Non-technical skills for technical skilled workers in Malaysia

Ahmad Nabil Bin Md NASIR
Universiti Teknologi Malaysia
Skudai, Johor, Malaysia
ahmadnabil@utm.my

Dayana Farzeea ALI
Universiti Teknologi Malaysia
Skudai, Johor, Malaysia
dayanafarzeea@utm.my

Muhammad Khair Bin NOORDIN
Universiti Teknologi Malaysia
Skudai, Johor, Malaysia
mdkhair@utm.my

Mohd Safarin Bin NORDIN
Universiti Teknologi Malaysia
Skudai, Johor, Malaysia
p-safarin@utm.my

ABSTRACT
The rapid increase of technology has contributed to the increasing demand on skilled worker in Malaysia. It is proved that Malaysia is emphasizing on the production of quality skilled workers, especially the quality on the non-technical skills. However, the lack of non-technical skills and highly dependent on technical skills is the problem that should be overcome by skilled workers in Malaysia. Totally, the skilled workers especially in the technical part always focused on improving technical skills compared to non-technical skills. Therefore, the production of technical skilled workers should also stress on the mastering non-technical skills. Nowadays, employers always give negative feedback of skilled workers when the non-technical skills are raise up. Clearly understood that the employers in the industry sectors only need the skilled workers that are matured enough in non-technical skills but also have the integration with technical skills. The problems are the employers put all the desires to the higher education institutions as a center to produce skilled workers who completely dominate the non-technical skills. The purpose of this paper is to explain the definition concept of skilled workers. The details of generic skills elements that have been implemented in higher institutions and the benefits of that for skilled workers are also clearly explained.

Keywords: non-technical skills, generic skills, skilled workers
INTRODUCTION

Malaysia's aspiration to become a developed nation by 2020 is something that can be realized. The full integration of all parties should be strong to achieve the big goal. It is because, the biggest factors required as a developed country is based on the high gross domestic product (GDP) and have rapid tertiary and quaternary industries. The high pace of the industry resulted in increased foreign investment and increase country’s economy.

The increase in investments from industrial areas has resulted in increased demand for skilled workers in the country (Julie, 2008). High demand for skilled workers is not only dependent on the quantity of skilled workers and even industry emphasises that the quality of their own skilled workers in the industry can enhance productivity and develop the economy. According to Third Industrial Masterplan (IMP3), industrial sectors in Malaysia require a skilled worker who has good enough criteria to achieve quality targets that are targeted by the sector (MITI, 2005). The emphasis on technical skills as a whole can be the criteria to be observed by the industry for skilled workers but it is something left behind.

Quality of skilled workers is evaluated by industry through the two aspects of the technical skills and non-technical skills. This is because with just leveraging the technical skills, it is not enough to qualify that skilled worker is facing the needs of global industry that is advance, powerful and moving forward. This has not only become a guide in Malaysia but all over the world as examples of China, that popular known as ‘sleeping dragon’ in the world economy also needs skilled workers with the quality criteria are not only technically, but also non-technical (Thomas, 2008). Skilled workers are recognized as quality workers when they have a unity between technical and non technical skills.

However, ‘skill mismatch’ phenomena happen to skilled workers in Malaysia nowadays. This problem can be observed when many employers provide different and negative responses to the performance of skilled workers in Malaysia (Rasul et al., 2009). Lack of mastery non-technical skills and overall depends on technical skills as their working is viewed as a phenomenon that is difficult to change.

Hence, this concept paper will focus on non-technical skills elements that should be mastered by technical skilled workers in Malaysia. Explanations on the concept of non-technical skills, skilled workers and high demands on these skills in workplace also are detailed. Higher institutions approach to enhance the non-technical skills in doing their list of non-technical skills. This is also important to nation.

