Students Satisfactions with E-Learning Mediating the E-Service Quality-Behavioral Intention Link: The Case of Public Universities in Egypt

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Abstract

Purpose - The purpose of this paper is to study the impact of e-service quality dimensions on students' behavior intention to use the e-learning services provided by the public universities in Egypt. Also, this paper is designed to evaluate the influence of the e-service quality dimensions on the students' satisfaction with e-learning services provided by the public universities. In addition, the current research aims to test the mediating role of students' satisfaction with e-learning between e-service quality dimensions and students behavior intention to use e-learning provided by public universities.

Design/methodology/approach – This study is based on a questionnaire survey conducted in Egypt. Based on an extensive review of literature, the paper uses empirical research to analyze e-service quality of e-learning services provided by public universities in Egypt using the model applied by Headar et al., 2013 on the private universities. The model used in the study performed by Headar et al., 2013was a modified one of the SERVQUAL model in addition to the use of interactivity and student factors as additional factors which are considered as antecedents of students satisfaction with e-learning.

Findings – Results based on Structural Equation Modeling (SEM) identify some factors that influence students' behavioral intension to use e-learning services. These factors are Privacy, Responsiveness, Efficiency, System Availability, Contact, and Fulfillment. Other factors have an insignificant impact on students' behavioral intension to use e-learning services. Also, it was found that there is a full significant mediation role of satisfaction with e-learning in the e-service-behavioral intension link.

Practical implications – The findings are important to enable managers to have a better understanding of students' perception of service quality of e-learning services and consequently of how to improve their satisfaction with respect to aspects of e-service quality and in turn improve their behavioral intension to use e-learning.

Research limitations– The primary limitation of this study is the scope of its sample. Also, the study is a simulation study to that done by Headar et al., 2013 which uses specific service quality factors, while there may be other factors influencing students' behavioral intension to use e-learning.

Keywords - Services Quality, E-Service Quality, Students Satisfaction, E-Learning, Interactivity, Students Comfort, Students familiarity.

Paper type - Research paper

Introduction

The young generation nowadays is using the information and communication Technologies frequently. Such technologies are appearing in the usage of Internet and mobile technologies. The use of internet have shown a deeply impact on several fields of marketing to the extent that they become global, as they are highly served through the internet usage (Garcia et al., 2015).

One of the influenced fields by information and communication technology is learning. It had been found that the e-learning nowadays has a significant existence in universities over the last decades in both public and private universities (Al-hawari and Mouakket, 2010; Levy, 2011). The fast growth in information and communication technologies gives the chance to internet technologies and web-based applications to create several opportunities for conducting the learning process through such technologies. This phenomenon had led to the significant growth of electronic learning - or simply known as e-learning - in recent years, which provides a new formula of teaching and learning by giving the chance to everyone to learn anything anywhere and at any time (Pourghaznein et al, 2015; Al-hawari and Mouakket, 2010).

E-learning had been defined in several ways but one of those definitions was that it is a self-learning activity that appears and used by many universities and education centers nowadays to facilitate the learning process. E-learning supports the goals of formal education in the sense that it helps in preparing learners for active and independent learning (Pourghaznein et al, 2015; Baturay, 2011).

Many different terms are used to describe e-learning, such as distance learning, internet learning or on-line learning. All these terminologies refer

to the use of computers which are connected to the internet when applying the process of teaching and learning. There are many benefits of e-learning, such as giving the chance for independent learning, as well as it removes the time and place constraints because students can join the learning process from any place and at any time through the internet. Also, e-learning helps in reducing geographical barriers as well as travel and program overhead costs, where each individual can study the material at his/her own place (Karim and Behrend, 2015).

In general, it had been noticed that different customers have different needs and wants out of the same product and/or service used. Thus, the new in marketing practices recommends the segmentation of market to be able to realize such differences and provide the product/service with the specific needs and wants of different customers. Accordingly, organizations are supposed to target one or more of these segments after knowing the market segments depending on their points of strengths.

The case is applied on the sector of e-learning in Egypt, as students – dealt as customers in this case – have different needs and they target different needs and wants, according to the service provided. Thus, educational institutes should select the market segment and gain the competitive advantage in providing the required service for such segment. Moreover, the educational institutes should keep an eye on consistency between the targeted segment and the "product offering".

