A Contemporary appraisal of the Employers' perceptions regarding values and skills of graduate employees in Logistics and Transport Sector in Sri Lanka: A case study

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Abstract − **The transport and logistics industry is considered a fast-growing industry in the word because of the rapid development of the international trade. However,competent professionals in this field is scarce. Therefore, educational institutions are engaged in developing more professionals in the industry. This study mainly focuses on three objectives namely, to identify the sectors in which logisticians are demanded, to identify the level of employers' satisfaction in the industry, and finally to differentiate the performances between various categories. The study has used descriptive analysis and One-Way ANOVA in the analysis. According to the findings it could be concluded that graduate logisticians are engaged in varied industry sectors and their employers are satisfied with the quality standards and the skill levels of the graduate students. Also the study reveals a performance gap in the gender analysis. It was noted that there were three types of performance gaps between industries.**

Keywords – **Transport and Logistics Company, Undergraduates, performance gap**

I. INTRODUCTION

Transportation and logistics companies are lagging behind other sectors in terms of recruiting and hiring. In developing economies, transportation and logistics as a sector is growing rapidly – but workforce development is not yet keeping pace. [1]. Maritime education and training institutes need a careful evaluation about the factors that influence students' selection of higher education institutes [1]. In this process logistics chains are assumed to be in the centre as the core part of production processes. Then availability of required professionals in the field is essential. The quality and skills of the employees should be upgraded. Containerization which changed everything was the brainchild of Malcom McLean, an American trucking magnate [1]. McLean understood that reducing the cost of shipping goods required not just a metal box but an entire new way of handling freight [2]. The recent project that Sri Lanka extended its fullest support addresses one of the key issues in maritime logistics namely, competent work force in ports. Candemir and Celebi (2016) have identified that the world economy (and society) has been transformed and is being transformed fundamentally and yet more to come. The Logistics environment is primarily influenced by the international trading patterns [4].

It is the burning need of many countries in the region to improve productivity and competitiveness of their workforce in domestic and international labour market. shipping today is highly specialised, competition for the right candidate for the right ship is intense. Higher levels of skill are needed for specialty vessels of today [3]. The Employers survey forms part of a broader project to obtain insight into the issues being faced by employers and their perceptions regarding the employability of recent graduates of one of the leading private educational institutions in Sri Lanka. In educational institutions private university education system, the respective institute needs a critical evaluation of the feelings of three important stakeholders namely, the student (consumer), parents or family members (customers who pay the course fee), and the ultimate employer of the graduate. Edirisinghe, Jayakody, Ranwala, & Shen, [4] suggest that 45% of students' selection depend on the recommendation of their parents. While the student and parents have the regular contacts with the education institute for a limited period of 3-5 years during the course delivery, the ultimate employers will be compelled to deal for their rest of lifetime. This reality suggests that the employers' comments about the students have a significant importance to the respective education institute. This research has considered the comments of the present employers of the undergraduates in Logistics and Transport degree program conducted by the CINEC Maritime Campus in Sri Lanka.

Logistics and Transport undergraduates are usually in demand by the organizations involved in fast moving consumer goods (FMCG), Apparel & Garments, Shipping and Logistics, Port Operations, Pharmaceutical, Airline, Freight Forwarding, Automobile, Supply Chain consolidators, Warehousing and Printing, Manufacturing and Sales, Cement, Banks, Audit firms, education, Sugar Confectionery, hospitals, and hotel industries. It is significantly seen in the society today that two words namely, logistics and transport

are becoming buzz words very fast. Unlike in the past, firms pay serious attention to manage their supply chains more economically. This requires highly competent professionals in logistics and transport. An undergraduate in logistics and transport management could give a great contribution to all the sectors mentioned earlier. Therefore, many firms strategically absorb a substantial number of interns (those who complete 3 years as an undergraduate and ready to work 6 months full time basis) and test the capabilities prior to offer them permanent employment. It is made to understand that the outstanding performers will be invited to continue their employment even prior to their formal graduation which usually takes place after 4 years. The firms offer very flexible terms to the good performers until they complete the degree program and this is a highly win-win situation for both students and the firms.