SKILLED WORKERS

Skilled workers are employees who acquire the ability in a field with qualifications recognized and applied in the best possible for the welfare of all
According to Jabatan Pembangunan Kemahiran (2010), a skilled worker is a worker with level 3 of Sijil Kemahiran Malaysia (SKM) as a minimum qualification. The most fundamental definition of skilled workers are claimed by Lowell and Batalova (2005). Skilled workers are the persons who tend to be restricted with a “tertiary” education, typically meaning adult ages persons who have completed a formal two years college degree or more. Borjas (2003) agreed that to define skilled workers are by level of educations qualified.

The Directorate of Immigration (2010) claimed that skilled workers are the persons who have been completed their degree or study program. There also defined skilled workers, as the person who gained expertise through professional experience of a certain duration, possibly in combination with other training (courses and similar). The term ‘skilled workers,’ is used often interchangeably with ‘professionals’ (Lowell & Batalova, 2005).

Using the above definition, it can be conclude that the skilled workers is an employee of the acquired skills or knowledge related to the skills from recognized tertiary level institutions and use their skills with good apply and beneficial to all parties.

**DEMANDS IN THE WORKPLACE**

Now, employers are more focusing on ex cellent combinations between technical skills and non-technical skills in their skilled workers. Hence, employee based on the proficiency of non-technical skills is more preferred. This is because of the employers are not worried about technica l proficiency of skilled workers. The industry considers that the employability skills are important and should be owned by their employees to ensure employees are really skilled in work. (Rasul et al. 2008).

This is due to high demand of generic skills in the challenging workplace (Sahandri & Kumar, 2009). Employees who are lack proficiency of non-technical skills are problems to the employers. This is because the employers do not have much time to train or retrain graduates from higher institutions on that matter.

Due to the need to increase productivity at a minimal cost, employers need skilled worker who are ‘work ready’ in terms of their generic skills. Skilled workers those who have the ability to adapt quickly and effectively on all matters of employment, are very helpful to face new challenges in the workplace. Nature of employment reality is more defined and specific. Unwillingness of skilled workers in doing multitasking is a common saying. In fact, mastery of multitasking is the duty of the organization to move forward. For this, employees are expected to have problem solving skills, communicate effectively across a wide range of audience as well as be team player. Also, of great importance are computing skills, interpersonal skills, having self confidence and a lot of enthusiasm to keep their spirits going and remain motivated in their job (Sahandri & Kumar, 2009).
The need for non-technical skills is an important element in the era of globalization, liberation and technological change. These skills are required to help employees perform their tasks more effectively as globalization will result in an increase in demand for workers who possess these skills as well as additional skills such as public relations, negotiation and cognitive skills (Zubaidah et al., 2006).

NON-TECHNICAL SKILLS

Non-technical skills refer to general skills (Zubaidah et al., 2006), generic skills or life skills (Munce, 1981) that is outside the formal education syllabus. This skills are not specific to any particular job position or workplace environment (Zubaidah et al., 2006) but can be used widely to all jobs and tasks assigned (Kruger, 2006). These skills cannot be obtained in a short time, but it can be controlled with extensive use and experience (Sahandri & Kumar, 2009).

According to Straub (1990), non-technical skills represent aspects common to all jobs and task, such as following instructions, communicating effectively, and cooperating with others in teamwork. In working environment, Noor Azizi Ismail et al., (2001) claimed that non-technical skills comprise the ability to carry out specific tasks. In addition, non-technical skills play an important role in supporting technical skills (Roger, 1996).


When told about the research related to non-technical skills, generic skills are the most general to all of the research, such as the research on graduates and workers. Elements contained in the generic skills depend on the initial researchers. Key competencies model that have been issued by Mayer (1992) which is the model is often used as a basis for the formation of the elements of generic skills. The elements are:

1. Collect, analyze and organize information
2. Communicate ideas and information
3. Plan and organize activities
4. Work with others and in teams
5. Use mathematical ideas and techniques
6. Solve problems
7. Use technology

However, Centre for Vocational Education Research (NCVER) in Australia has issued a list of generic skills in a more detailed in 2003. There are six main
sections and specific details made to list the elements of generic skills. Table 1 shows a list of generic skills produced by NCVER (2003).

Table 1: List of generic skills produced by NCVER (2003).

