The differences of the competencies of international logistics talents in Greater China: a comparison between Taiwan, Hong Kong and Mainland China

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Abstract

As logistics talents in both Taiwan and Hong Kong are expanding their work area to Greater China, it is best to understand the competencies that logistics talents should possess. With this in mind, this study takes Mainland China, Hong Kong and Taiwan as the study scope, as well as logistics teaching and research experts and scholars as the study objects. The research findings can not only serve as informative references for universities intent on cultivating logistics talents, but as well as enhance the scope of both Taiwan and Hong Kong talents' competence that can pave the way to the development of the logistics business in Greater China.

Keywords: *International logistics, Greater China, Analytic Hierarchy Process, Mainland China, Logistics talents*

1. Introduction

'International logistics' has played a key role for international enterprises in welcoming the global challenge to integrate production and distribution. It is also one of the core competencies needed of 21st century enterprises in order to enable them to compete among supply chains, and rapid response to market changes and customer requirements.

It is indubitable that human resources are a most important asset, and so efficient promotion of international logistics could only be done with the availability of suitable international logistics talents. The cultivation of such remarkable talents and development of professional skills in turn

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depend on university education. As international logistics talents in both Taiwan and Hong Kong are expanding their work area to Greater China, it is best to understand the competencies that international logistics talents should possess. Likewise, it is crucial to understand the situation of regional logistics, and its actual demand. With this in mind, this study takes Mainland China, Hong Kong and Taiwan as the study scope, as well as international logistics teaching and research experts and scholars as the study objects.

Analyses of the expert advice of relevant scholars based on literature review of international logistics activities are also undertaken. Moreover, building of suitable competence planning indexes, utilization of the Analytic Hierarchy Process (AHP) method to determine weights are done to enable comparison of differences in Taiwan, Hong Kong and Mainland China. The data gathered can serve as informative references for universities intent on cultivating international logistics talents, as well as enhance the scope of both Hong Kong and Taiwanese talents' competence that can meet future demand during continued development of international logistics in Mainland China.

2. Review of literature and logistics development in Greater China

2.1 Definition of international logistics

In 1998, Council of Logistics Management has defined 'logistics' as the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. And this definition includes inbound, outbound, internal, and external movements, and return of materials for environmental purposes¹. Furthermore, in response to global competition and as an improvement to enterprises' overall competitiveness, a remarkable change of logistics operation has taken place in recent years, and international logistics strategy has played a vital role in the global strategy of enterprise. As logistics may differ between countries, international logistics is an indispensable part of international trading, particularly since this facilitates trading between countries. Lambert and Stock (1999) pointed out that: "When entering into the international market by export, license, partnership and independent operation, international companies need to develop an operation mode different from integration of local logistics to build the transnational logistics operation network. Implementing this international logistics operation encompasses logistics competence, international accounting management, document management, transnational corporate culture, increasingly complicated and integrated logistics management, and analysis of total cost and benefits. By means of an integrated operation of transnational logistics, enterprises could reduce the operating cost, increasing the profit, meeting customer demand, enhancing the enterprises' overall competitive advantage and maximizing

¹Council of Logistics Management, which has been renamed Council of Supply Chain Management Professional. <http://www.clm1.org/mission.html>, 12 Feb 98

performance of overall operation.

2.2 Definition of professional skills of international logistics

As previously stated in this paper, enterprises must obtain, integrate and use resources globally to be able to respond rapidly to the demand of different regions. Consequently, enterprises need a global logistics system. The development of international logistics and the training of its skills have been thoroughly studied by experts and scholars and the study results could be summarized into two categories: First, the study of skills training and the connotation of logistics courses as referenced in education and training organizations, and second, the analysis and comparison of professional skills that logistics professionals should possess, including knowledge, skill and attitude. For example, Murphy and Poist (1991, 1994 and 1998) have analyzed the demand of logistics skills for high-ranking and senior managers and have likewise put forward concepts of business knowledge and competence, logistics knowledge and competence, and management knowledge and competence through a BLM (Business Logistics Management) model. On the other hand, Gammelgaard and Larson (2001) categorized the skills of managers in the supply chain into three categories. The first is interpersonal or basic management skill, the second is quantitative or information skill, and the third is supply chain management skill. In view of vast volume of literature and the sophisticated training program, the major differences in the literature surveyed are listed in Tables 1 and 2 based on Interpersonal Management Knowledge/Skills and Logistics Knowledge/Skills.

