Readiness to Be K-workers among Students of Engineering Education Institution in Malaysia

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Abstract

Malaysia is a developing country and has been constructed a nation vision where the vision is to conceptualize the country become an industrial country in year 2020. Thus the country pertaining to calisthenics enough k-workers in sequence to fulfill human resources demand especially for industrial sector. However, industries organizational might be facing problems in getting k-worker pertinent with industrial needs. Therefore, getting and preparing k-worker is a challenge to engineering education institution. The aim of this research conducted is to identify the readiness of engineering education students to be emerged as competent k-workers in order to fulfill industrial needs. 638 of last semester engineering education students are randomly chosen as respondents. Eighty nine (89) items of readiness to be k-worker was validated by industrial authorities are applied for research instrument. Reliability of the instrument is 0.957. The finding shows that the level of students readiness is high but most of itemizes level of readiness could be increase to higher level and eight (8) itemizes founded fall into moderate level.

Keywords: Readiness, K-worker, Engineering education institution, Developing country

1. Introduction

As a developing country Malaysia is also not exempted from impacted of the tremendous volume of information and knowledge generated from all corners of the world. Developing countries are also impacted by the influences of the newly phenomenon which it is a borderless village concept. The concept emphasized that what ever changes outside the country will immediately effects the phenomena in the country. To secure from being the victims of developments, developing countries have to be proactive in implementing theory of globalization economic growth in the economic activities. This theory emphasizes on the development and value added of knowledge is essentials motivator for economic growth. According to Zalina, Raziah and Rizaudin (2001), cope with the knowledge are able to assist firm or industries to develop more effective production process approach and be capable to fulfill customers demand. Their statement was supported by Khairul Rizal (2004) who stated that new dimension in managing human resource is known as human capital management whereby industrial prominently utilize knowledge worker (k-worker) to achieve the production target.   Engineering education system is believed by the developing country able to play rule in delivering the knowledge to the human resources (Abdullah, 2006) and (UNESCO, 2002).

2. Background of the study

Delahaye (2002) stated that most companies organization in the 90's since have had introduced learning organization concept and knowledge capital to administer industrial economy. The purpose of this concept is to be of assistance industrial organization chief executive officer to develop company's economy and to cope with global competition.

`Managers looked elsewhere for a long term solution. In 1990 Peter Senge, in his text The Fifth Discipline, popularized the concept of the learning organization - to survive, an organization had to continually learn and adjust to an ever changing environment. Chief executive officers, academics and researchers eagerly grasped this concept as a viable alternative to rational economic. However, the concept proved to be vast in its complexity and the writings of early 1990s, while providing important insights, had difficulty providing a sound, unifying and practical picture. Then in mid-1990s, the focus concentrated on an intriguing concept-the management of knowledge capital. It was suggested that the knowledge of an organization was remarkable and critical resource' (Delahaye, 2002).

Allee (1997) stated that 'Knowledge workers are continually learning, aware that knowledge has a limited shelf life' .His statement was advocated by   Miller (1998) who described that k-workers are the workers who can utilize

their intellectual and convert the idea into products, services or process. Allee (1997) views on the concepts of k-worker, clearly showed that k-worker has the advantage of compliance to fulfill global job specification needs.

Engineering education institution, in this case, has a bigger role in preparing individuals with knowledge to generate a quality and competent task force. Che Mat (2000) founded that engineering education institution also have to provide trainees with the knowledge about preparation to enter job market. It will help trainees to be equipped amid

Realize self potential to operate career task given by industrial.

- Self development to fulfill job requirement.

- Ability to make decision.

- Willingness to execute work.

- Applied management skill in one's life.

Malaysia as one of the developing countries has also agreed with the views that the existing engineering education institutions has the responsibility to produce reliable k-workers in becoming industrial country by the year 2020 (Abdullah, 2006).

The target of creating engineering education institution in Malaysia is to produce human resources that equipped with of knowledge and skills as employee basic competence. There are several ministries in Malaysia given responsible to conduct the engineering education institution such as Ministry of Human Resources, Ministry of Entrepreneurial Development, Ministry of Youth & Sport, Ministry of Agriculture and Agro-based Industry, Ministry of Home Affairs, Ministry of Defense, Ministry of Rural   Development, Ministry of Unity and Social Development), and Ministry of Primary

Malaysia Industrial Training Institutes (MIT) is one of Malaysia's engineering education institutions, is also given role to produce industrial work force in order to fulfill the industrial demand (Human Resources Department, 2003). MIT was established by Ministry of Human Resources, Malaysia by the objective of to express expert industrial workers to assist developing the country. Till on April 2003 there are 14 MIT in Malayisa, and all MIT together enrolled the 8944 students in year 2003 and increase to 10028 in year 2005 (Human Resources Department, 2006).