<table>
<thead>
<tr>
<th>Skills</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic/fundamental skills</td>
<td>Literacy, Using numbers, Using technology</td>
</tr>
<tr>
<td>People-related skills</td>
<td>Communication, Interpersonal, Teamwork, Customer-service skills</td>
</tr>
<tr>
<td>Conceptual/thinking skills</td>
<td>Collecting and organizing information, Problem-solving, Planning and organizing, Learning-to-learn skills, Thinking innovatively and creatively, Systems thinking</td>
</tr>
<tr>
<td>Personal skills and attributes</td>
<td>Being responsible, Resourceful, Flexible, Able to manage own time, Having self-esteem</td>
</tr>
<tr>
<td>Skills related to the business world</td>
<td>Innovation skills, Enterprise skills</td>
</tr>
<tr>
<td>Skills related to the community</td>
<td>Civic or citizenship knowledge and skills</td>
</tr>
</tbody>
</table>

MALAYSIA’S PHENOMENA ON NON-TECHNICAL SKILLS

Ramlee (2002) on his research found that the employer's of manufacturing industry in Malaysia find technical graduates in Malaysia with more than enough technical skills, however, employers feel less satisfied in terms of non-technical skills such as motivational skills, communication, interpersonal, critical thinking, problem solving and entrepreneurial skills. Besides that, according to Syed Hussain (2005), most graduates of technical field (62.3%) still jobless because of two factors, lack of non-technical skills than technical skills and the second is the lack of practical training and experience.

More than half of the technical graduates of polytechnics (50.5%) are jobless for nearly nine months each year after their graduation due to the problems of non-technical skills (Rashid, 2005). The result was also found that are still weak in communication skills, writing and computer skills. According to research by Kathleen (2005) for technical graduates in the U.S, she found that employers are not satisfied with the job application for technical graduates are not because of
they do not have the sufficient skills or technical knowledge, but is caused by a lack of non-technical skills.

According to research by Fauzi (2000), skilled workers in Malaysia are still moderate in non-technical skills. He claimed that skilled workers are still weak in terms of ability to work together successfully in a team and co-operates with others at all levels, friendly, courteous and show proper respect to superior and subordinate and recognized hazardous working situations and observance of the general safety requirement.

Expectation and perception of employers about engineers in Malaysia still low in non-technical skills. According to Zaharim (2008), employers expect that all of the engineers in Malaysia have the ability to improve their non-technical skills after graduating from university or in workplace, but the situation is not. Table 1 and Figure 1 show that a higher mean gap value indicates a bigger discrepancy between what is expected of the work force and their performance as perceived by the employers. The attributes which exhibit the worst mean gap was the ability to undertake problem identification, formulation and solution (0.94), followed by the ability to communicate effectively (0.92). On the other hand, the best score (lowest mean gap) was displayed by attribute L (0.60) on knowledge of contemporary issues (Zaharim, 2008).

NON-TECHNICAL SKILLS THROUGH INSTITUTION OF HIGHER EDUCATION IN MALAYSIA

Ministry of Higher Education Malaysia in the year 2006 has issued a list of non-technical skills that necessary to be implemented in every student in higher institutions in Malaysia (Shakir, 2009). Elements of non-technical skills in the outline are:

a) Communication skills  
b) Critical thinking and problem solving skills  
c) Team work  
d) Leadership skill  
e) Ethics and professional moral  
f) Lifelong learning and information management skills  
g) Entrepreneurship skill

From that, many institutions of higher education have made adjustments to the curriculum so that graduates produced have equipped with good non-technical skills. The non-technical skills that focus by institutions in Malaysia are different from each other because it depends on the primary objective of the graduates production and courses. The list released by the Ministry of Higher Education Malaysia in the year 2006 is more general because it reviews skills needed by all workers to be issued by an institution of higher learning in Malaysia.
As this research focused on technical skilled workers, Universiti Teknologi Malaysia (UTM) was chosen as the reference for institution of higher education. This is consistent with UTM status as a premier university in the production of national’s technical graduates. UTM has a list of non-technical skills through the UTM's generic skills which attributes are:

a) Communication skills  
b) Honesty/integrity/ethics  
c) Teamwork skills  
d) Interpersonal skills  
e) Motivation/initiative/enthusiasm  
f) Capacity for critical and independent thinking  
g) Flexibility and adaptability  
h) Personal presentation and self confidence  
i) Professionalism  
j) Problem solving and creativity  
k) ICT skills