Table 1
Interpersonal management knowledge and skills analysis

Skills	William & Curry (1990)	Murphy et al (1991,1994, 1998)	Gammelgaard et al (2001)	Stock & Lambert (2001)	Mohammed & Mas (2001)	Total
Management Ability	○	○	○	○	○	5
Strategic Ability		○		○	○	3
Personal Qualities	○	○			○	3
Negotiation Skills		○	○	○	○	4
Communication Ability	○	○	○	○	○	5
Analytical Ability		○	○		○	3

Source: sorted by author

Table 2
Business and logistics knowledge/skills analysis

Knowledge & Skills	Ballou & Piercy (1974)	William et al (1990)	Murphy et al (1991, 1994, 1998)	Dadzie (1998)	Grammelgaard et al (2001)	Stock et al (2001)	Mohammed et al (2001)	Max (2002)	Leslie (2005)	Total
Language Skills & Ability			○		○					2
Logic & Mathematical Ability			○	○	○		○	○		5
Modern Knowledge		○	○		○		○	○		5
Management		○	○	○	○	○	○	○	○	8
Electronic Business		○	○	○	○	○	○		○	7
Law			○	○			○	○	○	5
Supply Chain & Logistics Management	○	○	○	○	○	○	○	○	○	9
International Transport Management	○		○	○			○	○	○	6

Source: Sorted by author

As a conclusion to the above literature review, it can be stated that international logistics is multinational due to the evolution of economic forms, and has, from a single logistics function (freight, warehousing, packaging and handling), been transformed to a knowledge based operation that along with a demand integrated ability, covers logistics, capital flow, business and information technology. For this reason, it involves language courses, metering analysis (logic and math) skills, business management, e-business, international transportation, supply chain and logistics, and other knowledge related with the business environment. These then serve as competencies that an international logistics talent must possess and which provide an important implication in course planning.

2.3 Trade flow and logistics development in Greater China

Greater China includes three major regions: Mainland China, Hong Kong, and Taiwan. As shown in Table 3, there are strong economic links among them. Take Mainland China for example, in 2007, the value of cargo it imported from Taiwan was around US\$101 billion, or 10.5% of its total import value, while the value of cargo it exported to Hong Kong was around US\$184 billion, or 15.1% of its total export value.

In Taiwan, around 25.3% of the total export value goes to China; around 15.4% of export value goes to Hong Kong; and around 12.8% of its total import value comes from China. Moreover, the economic links between Hong Kong and Mainland China is even closer; for example, around 46.4% of the import value of Hong Kong comes from Mainland China and around 48.7% of export/transship value goes to Mainland China.

Table 3
Trade flow within Greater China

		Taiwan	Hong Kong
China (US \$billion)	Import from	101.0 (10.5%)	n.a.
	Export to	n.a.	184.4 (15.1%)
		China	Hong Kong
Taiwan (NT \$billion)	Import from	921 (12.8%)	n.a.
	Export to	2,045 (25.3%)	1,245 (15.4%)
		China	Taiwan
Hong Kong (HK \$billion)	Import from	1,329 (46.4%)	205.0 (7.2%)
	Export/Transship to	1,307 (48.7%)	52.9 (1.9%)

Source: China Customs Statistics 2008, Ministry of Finance, Taiwan, Census and Statistics Department, Hong Kong.

According to the survey made by World Bank in 2007, there are huge differences in the logistics development among Greater China regions (as shown in Table 4). For example, in the indicator of 'Logistics Performance Rank', Hong Kong ranked 8th in the world, Taiwan ranked 21st, and China 30th. As for other indicators, Hong Kong was always the best among the three regions, Taiwan second, and China third. The only indicator that ranked Hong Kong third was 'Domestic Logistics Costs'.

Thus, in respect to the level of logistics development, Hong Kong is the most advanced one, Taiwan is in a moderate position, and Mainland China is in the developing stage. The great differences among regions in Greater China in the international logistics development put Mainland China in a perfect position to recruit logistics expertise from the other two regions during different stages of logistics development.

Table 4
Comparison of logistics performance in Greater China regions

	Taiwan	Hong Kong	China
Logistics Performance Rank	21	8	30
International Shipments Rank	17	7	28
Logistics Competence Ranking	23	9	27
Domestic Logistics Costs Rank	42	119	72

Source: World Bank (2007), Trade Logistics in the Global Economy.