The survey wishes to establish the employers' perceptions about the values, competencies and skills of undergraduates CINEC Campus, Sri Lanka. This would provide a reasonable assessment about the match between the skills acquired by graduates at university and the skills needed in the labour market. Accordingly, the objectives of the Report could be defined as follows;

- To understand the industries in which the students are presently engaged for their job or training
- To undrstand the satisfaction level of the end users.
- To understand the performance gap between diference groups.

II. METHODOLOGY

The researchers administered both qualitative and quantitative methods. Initially 5 employers were interviewed to ascertain the key factors that are usually considered by the employers with respect to evaluate the suitability of a graduate to be employed in the organization. The questionnaire was designed accordingly and employers of 34 students who had graduated from the institute were approached to collect data. Descriptive statistics and ANOVA have been used for the analysis purposes.

A. Chi-Square Tests

A chi - square (X^2) statistic is used to examine whether distributions of definite variables differ from one another. Basically, definite variables yield data in the groups and numerical variables yield data in numerical form. The Chi Square statistic associates the totals or counts of categorical answers among 2 (or more) independent groups.

H_0: There is no relationship between X and Y
H_1: There is a relationship between X and Y
Or
H_0: $O_i \neq E_i$ …………(1)
H_1: $O_i = E_i$…………(2)

The null hypothesis is the one which the chi square test.That is, if there is no relationship between the two variables, or if X and Y are independent of each other. As equation (1) shows E_i is calculated assuming two variables are independent. The following equation is the statistic used to conduct this test,

$$x^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

X^2 = chi – square
O_i = Observed value
E_i = Expected value

B. One-way ANOVA

It is tested that Ho: $\mu1 = \mu2 = \mu3 \dots \mu J$
    H1 : the means are not equal.
The individual score can be explained as follows;
    $Yij = \mu + \tau j + \varepsilon ij$, where Yij is the score of the ith observation j=1,2,3....in group i (i=1,2,3...) μ is the grand mean of the combined population. A treatment effect τj associated with the population from which the observation is taken in other words it is the deviation of the group mean from the overall mean. The random error term εij reflect variability within each population.
Estimation of treatment effect,
$Tj = \overline{YJ} - \bar{y}$

C. The F test in Anova

$\Sigma i\Sigma j(Yij - \overline{Y})^2 = \Sigma i\Sigma j(\overline{Y}i - \overline{Y})^2 + \Sigma i\Sigma j(Yij - \overline{Y}j)^2$
SST=SSB+SSW
SST =Total variability of dependent variable.
SSB = The variability between ach group relative to the each grand mean.
SSW= The variability within each group relative to the group mean.
SSB is explainable by the effect of the manipulated factor and SSW is attributed to chance.
 F statistics,
    $F = \frac{MSB}{MSW} \sim F(j-1, N-j)$
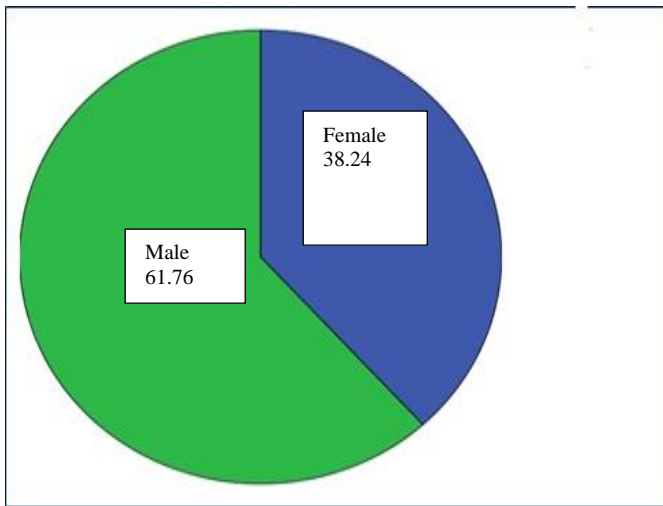
III. DATA ANALYSIS

Fig 1 Gender distribution of students of batch.

The study considered 34 students for the analysis. Among the sample 38.24 percent were female while 61.76 % were male students.

D. Type of Industry/ Specialization Area

The students are working in several industry sectors and different job functions. The percentage share of each industry is given in table 1.

