion of research question fifth (5) aspects of learning and methodology, the researcher found that there was a significant difference between the early stage of teaching or the new teaching group i.e. <1 to 3 years and 4 to 7 years with experienced instructors i.e. 7 years and over. According to Jabatan Tenaga Manusia (2014) the effective teaching and learning process is one of the most important factors to produce the competent, creative and innovative workforce.

Experienced instructor has better skill (result from their own experiences), to choose the delivery approach that suitable with technology and trainee psychology, they also have skill to make the learning environment more dynamic in same time it can help enhance trainees skill. Beginner instructors may be able to get ideas or explanations from training and courses to enhance their level mastery for teaching and methodology but still not be able catch up their senior instructor.

Most beginner instructor is not prepared to face problems in teaching process because they feel inexperienced and do not attend adequate training. This is supported by Chong dan Cheah (2009) in their findings shows that teacher in Singapore who are just start working felt less confident while delivering their lecture. They felt that they do not have skill to conduct an effective teaching and learning sessions compared to experienced teachers.

In conclusion, through the discussion of the findings of the research question fourth (4) and the research question sixth (6) there is no significant differences in level mastery for both aspects but on the research question fifth (5) there was a significant difference between the early stage of teaching or the new teaching group i.e. <1 to 3 years and 4 to 7 years with experienced instructors i.e. 7 years and over. Therefore, skills sharing among the beginner and senior instructors should be established to improve the quality of technical lesson of TVET instructors in ILP.

7.0 CONCLUSIONS

As a conclusion, the researcher found that TVET instructor at the Institut Latihan Perindustrian (ILP) in the southern has a high level of mastery the technical aspects, learning and methodology aspects as well as humanity and social aspects. The study also found that there was no significant difference in the level of mastery the technical aspects and humanity and social aspects but there was a difference in the level of mastery the learning and methodology aspects between middle-level instructors and experienced instructors. In other words, TVET instructors at ILP have a high level of mastery to the constructs and are not contributors to unequal and irrelevant TVET graduates offering to fulfil the industry's demand. This illustrates the TVET instructor at the southern ILP to competent toward technical lesson.

Based on the findings and discussions, the researcher has come out with several suggestions as a reference to parties that involved in determining follow-up actions. The suggestions as below;

1. To ensure continuous instructor proficiency, the JTM can make sure every ILP send their instructor to participate in industry attachment to the actual industry according to their respective fields once every 6 months to ensure their skills and knowledge equivalent to the industry's need.
2. The related parties may organize courses, programs and activities aimed at enhancing the level of domination, interest and attitude of instructor to teach in English, such as requiring each ILP to send their instructors to a presentation of English-language research.
3. Send instructor as ILP's representatives to attend high-level training at overseas skills institutions to provide exposure to international skills training patterns, as well as submit expert-specialist subjects to attend training to obtain Professional Certification (International).

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