It should be highlighted that educational institutes in Egypt providing e-learning services are divided into public and private universities. It is so important for each type to determine the market segment they could provide their services for them to be able to determine their needs and wants and gain competitive advantage in the quality of service provided for the

assigned segment. This could be clear when knowing that there are several universities in the public as well as the private sector which provide e-learning services.

Simulating the study of Headar et al., 2013 – which discuss the e-service quality-behavioral intension link in the private universities, the current research will study the e-service quality-behavioral intension link in the public universities to be able to understand the need of students in the Egyptian public universities and how to improve their behavioral intension to use e-learning services provided in such universities.

Thus, the current study aims to provide a model of e-learners' satisfaction which test the variation in quality, interaction, and satisfaction on learners' behavioral intentions in the public universities. The study also aims to evaluate how students in the public universities view e-learning as well as investigating how learners perceive and respond to technology-based self-service. The current research also attempts to test whether e-satisfaction mediates the relationship between quality, interaction and students comfort on one side and behavioral intention on the other side.

Accordingly, the current research is designed in several sections. First of all, a review of the literature will be provided on e-service quality, interactivity and students familiarity with e-Learning, Satisfaction with e-Learning and behavioral Intension to use e-learning. After that, the research methodology and research framework will be presented. Then, the research findings will be discussed and finally, a conclusion and recommendation of the study will be driven.

Quality, Service Quality and E-service Quality

When talking about the e-service quality dimensions, the meaning of quality should be defined first. Quality as a terminology had been used many times

referring to the features of products and/or services. Yet, this is not the only meaning of quality, as it has different and several meanings when considering different customers and different organizations. Thus, multiple definitions had been given to quality to be able to understand its meaning (Elassy, 2015; Shen et al., 2000).

Another definition of quality is that it is the satisfaction of customer need through exceeding their expectations. According to this definition, the customer is the one who has the right to evaluate the quality of a product and/or service (Shen et al., 2000). It was mentioned as well that quality could be evaluated only by customers, where products and/or services are identified as qualified when they are supplied by the organization with the features and characteristics that satisfies customers' needs and wants. Therefore, quality may be simply defined as the satisfaction of customer expectations (Kandulapati and Bellamkonda, 2014).

In general, quality had been used as a term referring to quality of products only and not the service till the near future. Recently, the term quality had been widely used to include the quality of both products and services. Different quality definitions considered product and/or services characteristics as a weapon for developing new markets and increasing market share (Davis et al, 2003; Sebastianelli and Tamimi, 2002).

The concept of service quality had been started to be investigated in the early 1980s. The reason behind that was the suggestion that the term "Product Quality" was not enough alone to achieve the organization competitive advantage (Kandulapati and Bellamkonda, 2014). The studies conducted introduced the concept of service quality as a mean of introducing services in the form that achieves organizational objectives as

well as presenting the required services in the required place and time (Rostamia et al, 2015).

Service quality had been defined in many ways. One definition was that it is the zone in which services match with customer's needs or expectations (Lewis and Mitchell, 1990). Another definition is that it is a key factor in keeping competitive advantage and supporting satisfying relationships with customers (Zeithmal, 2000). In addition, service quality can be defined as meeting the needs and expectations of the customer (Smith, 1998). Moreover, service quality was defined as the degree of discrepancy between customers' normative expectations for service and their perceptions of service performance (Parasuraman et al., 1985).

The term "Service Quality" is not that easy to measure, as it is complex and difficult. In the last decades, studies had been conducted in quality of services to try to identify the intangibility of services, as it had been shown as a problem in finding its measurement. Moreover, it had been shown that production, delivery and consumption can occur simultaneously within services. In general, quality had been referred to as the matching between what customers expect and what they experience (Joseph et al., 2005). In other words, it can be considered as the result of the comparison between what customers expect regarding a certain service and what they perceive regarding the service performance Caruana, 2002).

Such definition was then developed in several ways; one of which is that service quality is the total evaluation of an organization providing a certain service, where the evaluation is the result of the comparison between the organization's actual performance and the customer's general expectations of how the organization was supposed to be performing (Parasuraman et al., 1988). After that, the concept of quality in general was developed several

times to include total quality management (TQM) (Al-hawari and Mouakket, 2010) and new public management (NPM). Each new concept was developed to be concerned with some service quality factors, like delivery, performance, and profitability (Manandhar & Tang, 2002).

