Students' Perceptions as Predicator of Service Quality and Students' Retention in Tertiary Education in Sudan: Structural Equation Modeling

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Abstract

   The main purpose of the present study is to examine perceptions of students toward service quality and students' retention at Sudan University of Science and Technology –Sudan. A survey was conducted with 323 undergraduate students.   The result showed that university/faculty service quality satisfaction positively related to students' retention. In this study, SPSS 25Version and AMOS 24Version were used for data analysis. Convergent validity and discriminant validity were conducted.

Keywords: Service quality; students' satisfaction; higher education; students' retention

1. INTRODUCTION

Higher education contributes to the growth rate of international economic and the evolution of nations through knowledge which lead to societies' prosperity. The functions of HE is to provide knowledge economy knowledge creation, knowledge diffusion and knowledge transfer. Higher education institutions can provide advanced skills knowledge with all the necessary technical, skills and high quality services (Shafiq, et.al . 2018; Munawar , et.al. 2011).

This study focuses on measuring service quality in higher education in terms of service and excluded academic service quality measurement that has been measured satisfaction as perception of students (De Jager & Gbadamosi 2010). Suggest that there are three factors of higher education service quality namely: (1) requisite elements (2) acceptable elements and (3) functional elements. Service quality can be measured by perception and expectation via five factors namely, reliability, responsiveness, empathy, assurance and tangibles (Karatas et al 2016; Đonlagić & Fazli, 2015 ; Hajdari, 2019).

1. 1 Students' Satisfaction

The satisfaction plays a major role in the determining the originality and accuracy of a system especially in the higher educational system. There are many definitions about satisfaction in literature that is connected to service quality as well as to student satisfaction, it can be defined as outcome of a task or job that pleases one's esteem or the willful accomplishment which results in one's contentment (Kotler & Clarke, 1987; Ahmed, et al. 2014,), in this study students satisfaction was measured via their own perception.

1.2 Students' Retention

Social integration is a crucial factor for Higher Education Institutions and students for competing. Tinto (1977, 2006), student integration theory explains interactions of social and academic factors motivate students to pursue in the institution or to leave it. The core idea of Tinto's model (1975) reflects integration of students whether communicate within organization socially and academically. Students enter the university or higher college with different background such as, family backgrounds, pre-collage experiences, individual attributes, personal expectation, and college goals each factor of which has direct and indirect influence on students persistence in the college, these backgrounds differ in terms of academic integration and social integration within college environment which is communication with faculty, sharing within co curricula activities and students satisfaction with social life in campus or off campus which alter the level of commitments and finally lead students to persist or departure the college system . Astin's (1984) student involvement, he defines students involvement as the amount of physical and psychological

energy, thus, a social theory means that highly involved student is one who devotes considerable energy to studying, spends much time on campus participates actively in student organization interacts, frequently with faculty members and other students more persist. He refers that the involvement is due to physical and psychological energy. A student spends time and effort to increase involvement in the college the more likely will persist. Therefore, higher education works to retain students via academic successful and social integration.

2. LITERATURE REVIEW

In higher education is crucial and significant to highlight service quality and study in -depth students' perception and satisfaction on quality of service that ensures development and sustainability of the universities beside that retaining student is important factor and deserves studying. A study of student satisfaction as measuring service quality and students retention have been studies by (Eke, et al. 2020). The study showed that service quality student satisfaction related to student retention. A study of (Raghavan & Ganesh 2015) focused on the relationships between service quality of increasing students' satisfaction related to students' retention in private sector -higher education, service quality is a flexible factor that is studied in economic discipline for instance (Richard & Mensah, 2014) which showed that positive correlation between service quality and customer retention in Ghana and offering service quality have overall customer retention. Moreover, service quality has a significant role related to students' retention in their own discipline for instance a study of Aguilar (2011) found out that service quality can predict influence student pilot retention in discipline of aviation training. Therefore, service quality can be measured via satisfaction and it had shown relationships with students' retention. There is a common challenge that tertiary institutions faced such as how it deliver excellent service quality. Attracting highly qualified students toward achieving high academic performance is invigorating them to pay attention to service quality.