The rapid growth of logistics businesses in Mainland China requires high quality and large number of logistics talents. According to the report made by the Ministry of Education, China in 2007, the demand for high-quality logistics talents will increase by 15% annually, but the education institutes could only provide around 14% of that demand. More specifically, in 2010, the demand for university-graduated logistics talents will be around 300,000 to 400,000, and the demand for logistics staff for on-the-job training will be around one million.

Clearly, there are strong economic links among Mainland China, Hong Kong, and Taiwan. In the meantime, because of the huge demand for logistics professionals in China, Taiwan and Hong Kong have a great opportunity to export professionals to Mainland China. Therefore, it is essential for logistics talents in both Hong Kong and Taiwan to realize the demand in Mainland China and even bigger business opportunities in Greater China.

3. Research design

3.1 Research background

The study of the competencies of international logistics talents started in 2005. The first study interviewed senior managers in the international logistics industry in Taiwan to find out what are the most important competencies needed (Chen & Chiang, 2006). The second study examined the differences between senior managers and the academics in the competencies of international logistics, and summarized the major gaps between them; the findings have been used to restructure the teaching courses in international logistics departments in Taiwan (Chen & Chiang, 2007). Based on the findings of previous researches, this study would like to expand its scope to Greater China regions. The first stage is to find out the differences among the academics in the three regions and the second step is to collect the responses from senior managers in the international logistics industry in Greater China. This research hopes to help international logistics talents and academic institutes in both Hong Kong and Taiwan to realize the demand for competences and skills in Mainland China and help talents expand their business opportunities.

3.2 Analytic hierarchy process and appraisal structure

In 1971, Saaty proposed the Analytic Hierarchy Process, hereinafter referred to as AHP (Saaty, 1980). The AHP could systemize complicated problems by hierarchical breakdown, demonstrate the importance of each criteria by calculating their weight, and quantify the comprehensive appraisal to provide suitable information to decision makers. In this regard, this study aims to conduct a quantitative analysis on the demand for basic competence in international logistics from the academic angle of Taiwan, Hong Kong and Mainland China, build competence indexes, and calculate their weights in the hope of providing a reference to relevant educating organizations to revise their talent training course. This study is carried out through the AHP method because it conforms to its application scope.

To understand how university graduates are trained to possess an integrated ability based on international logistics, this study initially sorts out various literature related with logistics professional skills. Designs for the questionnaire's draft of the international logistics talent's competence, is then done by examining and filtering the logistics courses. Subsequently, a pretest answered by both industry experts and scholars is carried out, and finally, building of the Analytic Hierarchy Structure (Chen & Chiang, 2006, 2007) (as shown in Table 5).

The study questionnaire is based on the above design structure and its indexes cover integrated courses such as logistics, business administration, information management, and laws and regulations. It has a total of three major indexes, nine secondary assessment criteria, and 29 assessment items. Notably, it evaluates the relevant significance of pairs of indexes, compares the three major indexes, and then compares other assessment criteria with the assessment plan.

3.3 Sample selection and questionnaire distribution

To find out the right people and the academic institutes to answer the questionnaire, two criteria were used to select the respondents. The first is that the academic institutes must offer the above-mentioned undergraduate courses (as shown in Table 5). Furthermore, to ensure that the professors in the institute have close links and frequent interactions with the international logistics industry, the institute must offer Executive MBA courses for senior managers². That way, the questionnaires collected from the professors of these institutes were expected to meet the demand of this research.

After a comprehensive survey of the academic institutes in Greater China, the institutes that meet the above-mentioned conditions were identified (as shown in Table 6). The senior professors of these institutes were interviewed during the 2005 and 2006 Greater China Logistics Conferences held in Nanjin and Hong Kong.

²In Taiwan and Mainland China, this type of postgraduate program is called 'Executive MBA', but in Hong Kong, the same program is called 'part-time' MSC, which is offered in Hong Kong Polytechnic University.

