COMPARING HUMAN CAPITAL EFFECTIVENESS BETWEEN OFFICE WORKERS AND FACTORY WORKERS: A COMPETENCY GAP ANALYSIS

Sophie de Sausmarez, Visarut Rakmanusa[†], Bhaqthada Jarupornpanich, Nanat Phuvathanarak, Panuwat Tosaksit, Pornpimol Chongphaisal
School of Management Technology,
Sirindhorn International Institute of Technology, Thammasat University,
Pathum Thani, 12000, THAILAND
+66(0) 2501 3505-20, Email: v.rakmanusa@gmail.com

Abstract

Set of knowledge skills and abilities that come from individual workforce in organization can be called as human capital. To be able to improve human capital in order to improve organization performance has been acknowledge widely among human resources practitioner in many firm. Human capital is counted as a high value asset in each company that is hard for competitor to copy. Having human capital will lead to higher performance or output resulted from workforce. In order to improve this, good management in human resources should be considered. In the midst of change in globalization and regional alliance such as the ASEAN Economic Integration in 2015, Thai workers have to develop their capability to meet new challenges and demands. In order to develop this capability, effectiveness of the worker must be answered. This research studies the current situation of human capital effectiveness of both office and factory worker in ten top export industries in Thailand. Documentary research has been done and a questionnaire survey will be utilized to identify this effectiveness. Questionnaire will be answered by managerial level in order to see what the firm anticipated in their human capability and what the workforce can provide. After data had been collected, statistical tool will be used to analyze and answer whether workers are effective or not. Finally, this result will be used to provide implication to help improved the human capital in Thai organization and propose the precise training model to workforce. Eventually, this will result in higher organizational performance.

Keywords: Human Resources, Human Capital, Competency, Factory Worker, Office Worker

1. INTRODUCTION

In a continuously changing environment it has become impossible to manage business successfully without sustained personal development. Managers of organizations face the globalization of business, rapid technological changes, continual reorganizing and competence-based competition (Viitala, 2005). Those personal development can also called intangible based knowledge and when it combined together for competitive advantage and create value purposes, it would be called Human capital (thereafter, HC). HC consists of knowledge, skills, abilities, experiences, or capability of employees within a firm that are valuable and unique, and should be kept out of reach of other companies. Since HC acts as an important role for an organization, having high HC would improve productivity and achieve organization goal. The tool that helps firm improved HC is to have a good human resources management (thereby, HRM) within an organization. Good HRM will shape the HC through the workforce ability, skill or individual behavior which can be called competency.

The term competency has been used widely among human resources academician and practitioners but the term of use and definition has evolved for several meanings. If

[†] Corresponding author

considered by how it is actually work, it would be easier to understand it. Since HC consists a set of competencies, identifying the right competency in particular job is the essential task for management level in order to evaluate, develop and improve human capabilities. Among the globalization and economic changes, Thai worker needs to increase and develop their performance to meet a new challenge and demand. Thus, this paper will mainly focus on human capital as a measurement when considering about performance of the worker. In order to identify this performance, set of the standard requirement (competency) should be develop to help the evaluation. The gap between what organization want and what worker can provide in term of competency will be measured certainly, employees in the firm would possess competencies at different degree. This leads to an analysis to find the alternative and solution which can reduce those gap. Currently in Thailand, two main types of employee are worth investigating. There are: office workers and factory workers. To summarize, this study would identify realities on competencies of HC in Thailand. Using statistical analysis from the survey and interview to study the Thai worker and comparing which group of worker is more effective through the perception of their supervisors.

1.1 Problem Statements
- HC contribute to the organization sustainability and growth and to the country with competitiveness but the realities on competencies of Thai employees are not known, particularly in relation to other AEC member countries.
- Assessing the competencies of Thai workers are essential yet the international standard for measurement are not available and need to be developed taking into account Thai culture, attitude, education, and development.
- There might be a difference in the office workers and factory workers.

1.2 Project Objectives
- To reevaluate what set of competencies that a firm needs and gives a guideline to workers in order to improve their abilities, which meets the organization goal.
- To compare the gap of their office worker's competencies versus those of the factory workers, if there is any.
- To give a policy recommendation and guideline for other organization that is concerned in developing and maximizing the competence of their HR performance.
- To understand the status of Thailand workers as compared to other countries and compare whether Thai workers are effective, productive or not and at which level.

2. LITERATURE REVIEW
In modern business world, there are many ways that firm can assess their organizational performance. HRM is the way organization manage their workforce or people through five commonly known tasks which are attraction, selection, training, assessment and rewarding. These practice of HRM can have a huge effect to the organization performance, if organization can properly manage people by selecting a useful employee to do a right job, it means company can gain a high potential from that employee.

