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An Exploratory Study on Logistician Competency: The Case of Malaysian Logistics Firms

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Abstract

The study of logistician competency has received great attention from some literature in Europe and America. Although various findings of logistician competency have been reported, limited study has focused on reporting views from Malaysian logisticians. This paper provides a general understanding of the items that attribute to Malaysian logistician competency. Introduction to Malaysian logistician competency is provided in the first section followed by the literature review emphasizing the need of logisticians to acquire competency. T-test, ANOVA and exploratory factor analysis were employed to explore the similarities and differences between selected demographical factors and logistician competency. This paper concludes that items of competency for Malaysian logisticians are grouped under "management knowledge and skills" and "logistics-and-business knowledge and skills". The findings are considered to have made a significant contributing to the literature, by using the Malaysian logisticians which enhances our understanding on the need to understand logistician competency for logistics curricula development and developing competent logistics workforce.

Key words: Logistician competency; Management knowledge and skills; Logistics-and-business knowledge and skills

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INTRODUCTION

Malaysia has decided to focus on the logistics sector as part of its policies to meet global challenges. This is because one of the challenges faced by Malaysia is to develop competent human resource, equipped with the right knowledge and right skills in logistics (Tenth Malaysia Plan 2011-2015, 2010; Third Industrial Master Plan 2006-2020, 2006). Views from Afiouni (2007) and Khandekar and Sharma (2005) state that competent and knowledgeable workforce are factors that contribute to the competitive advantage in organizations.

There is an ominous need to acquire competent logisticians in logistics sector to handle the increased activities in export and import as well as managing logistics functions such as port and airport terminals. The Malaysian government is aware of the increasing challenges faced by the Malaysian logistics industry particularly in the issue of supplying competent logisticians and therefore has developed the necessary strategic planning under the Third Industrial Master Plan (IMP3) 2006-2020 (Third Industrial Master Plan 2006-2020, 2006). Failure to provide adequate and competent future logistics workforce will slow down the growth of economy in a country (Amuna, 2003; Prentkovskis et al., 2009).

Competency therefore plays an important role in ensuring productivity of a logistician. Evidence from Wu (2007) indicated that competency is identified as one of the components in educational needs of logistics professionals as well as hiring new professionals. In

another example, Wu (2006) suggested that logistics and social skills are more important for middle-level logistics managers.

The review of the competent logistician literature in Malaysia, however, reveals that competency for Malaysian logisticians as an area of study has not attracted much attention in research. Studies closer to the problem were conducted by Razzaque and Sirat (2001) and Goh and Pinaikul (1998). Razzaque and Sirat made a comparison between Singapore and Malaysian logisticians based on views from top management and did not include element of courses in logistics program while Goh and Pinaikul studied the need for higher education institutions in Thailand to supply competent logisticians. As a result, little is known about the competency for Malaysian logisticians being adopted. This study attempts to address this issue. More specifically, the objective of this study is to explore the extent to which competency presented in the literature are being emphasized among logisticians in Malaysia.

This article will focus on the competency requirement of logisticians. Logisticians must possess a broad range of competency in order to be successful. This article will adopt competency paradigm from Way (2002) work and use it as a framework for examining the competency requirements of logisticians. The first research question to be addressed is that within each competency paradigm, which items emerge as the most and least important for logisticians? The second research question is that what statistically significant relationships exist between competency requirements and selected demographical characteristics using multivariate analysis?

This paper is organized into four parts. First, a literature review on the importance of logistician competency is described to provide a theoretical foundation. Second, the research design and methods are outlined. Third, the results including the application of multivariate analysis is discussed. Finally, discussion, conclusions and future directions arising from this research are presented.

1. LITERATURE REVIEW

Workers seem to demonstrate the highest level of competencies when they acquire conscientiousness and work in an environment that emphasize a high humanistic culture, high leadership culture, and low prescriptive culture (Chuttipattana & Faridahwati, 2011). In human resource management, Way (2002) pointed out that there is a dire need to probe the demand side of the labour market in order to unveil the knowledge, skills, and competencies needed. Heilmann (2007) described competence as an effective overall performance within an occupation, which may range from the basic level of proficiency through to the highest levels of excellence. Others like Stevens (2007) and Sun and Shi (2008) described characteristics that relate to competency. These characteristics are knowledge, skills, abilities, motivations, standards, behaviours and procedures that allow individuals to perform their jobs according to the minimum standards.