Table 5
AHP structure of international logistics talents skill course planning

First Layer	Second Layer	Third Layer
A. General education and basic skills	A1. Language skills	A11. Chinese A12. English A13. Second foreign language
	A2. Logic and math	A21. Basic Mathematics A22. Business management basic courses A23. Intermediate mathematics
	A3. Modern knowledge	A31. Word, Excel A32. Internet application A33. International and domestic current situation
B. Business management and IT professional skills	B1. Business management	B11. International business and trade management B12 Business management professional knowledge B13. Strategic planning
	B2 Corporate e-process	B21. E-business B22. Information management B23. Information Technology
	B3. Law and administration	B31. Administrative rules B32. Basic legal knowledge B33 Industrial policy
C. International logistics professional skills	C1. Supply chain and logistics management	C11. Logistics management C12. Supply chain management C13. Warehousing and logistic center management C14. International logistics management
	C2. International transportation management	C21. Transportation management C22 Ocean and air transportation management C23. International transportation regulations and insurance C24 Transportation planning
	C3. Topic study and practice	C31. Topic study C32 Site visit C33 Practice

Table 6
The academic institutes selected in Greater China

Region	University	Department / Research Center
Mainland China	Nankai University	Research Center of Logistics
	SouthEast University	College of Transport
	Shanghai Maritime University	College of Transport and Communication / Logistics Research Center
	Dalian Maritime University	College of Transport and Communication
Hong Kong	Hong Kong Polytechnic University	Department of Logistics and Maritime Studies
Taiwan	Kainan University	Department of Logistics and Shipping Management
	National Taiwan Ocean University	Department of Shipping Transport Management
	Chang Jung University	Department of Aviation and Maritime Transport Management

4. Research result and discussion

4.1 Objects of the questionnaire

The objects of this study were senior professors from international logistics faculties in Mainland China, Hong Kong and Taiwan. A total of 29 questionnaires were distributed and collected in 2006. After the consistency test, 29 valid questionnaires were collected; the validity rate was 100%. Table 7 summarizes the distribution and collection of questionnaires.

Table 7
Questionnaire statistics

Area	Mainland China	Hong Kong	Taiwan	Total
Questionnaire distributed (copies)	9	6	14	29
Questionnaire collected (copies)	9	6	14	29
Collection rate (%)	100	100	100	100
Validity rate	100	100	100	100

4.2 Analysis of weight in Taiwan, Hong Kong and Mainland China

This study had Mainland China, Hong Kong and Taiwan as the study scope, and the senior professors of international logistics as the study objects. The AHP data analysis on the questionnaires was conducted through Microsoft Excel. The results are shown in the Tables below with each result discussed, as follows:

First layer

Study results (as shown in Table 8) indicate that, under the first layer categories, both Taiwan and Hong Kong professors consider the professional skills in international logistics as being the most important. This is followed by general education and basic skills, and finally by business management and IT professional skills.

The Mainland China professors however believe that business management and IT professional skills are the most important, followed by general education and basic skills, and finally by professional skills in international logistics.

These results may be attributed to the fact that Mainland China is an emerging market in the world, that its logistics industry falls behind Taiwan and Hong Kong, and that it is still a labor and capital-intensive market. Due to lack of business managers, Mainland China apparently needs to cultivate talents with professional skills in business management and information technology. The rather mature logistics industry in Hong Kong and Taiwan allows students the opportunity to improve their professional knowledge in international logistics in order to adapt to the rapidly changing environment. Therefore professional skills in international logistics are regarded as the teaching emphasis.

Table 8
Comparison of items under the target dimension

Layer 1 Index	A. General education and basic skills	B. Business management and IT professional skills	C. International logistics professional skills
Taiwan	0.215	0.200	0.585
	$\lambda_{\max}=3.04955$, C.I.H.=0.02477, C.R.H.=0.04271		
Hong Kong	0.368	0.216	0.416
	$\lambda_{\max}=3.05026$, C.I.H.=0.02513, C.R.H.=0.04332		
Mainland China	0.326	0.438	0.236
	$\lambda_{\max}=3.03881$, C.I.H.=0.01940, C.R.H.=0.03346		

Second layer

Regarding the dimension of the nine criteria in subject, supply chain and logistics

management is the essential and important basic skill in international logistics. Professors in Taiwan and Hong Kong, in particular, attach great importance to it (as shown in Table 9). Nevertheless, Hong Kong has a wider internationalization extent besides better software and hardware logistics infrastructures than Taiwan. Cooperation between the industry and academic circle has, in fact, developed to a certain scale.

