

## FACTORS AFFECTING SUCCESS OF HUMAN RESOURCES IN THE LOGISTICS SECTOR

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**ABSTRACT :** Logistics is a sector where multiple business processes are managed, controlled and finalized. Human is a component of logistics service. The success of the logistics human resource is very significant in the logistics activities as successful. In this study, the significance of logistics human resources for logistics activities and organizations, the emergence of logistics education, the content of the logistics education, the difficulties encountered in this education and likely to be encountered in the future are evaluated. This study has been handled from two aspects as qualitative method and quantitative method. Due to the factors affecting the above learning, the strengths and weaknesses of the university for the role of the university in the qualitative method part of this study, and the advantages and disadvantages of full-time and part-time faculty members are included in this study. In the quantitative analysis part of the study, the factors affecting the success of 67 students who have received undergraduate logistics education has been analyzed with SPSS 18.0, so as to specify the factors affecting the success of the logistics human resource. In this context, Chi-Square Tests, correlation and regression analyzes were performed. The study ends with a summary of the findings and a brief evaluation.

**KEYWORDS:** Logistics human resources, logistics education, success

### I. INTRODUCTION

Logistics is liable for the transportation and storage of materials moving along the supply chain. By following the materials carried in a business, the activities included in logistics can be seen [1]. When the concept of logistics emerged, logistics activities were qualified to transportation and storage. In consequence of globalization and technological advances, logistics activities today count in many activities such as purchasing, storage, order management, inventory management, customer service, demand forecasting, material management, customs clearance, site selection, packaging, transportation, distribution, and handling of return products. Logistics comprises the “movement” element that enables organizations to move forward. In the absence of logistics activities, the movement of goods and services is not feasible, deliveries cannot be made and none of the operations pertaining to these movements can be carried out [2]. On account of this, logistics resources are of great significance in the main activities of organizations and these activities should be made available when needed in organizations. Logistics activities are activities separated from each other in time and place. These activities will remain their significant as long as there is a distance between production and consumption points [3]. Whether the organizations ensure the logistics service or go outsourcing, it is a key activity for organizations to survive in today's global competitive environment [4]. Therefore, the logistics sector employees are crucial both for the business they work for and for all other organizations that receive logistics service from that organization. The logistics sector human resource is a vital issue that should be emphasized. It is only possible for organizations to implement their mission, vision, goals and strategies with their employees [5]. These issues of the organizations are lifeless and immobile and organizations' employees will activate them.

Logistics is an activity that creates value in today's competitive environment. The significance of logistics was first demonstrated by Porter (1985) through “value chain analysis” and still remains valid. Value chain analysis is a vital tool that explains each value activity and the relationships between these activities so as to acquire competitive advantage and enables the company to reach lower costs and make a difference. In value chain analysis, logistics activities, which are separated to two parts as internal and external logistics, constitute two of the five primary activities of the business [6]. Value chain analysis provides competitive advantage by creating value besides providing cost advantage and difference to the organization [7]. Therefore, the logistics sector human resources are extremely significant since the logistics sector employees are crucial both for their own organization and for other organizations that receive logistics services from that organization. Logistics is a service sector as well as logistics activities create difference and value with its competitive and cost advantage [8] and “human” is a logistics service component.

The high degree of interplay between the user and the service deliverer rises the significance of the employee in the service sectors [9]. As the logistics service component, human consists of all humans who are partly or wholly involved in the delivery of the logistics service and the organization employee and other customers in the service environment that have effects on the perceptions of the buyer. In service management, human is the expression that identifies people who have a certain role in the service system. Humans here include both employees and customers. Since many types of services are based on direct and personal interplay between customers and employees, this interaction significantly affects the customer's perceptual experience of service quality. While customers mostly assess the standard of the service they obtain, they assess the people who provide the service. Therefore, the success of employees directly affects the success of the service. In other words, employees are a factor that directly affects the success of the logistics service [10], [11]. The significance of the human factor for the logistics industry is not limited to these. The logistics sector is a sector where multiple business processes are managed, controlled and finalized [12]. Since the main purpose in logistics management is to ensure the highest customer satisfaction at the lowest cost, it is necessary to manage multiple processes well and to make continuous checks that the processes are done correctly. At this point, the human factor comes into play. Logistics human resources are very significant as they are involved in every stage of logistics activities [13]. Another factor that makes the human factor significant in logistics is that logistics is a difficult activity to imitate compared to other activities carried out in organizations [14]. The fact that logistics is difficult to imitate and that it affects the competitiveness and strategy of the organization makes logistics significant [15], [16], as well as the contribution of logistics human resources to logistics. Since the success of the logistics human resource contributes significantly to the success of the logistics activities, it is a vital issue to consider the factors affecting the success of the logistics human resource.