Nevertheless, there is a common challenge that tertiary institutions faced such as how it deliver excellent service quality and Sudan universities is no exception. It tries to attracting highly qualified

students toward achieving high academic performance. This is paramount important for growth and success of educational institutions. So, high competition and excellence of service quality are demand (Richard & Mensah, 2014; Muhammad, et al, 2018; Shafiq, et.al 2018; Hajdari 2019). A country like Sudan, there is expanded in higher education institutions between 1990 -2019, but there is dearth studies, no service quality in universities in Sudan as general. Based on the previous studies, the present study hypothesizes that, there is relationships between the faculty service quality and students' retention. There is relationships between the university service quality and students' retention.

Figure 1. Theortical framework

3. RESEARCH DESIGN

3.1 Participants and procedure
A survey research is a system for collecting information from or about people to describe, compare or explain their attitudes and behavior (Sekaran & Bougie 2016). A specific method of the study is correlational which investigates the possibility of relationships between only two variables, although investigations of more than two variables are common (Fraenkel, & Wallen 2011). The study was conducted with 323 students of a public Sudan University of Science and Technology in Sudan . The respondents, 45.09 % were females and 54. 91% were males. Students were invited from different disciplines to answer the e-questionnaire. An email was attached to the undergraduate students who fulfilled the research requirements. The email provided with instructions that directed the participants for instance confidentially statement.

3.2 Instrumentation

The 20-items (university / faculty quality of service satisfaction) of the instrument and adopted from (Sickler, 2013) while , students retention dimensions include 4 items was adopted from (Laux , 2014). The instrument was translated into Arabic language. The instrument utilizes a 5-point Likert scale SD= 1 to SA= 5. To evaluate the fitness of the model, SPSS Version 25 and Amos Version 24 were employed to analyze the data.

Table 1: Summary of constructs

Constructs	Items	Factor loading	CR	AVE
Persist (re)	ReA	.735	.859	.787
	ReB	.711		
University (Un)				
	Un1	.779	.841	.774
	Un2	.693		
Faculty(Fa)				
	Fa4	.756	.869	.805
	Fa5	.703		

3.3 Convergent validity

The convergent validity (CV) of two e-questionnaires of the present study were carried out based on Fornell and Larcker (1981), CV loading > 0.7 , CR > 0.7 and AVE should be > 0.5. These requirements are presented in the table (2) as illustrated below.

3.4 Discriminant Validity

The discriminant validity of this model evaluated based on Fornell and Larcker (1981), square root of the (AVE) values were carried out for each dimension separately. In addition, Teo (2009)**,** proposed that to assess discriminant validity for factor should compare the square roots of average variance extracted (AVE) for each factor with connections between that construct and all other constructs.

Construct	Re	Un	Fa
Re	**.887**		
Un	**.613**	**.879**	
Fa	**.588**	.630	**.897**

Note: Diagonals represent the average variance extracted, whereas the other matrix entries represent the square correlations.

According to Davy & Savla (2010), Byrne (2010), Hair, et al (2010), emphasized that to measure model fit indices through these three types of models incremental model, which includes these fit indices TLI> .90 close to 1, CFI and NFI> .90 AGFI close to zero, while absolute model measures separately and fit indices chi square value < 3, GFI zero to 1.0 and great value is accepted, RMSEA<0.05 to 1.0 is acceptable fit. In addition, related to parsimonious model the fit indices is Normed chi square/degree of freedom and based on previous fit indices the present study result showed a good model fit.
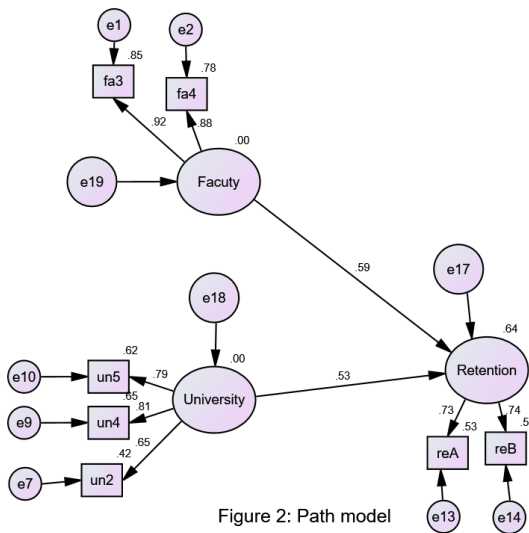