At that time, many researchers, practitioners and academics had studied the idea of service quality from different perspectives, but the model of SERVQUAL developed and introduced by Parasuraman et al. (1985, 1988, and 1991) remains one of the major and important perspectives and the widely used nowadays to evaluate an organization service quality. The model of SERVQUAL had been accepted and used by practitioners, managers and researchers, due to its powerful influence on an organization performance in the form of minimizing costs, achieving customer satisfaction and organization profitability. The model of SERVQUAL had been widely applied in various service industries, such as healthcare, banking, fast food, telecommunications, retailing, information systems and library services. The model had been applied as well in several different countries, including the USA, China, Australia, Cyprus, Hong Kong, Korea, South Africa, the Netherlands and the UK (Kandulapati and Bellamkonda, 2014).

One of the service quality models described quality as being represented in five dimensions: tangibles (appearance of physical facilities, equipment, personnel and written materials), reliability (ability to perform the promised service dependably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence), and empathy (caring and individual attention the firm provides its customers). Reliability is considered the essential core of service quality. Other dimensions will

matter to customers only if a service is reliable, because those dimensions cannot compensate for unreliable service delivery (Berry *et al.,* 1994).

With the rapid growth in the information technologies after that, the concept of service quality was developed to include e-services. E-Services represent one form of e-commerce services which depends on the usage of network technologies. In other words, e-service is the use of internet to facilitate, perform, and process the services required for customers such as awareness, transaction, interaction, and distribution. Thus, e-service quality could be described as the basis that facilitates effective and efficient purchase, sale and delivery of goods and services through websites (Rostamia et al, 2015).

E-Service Quality could be described as the area including all phases of a customer's interactions with a Web site. In other words, e-service quality is the degree to which a website introduces an efficient and effective way of shopping, purchasing, and delivery" (Parasuraman et al., 2005). Thus, E-SERVQUAL could be used as a model to measure e-service quality, where the major dimensions of the model include; efficiency, fulfillment, system availability and privacy (Kandulapati and Bellamkonda, 2014). The dimensions of e-service quality had been defined in another study to include efficiency, the ease and speed of access and use of the web site; fulfillment, the degree to which the web site fulfills what is promised to the customer; system availability, appropriate technical functioning of the web site; and privacy, the extent to which the web site is secure and protects consumer information (Sabiote et al., 2012).

Just like service quality, e-service quality had been tested for its relation with some factors, which are; reliability, responsiveness, personalization, security, trust, interactivity, accessibility, and e-satisfaction. It was found

that many studies had proved a positive significant relation between e-service quality and the mentioned factors (Al-hawari and Mouakket, 2010).

Another model of e-service quality that had been developed was the SERVPERF model. This model defined service quality as a function of perceived performance. Despite the fact of developing the SERVPERF model, but SERVQUAL model remained as the preferred model for measuring quality for researchers as well as practitioners (Sharma et al., 2013). Other models had been developed after that to overcome the shortage of the SERVQUAL and SEVPERF model, like WebQual (Loiacono et al., 2000), SITE-QUAL (Yoo and Donthu, 2001), SiteQual (Cox and Webb, 2004), .comQ and eTailQ (Wolfinbarger and Gilly, 2002) and E-S-QUAL (Parasuraman et al., 2005). The work was extended by a number of researchers who applied these internet-based services quality models to study the service quality perception of web-based services, in a number of industries and countries. The industries covered by these studies include banking, e-Government, hospitality, e-commerce, education, and healthcare, in both developed and developing countries (Sharma et al., 2013).

Regarding education, it is important to consider the quality of instruction given through distance learning programs. It was found that quality of instruction depends on the attitude of the administration and the instructor. Several studies had reported that distance learning had been shown in the second rank after face-to-face learning, but the comment concluded is that it is not the problem of technology itself, but how it is used in the design and delivery of courses. Research suggests that the effectiveness of distance learning is based on preparation, the instructor understanding of the needs of the students, and an understanding of the target population (Mahmood et al., 2012).

Quality of higher education has several views and is considered as a complicated concept even more than the general concept of quality (Eagle and Brennan, 2007) and by that measuring quality in higher education is a complex issue, as everyone in the higher education sector views quality in a different way according to his/her concerns and requirements out of the higher education services provided. Some researches considered students and colleges as the main parties of educational success (Cooper, 2007).

