

Malaysian Logistics Educational Needs: the Correlation between Logistics Knowledge and Competency Programme,

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Introduction

The “educational needs” is a condition of the necessity for education on a specific topic identified by a gap in professional or working practice (Lai, 2010). In relation to logistics, it is a situation that refers to the discrepancy or gap between what the logistics industry expects of a competent logistician and what actually occurs at present. Studies regarding the relationship between logistics programmes offered by higher education institutions (HEIs) and logistics educational needs (LEN) have received considerable attention in the logistics education literature (for examples see Gravier & Farris, 2008; Wu, 2007). Such interest might be attributed to the belief that logistics programmes facilitate logistics graduates’ knowledge of logistics, non-logistics and related competencies.

However, the study using Malaysian samples has not been widely pursued. Studies related 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 programmes while Goh and Pinaikul studied the need for higher education institutions in Thailand to supply competent logisticians.

This study seeks to further explore the nature of the relationship between these variables based on the Malaysian scenario. In Malaysia, the Third Industrial Master Plan 2006-2010 (IMP3) stresses on the development of workforce requirements for Malaysian logistics graduates. This is stated in the IMP3 in Chapter 25:

“Within the national education system, there are limited programmes on transport and logistics offered by public and private universities, at both diploma and degree levels. Most programmes offered by institutions of higher learning cater for working adults, where entry requirement takes working experience into consideration” (IMP3, 2006: 731).

The study hypothesises that a logistics programme is directly or positively related to LEN. Specifically, it proposed that competency would be more related to a logistics programme than knowledge of logistics or knowledge of non-logistics. A multidimensional approach to the concept of LEN is adopted in this study.

Specific LEN items include knowledge of logistics functions, knowledge of non logistics functions, logistician competency, working experience, courses in logistics programme, interdependence skills, group management skills, integrity, and communication skills (see Gravier & Farris, 2008; Golicic,

Bobbitt, Frankel & Clinton, 2004; Myers, Griffith, Daugherty & Lusch, 2004; Knemeyer & Murphy, 2004; Pryor, Sloan & Amobi, 2007; Wu, 2007; Cherington & Schneider, 1967; Stock, 2002; Christopher, Magrill & Wills, 1998; van Hoek, 2000; Murphy & Poist, 2007). Many of these studies grouped into courses in logistics programme, knowledge of logistics, knowledge of non-logistics, and competency.

Measures

A self-administered questionnaire was employed for gathering data in this study. The questionnaire contained questions on logistics programme, knowledge of logistics, knowledge of non-logistics, competency, and a series of demographic questions. The subjects were logistics practitioners working in logistics firms located in Malaysia. The sample comprised 128 logisticians employed in 889 logistics firms in Malaysia. The response rate registered was 14.4 per cent. The items in LEN were constructed based on literature reviews (Gravier & Farris, 2008; Knemeyer & Murphy, 2004; Wu, 2007; Cherington & Schneider, 1967; Stock, 2002; Christopher et al., 1998; van Hoek, 2000; Murphy & Poist, 2007; Myers et al., 2004; Pryor et al., 2007; La Londe et al., 2007)

This instrument consists of 41 items and was designed to capture the three dimensions of LEN namely knowledge of logistics, knowledge of non-logistics and competency. Eleven items measure dimension of knowledge of logistics, seventeen items measure dimensions of knowledge of non-logistics and thirteen items measure dimension of competency. All the scales employ a five-point Likert scale, ranging from 1 (extremely unimportant) to 5 (extremely important). The internal consistency (measured by Cronbach’s alpha) for overall LEN scale and for knowledge of logistics, knowledge of non-logistics and competency in this study were 0.95, 0.86, 0.90 and 0.90 respectively. Twenty-seven items were omitted due to the low communalities values. A value of 0.5 was used as a cut-off point for communalities (Hair, Anderson, Tatham and Black, 2006).

The items in logistics programme were constructed based on literature reviews from Gravier and Farris (2008), Golicic et al. (2004), Myers et al. (2004), Knemeyer and Murphy (2004), Pryor et al. (2007), Wu (2007), Stock (2002) and van Hoek (2000). There were twelve items measured for the construct. The items were actual work practice, doctorate holder in teaching and delivering, logistics practitioner in teaching and delivering, multi-discipline syllabus, internship programme, learning outcomes, effectiveness, efficiency, skill requirements, change module, orientation, and customer relationship management module. In order to ensure consistency with the measures of LEN, a five-point response was employed, ranging from 1 (extremely

unimportant) to 5 (extremely important) into the items. The internal consistency for this scale in this study was 0.81.