Table 1: The industry sectors that the students are engaged in their current job/internship

Industry type	Frequency	Percent	Cumulative Percent
FMCG	5	14.7	14.7
Apparel & Garments	9	26.5	41.2
Shipping and Logistics	2	5.9	47.1
Port Operations	1	2.9	50.0
Pharmaceutical	3	8.8	58.8
Airline	2	5.9	64.7
Freight Forwarding	4	11.8	76.5
Automobile	1	2.9	79.4
Supply Chain consoling	1	2.9	82.4
Warehousing and Printing	1	2.9	85.3
Manufacturing and Sales	3	8.8	94.1
Cement	1	2.9	97.1
Sugar Confectionery	1	2.9	100.0
Total	34	100.0	

According to the analysis students are doing several types of transport and logistics related tasks (import, exports, supplier arrangements, shipping documentations, demand planning, warehouse management, procurement etc..) in diverse types of industries. It can be seen applications of transport and logistics functions is vital since it cover the most of industries in the economy.

E. Responses for Evaluation Criteria

The study evaluates the trainee performance and 13 criteria were used. The following table 2 represents the results of the study.

Table 2 : Results of Evaluation.

	Evaluation Criteria – Percentage Values			
	1.Not Adequate	2.Adequate	3.Good	4.Excellent
Theoretical knowledge	0	5.9	58.8	35.3
The skills to perform action when required	0	0	47.1	52.9
Improvement on quality works	0	5.9	50.0	44.1
Improvement on health and safety concerns & practices	0	11.8	55.9	32.4
Improvement on communication ability/ language skill	0	8.8	47.1	44.1
Improvement of interpersonal relationship with co-workers	0	5.9	20.6	73.5
Personality and self confidence	0	5.9	44.1	50.0
Risk based thinking	0	32.4	58.8	8.8
Creativity	0	20.6	58.8	20.6
Proactive	0	8.8	64.7	26.5
Innovative	0	26.5	50.0	23.5
Team work	0	2.9	20.6	76.5
Improvement of concern for environment protection	0	11.8	58.8	29.4

According to the analysis, the criteria of skills to perform an action when required, interpersonal relationship with co - workers, the personality and self-confidence and term works have recorded highest percentage for the excellent performance while all others have recorded highest percentage for the superior performance.

VI. Gender Vs Industry Type.

Logistics firms that were prioritizing on male workers in the logistics and transport sector have gradually realized the advantages of employing female professionals [8].
Furthermore, it analysed whether there is a difference is in the selection of industry is depending on gender.

Ho: industry type is not independent from the gender type
H1: Industry type is depending on gender type.

Table 3: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.321[a]	12	.081
Likelihood Ratio	24.954	12	.015
Linear-by-Linear Association	.012	1	.914
N of Valid Cases	34		

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Linear-by-Linear Association	.012	1	.914
a. 25 cells (96.2%) have expected count less than 5. The minimum expected count is .38.			

According to the statistics it can be seen that the industry type is not dependent on the gender type under the 5 % significant level since p-value is greater than the significant level. Nevertheless, null hypothesis can be rejected under the 10% confidence level(p=0.08<0.1).

F. Difference Between Groups

It can be further stated that there is a performance gap between male and female as well as between different industries. For this objective One -Way Analysis of variance has used. the hypothesis testing as follow,

H0: all means are equal.
H1: at least two samples are difference.

1. Gender wise variation

To identify whether there was performance gap between males and females, the following hypothesis is investigated for validity.

H0: the average performance of a male is not different from the average performance of a female.

H1: the average performance of a male is different from the average performance of a female

Table 4: Analysis Of variance: Innovation

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.630	1	1.630	3.400	.074
Within Groups	15.341	32	.479		
Total	16.971	33			

According to the above statistics it can be seen that there is no significant performance difference between male and female since the P- value for each criterion was more than the confidence level of 0.05.

It can be seen that different performances in innovative ideas between males and females under the 10% confidence

interval. According to the descriptive analysis it can be seen that males have more performance than females in innovation.

Table 5: Descriptive Analysis for Innovation Criteria.

gender	Mean	N	Std. Deviation
Female	2.6923	13	.63043
male	3.1429	21	.72703
Total	2.9706	34	.71712

2. Industry wise variation

To identify whether there was a students' performance gap between industries, the following hypothese have been checked.

