International Journal of Engineering & Technology, 7 (2.29) (2018) 60-61

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Education supply chain: A case study of input-process-output of high technical vocational education and training (HTVET)

Sallaudin Hassan[1*], Ahmad Shafiq[2], Khairul Firdaus[3] , Jimisiah. J[4]

[1,2,3,4]*Universiti Kuala Lumpur Malaysia Institute of Industrial Technology (MITEC), Persiaran Sinaran Ilmu, Bandar Seri Alam, 81750 Johor Bahru Johor.*
**Corresponding author E-mail:* sallaudin@unikl.edu.my

Abstract

This study aim to explore in more depth on the Education Supply Chain targeted at three main stages which is Input, Process and Output. At input level, this study assess the factors effecting the enrolment. Further to this, at process level, this study assess the variable contributing the quality of graduate. Finally, at Output stage, this study obtaining feedback from industries on the quality industrial training student. This study is conducted in University Kuala Lumpur (UniKL), Malaysia Institute of Industrial Technology (MITEC) and 40 companies who involve in Industrial Training placement. Survey questionnaire is used for data collection. Result is processed using SPSS version 21. LIKERT scale is used by respondent to provide the assessment. Results shows at input stage, Financial Aids by MARA, is the main reason of student enrolment. This is followed by fees rate, entry requirements and promotion efforts by the marketing. At process stage, self-motivation is the most influence factor toward the graduate performance. It is followed by lecturer's approach, curriculum design, and student's ability. At output stage, the industries provide their rating towards the quality of industrial training. Nine domain is used for assessment. The results show that the highest mean score is Value, Attitude & Professionalism (4.14). This is followed by Information Management and Lifelong learning Skills, Social Skill and responsibilities, Knowledge, Team work, Practical Skills, Managerial and Entrepreneurial Skill, Problem Solving & Scientific Skills and communication skills. It is recommend that further research to be done at output level since in order to gain more informative input toward reducing the gap between HTVET offering and demand from industries.

Keywords: *Education Supply Chain; HTVET.*

1. Introduction

This research is conducted in line with the issues highlighted in Eleventh Malaysia Plan (2016-2020) which concern on the quality and quantity of graduate from HTVET to meet industrial demand [1]. The Malaysian TVET progressively develop to several stream such as higher education, technical and vocational education and skills training [2]. The supply chain involves coordination and information sharing from up to bottom inclusive the input-process-output stages [3]. There is an argument that the current engineering education does not provide enough emphasis on teamwork, communication, knowledge retention and the ability to synthesize and make connections between courses and fields [4]. The views of employers on graduate competencies clearly imply that is vital for engineering programmes to improve in all areas, particularly in several non-technical aspects of engineering education. Engineers must be educated to think broadly in fundamental and integrative ways about engineering. Apart from the application of mathematics and the sciences as core engineering subjects, engineering curricula must stress more on the humanistic, as apposed to scientific and mechanistic, aspectsof problem solving or project implementation. [5]. Therefore, to have a better understanding, this research covers the input, process and output stage of education supply chain.

Three objectives have been developed for further investigation and analysis. First (Input Stage), to investigate the factors effecting enrolment performance. Second (Process stage), factors effecting the quality of graduate. Third (Output Stage), industries feedback on the quality of Industrial Attachment student.

2. Main Results

2.1. Demographic Analysis

To address research objectives 1 and 2, 40 respondents among the students were involved. 77.5% Male student and 22.5% are female students. 7 sections are involved in the questionnaires. To address research objective 3, 40 companies were involved.

2.2. Factors affecting enrolment

At input stage, the study focus on the factors that effects the enrolment performance. There are four variables that has been selected which is Financial Aids by MARA, Fees rate, promotion activities and entry requirement. Table 1 shows the result.

Table 1: Factors Affecting Enrolment

No	Variables	Mean
1	Financial Aids by MARA	3.23
2	Program Fees	3.08
3	Promotion Activities	2.8
4	Entry Requirement	2.8

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

2.3. Factors affecting the graduate quality:

There are 4 variables that has been analyzed which is Lecturer's Approach, Content of curriculum, Student's capabilities and Facilities capabilities. Mean analysis shows that the most influential ctors is Student Capabilities & Efforts. This is followed by Lectures (Approach and Experience), Curriculum Contents Quality and Facilities (Capabilities and quality).