2.1 Human Resources Management Practice in Thailand
Kamoche (2000) categorized HRM practices found in Thailand into three models: traditional, progressive, and transitional. 1) In the traditional model, the focus is mainly on administrative concerns, managerial control and cost. 2) The progressive model comprises practices now commonly associated with strategic human resource management (SHRM) like sustaining specific human resource policies which explicitly support organizational goals and

strategies 3) The transitional model lies between the two previous models. The firms using this model appeared to retain many of the aspects of the "traditional". But later the traditional model can be realized that it was not fully help to reach the objectives and goals. Under a good HRM in organization through training and development program, this asset can be improved. The study by Siengthai (1993), also indicated that Thailand monarchy system has cause a hierarchical structure at work and at home with military regime showing a unique pattern of HRM over the last half century, using cheap uneducated labor.

After the financial crisis business practices were changed and public company showed more HRM skill, adopting strict recruitment criteria in the selection process targeting qualifications, knowledge, competence and experience. (Siengthai & Bechter, 2004)

2.2 HRM in Helping to Refine and Optimize Human Capital

Within the three categories of Intellectual Capital, HC is the most valuable asset (Backhuijs et al., 1999; Johanson et al., 1999) because this capital dealing with people which have capability to manage and improve it. HC is the things that belongs to employee and is difficult for any other to follow and copy it. The one that can be helpful to refine and optimize HC is HRM. Moreover HRM can be used as a key to reduce the cost of HC and increase an organization performance and growth. For Thailand's human capital policy, World Bank (2012a) stated that it should aim to enable education providers and receivers to discover and develop talents to full potential and instill in them the passion for life-long learning.

2.3 Using Competency to Indicate Human Capital Effectiveness

In the past days, to predict employee performance, intelligence test was taken place but later McClelland (1973) argues that those intelligence test will evaluate academic performance rather than success on the job. McClelland also suggest that the best way to test employee before selected to do a particular job should be real job skills test. This leads to the term competency

Spencer and Spencer (1993) viewed competency as an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation. They identified five types of competency characteristics consisting of motives, traits, self- concept, knowledge and skills. First, motives are the things that an individual consistently thinks about or wants that stimulate action. Motives drive, direct and select behavior toward certain actions or goals and away from others. Second, traits are physical characteristics and consistent responses to situations or information. Third, self-concept is an individual's attitudes, values or self-image. Fourth, knowledge is the information that an individual has in specific content areas. Finally, skill is the ability to perform a certain physical or mental task. From all of these characteristic types we can imagine that it is an iceberg floating in the ocean (see in figure 1), when we see from outside we will see only the upper-part (visible area) of the iceberg but the lower-part (hidden area) is hard to see. Knowledge and skill competencies tend to be visible and relatively surface characteristics, whereas self-concept, traits and motive competencies are more hidden, deeper and central to personality. Surface knowledge and skill competencies are relatively easy to develop and training is the most cost-effective way to secure those employee abilities. Therefore, if we want to improve competencies of human resource, the types of competency which we should improve first are knowledge and skills.
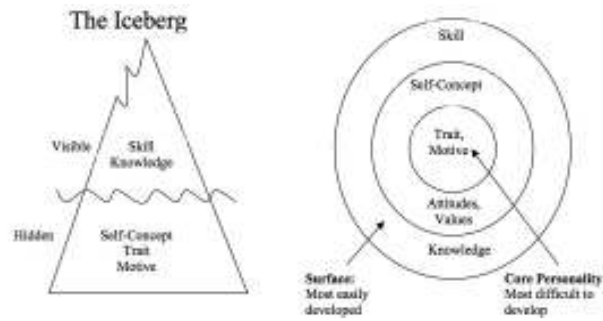
Figure 1: Iceberg Model

2.4 The Term Office Worker and Factory Worker and Its Required Competencies

Office worker is defined as an employee who works in an office, especially one engaged in clerical or administrative work. Office worker also known as a white-collar worker. In addition, it refers to a person who does administrative work, in contrast with a blue-collar worker, whose job requires manual labor. For *factory Worker* it is also known as blue-collar worker, defined as the one whose job relates to manual work or particularly industry worker. Blue-collar work may involve with skilled or unskilled job, and many other types of physical or manual work.

According to the McBer's Scaled Competency Dictionary (1996) as reproduced by Raven, J (2001) they provide 18 generic competencies (see in table 1). This generic competency dictionary consists of core competency, functional competency, and managerial competency.