## **II. EMERGENCE OF EDUCATION IN SUPPLY CHAIN AND LOGISTICS**

In the light of the developments in the economy and society in the last 15-20 years, many necessities of change have emerged to survive in global competition [17]. These are the production of many and various products from each product group, the necessity of constantly developing new products, the existing products are beginning to go out of fashion in a shorter time, and the consumers have more rights and freedom of choice, the emergence of tailor-made product demand, and the consumer becoming more significant in the economy. This is the necessity of providing the goods and services that the customer values. For the purpose of being successful in competition with global competition and consumer empowerment, it has become necessary to plan and manage the index of transactions, activities and relations that reach the consumer from raw materials. In other words, this is the necessity to plan and manage the supply chain [18]. Supply chain management (SCM) is the ability of organizations to muck in their suppliers to provide high quality materials and components at vying prices [19].

SCM ensures the coordination of whole movements in the supply chain by ensuring links between suppliers, shippers, internal departments and businesses. It includes coordinating the movement of products from suppliers to manufacturers and distributors in the supply chain and sharing information [20]. When logistics and SCM education first took place in university undergraduate programs, its relationship with price, product, promotion and location, which are the four basic principles of logistics and marketing, was a matter of debate. In addition, the issue of transportation was also evaluated in terms of economy [21]. In that period, various programs were opened all over the world in the logistics field depending on the scope of the business. However, with the need for engineering knowledge in logistics human resources in the sector, various changes were made in the curriculum and course contents of logistics undergraduate programs over time. Since this process does not proceed in parallel at all universities, while some courses are common in logistics universities, some courses differ [22]. Students who are educated in logistics and supply chain receive the most training on information technologies, inventory management, customer service, general management, personnel management, job security and logistics and trade laws [23]. The engineering model focuses on engineering and logistics and SCM courses. These courses are supported by a number of management courses. Business model, business science courses and logistics and SCM courses are dominant. In addition to these courses, engineering courses are given that will be useful in system approach, decision making and analysis. In fact, the two models are substantially close together [24].

## **III. CHALLENGES IN EDUCATION**

Considering the logistic education models, it can be concluded that the curriculum of logistic education offered at the universities are in different distribution and the logistics education at the undergraduate level does not have a standard structure [25]. When the academic difficulties in logistics education are examined, it is seen that these difficulties are caused by three reasons [26]:

- ❖ Determining the content of logistics education involves some difficulties. These; The changes in information, communication and transportation technologies and international trade volume and the decrease in transportation costs, the proliferation of global logistics flows and the transition from basic transportation understanding to international logistics.
- ❖ Logistics education consists of different disciplines as mentioned above. Therefore, the necessity of uniting different disciplines is another challenge of logistics education.
- ❖ In addition to traditional business research and mathematical tools, the content of education raises the need for a broader and more demanding academic research based on the development of research capabilities, marketing, social sciences and economics.

Effective supply chain and logistics management is affected by universities and the human resources within these organizations. For this reason, these challenges should be prevented by training in this field. The obstacles in this regard are poor cooperation, deficiency for confidence and lack of education for new mind sets and qualifications between associations in the same supply chain [27]. Logistics human resource is defined as the main reason for many obstacles to fruitful supply chain and logistics management. Hence, humans are the vital to accomplished collaborative innovations. For this reason, teamwork abilities should be a significant part of supply chain and logistics education [28]. Educations on the development of teamwork skills and inter-organizational cooperation should be added to the curriculum of the supply chain and logistics management departments [29].

In the next period, it is thought that the content and requirements of logistics education will change again with the changes that occurred with Industry 4.0. As a result of Logistics 4.0 coming in parallel with Industry 4.0, both education needs and education process will change [30]. As Logistics 4.0 affects the needs of qualifications that affect the learning process needs, universities need to update their education programs and especially learning throughputs according to the needs of the logistics industry in order to enhance the success of the logistics human resource. This situation is a factor that affects the success of logistics human resources and is a challenge for universities. It should not be forgotten that convenient human resources are required for the progress of the logistics sector [31].

There are many factors that affect logistics education and human resources in the sector. There are four main macro factors. These factors are; Increasing the number of logistic training programs, insufficient number of academic staff in contrast to the rise in the number of programs, the need to reflect the sector's workforce expectations to education and the need to review the education content [32]. Logistics education is affected by the strength and weaknesses of the university, as well as whether the number of academicians is sufficient or not [33]. In the qualitative research section of the study, the strengths and weaknesses of the university subject to logistics education will be evaluated. There are 1894 numbers of undergraduate education faculties in Turkey according to 2020 data. 1423 of these faculties are state universities and 471 are foundation universities [34]. The top 10 universities that provide logistics undergraduate education in these faculties are given in Table 1 according to their occupancy rates. Universities that give trade and logistics under the same section under the name of international trade and logistics are not included in this ranking, only logistics, logistics management; international logistics management and international logistics and transportation departments are included.