ELEMENTS OF NON-TECHNICAL SKILLS FOR TECHNICAL SKILLED WORKERS

People-related skill

According to the list of non-technical skills produced by UTM, note that the most important aspects for a graduate to become a skilled worker in Malaysia is the people related skills, which includes three major skills which are communication skills, teamwork skills and interpersonal skills.

Communication Skills

Communication, being the lifeblood of an organization, is one of the substantial elements in an organization (Zubaidah et al., 2006). Communication skills are skills that involve presenter and recipient, whether through verbal or non verbal. Details on the communication skills that have been issued by the SCANS (2001) covers many aspects such as participation in group discussion, group presentation, clear explanations, and ask when needed. And non-verbal communication includes presenting clearly, accurately and understandable in written form. According to Noor Ismail et al. (2001), reading and writing are two important non-technical skills that are widely used in organizations. Writing skill is needed as most technical reports are in written form while reading skill is necessary because these reports will be read by others in the organizations. In Malaysia, communication skills are more concentrated towards the mastery of Bahasa Malaysia and English.

The importance on communication skills is very significant for learning in higher education institutions. Production of graduates who are focused towards the field of technology as either electrical, mechanical, civil and chemical engineering...
Non-technical skills for technical skills workers in Malaysia. Nabil, Dayana, Khair, Safarin, et al.
Mastery of interpersonal skills is important for employees of the Malaysian manufacturing (Rasul et al., 2009). The study found that the requirements of interpersonal skills proficiency are preferred by employers in the manufacturing sector. This matter agreed by Kaur & Kaur (2008) that Malaysia's graduates should achieve high interpersonal skills to make their self 'marketable' and basic skills for success in their jobs.

**Personal skills and attributes**

These generic skills are more to themselves or 'intrapersonal', to increase the skill is through yourself. Matters related to this skill are honesty, integrity, ethics, flexibility and adaptability, personal presentation and self confidence, and professionalism. In addition to these elements are as individual responsibility, self-esteem, sociability, self-management and integrity (SCANS Report, 1992).

With a good mastery of these skills can generate a skilled worker who has high self-immunization formed in them. The importance of these personal skills can be observed through a study conducted by Quah et al. (2009) who found that skilled workers need to master the basic skills to work well. This finding also agreed by Fitrisehara et al. (2009) and Ab Bakar & Hanafi (2007) who state that personal skills are needed as a basis for skilled workers in technical areas in Malaysia.

**Conceptual/thinking skills**

For describing this generic skill, mastery of thinking skill is needed. Thinking is not only for finding answers to problems but also to find the best solution to solve a problem. This can be explained more clearly if a skilled worker has a mastery of critical thinking and problem solving skills in job.

**Critical thinking and problem solving skills**

From SCANS report (1992), critical thinking is uses imagination freely, combines ideas or information in new ways, makes connections between seemingly unrelated ideas, and reshapes goals in ways that reveal new possibilities. While problem solving is recognize that a problem exists, identify possible reasons for the discrepancy, and devise and implement a plan of action to resolve it. Evaluation and monitoring progress and revises plan as indicated by findings.

A study by Siegel (2000) found that most employees who have skills in solving problems are key factors to having competence in management. They should be able to view the big picture when solving understanding and awareness of the present situation.

Good decision making enables the management process of an organization to function efficiently. Carnavale (1991) further states that all employees need to be equipped with the skills of identifying problems and making decision in order to
meet the vision and objectives of the organization. This could be achieved through problem solving skills and creative thinking. Problem solving skill is important if one wants to avoid conflict and to ensure a smooth operation of the company.

