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Research Article

INVESTIGATION OF THE FACTORS AFFECTING STUDENT SATISFACTION IN HIGHER EDUCATION: NORTH IRAQ SAMPLE

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ABSTRACT

Satisfaction from higher education institutions increasing all around the world. As one of the developing countries, in Iraq, quality of education is started to take more attention of government. It is known that some surveys have been making around the Iraq to determine service quality of education and satisfaction of students from education. In this context, the aim of this study is investigating the satisfaction of the students at Salahaddin University, the college of Administration and Economics in Northern of Iraq. The data was collected from students attending to this university in the first semester of 2015-2016 academic year. To measure the level of satisfaction of these students, a measurement tool adapted from literature, containing five factors as offered services, academic environment, education-teaching, teaching staff, and courses, was applied to randomly select 185 students. Confirmatory Factor Analysis (CFA) was applied via LISREL 9.1 software to determine the relationships among these factors. The measurement tool was found valid and reliable for the dataset. In addition, proposed measurement model found statistically significant for all of the goodness of fit statistics and there were positive and significant relations among the determined factors. This study will help further studies for determining sub-dimensions of students' satisfaction from higher education. By evaluating these factors quality of education can be increased.

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INTRODUCTION

Globalization and competition have become frequently used terms years in almost every sector in recently. This is also true for the education sector, which is an important branch of the service sector. Increasing effect of globalization and competition on higher education made some terms such as satisfaction or quality more important for education sector (Ekinici and Burgaz, 2007, Letcher and Neves, 2010, Farahmandian *et al.*, 2013). Quality and satisfaction are closely related terms to each other. According to total quality management (TQM), it is possible to accept service quality and consumer satisfaction as similar terms (Athiyaman, 1998, Cronin and Taylor 1992, Kazan *et al.*, 2017). As one of the basic TQM principles, customer satisfaction can be defined as pleasure of customer derived from perceived performance of a product or service with his/her wishes, expectations, or needs (Oliver, 1999). In TQM, taking both internal and external customers into account is very important (Ceylan, 1998). At this point students can be accepted as internal customers of higher education institutions. There are various studies in the literature that took student satisfaction and quality of services offered to students into consideration together (Browne *et al.*,

1998, Abdullah, 2006, Brochado, 2009, Sökmen, 2011). In this regard, investigating satisfaction levels of students is very crucial for increasing quality of education services. Additionally, providing student satisfaction can be seen as a task of higher education institutions (Uygur and Yelken, 2017). Therefore, when this task is carried out well, it will provide competitive advantage for the higher education institutions (Farahmandian *et al.*, 2013).

Students' satisfaction, which has a multidimensional structure, is satisfaction level of the students from their higher education institutions (Hartman and Schmidt, 1995, Uygur and Yelken, 2017). Karadağ and Yücel (2017) stated that the scale of satisfaction from higher education institutions includes all aspects of the student's university life, in addition to the education and research functions of these institutions. Uzgören and Uzgören (2007) pointed out student satisfaction consists of some dimensions such as quality of education, physical conditions, offered application possibilities, social, cultural, and sporting possibilities, and individual characteristics of the student. Similarly, Altaş (2006) indicated elements that need to be taken into account for satisfaction of students as physical conditions in universities, campus size, social facilities,

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sufficient equipment or laboratories in the departments, courses offered at the department, opportunities for internships, conferences organized, and the scientific competence of the academics and their relationships with students. Additionally, some studies mentioned about both academic and non-academic factors can be effective on the satisfaction of students (Soutar and McNeil, 1996, Farahmandian *et al.*, 2013).

Eom and Wen (2006) investigated student self-motivation, student learning style, instructor knowledge, instructor feedback, student interactions, and course structure factors and found significant correlations between satisfaction and these factors by path analysis. Alves and Raposo (2007) determined seven factors related to student satisfaction as institutional image, student expectations, perceived value, perceived quality, student satisfaction, word of mouth, and student loyalty, and found significant relationships between these factors via structural equation modeling. Letcher and Neves (2010) evaluate meeting expectations, value of the educational investment, and likelihood of recommending the program to a close friend as sub-dimensions of satisfaction via regression analysis. In addition, many of higher education institutions around the world trying to evaluate student satisfaction by using satisfaction surveys to students (Mai, 2005). In this context, Kandemir (2005) prepared a measurement tool by investigating student satisfaction surveys of Turkish higher education institutions. In that study, factors effecting students' satisfaction is determined as academic environment and learning supportive possibilities, offered services, education-teaching programs, teaching staff, and courses, and relations among factors evaluated via structural equation model.

As seen from extended literature importance given to satisfaction from higher education institutions increasing all around the world. As one of the developing countries, in Iraq, quality of education is started to take more attention of government. It is known that some surveys have been making around the Iraq to determine service quality of education and satisfaction of students from education. In this context, the aim of this study is to investigate the satisfaction of the students at Salahaddin University, the college of Administration and Economics in Northern of Iraq. For this aim, relations among offered services, academic environment, education-teaching, teaching staff and courses were evaluated in this study.