**Table 1: Top 10 Foundation Universities in Logistics Education by Occupancy Rates in Turkey**

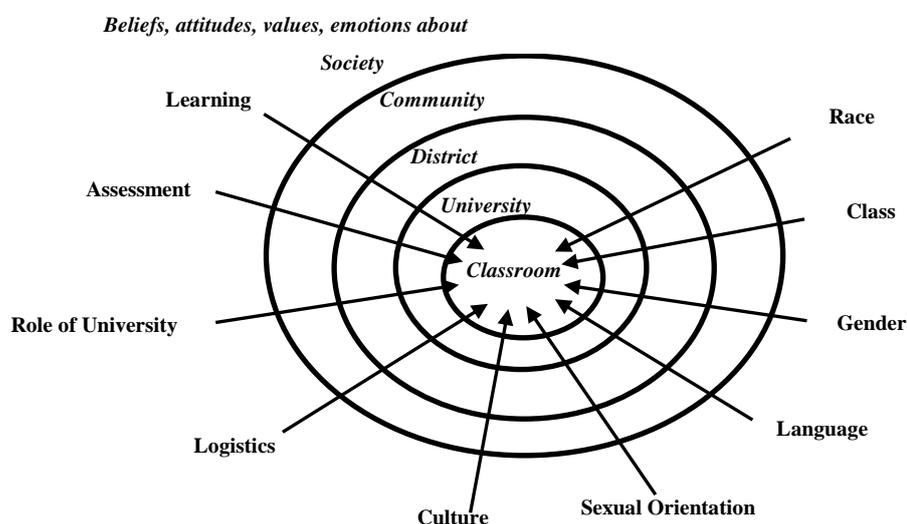
Ranking	University	Department	Total Academic Staff for Department	Starting the Activity Year for Department	Quota of Department in 2019	Occupancy of Department in 2019 (%)
1	Beykent University	International Logistics and Transportation	5	2009	40	100
2	Yeditepe University	International Logistics and Transportation	4	2008	33	100
3	İstanbul Bilgi University	International Logistics and Transportation	5	2010	30	100
4	İstanbul	International				

	Ticaret University	Logistics and Transportation	8	2012	24	100
5	Bahçeşehir University	Logistics Management	6	2014	22	100
6	İstanbul Medipol University	International Logistics Management	8	2015	40	92,5
7	Piri Reis University	International Logistics and Transportation	5	2015	30	83,3
8	İstanbul Gelişim University	International Logistics and Transportation	11	2011	30	70
9	Yaşar University	International Logistics Management	11	2016	30	63,3
10	İzmir Ekonomi University	Logistics Management	7	2003	33	60,6

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#### IV. FACTORS THAT AFFECTING LEARNING

In this study, since the GPA is considered as the factor that determines the success of the logistics human resource, the factors that affect learning are the agents that directly affect the achievement of the logistics human resource. Factors affecting learning are influenced by the race, class, gender, language, sexual orientation, culture, education area (logistics), role of the university in education, assessment and learning process in education, as well as beliefs, attitudes, values, emotions about society, community, region, university and classroom. This is shown in Fig. 1 below [35]:



**Figure 1: The many factors that affect student learning**

Adapted from source: Weissglass, J. (2001). In focus... inequity in Mathematics education: Questions for educators. *The Mathematics Educator*, 12(2), p.35.

#### V. METHOD OF RESOURCES

This study has been handled from two aspects as qualitative method and quantitative method. Due to the factors affecting the above learning, the strengths and weaknesses of the university for the role of the university in the qualitative method part of this study, and the advantages and disadvantages of full-time and part-time faculty members are included in the study. In the quantitative analysis part of the study, the agents acting upon the success of 67 students who have received undergraduate logistics education has been analyzed with SPSS 18.0,

in order to designate the factors acting upon the success of the logistics human resource. Details of the quantitative and qualitative analysis of this study are given in the relevant sections.

### **5.1. Qualitative Analysis**

In addition to the significant issues in logistics education, the importance of which was emphasized in the previous sections, this section also includes an analysis of the strengths and weaknesses of the university providing logistics education. Because the success of the logistics human resource is influenced not only by the education in the department, but also by the goals, policies and strategies of the university. Because the strengths and weaknesses of the university constitute the role of the university in logistics education. At the same time, it affects the success of the logistics human resource directly to affect beliefs, behaviors, values and feelings about the university. Another assessment within the scope of qualitative research concerns faculty members who receive logistics education at the university. Part-time or full-time faculty member is part of the university's role among factors affecting learning. For this reason, the university where logistics education has an impact on human resources success. The way academic staff work at the university is among the factors that directly affect learning and thus the success of the logistics human resources.

#### **Strengths of University:**

- ❖ Adopting a constantly improving corporate culture and maintaining practices in this field,
- ❖ Its physical structure is developing rapidly,
- ❖ Reaching more students with wide scholarship opportunities,
- ❖ Having a financial infrastructure that will provide wide scholarship opportunities,
- ❖ Opportunity to educate and train students at international standards,
- ❖ Ensuring the multidimensional development of the student with social, cultural and artistic activities,
- ❖ A corporate culture where transparency is a principle,
- ❖ Knowledge and experience of the founding philosophy in the field of education,
- ❖ Ease of access to the campus,
- ❖ Paying attention to social responsibility projects,
- ❖ Training in foreign languages in many programs,
- ❖ Advantages provided to students in cooperation with public and private sector in professional practices,
- ❖ Easy and timely access to information with its renewed and rich library.