Of note, Hong Kong professors pay more attention to the Language skills, while Taiwan renders greater value to topic study and practice with the hope of increasing the practical experience of students.

Table 9
Comparison of criteria in layer two

Layer 2 Index	A1. Language skills	A2. Logic and math	A3. Modern knowledge
Taiwan	0.080	0.083	0.051
	$\lambda_{\max}=3.02506$, C.I.H.=0.01253, C.R.H.=0.02160		
Hong Kong	0.277	0.052	0.039
	$\lambda_{\max}=3.50154$, C.I.H.=0.03649, C.R.H.=0.06291		
Mainland China	0.098	0.134	0.094
	$\lambda_{\max}=3.05704$, C.I.H.=0.02852, C.R.H.=0.04917		
	B1. Business management	B2 Corporate e-process	B3. Law and administration
Taiwan	0.065	0.081	0.054
	$\lambda_{\max}=3.03655$, C.I.H.=0.01827, C.R.H.=0.03151		
Hong Kong	0.094	0.047	0.075
	$\lambda_{\max}=3.02782$, C.I.H.=0.01391, C.R.H.=0.02399		
Mainland China	0.179	0.105	0.154
	$\lambda_{\max}=3.05194$, C.I.H.=0.02597, C.R.H.=0.04477		
	C1. Supply chain and logistics management	C2. International transportation management	C3. Topic study and practice
Taiwan	0.231	0.152	0.202
	$\lambda_{\max}=3.03488$, C.I.H.=0.01744, C.R.H.=0.03007		
Hong Kong	0.177	0.164	0.075
	$\lambda_{\max}=2.59410$, C.I.H.=0.01133, C.R.H.=0.01954		
Mainland China	0.087	0.043	0.106
	$\lambda_{\max}=3.07514$, C.I.H.=0.03757, C.R.H.=0.06478		

In contrast, among mainland universities, business management is considered the most important in the top three courses, followed by law and administration, and finally by the logic and math ability. This may be due to Mainland China's as of yet budding logistics development. It is worth mentioning that universities in Mainland China have different preferences in cultivating student skills.

Third layer

Based on general education and basic skills

In terms of the dimension of the 29 courses, primarily the aspect of general education and basic skills, excellent English skills in the international logistics industry can assist enterprises in globalization, expansion of the operation and augmentation of profit. Consequently, improvement of the students' language abilities is the apt response to the urgent demand (as shown in Table 10).

Table 10

Comparison based on general education and basic skills

Layer 3 Index	Taiwan	Hong Kong	Mainland China
A11. Chinese	0.076	0.204	0.121
A12. English	0.243	0.382	0.114
A13. Second foreign language	0.056	0.166	0.065

Taiwan: $\lambda_{\max}=3.06658$, C.I.H.=0.03329, C.R.H.=0.05740

Hong Kong: $\lambda_{\max}=3.04196$, C.I.H.=0.02098, C.R.H.=0.03617

Mainland China: $\lambda_{\max}=3.04227$, C.I.H.=0.02113, C.R.H.=0.03644

Layer 3 Index	Taiwan	Hong Kong	Mainland China
A21. Basic Mathematics	0.116	0.063	0.143
A22. Business management basic courses	0.057	0.051	0.097
A23. Intermediate mathematics	0.214	0.049	0.171

Taiwan: $\lambda_{\max}=3.02072$, C.I.H.=0.01036, C.R.H.=0.01787

Hong Kong: $\lambda_{\max}=3.02964$, C.I.H.=0.01482, C.R.H.=0.02556

Mainland China: $\lambda_{\max}=3.05428$, C.I.H.=0.02714, C.R.H.=0.04680

Layer 3 Index	Taiwan	Hong Kong	Mainland China
A31. Word, Excel	0.103	0.021	0.127
A32. Internet application	0.074	0.016	0.088
A33. International and domestic current situation	0.061	0.047	0.074

Taiwan: $\lambda_{\max}=3.04249$, C.I.H.=0.02125, C.R.H.=0.03663

Hong Kong: $\lambda_{\max}=3.03746$, C.I.H.=0.01873, C.R.H.=0.03229

Mainland China: $\lambda_{\max}=3.04869$, C.I.H.=0.02435, C.R.H.=0.04198

This is evident in the Taiwan and Hong Kong professors' value of English skills training. Having the most extensive internationalization degree, Hong Kong likewise pays attention to Chinese and another foreign language (of second and third priorities, respectively). Except for English skills, Taiwan also considers good mathematical reasoning ability as able to improve the students' logical reasoning and thought-organizing ability, which is the important foundation for various disciplines of science.