3. Problem statement

Malaysia Industrial Training Institutes (MIT) as one of Malaysia's engineering education institutions, is also given role to produce industrial work force in order to fulfill the industrial demand (Human Resources Department, 2003). According to Nasta (1994) industrial companies and entrepreneurs are interested to identify whole engineering education system as a need for reengineering and improving the industrial weaknesses and strengthen the company economy. Therefore it is essential to conduct a comprehensive and deeper research to identify the readiness of MIT to be k-worker toward fulfills industrial need in developing country.

In the learning institution there are various factor will influence the quality of new knowledge accepted by the students. There are no assurances students will get all the knowledge and skills from learning institution even though they have ended their learning period. To mastering the knowledge among the students is also influenced by the teaching and learning process. This phenomena is also happen in engineering education institution. Storm (1996) suggested the need of engineering education institutions to build up students' self personality beside job competencies in order to fulfill the employer organizational requirement. In relation to this, a study should be conducted just before the students in engineering education complete their studies to join the job arena especially in the industrial sector. This is to identify the stage of their readiness to k-worker take in interest the progress of industrial need.

In short, the purpose of the research is to identify the readiness engineering education institution students to be k-worker to fulfill industrial need and the objective of the research is to identify the k-worker attributes which need to be increased in order to fulfill industrial requirement.

4. Research methodology

This is a survey quantitative research. The data collection method is through questionnaires only. The reliability of the questionnaires is high where is validated using Alpha Cronbach 0.957. The questionnaires contain of 89 items of readiness to be k-worker and the contain validity of the questionnaires was validated by industrial human resources management and management from engineering education institution.

Research respondent consists of 683 students of MIT selected randomly. They are studying in certificate programme of engineering education and in the last semester of final year. Respondent are required to identify their level of readiness to be k-worker by choosing one of the scales as shown in Table 1.

Data collected from students were analyzed by mean and standard deviation. The mean range to identify level of student's readiness to be k-worker is shown in Table 2.

5. Finding, discussion and suggestion

Research finding showed that overall mean score of 89 items about engineering education students' readiness to be k-workers are 3.889. This mean score is incorporated in high level mean range with sense that the level of engineering education students' readiness to be k-worker is high. The research implies MIT is succeeding in delivering knowledge and skills of k-worker to the students. In favor for Malaysia mastering in knowledge and skills of k-worker is highly demand to industrial management sequentially to activate industrial activities.

Although the level of engineering education students' readiness to be k-worker to fulfill industrial requirement are high, it still can be upgraded. These are based on the data collected from engineering education students that 13 out of 89 of k-worker attributes are at the higher level. 68 out of 89 k-workers attributes are at the high level, 8 out of 89 are at the moderate level and no k-worker attribute at the low and lower level. 13 attributes of readiness to be k-worker among the engineering education at the higher level are shown in Table 3. On the other hand, eight attributes of readiness to be k-worker among the engineering education students are at the moderate level. The attributes are shown in Table 4

Even though the general finding showed that the level of readiness to be k-worker among the engineering students is at the high level (whole mean of the level of readiness to be k-worker is 3.889) nevertheless there are 76 attribute of k-worker insist to increase for achieve at the higher level (higher level at mean value more than 4.5)

The increase of the atributes to be k-worker at the more higher level among the students is a need due to assist industrial capability in competing each other both from local and abroad companies. Readiness to be k-worker among the engineering education students are strongly needed especially in assisting the management of the company as worker in their company to be competitive thus attracting global investors to establish in the developing country. Malaysia, for example, the goverment are encouraging investor especially from multinational company to invest in Malaysia. In Penang the amount share invested from theUSA is about RM 1.5 billion, Japan RM976 million and Switzerland for RM 21 million. These enourmous capital are invested for industrial business activities in delivering product and services in the field of electrical and electronic, petroleum, metal design, food, textile and garment, non metal mineral, machine and tool tranportation and scientific instrument and tool. The connfident and trust investor in investing are influenced by effordable the country produce the k-worker that capable fulfill industries need (Wan Najib and Nurul Huda, 2007).

Increasing the level of readiness to be k-worker should be stressed and become the urgent agenda in the developing country. In Malaysia, it was recorded that the need of work force are deliberately increasing. In the year 2005 Malaysia required 1,430500 technician and professional assistance, and this amount are expected to be increased to 1,628700 in the year 2010 (Economic Plan Unit, 2006). Therefore the level of attributes to be k-worker below which can be found among the students' k-worker attributes are suggested to be improved to highest level as depicted in Table 5. According to Moy (1999), workers whom are equipped with knowledge will help them to be excellent in accomplishing job task.

K-economy should be executed by k-worker. K-worker must be creative, imaginative and frequently in pursuing the recent ideas and be able to gain multiple skills. It is imperative to up grade the level k-worker attributes among engineering education students to be k-worker as confirmed by Fletcher (1977) who explained about the knowledge function in human life as knowledge will gear human to fulfill the quality of life in modern society.