Table 1: 18 Generic Competencies reproduced by Raven, J

1. Achievement Orientation (ACH)	10. Initiative (INT)
2. Analytical Thinking (AT)	11. Integrity (ING)
3. Conceptual Thinking (CT)	12. Interpersonal Understanding (IU)
4. Customer Service Orientation (CSO)	13. Organizational Awareness (OA)
5. Developing Others (DEV)	14. Organizational Commitment (OC)
6. Directiveness (DIR)	15. Relationship Building (RH)
7. Flexibility (FLX)	16. Self-Confidence (SCF)
8. Impact and Influence (IMP)	17. Team Leadership (TL)
9. Information Seeking (INF)	18. Teamwork and Cooperation (TW)

According to "*Competency requirements for managerial development in manufacturing, assembly, and/or material processing functions*" by Barber and Tietje (2003) they provide a set of competencies use for manufacturing, assembly, and/or material processing functions in managerial level. Another Thai paper that use this set of competency is *"An Approach to Developing Competencies of Associate Industrial Engineers for the Preparedness of ASEAN Economic Community"* by Sophabutr P. (2012) Even though her paper use this set of competency in order to assess current competency level of industrial engineering practitioner and engineer but some of competencies is obviously use in all level of the work as well as the worker level. Therefore, this paper adopted their competencies and select the one that appropriate with our main objectives which is the study in worker level. Unlike the manager level, some competencies may not suit to identify the level of effectiveness in worker level, on the other hand, some of competencies can be used as a set or standard to indicate the level

of effectiveness. These following table 2 is the set of competencies for worker which this paper adopted.

Table 2: Competency requirements for managerial development by Barber and Tietje

1. Conflict resolution	5. Stress management
2. Verbal communication (presentation)	6. Responsible (consistent)
3. Foreign languages	7. Patience
4. Inspection	

In conclusion, this paper adopted both Raven, J (2001) and Barber and Tietje (2003) competency list to set as a framework of the questionnaire, this list of competency will transform to questions asking both office worker and factory worker with the same set of questionnaire in one part, that is generic competencies in order to be able to compare data across two groups. These twenty five competencies tend to be the generic competency for this research

Table 3: Framework of Competencies by the Advanced Manufacturing Industry

Manufacturing process design/development	*Maintenance, installation and repair*
1. Troubleshooting Processes	7. General Skills
Production	8. Basic Disassembly/Assembly Skills
2. Production Materials	9. Basic Maintenance
3. Precision Measurement	*Health and safety*
4. Manual Tool & Equipment Operations	10. Personal Safety
5. Basic Automated Systems & Control Operation	11. Safety Procedures
6. Basic Manufacturing Process Applications & Operation	

In order to evaluate the effectiveness in factory worker, some of functional competency should be provided in a questionnaire because a lot of factory worker mostly concern with the functional and manual practice. This paper uses the "Framework of Competencies by the Advanced Manufacturing Industry" by United States Department of Labor (DOLETA) and the National Association of Manufacturers in 2006 with the focusing on tier 4 which is Industry-wide Technical Competencies – Entry-level. This following is the functional competencies for factory entry level worker. Though this framework was developed by United States but it can be seen other international researchers also use this framework as well. Referring to Stahl et al., (2011) "*Development of Competence for sustainable manufacturing by using serious games*", this advanced manufacturing industry framework is one of many competencies that they derived from. The researcher pulled out some of competencies in tier 4 that suit with the research (see in table 3). The reason why the this paper used tier 4 is because it covers the technical competencies that cut across all sectors of manufacturing and are necessary for developing a high performance workforce rather than following a singe occupational career ladder. Technical competencies actually refer to the knowledge and skills important in all sub-sectors of manufacturing.

3. METHODOLOGY

This research aimed to gather information about HRM, human capital and competency. This also involves the standard competencies of office and factory workers to what the firm expected by setting up 200 sets, designed for evaluating middle-to-large sized organizations that has both factory sector and office sector. The 200 sets are allocated to the ten top export industry based on volume of import from year 2009 to year 2013: (1) Automotive and auto parts Industry: (2) Computer and electronic parts industry: (3) Basic metal and products industry: (4) Chemicals and chemical products industry: (5) Plastics industry: (6) Rubber industry: (7) Machinery and equipment industry: (8) Canned seafood industry: (9) Air conditioning and refrigeration industry: (10) Electrical machinery and apparatus. The questionnaire contains the questions on generic competencies for both sectors in order to evaluate the gap analysis for each and able to compare data between the two types of employees.

The researcher split the questionnaire into two categories which are factory worker set and office worker set. A respondent in this research will be the manager or the one who plays a role to manage, order, supervise a worker. Based on definition, office worker is defined as white collar or the one who have to handle with administrative task and factory worker is defined as blue collar or the one who have to handle with physical/manual task. Both worker work in the lowest position in the organization structure or could be called as a first-entry level. The questionnaire will be sent by post mail including the empty envelop to send back and if the questionnaire happens to get lost, damage or did not receive by the respondent, online questionnaire will be provide.