In relation to logistics, knowledge and skills are perceived as important factors for logistics firms to stay competitive in the 21st century (Chapman, Soosay & Kandampully, 2002). New knowledge and skills required for 'specialized supply chain skills and knowledge' such as supplier relationship management and coordination, material management, metrics, and market knowledge (Crook et al., 2008). In terms of relationships, Gammelgaard and Larson (2001) differentiated the terms skills, knowledge and competency as interdepence betwwen experience-based and context-dependent knowledge.

Meanwhile, Mangan and Christopher (2005) explored the challenges for a management development in order to bridge the gap between current capabilities (managerial skills and competencies for logistics and SCM managers) and those required for future success. This could be achieved by providing a range of courses and qualifications, ranging from vocational qualifications and executive educational programs to undergraduate and postgraduate degree level qualifications. Furthermore, they described two important issues: firstly, the specific logistics competencies such as managing global business issues and secondly, the courses in the logistics programmes needed to be more practical. Their findings supported a study from Mangan, Gregory and Lalwani (2001) where it showed the most common types of training received by logistics managers were from the formal college.

Researchers in logistics education have conducted a longitudinal study regarding the needs for logisticians competency based on the Business-Logistics-Management (BLM) Model (Murphy & Poist, 2007; 2006; 1998; 1996; 1994; 1992; 1991). The model however was limited to the skills required by logistics managers within the scopes of business, logistics and management functions. The model was proposed by Richard F. Poist in 1984 with the justification that modern logistics executives must possess a combination of business, logistics, and management skills (Poist, 1984). According to Poist, modern logistics executives required the BLM skills in order to manage logistics activities.

2. METHODOLOGY

A mail survey was sent to 889 randomly logisticians who are currently working in Malaysian logistics firms. Each of the sample members received a cover letter, a copy of the survey and a postage-paid return envelope. Overall, 223 usable questionnaires were received, representing a response rate of 25.1 percent. The non-response bias did not appear to be a problem since a test for this issue involving comparisons of "early" and "late" respondents

yielded insignificant differences (Armstrong & Overton, 1977). The items in competency were constructed based on literature review from Way (2002). A five-point Likert scale (1 = extremely unimportant; 5 = extremely important) was used to measure 13 attributes towards competency.

A demographic profile of respondents is presented in Table 1. Respondents had an average of 11.5 working experience. Over 40 percent of the respondents were between 25 and 35 years of age. 46.2 percent of the respondents possess a bachelor's degree. Respondents also hold positions of responsibility in their firms, with more than 80 percent being either middle or top level managers. A large portion of the respondents worked in a company size of 500 and above (37.2 percent). The profile also shown that majority of the respondents worked in local logistics firms (71.3 percent).

For research question pertaining to explore which items emerge as the most and least important for logistician, data was analyzed using descriptive statistics (mean and standard deviation). As for research question to determine what statistically significant relationship exists between competency requirement and selected demographical characteristics, this study applied multivariate analysis. The analysis is to test any significant relationship between the 13 competency items and selected demographic variables (respondent's working experience, position, company size, and company category). Exploratory factor analysis (EFA), using principal components analysis and varimax rotation as described by Hair, Black, Babin and Anderson (2010) was performed on these 13 items. When all the items were grouped in factor analysis, they were analyzed in order to indicate any statistically significant relationship exist between the items and selected demographic variables. Respondent's working experience, company size and company category were analyzed using t-tests, while respondent's position was analyzed using one-way analysis of variance (ANOVA).

Table 1
Profiles of Respondents (n = 223)

Characteristics	Frequency	Percentage
1. Position		
Low Management	42	18.8
Middle Management	117	52.5
Top Management	64	28.7
2. Company category		
Multinational	64	28.7
Local	159	71.3
3. Company size		
1-10	18	8.1
11-50	28	12.6
51-100	19	8.5
101-300	43	19.3
301-500	32	14.3
500 and above	83	37.2
4. Age group		
25-35	97	43.5
36-45	80	35.9
46-55	41	18.4
56-65	3	1.3
65 and over	2	0.9
5. Education		
High School	22	9.9
Diploma	46	20.6
Degree	103	46.2
Master	42	18.8
Ph.D.	1	0.4
Others	9	9.9
6. Mean of working experience		11.5 years

3. RESULTS

Table 2 presents the mean scores for the 13 attributes in descending order from highest to lowest. Respondents rated all the 13 attributes as "important" (maximum mean= 4.40; minimum mean = 4.05). According to respondents, the most important competency is logistics skills, with a mean score of 4.40. The next important competency for logisticians is an ability to understand the logistics industry (mean = 4.39). The third highest rated item, with an average rating of 4.32, was innovation and creativity.