Based on research finding it is showed that the level of readiness to be k-worker among the engineering education students have the opportunities and space to up grade to more higher level (the whole mean should increase up to over 4.5). The research finding below showed that the students are willing and desiring to upgrade their level of to be k-worker,

- 'Willing to learn new knowledge related to work '(mean 4.462).
- `Must learn new technology due to rapid changes in technology' (mean 4.462).
- `Willing to learn new technology related to work' (mean 4.38).
- `Willing to accept comment/advise when making mistake' (mean 4.296).
- `Can work in a team to achieve organizational goal' (mean 4.288).

These levels are pictured that they are willing and hoping will get more guidance from industries to be competence in working from industrial perspectives. These research finding are approximately similar to research finding by Armitage, *et all*. (2003) namely beginning worker are still need guidance and dependent to industrial management to assure they will do the right job but not too dependent on other workers, because it will effected to their working concentration and might troubled the effectiveness of industrial activities.

Research finding that showed readiness to be k-worker among the engineering education students should be up graded is also similar to research finding by Wexley and Latham (2002).They also suggested five steps of reducing gap

between students' knowledge and   the knowledge needed by industries which should be implemented in engineering education institution,

- Engineering education institution get job description from the industries.

- Identify any tasks and responsibilities job in the job description.

- Engineering education institution identifies knowledge, skills and abilities need by worker for accomplish the job task and responsibilities.

- Engineering education institution forms the engineering education program.

- Engineering education institution implement engineering education program.

Although the body of the knowledge and skill that formulating from the job description forecasted will reduce the gap between level of readiness to be k-worker among engineering education students and the level of readiness to be k-worker need by industrial, teaching and learning process passing by students is also manipulated the effectiveness of learning. Meighan (1995) founded that beside contain of the subject the effectiveness of achieving learning out comes are also influenced by the teaching and learning process implemented to the students. Loose and Abdul Halim (2004) suggested in order to reach the effective of engineering education learning process, the institution have to exploit two popular training approach namely Competency-Based Education and Training and   Experience-Based Education and Training.

6. Conclusion

Previous discussion about the research finding showed that the engineering education student in final year and last learning semester has fulfilled almost level of readiness to be k-worker need by industries. However the level value of readiness to be k-worker are able to up grade on ward and reinforcement until the students end their studying and going into job market.

Cooperativeness among engineering education institution and industrial management is compulsory as an effort to set up scope and type of knowledge for performing the readiness to be k-worker among the students in order to fulfill industrial need.

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Table 1. Scale Level of Readiness To Be K-worker

	lower	Low	Moderate	High	Higher
Scale	1	2	3	4	5

Table 2. Interpretation Level of Readiness To Be-K-worker   Hayat dan dd

Mean range	Level interpretation
>4.5 to ≤ 5	Higher
>3.5 to ≤ 4.5	High
>2.5 to ≤ 3.5	Moderate
>1.5 to ≤ 2.5	Low
1 to ≤1. 5	Lower

Table 3. Higher Level of Engineering Education Students Readiness Attributes to Be K-worker

K-worker attribute	Mean	Std. Deviation
Willing to learn new knowledge related to work	4.462	.586
Must learn new technology due to rapid changes in technology	4.403	.653
Willing to learn new technology related to work	4.381	.627
Always prioritize the safety aspects while working	4.328	.640
Willing to accept comment/advise when making mistake	4.296	.640
Can work in a team to achieve organizational goal	4.288	.592
Can dress neatly	4.277	.668
Knowing the mechanism to save own self secure when there is any accident at workplace	4.273	.640
Ready to help co-workers who is having work problem	4.268	.600
Willing to ask in order to improve quality of working	4.268	.635
Can suit in workplace	4.234	.577
Confident to fulfill the rules and regulations at workplace	4.218	.669
Can communicate with top management harmoniously and effectively	4.218	.630

Table 4. Moderate Level of Engineering Education Students Readiness Attributes to Be K-worker

K-worker attribute	Mean	Std. Deviation
Able to use English to increase work quality	3.393	.874
Ever learn the thinking skill theory	3.384	.987
Able to use English to get information related to work	3.362	.868
Able to use English to get information related to work	3.348	.909
Experience deliver any information using English	3.326	.990
Capable to deliver work related information using English as a medium	3.304	.892
Able to use the right English to write work report	3.238	.919
Experience writing report using English	3.230	.963

Table 5. Students k-worker attributes are suggested to be up graded to highest level

K-worker attribute	Mean	Std. Deviation
Know how to use internet to gather information related to work	3.690	.948
Capable to do work without supervision	3.687	.847
Have learned problem solving theory	3.677	.846
Know about the work place environment	3.672	.742
Have experienced practicing thinking theory while working	3.663	.845
Know the best technique to guarantee the quality assurance	3.643	.705
Have practiced the job problem solving theory	3.621	.869
Know how to use the tools to do the work effectively	3.614	.708
Can determine the other job scope	3.582	.815
Experience in solving work problems	3.581	.864
Can determine the difficult part of work to do	3.498	.838
Know the types of industries to work after finished studying	3.428	.967
Able to use English to increase work quality	3.393	.874
Ever learn the thinking skill theory	3.384	.987
Able to use English to get information related to work	3.362	.868