#### **Weaknesses of University:**

- ❖ Being in the initial stage of the establishment culture of the institution since it is a newly established university,
- ❖ Lack of academic staff compared to other foundation universities and the university having difficulty in teaching staff,
- ❖ Although it has developed rapidly since its establishment, there is no rooted perception among foundation universities in the sector,
- ❖ Challenges in applying the organizationally determined image,
- ❖ New emphasis on marketing activities for the university
- ❖ Low number of doctorate and master's programs,
- ❖ Low incentives for academics to international conferences,
- ❖ Lack of scientific publications and researches and academics not being directed on this subject.

### **The Comparison of Faculty Members**

**Part-Time Faculty Members:** Part-time faculty members have some advantages and disadvantages in terms of logistics human resources.

These advantages are;

- ❖ Long-term professional experience.
- ❖ Project based working.
- ❖ Having up to date information.
- ❖ These disadvantages are;
- ❖ It has no academic title and is far from academic studies.
- ❖ It cannot assist the university and students in administrative matters.
- ❖ Hard to reach for students.
- ❖ It cannot be assigned as a consultant to students.
- ❖ No opportunity to benefit from faculty academic staff exchange programs.

- ❖ Their could not adopt the institutional culture of their university.

**Full-Time Faculty Members:** Full time faculty members have some advantages and disadvantages in terms of logistics human resources.

These advantages are;

- ❖ Between students and lecturers.
- ❖ Communication is strong.
- ❖ The lecturers have proven themselves academically and can guide students in these subjects.
- ❖ They assist the department and students in administrative affairs.
- ❖ They take an active role in student clubs.

These disadvantages are;

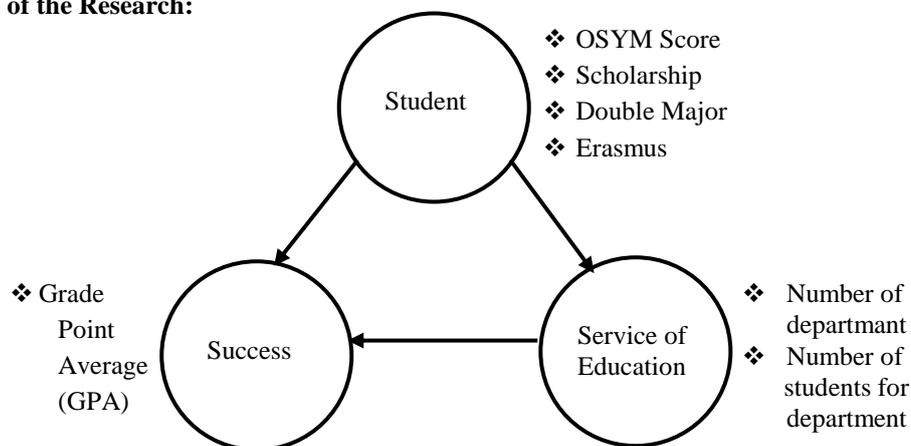
- ❖ They can not work on a project basis.
- ❖ They do not update their professional knowledge..

## 5.2. Quantitative Analysis

**The Subject, Importance and Limitation of Research:** The factors that affect the grade point averages (GPAs) of students in the International Logistics and Transportation (English) department of a foundation university that continues to study in Turkey are the subject of research. This sample constitutes the human resource in the logistics sector. Factors affecting the success of the human resource have always been the focus. However, this study investigates whether the success is due to the student or the education service provided by the school. In addition, it is magnitude in the way of changing the quality policies of foundation universities and providing better services in order to educate more qualified employee for the logistics sector. This research is limited only to the subjects of education in the university before the professional life.

**The Population and Sample of the Research:** The gender of the students, whether they go with erasmus, whether they do double major, their university entrance (OSYM) scores, grade point average (GPA) and their scholarship rates at the university are included in this study. In addition, since the university was founded, the number of faculty departments, the number of students in the logistics department and the average of the grade point average of these students by years are included in the study.

### The Model of the Research:



### The Hypothesis of Research:

The following hypotheses have been created in line with the model created:

- H<sub>1</sub>: The gender and the scholarship rate of the logistics human resource are dependent.
- H<sub>2</sub>: The gender and the double major of the logistics human resource are dependent.
- H<sub>3</sub>: The gender and the Erasmus of the logistics human resource are dependent.
- H<sub>4</sub>: There is a significant difference between the genders and GPA of the logistic human resources.
- H<sub>5</sub>: There is a significant difference between the genders and the scholarship rates of the logistic human resources.
- H<sub>6</sub>: There is a significant difference between the genders and OSYM scores of logistic human resources.
- H<sub>7</sub>: There is a significant relationship between GPA's of logistic human resources by years and the number of departments in the faculty by years.