In Thailand, a large number of Thai employment or job tends to be the worker that work in office and factory. This paper will study and compare human capital effectiveness in both office workers and factory workers by using the competency gap analysis that comes from result from the survey. Apart from the main objective that already stated, this paper will seek for deeper analysis by using statistical tool in order to find any relationship between the set of competencies and the effectiveness of the worker. After data had been collected, the researchers will use statistical software, SPSS (Statistical Package for the Social Sciences), which is commonly known software among the researchers and statistical practitioners. This software will help to transform the characteristic of respondents into quantitatively describing. In addition, this paper will use "Linear Regression" technique to test the significant relationship between independent variable which is competencies and dependent variable which is the effectiveness.

Table 4: Hypothesis statements

Number of Hypothesis	Hypothesis Statements
1st	There is a relationship between competency and worker effectiveness
2nd	Factory worker effectiveness is higher than office worker
3rd	Factory worker effectiveness is lower than office worker

4. QUESTIONNAIRE DESIGN

As stated in methodology section, this paper will use questionnaire as a main tool in order to collect the data that respondent answered. The questionnaire will distribute to respondents separately with two main categories which are (1) Office worker questionnaire and (2) Factory worker questionnaire. The reason why researcher wants to separate the

questionnaire into two categories is because some set of competency in both factory and office worker is not the same, therefore, the questions need to form up in different way but some of competencies such as generic competency will be shared by both groups. In each questionnaire can be divided into six parts which are (1) General information of a respondent which is his/her department, position, age, gender, education, working experience, and type of industry (3) Desired level of generic competency (4) Desired level of functional competency (5) Current level of generic competency and (6) Current level of functional competency. For functional competency, it is available only for factory worker questionnaire set.

The respondent is allowed to answer by ticking in the box that provided. Mostly, the way that can be answered by respondent will follow the "Likert Scale". Likert scale is the most widely used approach to scaling responses in survey research. When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a scale and range that given. Thus, the scale or range that respondents answered will transform the feeling or opinion into a quantitative measurement and this will be useful for data analysis and calculation as well as drawing conclusion. This questionnaire will adapt the answer scale up to seven starting from none to extremely high as shown in table 5 separated by the questionnaire intention (desire & current level).

Table 5: Description of each evaluation level

Evaluation Level	Definition of Desired Level	Definition of Current Level
Extremely high	Expect the competency between 91%-100% of the duty	Found the competency between 91%-100% of the duty
Very high	Expect the competency between 71%-90% of the duty	Found the competency between 71%-90% of the duty
Somewhat high	Expect the competency between 51%-70% of the duty	Found the competency between 51%-70% of the duty
Somewhat low	Expect the competency between 31%-50% of the duty	Found the competency between 31%-50% of the duty
Very low	Expect the competency between 11%-30% of the duty	Found the competency between 11%-30% of the duty
Extremely low	Expect the competency between 1%-10% of the duty	Found the competency between 1%-10% of the duty
None	Not expect this competency from worker	this competency is not found in worker

Normally, the Likert scale will appear in five scale (one to five), but the researcher predicts that the respondent who would rate "not sure" or "neither agree or disagree" emotion will select number three as the most frequent answer. To avoid such a case, giving an even number scale will force the respondent to select either somewhat low or somewhat high, and this can lead to a better result. An example of questionnaire design is show in table 6 to 9.

Table 6: Example of the questionnaire in desired level of generic competency part

No.	Questions	None	Extremely low	low	Somewhat low	Somewhat high	high	Extremely high
1	You expect your employees to be enthusiastic in achieving goals.	☐	☐	☐	☐	☐	☐	☐
2	You expect your employees to understand the foundation of all problems and all impacts.	☐	☐	☐	☐	☐	☐	☐

Table 7: Example of the questionnaire in current level of generic competency part

1	Your employees have enthusiastic in achieving goals	☐	☐	☐	☐	☐	☐	☐
2	Your employees understand the foundation of all problems and all impacts.	☐	☐	☐	☐	☐	☐	☐

Table 8: Example of the questionnaire in desired level of functional competency part

1	You expect your employees to be able to repair hand tools used in the operation.	☐	☐	☐	☐	☐	☐	☐
2	You expect your employees to understand each type of material and hand tools properly.	☐	☐	☐	☐	☐	☐	☐

Table 9: Example of the questionnaire in current level of functional competency part

1	Your employees can repair hand tools, which are used in the operation.	☐	☐	☐	☐	☐	☐	☐
2	Your employees understand each type of material and hand tools properly.	☐	☐	☐	☐	☐	☐	☐

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