Analysis and Results

This study employed correlation and factor analysis for inferential analysis. Factor analysis has been widely employed to confirm the multidimensionality of a dimension (Malhotra, 2010). The outcome of a confirmatory factor analysis of the LEN measures is reported in Table 1. In the analysis, varimax rotation method was used. The statistics generated indicate that the sample and model were adequate (Kaiser-Meyer-Olkin measure of sampling adequacy, 0.85; Bartlett's Test of Sphericity with a Chi-square value of 734.41 significant at $p < 0.001$, $df = 91$). The results indicate that LEN is multidimensional and has three dimensions, which can be appropriately labelled as competency (factor 1), knowledge of logistics (factor 2), and knowledge of non-

logistics (factor 3). These dimensions contributed for 60.93 per cent of the total variance. Competency captured the highest percentage of variance (39.31 per cent), followed by knowledge of logistics (13.27 per cent), and knowledge of non-logistics (8.35 per cent). In this study, factor analysis was not conducted on the measures of logistics programme in order to explore the possibility that the construct might also be multidimensional.

Table 2 demonstrates the means, standard deviations and intercorrelations of the variables of interest. Results indicate that the respondents' LEN was important where the mean range for the dimensions of LEN was between 4.11 and 4.27. Among the dimensions of LEN, the mean of competency was the highest (4.27), while the mean of knowledge of non-logistics was the lowest (4.11). It can also be seen that the level of knowledge of logistics was slightly higher than the mean value for knowledge of non-logistics.

TABLE 1 Factor analysis of the logistics educational needs measures

Item	COMP	KL	KNL
A value added perspective: Providing ingenuity, innovation and creativity	0.789		
Negotiation skills	0.739		
Ability to approach problems with clear perception of organisational and political reality	0.723		
Ability to work effectively with others	0.719		
Pro-activity: Prevention of problem situations	0.688		
Marketing skills	0.666		
Sensitivity and consciousness about professional image	0.657		
General logistics management		0.817	
Global logistics/supply chain management		0.789	
Manufacturing logistics		0.785	
Transportation		0.591	
General knowledge of finance, sales, marketing, customer service, corporate law, human resource management, information system, and geography			0.781
Understanding corporate culture			0.726
International business environment			0.668

Note:

COMP = Competency

KL = Knowledge logistics

KNL = Knowledge non-logistics

- Factor 1 (COMP) eigenvalue (5.504), percentage of variance (39.31 per cent)
- Factor 2 (KL) eigenvalue (1.858), percentage of variance (13.27 per cent)
- Factor 3 (KNL) eigenvalue (1.168), percentage of variance (8.35 per cent)

TABLE 2 Means, standard deviations and intercorrelations of the research variables

No.	Variables	1	2	3	4	Mean	SD
1	Competency	1	0.430**	0.475**	0.691**	4.27	0.49
2	Knowledge of logistics		1	0.494**	0.526**	4.19	0.53
3	Knowledge of non-logistics			1	0.512**	4.11	0.53
4	Logistics programme				1	4.26	0.38

** $p = 0.01$; $n = 128$

As for the intercorrelations, the correlation coefficients between variables indicate that the three dimensions of LEN were relatively inter-correlated among each other. The correlations between the variables of interest further indicate significant relationships between each dimension of LEN and logistics programme. Among the dimensions of LEN, competency represented the dimension most highly correlated with the latter.

Discussion and Conclusion

The results of this study support the belief that LEN is a multidimensional concept as proposed by Keller and Ozment (2009), Gravier and Farris (2008), Wu (2007), La Londe et al. (2007) and Murphy and Poist (2007). Using the Malaysian logisticians as respondents, the study adds to the previous studies that Malaysian LEN can take competency, knowledge of logistics and knowledge of non-logistics dimensions.

On the relationship between LEN and logistics programme, it is interesting to note that a direct, significant and positive association exists between all dimensions of Malaysian LEN and the latter. A differential relationship that characterises the link between these variables suggests that Malaysian logistics practitioners demonstrated a different degree of perception towards logistics programme. This would demonstrate a different dimension of LEN for logistics graduates. Moreover, the findings of this study suggest that Malaysian logisticians with a high level of perception of logistics programme would tend to produce competent elements for logistics graduates. On the other hand, Malaysian logisticians with a lower level of perception of logistics programme would be more inclined towards producing logistics graduates with knowledge of non-logistics.

The findings of this study offer some interesting guidelines to HEIs in Malaysia in designing logistics programme. Any HEI that intends to develop an effective logistics programme would obviously have to ensure a high degree of competency is present in the curriculum.

Finally, there are some limitations to this study which need to be considered. First, the application of correlations as evidence of the association between the dimensions of LEN and logistics programme should not be confused with cause-effect relationships. This means that the correlations only suggest relationship, but not causality between the variables of interest. Secondly, the findings should not be generalised to other samples. The use of other types of samples in future research may produce different results.

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