- H<sub>8</sub>: There is a significant relationship between GPA's of logistic human resources by years and the number of students for departments by years.
- H<sub>9</sub>: There is a significant relationship between number of departments by years in faculty and the number of students for departments by years in faculty.
- H<sub>10</sub>: There is a significant relationship between GPA's and OSYM scores of logistic human resources.
- H<sub>11</sub>: There is a significant relationship between GPA's and scholarship of logistic human resources.
- H<sub>12</sub>: There is a significant relationship between OSYM scores and scholarship rates of logistic human resources.
- H<sub>13</sub>: The OSYM score positively affects the GPA for logistics human resource.
- H<sub>14</sub>: The Erasmus positively affects the GPA for logistics human resource.

**Frequencies and Descriptive Statistics:**

- ❖ When the frequency distributions of the employees' demographic characteristics are examined, only gender is taken as the demographic feature and 70.1% of the logistics human resources are male students. It is possible to say that the logistics profession is a male-dominated sector.
- ❖ Professionals with two diplomas, making double-major, make up 4.5% of logistics professionals.
- ❖ 53.7% of logistics human resources received education with 75% scholarship. 35.8% of the logistics human resources have a 100% scholarship in their education.
- ❖ Frequency of logistics professionals working in Erasmus is 1. This rate constitutes 4.5% of the logistics human resources.
- ❖ Looking at the GPA, the student with the highest average is 3.34. The average of GPAs is 2.15 (± 0.67).
- ❖ When the entrance scores (OSYM Scores) of the logistic human resources are analyzed, the student with the highest average score is 350.32. The average of the logistic human resource entrance scores is 251.96 (± 78.58).
- ❖ The number of students in the department is the lowest 10 and maximum 34 according to the years. The average number of students in the department is 24 (± 9.31).
- ❖ The average of GPA of students according to their academic year (2014-2015 education year to 2018-2019) is 2.76 (± 0.37).

**Crosstabs**

Cross tables are tables where two categorical variables are tabulated, used to examine these two independent variables, and are also known as Chi-Square tests [36], [37].

**Gender- Scholarship:**

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
GENDER * Scholarship	67	100,0%	0	,0%	67	100,0%

**GENDER \* Scholarship Crosstabulation**

			Scholarship		Total
			75,00	100,00	
GENDER	Female	Count	16	4	20
		Expected Count	12,8	7,2	20,0
		% within GENDERallstudents	80,0%	20,0%	100,0%
	Male	Count	27	20	47
		Expected Count	30,2	16,8	47,0
		% within GENDERallstudents	57,4%	42,6%	100,0%
Total	Count	43	24	67	
	Expected Count	43,0	24,0	67,0	

**GENDER \* Scholarship Crosstabulation**

			Scholarship		Total
			75,00	100,00	
GENDER	Female	Count	16	4	20
		Expected Count	12,8	7,2	20,0
		% within GENDERallstudents	80,0%	20,0%	100,0%
	Male	Count	27	20	47
		Expected Count	30,2	16,8	47,0
		% within GENDERallstudents	57,4%	42,6%	100,0%
Total	Count	43	24	67	
	Expected Count	43,0	24,0	67,0	
	% within GENDERallstudents	64,2%	35,8%	100,0%	

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3,104 <sup>a</sup>	1	,078		
Continuity Correction <sup>b</sup>	2,201	1	,138		
Likelihood Ratio	3,294	1	,070		
Fisher's Exact Test				,099	,067
Linear-by-Linear Association	3,058	1	,080		
N of Valid Cases	67				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7,16.

b. Computed only for a 2x2 table

0 cells (.0%) have expected count less than 5. This value is less than %20. For this reason, Pearson Chi-Square Test is applied [39]. According to this test, sig. value is 0,078 (p=0,078). Because of it is higher than 0,05, H<sub>1</sub> is rejected. The gender and the scholarship rate of the logistics human resource aren't dependent.

**Gender-Erasmus:**

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
GENDER * ERASMUS	67	100,0%	0	,0%	67	100,0%

**GENDER \* ERASMUS Crosstabulation**

			ERASMUSallstudents		Total
			Erasmus Outgoing Student	No	
GENDER	Female	Count	1	19	20
		Expected Count	,3	19,7	20,0
		% within GENDERallstudents	5,0%	95,0%	100,0%
	Male	Count	0	47	47
		Expected Count	,7	46,3	47,0
		% within GENDERallstudents	,0%	100,0%	100,0%
Total	Count	1	66	67	
	Expected Count	1,0	66,0	67,0	
	% within GENDERallstudents	1,5%	98,5%	100,0%	

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2,386 <sup>a</sup>	1	,122	,299	,299
Continuity Correction <sup>b</sup>	,197	1	,657		
Likelihood Ratio	2,454	1	,117		
Fisher's Exact Test					
Linear-by-Linear Association	2,350	1	,125		
N of Valid Cases	67				

- a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,30.
- b. Computed only for a 2x2 table

2 cells (50,0%) have expected count less than 5. This value is higher than %20. For this reason, Fisher`s Exact Test is applied [38]. According to the test, sig. value is 0,299 (p=0,299). Because of it is higher than 0,05. H<sub>2</sub> is rejected. The gender and the double major of the logistics human resource aren`t dependent.