In view of the working needs in the future, Taiwan pays specific attention to basic mathematics, calculus, statistics, accounting, economy and so forth for business management. This view is similar to Mainland China's current stage of development

Based on business management and IT professional skills

Concerning the aspect of professional skills in business management and information technology, and based on the data analysis in this study, Taiwan is actively developing e-business and other fields, with special attention to e-business, information management and other skills since the recent development of the e-commerce and web based service to a certain scale (as shown in Table 11).

Moreover, due to the uncertain relationship between Mainland China and Taiwan, professors in both vicinities pay attention to the changing industrial policy. With less interference of political elements, Hong Kong, in contrast, gives emphasis on skills training of managing international enterprises as well as strategic planning. It is evident that professors from Taiwan, Hong Kong and Mainland China have varying opinions on this dimension.

Based on professional skills in international logistics

On the subject of professional skills in international logistics, there are some interesting findings among the university education of logistics between Hong Kong, Taiwan, and Mainland China (as shown in Table 12). For example, supply chain management is the only professional skill marked with high weight (higher than 0.1) by all of these. Regarding other skills, both Hong Kong and Taiwan professors are of the opinion that supply chain management and transportation management are important skills. Regarding the most important skill (which is marked with highest weight), Hong Kong professors think 'logistics management' should be the most important skill. However, since professors in China and Taiwan think 'practice' is the most important course, by way of practice in the industry, the students will be able to obtain the practical professional skills needed.

Generally speaking, only three skills have been weighted over 0.1 by professors in both Hong Kong and Taiwan. However, there are six items that have been weighted over 0.1 by professors in Mainland China, with the top three skills all located in C3, which refers to topic study and practice. One possible explanation for this is that the professional knowledge taught by teaching programs (which are mostly imported from foreign countries) may not be able to meet the demand of the fast growing logistics market in Mainland China. Therefore, topic study and practice has been considered as the most effective and efficient way for students to obtain the professional skills needed.

Table 11

Comparison based on business management and IT professional skills

Layer 3 Index	Taiwan	Hong Kong	Mainland China
B11. International business and trade management	0.091	0.179	0.146
B12 Business management professional knowledge	0.123	0.093	0.114
B13. Strategic planning	0.111	0.164	0.150
Taiwan: $\lambda_{\max}=3.02446$, C.I.H.=0.01223, C.R.H.=0.02109 Hong Kong: $\lambda_{\max}=3.05418$, C.I.H.=0.02709, C.R.H.=0.04671 Mainland China: $\lambda_{\max}=3.05963$, C.I.H.=0.02981, C.R.H.=0.05140			
Layer 3 Index	Taiwan	Hong Kong	Mainland China
B21. E-business	0.163	0.095	0.101
B22. Information management	0.148	0.069	0.073
B23. Information Technology	0.094	0.056	0.065
Taiwan: $\lambda_{\max}=3.02941$, C.I.H.=0.01471, C.R.H.=0.02536 Hong Kong: $\lambda_{\max}=3.03496$, C.I.H.=0.01748, C.R.H.=0.03014 Mainland China: $\lambda_{\max}=3.05147$, C.I.H.=0.02574, C.R.H.=0.04437			
Layer 3 Index	Taiwan	Hong Kong	Mainland China
B31. Administrative rules	0.065	0.128	0.082
B32. Basic legal knowledge	0.074	0.120	0.120
B33 Industrial policy	0.131	0.096	0.149
Taiwan: $\lambda_{\max}=3.03048$, C.I.H.=0.01524, C.R.H.=0.02628 Hong Kong: $\lambda_{\max}=3.03217$, C.I.H.=0.01609, C.R.H.=0.02774 Mainland China: $\lambda_{\max}=3.04077$, C.I.H.=0.02039, C.R.H.=0.03515			