Research Hypotheses

To predict student satisfaction, the following hypotheses have been established

- H₁:** There is a positive relationship between Services Offered with Academic Environment and Learning Supportive Possibilities.
- H₂:** There is a positive relationship between Education-Teaching Programs with Academic Environment and Learning Supportive Possibilities.
- H₃:** There is a positive relationship between Teaching Staff with Academic Environment and Learning Supportive Possibilities.
- H₄:** There is a positive relationship between Courses and Academic Environment and Learning Supportive Possibilities.

H₅: There is a positive relationship between Education-Teaching Programs and Offered Services.

H₆: There is a positive relationship between Teaching Staff and Offered Services.

H₇: There is a positive relationship between Courses and Offered Services.

H₈: There is a positive relationship between Teaching Staff and Education-Teaching Programs.

H₉: There is a positive relationship between Courses and Education-Teaching Programs.

H₁₀: There is a positive relationship between Teaching Staff and Courses.

MATERIAL AND METHODS

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a statistical method found by Karl Jöreskog, which aims to specify the ability of an outlined factor model to fit an observed dataset (DeCoster, 1998). In CFA items in the measurement tool are referred as observed variables, and things that scale by these items are referred as latent variables. Therefore, data sets belonging to observed variables are used for defining the latent variables, and path diagrams are mostly preferred for showing the relationships between these variables (Schumacker and Lomax, 2004).

To determine the reliability of the measurement tool Cronbach alpha values are frequently used. Hair *et al* (2010) mentioned that this value should be greater than 0.70 for higher level of reliability. In this study, CFA made via LISREL 9.1 package program. The single most important feature of the LISREL program is its facility to deal with a wide variety of models for the analysis of latent variables (LVs). In the social sciences, increasingly in biomedical and public health research. LV models have become an indispensable statistical tool; because the whole framework of the LISREL model is based on relationships among LVs. it is worthwhile to briefly illustrate the concept of a latent variable. Latent variables are ubiquitous in some research domains (Jöreskog and Sörbom, 1996; Çelik and Yilmaz, 2013).

The Sample

The sample of this study is composed of 150 students who filled out the questionnaire correctly among 185 randomly selected students in the first semester of the academic year for 2015-2016 attending to college of Administrative and Economics, Department of Administration at Salahaddin University in Northern Iraq.

Measurement Tool

Measurement tool used in the study adapted from Kandemir (2005). Kandemir (2005) prepared this tool consisting of five factors by evaluating student satisfaction surveys of different universities in Turkey. The measurement tool consists following five factors: Academic Environment and Learning Supportive Possibilities (5 items), Offered Services (4 items), Education - Teaching Programs (4 items), Teaching Staff (5

items) and Courses (4 items). Each of the 22 items in the scale was scored according to the five points Likert scale. Primarily, items of measurement tool were translated in Sorani. In the adaptation of the scale, language has been shown to be culturally important. The translation was done by two Sorani academics who are good at in Turkish and an expert translator.

Investigation of Measurement Model

In the measurement model, academic environment and learning supportive possibilities, offered services, education - teaching programs, teaching staff, and courses described as latent variables related to the satisfaction of students from higher education institute. CFA was conducted for determining relationships among latent variables. In the Figure 1, conceptual model for measurement model was given.

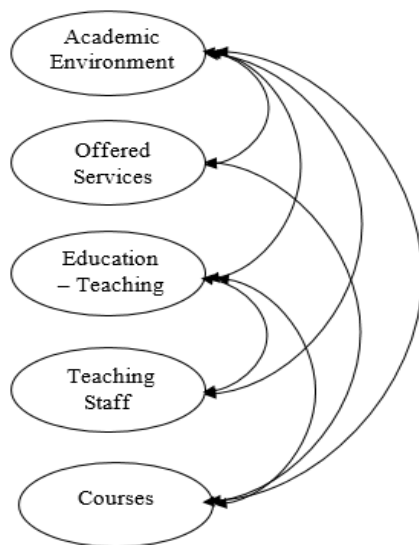


Figure 1 The measurement model of CFA

In order to test the reliability and the internal consistency of measurement tool, Cronbach’s alpha (α) coefficient was used which is one of the most commonly used methods. According to Hair *et al.* (2010) Cronbach’s α coefficient should be greater than 0.70 for a reliable f this value is measurement tool, and reliability increases when this value approaches to 1.00.