The least important of the 13 competency attributes is leading and mobilizing others with a vision of the direction for the logistics function (mean = 4.05). A study from Way (2002), however, indicated that this item had the highest mean score among all the competency attributes. The argument is that respondents from Way were all top managers. There are literatures that indicate the role as top managers is to lead and mobilize subordinates (for examples see Martin et al., 2005; Cable & Judge, 2003). Respondents in the present study had a combination of top (28.7 percent), middle (52.5 percent) and low level managers (18.8 percent) which may perceived item 13 differently (Table 1).

Sensitivity and consciousness about one's image is ranked next-to-last (mean = 4.06). When compared with the Way's study, respondents perceived this item as very important. In addition, the present study showed a contrast finding from Bove, Pervan, Beatty and Shiu (2009). Bove et al. (2009) proved that an image of a worker significantly influences customer satisfaction in services industry.

Table 2
Mean Score in Descending Order for the 13 Items of Competency

Item	Mean	SD
Logistics skills	4.40	0.63
Understanding the logistics industry	4.39	0.67
Innovation, and creativity	4.32	0.63
Negotiation skills	4.30	0.62
Ability to work effectively with others	4.28	0.66
Prevention of problem situations	4.26	0.65
Strategic focus	4.24	0.67
Organizational awareness	4.23	0.67
Ability to approach problems with clear perception	4.23	0.64
Global management knowledge	4.23	0.69
General knowledge of finance, sales, marketing, customer service, corporate law, and information systems	4.16	0.66
Sensitivity and consciousness about one's logistics professional image	4.06	0.70
Leading and mobilizing others	4.05	0.72

Note: 5 = extremely important; 1 = extremely unimportant.
Alpha coefficient = .89.

The EFA results are shown in Table 3. The method for assigning a theme to each and every factor was done based on the study from Murphy and Poist (1998). The Kaiser-Meyer-Olkin measure of sampling adequacy for all items was .90, which indicates a good variable selection for factor analysis. Two factors emerged from the EFA results. Factor 1 contains "management knowledge and skills" while Factor 2 contains combination of "logistics-and-business knowledge and skills" as appear in Murphy and Poist (1998; 2007) studies (Table 3). For example, problem solving in Factor 1 is clearly similar with items problem-solving ability in Murphy and Poist (1998; 2007) studies. Similarly, logistics skills in Factor 2 deal with transportation and logistics in Murphy and Poist studies. However, item global management knowledge in Factor 2 did not match with any items from Murphy and Poist previous studies. Previous studies have indicated the importance of logisticians to acquire knowledge in global management (see Dischinger et al., 2006; Mangan & Christopher, 2005).

The results from EFA indicated that 43 percent of variance were explained for "knowledge and skills of management" dimension compared to only 9 percent of variance were explained for "knowledge and skills of business and logistics" dimension. In addition to that, in the ANOVA test, there were no statistically significant mean differences between all levels of managers and all the two factors in the EFA. This suggests that respondents from all positions (top, middle and low managers) perceived items in these two factors in a similar perception (refer Appendix).

Table 3
Exploratory Factor Analysis Results for the 13 Items

Factor 1	Factor 2
Problem solving	Logistics skills
Professional image	Global management knowledge
Ability to approach problem professionally	Understanding the business
Teamwork	Understanding the logistics industry
Negotiation skills	General knowledge of finance, sales, marketing, customer service, corporate law, and information systems
Strategic focus	Leading and mobilizing subordinates
Innovation and creativity	

Notes: Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .90
Approximate Chi-Square = 1085.67; df = 78; p value < 0.001, significant at .05 level.
Percentage variance explained by 52 percent of the above two factors (Factor 1 = 43 percent; Factor 2 = 9 percent)

In an effort to explore whether the respondents can be differentiated by the above factors (Factor 1 = management knowledge and skills; Factor 2 = logistics-and-business knowledge and skills), factor scores were used as inputs for t-tests or ANOVA across selected demographic variables (respondent's working experience, position, company size, and company category). The results indicate a statistically significant difference between Factor 1 and company category. Others do not indicate statistically significant differences (see Appendix). The results suggest that the respondents from multinational and local companies perceived Factor 1 (management knowledge and skills) items differently (t = 2.65; p value = .01, significant at .05 level).