Service quality is defined in the context of higher education as "the difference between what a student expects to receive and his/her perceptions of actual delivery" (Voss and Gruber, 2006, p. 220). It was highlighted that students' perceived service quality is precedent to student satisfaction (Browne et al., 1998). The academic literature speculates that positive perceptions of service quality can lead to student satisfaction and satisfied students may assist in the attraction of new students through engaging in positive word-of-mouth (WOM) communication and may also encourage themselves to return to the university to take further courses (Marzo-Navarro et al., 2005; Helgesen and Nesset, 2007). Course satisfaction was already indicated to have a direct relation to learning (Guolla, 1999). Finally, it had been showed that student satisfaction also has a positive impact on fundraising and student motivation (Elliott and Shin, 2002). However, for instructors to create satisfaction, they need to know what their students expect (Davis and Swanson, 2001), which stresses again the importance of investigating student expectations.

Furthermore, HEdPERF (Higher Education PERFormance) was proposed, which is a new and more inclusive performance-based measuring scale that attempts to pursuit the actual determinants of service quality within the higher education sector (Abdullah, 2006). The 41-item instrument has been

empirically tested for unidimensionality, reliability and validity using both exploratory and confirmatory factor analysis. A systematic integrated approach for modeling customer evaluation of service quality applied to the technical education system through a survey instrument known as EduQUAL (Mahapatra and Khan, 2007). It was specifically proposed for the education sector and used to measure the satisfaction level of four key stakeholders namely students, alumni, recruiters and parents. On the other hand, recently the research model "SQM-HEI" (Service Quality Measurement in Higher Education in India) was developed to measure the quality of higher education (Senthilkumar and Arulraj, 2011). The model focuses on three dimensions; Teaching Methodology (TM), Environmental Change in Study Factor (ECSF), Disciplinary Action (DA), and Placement as the mediating factor and the outcome as the quality education.

Interactivity and Students Familiarity with E-Learning

Communication with users is very important as it gives confidence to a citizen to use the service (Bhattacharya et al, 2012). In general, interactivity is considered as the most critical element in technology-enhanced learning environments, which force practitioners to focus on its impact when considering the design of e-learning systems (Evans and Gibbons, 2007). The term interactivity could be defined as the users' perceptions of two-way communication, level of control, navigation, responsiveness, sense of place, time sensitivity, and user activity (Cheng, 2014).

It is stated that both quality and quantity of interaction with the instructor and peers are much more crucial to the success of online courses and student satisfaction than that are in traditional courses. Similarly, students' perception of interaction is the critical predictor of satisfaction in a distance-

learning course. On the other hand, social presence is a strong predictor of satisfaction within computer-mediated communication environment (Baturay, 2011).

Interaction among peers is vital in an online learning program. Collaboration is an important part in most of the innovative courses delivered via the Web. Groups of learners interact and develop the attributes of a 'virtual learning community' even though they may never meet in the same place or same time. Collaboration was defined as the process of shared creation of two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Besides having group discussions with their peers, students need to interact with their tutors to seek clarifications on any issues pertaining to their lessons and also to ensure that they are progressing in the 'correct path'. It had been highlighted that importance should be given to student and instructor interaction which affects how well student learn. One of the components of a successful online introductory statistics course is student-professor interaction (Saminathan and Goolamally, 2013).

Researchers found that if students actively engage in discussing with their peers, they will gain a lot of benefits. On the contrary, those who do not participate in an online learning environment may be missing a good opportunity for quality interaction with their peers (Orawiwatnakul and Wichadee, 2016).

Furthermore, distance education provides independent, student center and tutor facilitated engagement that facilitate interactions with instructors and students which may not always be possible within the traditional classroom setting. Student satisfaction was defined in term of student's perception towards his/ her college/ university experience, and perceived significance

of the education that (s)he received from an institution. It was found that student's satisfaction with distance learning courses is a key aspect to measure the effectiveness of distance learning (Ali et al., 2011).

In general, e-learning is often chosen to give learners flexibility and control over the content and schedule of training. Providing learners with control over the training program affects how they interact with and perceive the training content (Karim and Behrend, 2015).