H0: the average performance of students is not different between industries
H1: the average performance of students is different between industries

Table 6: ANOVA -differences in performance between industries.

Evaluation Criteria		Sum of Squares	df	Mean Square	F	Sig.
The skills to perform action when required	Between Groups	3.583	8	.448	2.400	.048
	Within Groups	4.292	23	.187		
	Total	7.875	31			
Improvement on quality works	Between Groups	7.458	8	.932	5.305	.001
	Within Groups	4.042	23	.176		
	Total	11.500	31			
Personality and self confidence	Between Groups	5.927	8	.741	2.820	.025
	Within Groups	6.042	23	.263		
	Total	11.969	31			

Among 13 evaluation criteria, there is difference between industry with three criteria.
1. The skills to perform action when required
2. Improvement on quality works
3. Personality and self confidence

Nevertheless, according Turkey to HSD statistics represent significant differences in second and third criteria is at 5% significant level. It is shown in table below.

Table 7: Turkey HSD

Dependent Variable	(I) Type of Industry	(J) Type of industry	Mean Difference (I-J)	Std. Error	Sig.
Improvement on quality works	FMCG	Pharmaceutical	1.33	0.30613	0.0048
		Freight forwarding	1.25	0.2812	0.0038
	Apparel & Garments	Pharmaceutical	0.95	0.2837	0.0447
		Freight forwarding	0.875	0.2567	0.0417
	Supply Chain	Pharmaceutical	1.33	0.3826	0.0354
		Freight forwarding	1.25	0.3630	0.0387
Personality and self confidence	FMCG	Freight forwarding	1.25	0.3438	0.0253

According to table 6 it can be identified that valuation given by supervisor for the activities done by students to improve quality work is different in FMCG compared to pharmaceutical and freight forwarding industry. That is excellent in FMCG but averagely good in other two industries.

Also, personality and self-confidence is statistically difference between FMCG industry and freight forwarding industry. That is excellent in FMCG and moderately good in freight forwarding industry.

IV. CONCLUSION

The transport and logistics industry has been identified as a fast-growing industry in the world. professionals in this field is limited in the pass few years. Therefore, educational institutions were engaged in developing the professionals for the industry. This study mainly focuses three objectives. They are to identify the types of industry where logisticians are required, to identify the satisfaction level of industry and to identify performance difference between different groups. According to descriptive analysis 50% of students are working in FMCG and Apparel and garment industry. It can be concluded that transport and logistics activities more available in those industries. At 10% significant level it can be seen that selection for jobs depended on the gender type. To identify performance gap between difference groups One Way ANOVA has been used for analysis. According to the findings it can be identified that logisticians are engaging in variance type of industry in the economy and the industries were satisfied the quality and the skill of the students. Further it can be identified the one performance gap between gender type while three types of performance gap between industries. It is recommended to identify the reasons for the gap and find

solutions for the overcome the difference. Nevertheless, it is recommended to expand the study with collaboration of undergraduates who were passing out from the government institutions. It is recommended to identify the reasons for the gap and find solutions to overcome the difference. It is recommended to extend the study to cover undergraduates from few other universities including government institutions.

It is commendable to note the international cooperation to effectively overcome the forecasted skills shortage in the logistics and transport industry. The IORA is one good example in the region. The acronym IORA recognizes the Indian-Ocean Rim Association. IORA is a dynamic organisation of 21 Member States and 7 Dialogue Partners, with an ever-growing momentum for mutually beneficial regional cooperation. The Project aims to address skills development in agreed port occupations under two key sectors. Firstly, it refers to develop/enhance capacity of IORA countries to engage with industry in technical vocational education and training (TVET) system development. Secondly it intends develop common occupational standards (transnational skills standards) in three occupations (initially) to underpin effective TVET programmes to meet local industry skills needs and support industry, trade and skilled labor mobility across the IORA region [7].

In conclusion, the industry perception about the graduates of CINEC Maritime Campus is seen very positive. Despite the input of about 400 graduates in this field from other higher education CINEC graduates have managed to create an edge that has consistent improvement for the last decade.

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