DISCUSSION AND CONCLUSION

There are two noteworthy findings that emerge from this study. The first is that an element of competency is important for logisticians. In this study, all the t-tests and ANOVA did not indicate any statistically significant mean differences except the t-tests for company category. Demographical factor such as respondent's company category do influence the importance of competency in logistics operation. Chatman, Polzer, Barsade and Neale (1998) argued that there is a need to focus on specific differences in how demographically diverse organizational members work. In the case of mean ranking, item "leading and mobilizing others" was indicated as the lowest ranking. However it was still perceived as important (mean= 4.05) attributes to competency.

Secondly, respondents as logistics practitioners perceived that a competent logistician must acquire knowledge and skills of management, business and logistics. These knowledge and skills are grouped into two dimensions: i) "knowledge and skills of management", and ii) "knowledge and skills of business and logistics". Previous studies have indicated the importance of these two dimensions in a Business-Logistics-Management (BLM) Model (Murphy & Poist, 2007; 2006; 1998; 1996; 1994; 1992; 1991). In this study, the dimension of "knowledge and skills of management" emerged as the primary dimension for competency.

In this study, logisticians rated logistics skills, understanding the logistics industry and innovation as well as creativity as the highest three means score. Logistics practitioners feel that logisticians must be knowledgeable about logistics skills (Keller & Ozment, 2009; Wu 2006, 2007). In relation to the 21st century, logistics skills are perceived as essential element in logistics industry (for examples see Bossert, Bowser & Amenyah, 2007; Mentzer, Stank & Esper, 2008). Logisticians must be able to acquire knowledge and skills that make them understand the interrelation between their logistics firms and its surrounding environment (Jüttner, 2005; Wu & Chou, 2007). It is a must for every worker to understand their business environment in order to achieve greatest effect on performance (Kannan & Tan, 2005). The third highest rated item was innovation and creativity. According to Flint, Larson, Gammelgaard and Mentzer (2005), employees do practice innovation in order to create a work value which would lead to customer satisfaction in logistics operation.

This study provides some directions to the above stakeholders in identifying where they should be concentrating their efforts in terms of preparing as well as developing future competent logisticians. The findings in this study have implications for stakeholders in Malaysian logistics industry. Dazmin (2009) pointed out that logistics practitioners, higher education institutions which offer logistics programmes, logistics professional associations, and Malaysian government are the main stakeholders.

For example, higher education institutions (HEIs) which offering logistics programmes should consider modules and courses in their programmes able to provide knowledge and skills for management, business and logistics learning outcomes. These learning outcomes must able to be learnt and applied by logistics graduates so that they can achieve competency. This study suggests that HEIs should design curricula which offer exposure in the areas of knowledge and skills of management, logistics and business. Logistics and supply chain industry may experience problems in having competent logisticians in the future if there is no proper human resource planning practiced by logistics stakeholders (Ballou, 2007).

As for employers, this study can be used as a guideline for the recruitment and development of logisticians. For example, in recruitment, employers may test candidates regarding the knowledge and skills pertaining to management, logistics and business in order to ensure they hire candidates who can acquire competency. As for the development function, the study's findings provide employers with a check-list kit to conduct an audit for measuring their employees' competency. A logistician with lack of competency tends to limit his or her career advancement opportunities. Employees in logistics firms therefore must have an ability to demonstrate their competency for effective and efficient work (Kim, Lim & Mitchell, 2004).

Future resarches should apply more sophisticated multivariate analysis with the introducing of knowledge and skills dimensions to study their relationships with logistician competency. Researchers may want to consider either Structural Equation Modeling (SEM) or Conformatory Factor Analysis (CFA) depending on whether they view knowledge and skills variables and competency variables as causal relationship or interdependent relationships.

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