**Gender- Double Major:**

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
GENDER * DOUBLE MAJOR	67	100,0%	0	,0%	67	100,0%

**GENDER \* DOUBLEMAJOR Crosstabulation**

			DOUBLEMAJORallstudents		Total
			Yes	No	
GENDER	Female	Count	1	19	20
		Expected Count	,9	19,1	20,0
		% within GENDERallstudents	5,0%	95,0%	100,0%
	Male	Count	2	45	47
		Expected Count	2,1	44,9	47,0
		% within GENDERallstudents	4,3%	95,7%	100,0%
Total	Count	3	64	67	
	Expected Count	3,0	64,0	67,0	
	% within GENDERallstudents	4,5%	95,5%	100,0%	

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,018 <sup>a</sup>	1	,893	1,000	,662
Continuity Correction <sup>b</sup>	,000	1	1,000		
Likelihood Ratio	,018	1	,894		
Fisher's Exact Test					
Linear-by-Linear Association	,018	1	,894		
N of Valid Cases	67				

- a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is ,90.
- b. Computed only for a 2x2 table

2 cells (50,0%) have expected count less than 5. %50 is higher than %20. For this reason, Fisher`s Exact Test is chosen. According to the this test, sig. value is 1,00. It is higher than 0,05,  $H_3$  is rejected. The gender and the Erasmus of the logistics human resource aren`t dependent.

### Hypothesis Tests

Hypothesis tests are separated to two as parametric and non-parametric tests. Which test to choose depends on the number of samples and whether variables are normally distributed or not. If the sample is not large enough, nonparametric tests are applied for these variables [40]. In this case, no normality test is required. If the number of variables is sufficient and these variables are normally distributed, parametric tests are applied. In order to decide which test group to apply, normal distribution test is performed for variables with sufficient sample size.

### Normal Distribution Test:

One-sample Kolmogorov Smirnov Test is the most made use of test for normal distribution in SPSS [36].

#### One-Sample Kolmogorov-Smirnov Test

		GENDER	GPA	Scholarship
N		67	67	67
Normal Parameters <sup>a,b</sup>	Mean	1,7015	2,1457	81,3433
	Std. Deviation	,46106	,67262	15,89697
Most Extreme Differences	Absolute	,443	,070	,297
	Positive	,259	,050	,297
	Negative	-,443	-,070	-,240
Kolmogorov-Smirnov Z		3,625	,571	2,430
Asymp. Sig. (2-tailed)		,000	,900	,000

a. Test distribution is Normal.

b. Calculated from data.

While gender ( $p=0,00$ ) and scholarship rates ( $p=0,00$ ) show normal distribution, GPA ( $p=0,90$ ) does not show normal distribution.

### The Comparison of Two Independent Group

**Gender- GPA:** Since the GPA variable is not normally distributed, the Mann Whitney U Test, a non-parametric test utilized for two independent variables, has been used [41].

#### Ranks

GENDER		N	Mean Rank	Sum of Ranks
GPA dimension1	Female	20	42,83	856,50
	Male	47	30,24	1421,50
	Total	67		

#### Test Statistics<sup>a</sup>

GPA	
Mann-Whitney U	293,500
Wilcoxon W	1421,500
Z	-2,419
Asymp. Sig. (2-tailed)	,016

a. Grouping Variable: GENDER

$H_4$  is accepted because it is  $0.016 < 0.05$ . The success (GPA) of the logistics human resource shows a significant difference according to their gender.

### Gender- Scholarship:

#### Group Statistics

GENDER		N	Mean	Std. Deviation	Std. Error Mean
Scholarship dimension1	Female	20	78,7500	12,23401	2,73561
	Male	47	82,4468	17,22209	2,51210

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Scholarship	Equal variances assumed	8,303	,005	-,869	65	,388	-3,69681	4,25199	-12,18862	4,79501
	Equal variances not assumed			-,995	49,899	,324	-3,69681	3,71405	-11,15708	3,76346

Independent t test is used to confront two groups that are not interconnected [42]. Since the Gender and scholarship variables are normally distributed and the sample size is more than 30, Independent T Test was used to confront the two independent groups [43]. Variances aren't homogeneous (p=0,005), since the sig. value for t test is 0.324, the H<sub>5</sub> hypothesis is rejected, There is no significant difference between genders and scholarship rates.

**Gender-OSYM Score:** Since the Gender and scholarship variables are normally distributed and the sample size is more than 30, Independent T Test was used to confront the two independent groups [43].