Table 12

Comparison based on professional skills in international logistics

Layer 3 Index	Taiwan	Hong Kong	Mainland China
C11. Logistics management	0.076	0.143	0.102
C12. Supply chain management	0.121	0.125	0.108
C13. Warehousing and logistic center management	0.080	0.050	0.101
C14. International logistics management	0.098	0.096	0.048
Taiwan: $\lambda_{\max}=4.12753$, C.I.H.=0.04251, C.R.H.=0.03428 Hong Kong: $\lambda_{\max}=4.16825$, C.I.H.=0.05608, C.R.H.=0.04523 Mainland China: $\lambda_{\max}=4.19296$, C.I.H.=0.06432, C.R.H.=0.05187			
Layer 3 Index	Taiwan	Hong Kong	Mainland China
C21. Transportation management	0.112	0.139	0.079
C22 Ocean and air transportation management	0.050	0.097	0.023
C23. International transportation regulations and insurance	0.075	0.098	0.052
C24 Transportation planning	0.062	0.085	0.046
n: $\lambda_{\max}=4.18265$, C.I.H.=0.06088, C.R.H.=0.04910 Hong Kong: $\lambda_{\max}=4.29438$, C.I.H.=0.09813, C.R.H.=0.07913 Mainland China: $\lambda_{\max}=4.25151$, C.I.H.=0.08384, C.R.H.=0.06761			
Layer 3 Index	Taiwan	Hong Kong	Mainland China
C31. Topic study	0.092	0.064	0.114
C32 Site visit	0.077	0.036	0.142
C33 Practice	0.157	0.067	0.185
n: $\lambda_{\max}=3.0258$, C.I.H.=0.01290, C.R.H.=0.02225 Hong Kong: $\lambda_{\max}=3.03212$, C.I.H.=0.01606, C.R.H.=0.02769 Mainland China: $\lambda_{\max}=3.04597$, C.I.H.=0.02298, C.R.H.=0.03963			

5. Conclusion

This study aimed to discuss the competences of international logistics talents based on the viewpoints of professors in Mainland China, Hong Kong, and Taiwan, as well as understand the

implication of the difference in education of international logistics in Taiwan, Hong Kong, and Mainland China. The results of the study would then serve as the educational organizations' future reference for teaching and curriculum planning.

In the meantime, this study collected materials from literature and advice from professionals to build the International Logistics Talents' Competence Curriculum Planning Index by AHP. It stipulated three categories, nine subjects, and twenty-nine courses, and carried out a questionnaire survey analyzing the current situation and comparing the differences among regions in Greater China. Overall, under the dimension of competence of international logistics talents, professors in Taiwan and Hong Kong believe that cultivation of professional skills in international logistics should be top priority. Mainland China professors, however, attach importance to competence in business management and information technology. As for appraisal courses, professors in these regions have quite differing views; roughly, the most important indexes are English ability, logic and Mathematics, logistics and supply chain management, international enterprise and trade management, and strategic planning study and corporate practice. These indicate that the above-mentioned indexes are not only abilities that should be possessed by the international logistics talents, but are important references for teaching and curriculum improvement in educational organizations and universities.

The result of this research shows that there are huge differences between the concept of the competencies and curricula to be developed among professors in Hong Kong, Taiwan, and China. It is not a surprise to see this result, because the market size, characteristics of regional economy, and growth of the logistics market among Hong Kong, Taiwan, and China are all different. These factors have further forced professors in universities to design a curriculum to meet the regional demand. It is expected that the differences between regions in Greater China will not be changed. Furthermore, as discussed in 4.2, professors in China have placed more attention on topic study and practice. As a consequence, it could be expected that the comprehensive curriculum and teaching materials with Chinese characteristics would be developed soon. These will fully meet local demand and further strengthen the competitiveness of Chinese logistics talents.

With close economic links among regions of Greater China, and the increasing number of international logistics professionals in both Taiwan and Hong Kong being recruited by Mainland China enterprises, it is expected that there will be more professional moves within Greater China. As a consequence, academic institutes and talents should be prepared to expand their business scope beyond domestic demand to include Greater China.

This study limited its scope to 'international logistics' only, but for future research, both 'international' and 'domestic' logistics should be covered, because there are a number of differences between the demand for competencies of logistics skills in these two areas. Further, this study also limited its scope of interviewees to 'academics' only, because they could be interviewed easily during the conference. For future research, it is recommended that a team be organized with members from the three regions in Greater China to collect the responses from industry professionals, to ensure a more detailed and in-depth analysis. This, however, will require more research budget and resources.

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