Satisfaction and Behavioral Intension to use e-learning

Satisfaction could be defined in several ways but one of the definitions is that it is the customer's judgment towards products and/or services. Satisfaction is a key point for success which is mandatory for gaining a competitive advantage (Al-hawari and Mouakket, 2010).

Some researchers contend that customer satisfaction is a predecessor of service quality (Bolton and Drew, 1991), while others believed that it is service quality that leads to customer satisfaction (Hoisington and Naumann, 2003). Cronin and Taylor (1992) argued that the divergence between satisfaction and quality is crucial because service providers need to know whether their objective should be to obtain satisfied customers, who will then develop a perception of high service quality, or that they should aim for high service quality as a way of advancing customer satisfaction. One of the aims of service providers is surely to also generate customer loyalty which yields this relationship far more significance to enable them from at best increase wealth or at least maintain their place in the market place.

It was declared that perceived higher education service quality could be the result of a number of service encounter evaluations by students. Such encounters would be with administrators, teaching staff and managers as well as other higher education employees. This was found to be due to

limited resources within higher education individual attention to students may be limited. This makes the concentration of resources on the critical areas more significant (Hill, 1995). It was recommended that there should be a specific instrument devised for the evaluation of service quality within higher education that was exceedingly effective than the more traditional questionnaires. Customer loyalty is usually generated by Keeping customers satisfied, or preferably, completely satisfied. It is distinct in many forms of customer behaviour. Jones and Sasser (1995) gathered ways of measuring loyalty into three main categories: (1) intent to re-purchase; (2) primary behaviour – actual customer re-purchasing behavior; and (3) secondary behaviour – customer referrals, endorsements and spreading the word.

When translating this into university services, this comprises intent to study at a higher level within the same institution, how frequently and recently a student used ancillary services, such as the library, catering and IT services, student retention, and lastly the readiness to recommend the institution to friends, neighbors and fellow employees (Blackmore et al., 2006).

Service encounters or "moments of truth" (critical incidents) are acknowledged within the service quality research field as a key concept (Edvardsson and Nilsson-Wittell, 2004) and comprise direct interaction between service provider and service user. It has been well conveyed within the literature that each moment of truth impacts on the service user's overall impression and evaluation of the service (Dale, 2003) and ultimately it is they (the customers) who are the most suitable arbiters of service quality. Research into customer satisfaction is concerned with identifying the drivers of satisfaction/dissatisfaction, i.e. those critical incidents that are either Satisfiers or Dissatisfiers, or both together. Cadotte and Turgeon's (1988) study of compliments and complaints administered by restaurant owners in

the USA found that a number of variable determinants could be classified as "Satisfiers", "Dissatisfiers", "Criticals" or "Neutrals". A Dissatisfier can be defined as some aspect or feature, the absence of which causes dissatisfaction, but the existence of which does not cause satisfaction. As an example, the absence of a car park in a University may result in dissatisfaction but its presence may not necessarily generate satisfaction. Contrarily, a Satisfier is defined as some aspect or feature the existence of which leads to satisfaction but the absence of which does not lead to dissatisfaction. Criticals are those aspects that are both Satisfiers and Dissatisfiers, i.e. presence leads to satisfaction and absence leads to dissatisfaction, and Neutrals are those aspects whose presence does not cause satisfaction and absence does not cause dissatisfaction. Johnston (1995) postulated that the determinants of service quality as originally identified by Parasuraman et al. (1985) were not inevitably two sides of the same coin and that treating all the dissatisfiers does not necessarily create satisfied customers. He found that whilst a determinant may be considered important to customers of a particular service it may cause satisfaction but not necessarily dissatisfaction. This matches Herzberg et al.'s (1959) seminal work on satisfaction at work. They found that a number of factors tended to lead to job satisfaction (they identified these as motivators) while others lead to lack of dissatisfaction (termed hygiene factors).The primary factor that differs between the motivators and the hygiene factors was that whereas motivators brought about satisfaction the hygiene factors only served to prevent dissatisfaction. Building on earlier work by Johnston and Silvestro (1990) 18 determinants of service quality within a Banking organization have now been identified by Johnston (1995) and this includes redefining the original ten determinants and providing additional

determinants that would have fallen within the scope of "Tangibles" (physical aspects) these are cleanliness/tidiness, and comfort, and also functionality (usefulness). Parasuraman et al.'s (1985) clarified that SERVQUAL satisfaction/expectation survey instrument initially introduced the ten determinants of service quality andthese were later evolved into five dimensions (Parasuraman et al., 1988), the so-called RATER dimensions (Reliability, Assurance, Tangibles, Empathy, and Responsiveness). Their instrument has been broadly used by organizations generally for identifying customer expectations and perceptions of quality.