Zaharim (2008) found that problem solving is the most worrying sector employers for skilled workers in the Malaysian industry. This study was supported by Zubaidah et al. (2006) also found that new workers require problem solving and creative thinking to succeed in the workforce. Creative thinking is required as a criterion that is important to resolve matters in the job ahead. The combination of creative thinking and problem solving skills are given high attention because the good creative thinking skills able to solve a problem using a better approach.

**Basic/fundamental skills**

These skills more easy to understand the important of it’s because it is a requirement from all of the employers and workers. Using numbers, ability to use technology and literacy competency are the aspect for skilled workers to master these skills. However, in modern area now the ability to use ICT in good condition is the most important element that employers referred compared others. This statement is support by Brent (2009) that he claimed that employers in developed country more focusing on ICT skills in selecting their skilled workers. The use of ICT is not only on data and information finding but also in use it as the medium to solve the problem occurred.

As the leading technical skilled workers provider, UTM have plug in non-technical skills as the integration with technical skills for their graduates. The details that UTM made for their non-technical skills elements are suited to the industry needs. High competency in people-related skill, personal skills and attributes, conceptual/thinking skills and basic/fundamental skills is good for technical graduates in Malaysia.

**CONCLUSION**

Institution of Higher Education has critically approached the concept of non-technical skills for their students. Ministry of Higher Education Malaysia provides list the non-technical skills that graduates need to master as a guide is too general. Listing of non-technical skills of an institution depends on the focus of workers production nationwide. It is observed that the country is emphasizing the production of quality skilled workers, especially good of non-technical skills.

Totally, technical skilled workers are focused on improving technical skills compared to non-technical skills. Therefore, the emphasis on the production of skilled technical workers needs to emphasize the importance of non-technical skills. This is because the industry does not have the time and provisions made to provide classes, seminars or workshops to improve worker’s non-technical skills.
Higher Learning Institutions have been able to find solutions to avoid these problems continue to persist. Universiti Teknologi Malaysia (UTM) as the leading institution in developing technical skilled workers in Malaysia has made their step move forward. UTM have released their ‘Generic Skills Attributes’ as their early step to counter this problem. With the above description, the production of generic skills list views is in line with the country's skilled workers in technical areas.

People related skills most important to others because the skills are important to the country's skilled workers in technical fields. Communication skills, teamwork and interpersonal skills that involve others are considered more important because of the technical fields not only work with machine or work piece, but they also work with other workers in industry. Mastering this skill can put them forward and increase the productivity when the good integration meets by them. This is the outcome when skilled workers have good mastering on people related skills.

Personal skills and attributes or ‘intrapersonal skills’ are the basis for all skilled workers in industry. Mastering these skills can make the skilled workers more prepared inside and help them to build their own confidence to settle the work in good, sincere and consistent manner. Good building character from the mastering these skills can be seen as their positive attitude, thinking style and good behavior as skilled workers in Malaysia.

Conceptual skills or thinking skills are important because as skilled workers, active, intelligent and smart mind are the asset for them. Critical thinking and problem solving skills is the primary aspect for skilled workers to mastering thinking skills. This is because, in real workplace there is always have a lot of complicated problems happening and skilled workers should settle it by using whatever ways that suite to the problem occurred.

The development and mastering the fundamental skills is required to make an early preparation for skilled workers in the real workplace. The aspects of the skills are provided by NCVER (2003) which are literacy, using numbers and using technology. This skills are very basic because of they are general abilities of skilled workers in Malaysia.

Great combinations between the generic skills provided by UTM surely confirm to make good and productive technical skilled workers in Malaysia. This paper can be concluded here that non-technical skills are important to all skilled workers in any industry to enhance their productivity in work; hence it also will increase the Malaysia’s economy through a variety of industry sectors.

REFFERENCES


Ramlee B. Mustapha (2002). The Role of Vocational and Technical Education in the Industrialization of Malaysia as Perceived by Educators and Employers. Doctoral Dissertation. Purdue University.