RESULTS

As a result of CFA, five of the factors found related to satisfaction. Results of the CFA are given in Table 1. According to Table 1, standardized loads of nearly all items are higher than 0.5. This can be regarded as a sign for validity of the measurement tool (Hair *et al.*, 2010). Similarly, Cronbach’s α coefficient for the academic environment, offered services, education-teaching, and teaching staff factors are higher than 0.90, and higher than 0.70 for the courses factor. This shows that the reliability level of the measurement tool is high. The estimated t-values related to variables should occur on the critical value of 1.96 (Çelik, 2009; Çelik and Yilmaz, 2013). As seen from Table 1, all of the t-values are greater than 1.96.

Table 1 Mean, standard deviation, standardized loads, t-values and Cronbach’s alpha values in order to the measurement model

Factor / Substances	Mean	Std. Deviation	Std. Load	t-value	Cronbach’s Alpha
Academic Environment					0.95
AE1	3.4	1.02	0.56	5.87	
AE2	3.42	1.13	0.6	6.46	
AE3	3.81	1.01	0.66	6.8	
AE4	3.25	1.15	0.58	5.92	
AE5	3.52	1.01	0.59	6.32	
Offered Services					0.900
OS1	3.58	1.02	0.68	8.06	
OS2	3.25	0.97	0.7	8.45	
OS3	3.45	1.29	0.52	5.54	
OS4	3.16	0.76	0.48	5.1	
Education-Teaching					0.925
ET1	3.44	1.21	0.61	6.13	
ET2	3.72	1.1	0.8	9.51	
ET3	2.98	0.86	0.73	7.95	
ET4	3.67	1.32	0.75	8.32	
Teaching Staff					0.910
TS1	3.5	1.15	0.65	7.5	
TS2	3.63	1.2	0.68	7.83	
TS3	3.45	1	0.7	8.16	
TS4	3.38	0.73	0.59	6.54	
TS5	3.52	1.08	0.61	6.84	
Courses					0.750
C1	2.88	1	0.66	6.25	
C2	3.42	1.13	0.7	6.86	
C3	3.81	1.01	0.76	7.15	
C4	3.25	1.15	0.5	5.22	

By Table 1, mean value for each items nearly around 3.50. Hence, it can be said that satisfaction level of students is between medium and good. Table 1 examined the highest average with 3.72 is the communication between the students and teaching staff, and the lowest average with 2.88 is the C1.

The correlation coefficients between latent variables (academic environment, offered services, education-teaching, teaching staff, courses), given in Table 2, found statistically significant. According to these coefficients given in Table 2 that can be seen that there is a positive and strong relationship between all of these latent variables.

Table 2 The correlation coefficient matrix of latent variables

Latent	Academic Environment	Offered Services	Education-Teaching	Courses
Academic Environment	1.00			
Offered Services	0.64 (9.70)*	1.00		
Education-Teaching	0.60 (9.10)	0.62 (9.60)	1.00	
Courses	0.58 (7.70)	0.63 (9.64)	0.70 (10.02)	1.00

*Values in parentheses indicate t-values.

According to Table 2, there is a positive relation between the academic environment and offered services that is 64 %, between an academic environments and education-teaching is 60 %, also between an academic environment and teaching staff is 62 %, between courses and academic environment is 58 %. The relationship between education-teaching and courses is

the best. In order to evaluate the model obtained in CFA; Chi-square, RMSEA, NFI (Normal Fit Index), CFI and GFI fit indexes have been used (Çelik and Yilmaz, 2013). Acceptance levels of the goodness of fit indexes and values for proposed model can be seen in Table 3.

Table 3 The goodness of fitness indexes of measurement model

Goodness of fit indexes	Model	Criterion	Result
$\chi^2/d.f.$	1.36	$0 \leq \chi^2/d.f. < 2$	Good Fit
RMSEA	0.052	$0.05 \leq RMSEA \leq 0.08$	Acceptable Fit
NFI	0.94	$0.90 \leq NFI \leq 0.95$	Acceptable Fit
NNFI	0.94	$0.95 \leq NNFI \leq 0.97$	Acceptable Fit
CFI	0.98	$0.97 \leq CFI \leq 1$	Good Fit
GFI	0.94	$0.90 \leq GFI \leq 0.95$	Acceptable Fit

According to goodness of fit indexes given in Table 3, measurement model is decided to be appropriate. In the scope of the measurement model, 10 of the research hypothesis were confirmed and statistically significant correlations between all of the latent variables were found ($t > 1.96$).

CONCLUSION

In this study students' satisfaction towards higher education is evaluated via confirmatory factor analysis. The findings of this research shows that, there are a positive and significant correlation between the factors of academic environment, offered services, education-teaching, teaching staff, and courses. Given goodness of fit indexes indicated that measurement model is showing good fit with dataset. As a result, in Northern Iraq to have higher levels of student satisfaction, especially lecturers and education should be focused on the latent variables. The positive relation in education-teaching and teaching staff will increase student satisfaction in Northern Iraq. This study will help further studies for determining sub-dimensions of students' satisfaction from higher education. By evaluating these factors quality of education can be increased.

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