**Group Statistics**

GENDER		N	Mean	Std. Deviation	Std. Error Mean
OSYMScores dimension1	Female	20	254,9947	66,32733	14,83124
	Male	47	250,6748	83,88656	12,23611

Variances are homogeneous (p=0,381), since the sig value for t test is 0.839, the H<sub>6</sub> hypothesis is rejected, There is no significant difference between genders and OSYM scores.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OSYM Scores	Equal variances assumed	,779	,381	,204	65	,839	4,31988	21,13329	-37,88621	46,52596
	Equal variances not assumed			,225	45,047	,823	4,31988	19,22728	-34,40472	43,04448

### The Correlation

#### Relationship Between the Average of Student's GPA- The Number of Faculty Department:

While examining the relationship between the average of GPA of students according to years and the number of students for the department and the number of departments in the faculty, the non-parametric correlation test Spearman rho is used. Because the number of samples is  $n < 30$  [44]. In addition, since the GPA does not show normal distribution, Spearman rho, a non-parametric test, has been used when examining the relationship between OSYM score and scholarship rates.

#### Correlations

			AverageGPA	NumberofDepartments	NumberofStudentsforDepartment
Spearman's rho	AverageGPA	Correlation Coefficient	1,000	-,975**	-,900*
		Sig. (2-tailed)	.	,005	,037
		N	5	5	5
	NumberofDepartments	Correlation Coefficient	-,975**	1,000	,821
		Sig. (2-tailed)	,005	.	,089
		N	5	5	5
	NumberofStudentsforDepartment	Correlation Coefficient	-,900*	,821	1,000
		Sig. (2-tailed)	,037	,089	.
		N	5	5	5

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

H<sub>7</sub> hypothesis is accepted ( $p=0,005$ ). There is a negative correlation between the number of faculty departments and the grade point average of the students in the department ( $r=-0,975$ ). This is a very high relationship with 97.5%. H<sub>8</sub> hypothesis is accepted ( $p=0,037$ ). There is a negative correlation between the number of students in the department and the grade point average of the students in the department ( $r=-0,900$ ). This is a very high relationship. H<sub>9</sub> hypothesis is rejected because the sig value is greater than 0.05 ( $p=0,089$ ). Consequently, there is no significant relationship between number of departments by years in faculty and the number of students for departments by years in faculty ( $r=0,821$ ).

#### Correlations

			GPA	OSYMScores	Scholarship
Spearman's rho	GPA	Correlation Coefficient	1,000	,388**	,098
		Sig. (2-tailed)	.	,001	,432
		N	67	67	67
	OSYMScores	Correlation Coefficient	,388**	1,000	,336**
		Sig. (2-tailed)	,001	.	,005
		N	67	67	67
	Scholarship	Correlation Coefficient	,098	,336**	1,000
		Sig. (2-tailed)	,432	,005	.
		N	67	67	67

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Considering the correlation table above, the following results has been achieved:

- ❖  $H_{10}$  is accepted. The relationship between the GPA and OSYM scores ( $p = 0.001$ ) is a moderately positive relationship and this relationship is at the level of 40% ( $r = 38,8$ ).
- ❖  $H_{11}$  is rejected. There is no relationship between GPA and scholarship rates because sig. value  $> 0,05$  ( $p = 0,432$ ).
- ❖  $H_{12}$  is accepted. There is a relationship between the OSYM Scores and scholarship rates ( $p = 0.005$ ). This is a moderately positive relationship and this relationship is at the level of 34% ( $r = 0,336$ ).

### Multiple Linear Regression Analysis

#### Impact of Osym Score and Erasmus on GPA:

##### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	OSYMScores	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq$ ,050, Probability-of-F-to-remove $\geq$ ,100).

a. Dependent Variable: GPA

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,404 <sup>a</sup>	,163	,150	,62012

a. Predictors: (Constant), OSYMScores

##### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4,864	1	4,864	12,650	,001 <sup>a</sup>
Residual	24,995	65	,385		
Total	29,860	66			

- a. Predictors: (Constant), OSYMScores  
b. Dependent Variable: GPA

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,275	,256		4,977	,000
OSYMScores	,003	,001	,404	3,557	,001

- a. Dependent Variable: GPA

Excluded Variables<sup>b</sup>

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
					Tolerance
ERASMUS	-,218 <sup>a</sup>	-1,966	,054	-,239	1,000

- a. Predictors in the Model: (Constant), OSYMScores  
b. Dependent Variable: GPA

The stepwise method was used in multiple regression analysis when examining the effect of Erasmus activity and OSYM score on the success (grade point average) of the logistic human resource. The Stepwise method removed the Erasmus activity of the logistics human resource from the model since it was not significant ( $p = 0.054$ ). In other words, Erasmus activity does not affect the success of logistics human resources ( $H_{14}$  is rejected).

$H_{13}$  is accepted. The university entrance score (OSYM score) of the logistic human resource, which is an independent variable, affects 15,0% of the logistic education success (GPA), which is the dependent variable (Adjusted  $R^2=0,150$ ). In accordance with the ANOVA table, the model is significant because the sig. value is less than 0.05 ( $p = 0.001$ ). In other words, it explains 15%.