Table 2: Factors affecting graduate quality

No	Variables	Mean
1	Lecturers: Approach & Experience	3.85
2	Curriculum Content Quality	3.00
3	Student's : Capabilities & Efforts	4.2
4	Facilities : Capabilities & Quality	2.8

Assessing the feedback from Industry on Industrial Attachment Students.

There are 40 companies involve in the survey. 32 privates, 5 companies are government agencies and 3 Government Link Companies (GLC). The assessment is based on the 9 domain which is Communication Skills (D1), Team Work (D2), Information Management & Lifelong Learning Skills (D3), Value, Attitude and Professionalism (D4). Problem Solving and Scientific Skills (D5), Practical Skills (D6), Managerial & Entrepreneurial Skills (D7), Social Skills & Responsibilities (D8) and Knowledge. Figure 1 below conceptual framework of industrial feedback variables.

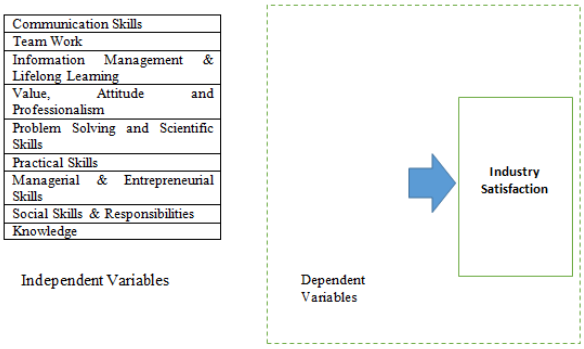


Fig. 1: Factors effects the industry satisfaction

The data analysis result shows in table 3.Base on the result, the highest mean score is value, Attitude & Professionalism. This is followed by Information Management & Lifelong Learning and Social Skills & Responsibilities.

Table 3: Industrial Satisfaction feedback on Industrial Attachment Student.

No	Variables	Mean Score
1	Communication Skills	3.7
2	Team Work	3.87
3	Information Management & Lifelong Learning	3.91
4	Value, Attitude and Professionalism	4.14
5	Problem Solving and Scientific Skills	3.72
6	Practical Skills	3.75
7	Managerial & Entrepreneurial Skills	3.74
8	Social Skills & Responsibilities	3.90
9	Knowledge	3.80

3. Conclusion

The education supply chain starts from the process of enrolment until the student is employed by the industries. Financial aspect very important at the input stage. The UniKL students are very concern on the sustainability of financial aids especially by MARA. The quality and experience of lecturers play very important roles in determining the quality/performance of the students. Based on the observation, the lecturers in UniKL are experience in related field and the allocation of subject taught is based on Subject Matters Expert (SME). Industry feedback on the performance/quality of Industrial Attachment student shows Value, Attitude and Professionalism is good. However, necessary initiative need to be put in place quickly to improve the score of the variables. It is suggested that, this research is extended to a bigger sample size and to compare with other HTVET provider.

References

[1] Azami, Z., Mohd. Z.O (2009) The gaps study between the employer's perception and expectation from engineering graduates in Malaysia. WSEAS TRANSACTIONS on ADVANCES in ENGINEERING EDUCATION. Issue 11, Volume 6, November 2009

[2] Eleventh Malaysia Plan (2016-2020), Anchoring Growth on People.

[3] Habib (2010). Research Framework of Education Supply Chain, Research Supply Chain and Education Management for Universities. International Conference on IT to Celebrate S. Charmonman's 72nd Birthday, March 2009, Thailand.

[4] Leong. P.C (2011). Key Reforms in Revitalising Technical and Vocational and Training (TVET) in Malaysia, Regional Conference on Human Resource Development Through TVET as Development Strategy, pp.4-5

[5] Stouffer, W.B., Russell, J.S. and Oliva, M.G. (2004) Making the strange familiar: Creativity and the Future of Engineering Education, Proceeding of the 2004 American Society for Engineering Education Annual Conference Exposition, American Society for Engineering Education 2004.