E-satisfaction is developed from the idea of using e-services. It could be defined as the users' judgment towards the online purchasing. Moreover, e-satisfaction becomes significant in online services as it affects customer's decision to continue using the service provided in its online form (Al-hawari and Mouakket, 2010).

Accordingly, concerning education, the learning satisfaction concept can be defined as a student's overall positive assessment of his/her learning experience (Garcia et al., 2014). Thus, student satisfaction is an important factor in measuring e-learning effectiveness. Several studies had proved that higher satisfaction is related to higher levels of learning and satisfaction was reported to be a major factor related to students' decision of dropping out from distance education courses (Baturay, 2011). Other studies showed that the level of a learner's satisfaction has a direct impact on the level of participation. In other words, the more the students are satisfied, the more willing they are to learn, and they stand a better chance to succeed. Thus, the more students participate frequently online, the more satisfied they feel with online courses (Orawiwatnakul and Wichadee, 2016).

Of course, the frequent usage of e-learning and online teaching services is associated with the usage and development of internet and network technologies. The use of information technology in the field of education creates innovative and advance ways of communication and this in turn influences the decision of students to use distance learning. Furthermore, the availability of distance education, the course offerings, and the increasing number of students enrolled, all speak to the importance of this method of instruction (Ali et al., 2011).

Customer satisfaction provides afundamental link between cumulative purchase and post-purchase phenomena in terms of attitude change, repeat purchase and brand loyalty (Churchill &Surprenant, 1982). Service quality has a positive impact on customer satisfaction (Yee et al., 2010). Customer satisfaction is defined as the behavior resulting from what customers believe should happen (expectations) compared to what they believe actually happen (performance perception) (Neal, 1998). Satisfaction augment quality perception and stimulates repeat purchases. Zaim, Bayyurt, and Zaim (2010) found that tangibility, reliability and empathy are crucial for customer satisfaction, but Mengi (2009) found that responsiveness and assurance are more important. Siddiqi (2010) examined the applicability of service quality of retail banking industry in Bangladesh and found that service quality is positively correlated with customer satisfaction whilst empathy had the highest positive correlation with customer satisfaction, followed by assurance and tangibility. On the other hand, Lo, Osman, Ramayah and Rahim (2010) found that empathy and assurance had the highest impact on customer satisfaction in the Malaysian retail banking industry. Arasli, Smadi and Katircioglu (2005) found that reliability had the highest influence on

customer satisfaction. A number of studies have identified the dimensions of service quality as the antecedents of customer satisfaction.

In general, customer satisfaction is a key to long-term business success (Zeithami*et al.,* 1996).To protect/gain market shares, organizations need to outperform competitors by offering a better and higher quality product or service to guarantee satisfaction of customers (Tsoukatos and Rand, 2006). Banks need to understand customers" service requirements and how it affects service delivery and customers" attitudes (Gerrard and Cunningham, 2001), for a small increase of customer satisfaction can turninto customer loyalty and retention (Bowen and Chen, 2001). With better understanding of customers' perceptions, companies can determine the actions required to meet the customers' needs. They can identify their own strengths and weaknesses, where they stand in comparison to their competitors, chart out paths for future progress and improvement (Magesh, 2010). In the banking industry, a primary element of customer satisfaction is the nature of the relationship between the customer and the provider of the products and services. Thus, both product and service quality are commonly considered as a critical prerequisite for satisfying and retaining valued customers (Muslim and Isa, 2005). It is indeed true that delivery of high-service quality to customers gives firms an advantage and enables them to be unique in competitive markets (Karatepe*et al.,* 2005).

Satisfaction can be measured as an overall feeling or as satisfaction with the elements of a transaction (Fornell, 1992). Student satisfaction is defined as "*the favorability of a student's subjective evaluation of the various outcomes and experiences associated with education. Student satisfaction is being shaped continually by repeated experiences in campus life*" (Subrahmanyam et al, 2016).