Figure 2: Path model

University=students retention .***

Facuty =students retention .***

The path model facilitated the identification of a set of meaningful relationships with factors of the study. The result of this study showed that highest effect existed between university service quality satisfaction and students' retention .***< (ß=0.05), followed by faculty service quality satisfaction and students' retention .***< (ß=0.05) as shown in Figure (2).

4. DISCUSSION

The present study, a model involving the influence of quality service variables (university, faculty) on students' retention at Sudan University of Science and Technology at Khartoum - was tested. The present study contributes to a deeper understanding of quality service satisfaction in tertiary level. The strongest significant relationship found between university service quality satisfaction and students' retention was <0.05. In addition, there was a significant relationship between faculty quality service satisfaction and students' retention was <0.05. Thus, there was a strong link between university quality of service satisfaction at Sudan University of Science and Technology which indicted that students were satisfied with service that provided by (*SUST)* in terms of laboratories equipment, parking, conductive hostel and libraries. The result relationship between quality service satisfaction and students' retention, further students can retain whenever they find an attractive and conducive environment beside social interaction with peers, faculty staff and inside campus (Tinto 1977 , 2006, Astin,1984), the result reaffirms in different disciplines, which has been found in other studies for instance (Raghavan & Ganesh ,2015 ; Aguilar (2011); (Eke ,et al. 2020; Richard & Mensah, 2014; Muhammadi.et al, 2018; Shafiq, et.al 2018; Hajdari 2019).

If the service quality satisfaction is high, students definitely will retain in the university environment combination with strong social integration among their peers and faculty staff. This finding was supported by the theories of student integration and student involvement (Tinto 1977 , 2006, Astin,1984), which stated that the highly involved student is one who devotes considerable energy to studying, spends much time on campus participates actively in student organization interacts, frequently with faculty members and other students more persist (Astin,1984), while academic integration and social integration within college environment which is communication with faculty, sharing within co curricula activities and students' satisfaction with social life in campus or off campus (Tinto 1977 , 2006). Therefore, if a student has high satisfaction with service quality of a university and strongly interact with his /her peer, staff and outside campus, it is probable that he /she will retain, as reported in some previous studies (Raghavan & Ganesh**, 2015**; Aguilar, 2011, Eke et al.

2020). As has been stated above, satisfaction is a personal variable that interacts with retention variables of the context in a practical situation in service quality arena. If students' satisfaction is high, that definitely effect positively on students' retention at Sudan University of science and technology in Khartoum city. In summary, the relationship between university / faculty service quality satisfaction and students' retention when the satisfaction is high and students strongly integrated and involved with environment.

5. CONCLUSION

Based on empirical evidence carried out in this study, the influence of university /faculty quality service on students' retention were demonstrated. Additionally, a direct effect of university quality service and faculty quality service were tested, beside that the convergent validity (CV) and the discriminant validity of this model were conducted.

6. LIMITATIONS OF STUDY

Limitation of the present study is related to the generalizability of the findings because it was conducted among students of Sudan University of Science and Technology in Khartoum city. Second limitation is related to sample size and data collection which were taken from undergraduate students, relevant to recommendations similar studies can be conducted in terms of academic quality service. Also a study can be conducted in a private university and from qualitative research method.

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