## VI. CONCLUSION

Nowadays, logistics and supply chain activities are activities that create value for businesses, and the logistics sector is a service sector. In addition, control of the process is required simultaneously when carrying out logistics activities. Furthermore, logistics activities are difficult to imitate. For all these reasons, logistics human resources are very crucial for logistics activities and businesses. In the success of the logistics human resource, the process where the human resource receives logistics education is as significant as the process after it starts work. Logistics education forms the basis of the success of logistics human resources. In this study, two types of methods, qualitative and quantitative, were used as research methods for the purpose of determine the success factors arising from the logistics undergraduate education received by the logistics human resource. In the qualitative research part of the study, the strengths and weaknesses of the university and the advantages and disadvantages of the part-time and full-time faculty members who studied at the university were examined. These issues are significant as they form the role of the university in education and affect learning.

When the strengths and weaknesses of the university are examined, the academic studies of the academic staff in the university are not sufficient, the university's failure to create a deep-rooted institutional perception, and the fact that the institutional culture is new, adversely affect the success of the logistics human resource.

According to the literature, which said the occupancy rate looking at the top 10 foundation universities in Turkey seems to be a sufficient number of academic staff in the team. This is an indication that the academic staff of the department is reinforced with part-time faculty members. In the qualitative part of the study, it was concluded that while part-time lecturers have a lot of knowledge in the field, they are not academically sufficient. In addition, while the logistics human resource can easily obtain practical information about the field from these faculty members, they cannot access the information since it is difficult to reach these faculty members.

As for the quantitative part of the research, according to the Chi-Square test results, the gender and scholarship rate of the logistics human resources aren't dependent. Whether the logistics human resource can double major or not does not differ according to their gender. In addition, whether logistic human resources make Erasmus do not differ according to their gender.

Looking at the results of the normal distribution test, according to the One-Sample Kolmogorov Smirnov Test results, the gender and scholarship rate variable shows normal distribution. The GPA variable, which indicates the success of the logistics human resource, does not show a normal distribution. According to the Independent Samples T-Test, the success (GPA) of logistics human resources shows a significant difference according to the gender. The success of women in logistics is higher. Considering the gender and scholarship rates, the scholarship rates of the logistic human resources do not differ significantly according to their gender. When gender and OSYM scores are examined, there is no significant difference between gender and OSYM score.

Considering the correlation analysis, firstly, the number of faculty departments covering 5 academic years, the number of students in the logistics department and the GPA of logistics students according to relevant years were analyzed. With regard to the conclusions of the correlation analysis, there is a very high grade of negative relationship between the GPA of logistic department student and the number of departments in the faculty ( $r = -0,975$ ). This indicates that as the number of departments in the faculty increases, the success of logistics human resources decreases. When we look at the success of the logistics human resource and the number of students in the logistics department, it is seen that there is a very high negative relationship between them ( $r = -0,900$ ). When the number of students in the logistics department of the university increases, the success of the logistics human resource decreases. Considering the number of departments in the faculty and the number of students for department, there is no significant relationship between them. In line with these correlation results, universities have duties to increase the success of the logistics human resources. One of them is to decrease the number of quota of department and the number of departments in the faculty in order to increase the success.

Unfortunately, foundation universities in the education system in Turkey tend to open each degree program in demand. This case brings more undergraduate programs, more students and faculty members. This is a very difficult process for universities to control and manage. If the university is not yet a well-established institution and is a young university, this is a significant factor that reduces the quality of education and the achievement of the human resource. This issue is the biggest problem of foundation universities in Turkey. When looking at other correlation analysis, there is no significant relationship between logistic human resource success (GPA) and scholarship rate. A moderately significant positive correlation was found between GPA and scholarship rate ( $r = 0.388$ ). If the OSYM score increases, the GPA also increases. Looking at the results of multiple regression analysis, Erasmus and OSYM Score variables were added to the model as two independent variables affecting GPA. The Stepwise method removed the Erasmus variable from the model because it was not significant. According to the multiple regression model results, only OSYM score affects the success of the logistics human resource. OSYM score affects the logistic human resource success (GPA) by 15%. 85% of logistics human resource success is explained by other factors.

The success of the logistics human resource stems from the factors affecting learning, the education provided by the university and the student's own efforts. The curriculum that the university offers, the qualification of the academic staff, the strengths and weaknesses of the university, part-time and full-time faculty members, the departmental student clubs it offers, sectoral collaborations, whether there is an internship requirement. In this respect, as advice to future studies, sectoral cooperation of the foundation universities in Turkey providing logistics education, internship opportunities, which offer additional benefits such as student clubs might be assessed on the study. If the recommendations to be given to universities are to be reached, the shortage of faculty members in the departments should be eliminated besides reducing their quotas and reducing the number of faculty departments. It would be more beneficial to include full-time faculty members in the department instead of part-time faculty members. Since human resources are also affected by the university's goals, strategies and policies, these issues should be reconsidered. Since the lack of sufficient academic publication of the academic staff in the university directly affects the success of the students, an environment should be created by the universities that will allow the academic staff to do more academic publication. It should be noted that the logistics of tomorrow pass through today's universities.

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