Satisfaction surveys have been developed by governmental bodies higher education funding council for England (HEFCE) and universities (at course and module level) to determine student satisfaction as an educational good. Research conducted by Chan et al. (2005) revealed that the significant explanatory variables that increase satisfaction levels at universities are related to: satisfaction with academic work, good relationships formed, good time management, good reputation of the university and resources provided by the university.

A major critique of student satisfaction surveys is that these instruments do not measure student learning directly and instead focus on processes and do not take into account other factors like prior skills and student abilities (Wiers-Jenssen et al., 2002). There are many reasons to be cautious of applying the consumer approach to satisfaction in higher education, as such an approach tends to treat higher education as a product that is measured against the utility value on the labour market(Wiers-Jenssen et al., 2002, p. 186). The authors suggest that the idea of quality in higher education should extend beyond satisfaction and develop a notion of student happiness as one of the attributes by which educational provision should be judged, if not measured (Aftab, 2015)

It is generally accepted that customer satisfaction is the product of some type of evaluation process by the customer. It was observed that more recently researchers have viewed customer satisfaction as a summary of emotional and cognitive responses that pertain to a particular focus (such as expectations or actual experiences), which occur after consumption or after accumulative experiences (Clemes et al., 2007). It was argued that student satisfaction is a short-term attitude based on an evaluation of their experience with the education service supplied supply of teaching/learning

materials. Student satisfaction is not determined solely by the students' teaching and learning experiences but rather by their overall experiences as a customer of a particular institution (Stephen et al., 2013).

Extrapolating this to the Higher Education context, (Elliott and Healy, 2001) contend that student satisfaction is a short-term attitude that results from their experience with the education service received. In line with the SAC' perspective, it is imperative to identify and measure the factors, or drivers, of the educational experience that are important in determining student satisfaction/dissatisfaction (Douglas et al., 2008) and indicate what can be done to increase value for money (Guilding and McManus, 2002). Much debate has occurred as to the causal directional relationship between quality of a service (service quality) and customer satisfaction. Researches stated that the causation is from service quality to customer satisfaction. Approaches used in HE with regard to measurement of service quality and satisfaction tend to focus on the quality of teaching, using students' evaluations of teaching effectiveness, which often consider items such as; rapport, enthusiasm and learning/value. Further, it has been asserted that quality teaching is the core service provided by universities and dominates the perceptions of overall quality (Cedwyn et al., 2013).

Satisfaction has been defined as the consumer's value judgment regarding pleasure derived from utilization of level fulfillment (Oliver, 1981). Satisfaction is an emotional reaction to a product or service experience (Spreng & Singh, 1993). The satisfaction concept has also been extended recently to the context of higher education. The still limited amount of research suggests that student satisfaction is a complex concept, consisting of several dimensions (Subrahmanyam et al. 2016).

Accordingly, the constructs of the students satisfaction was shown as Service quality, customer satisfaction (Sureshchander et al., 2002; Kelsey and bond, 2001; badri et al., 2010); Customer satisfaction, Higher education (Munteanu et al., 2010; Debnath et al, 2013);

On the other hand, retention is not easy to identify but it could be measured in three ways; behavioral, attitudinal and composite measures (Al-hawari and Mouakket, 2010). In other words, retention could be defined as the observed behavior of repeat purchase. Also, retention is measured as attitudinal when reflecting the emotional and psychological meanings. In addition, retention could be defined as composite when psychological/attitudinal construct with repeat purchases is realized (Al-hawari and Mouakket, 2010). Accordingly, retention is noticed as the degree to which users exhibit repeat behavior to the e-learning process.

Research Methodology and Framework

A survey is done of the students opinion regarding the research dimensions; satisfaction and loyalty, e-service quality, interactivity, comfort with e-learning, and familiarity with e-learning. The survey is done through a questionnaire provided to student using online learning in the public universities of Egypt, like AinShams, Alexandria and Mansoura universities. The questionnaire used is the one used by Headar et al., 2013 so as to be able to compare the results of public universities that will be derived from the current study with that derived from private universities found by header et al., 2013. The questionnaire included five main parts; satisfaction and loyalty, e-service quality, interactivity, comfort with e-learning, and familiarity with e-learning. All questionnaires were delivered in person by the researcher to the students in each university.

In the questionnaire assigned, the questions were adopted from previous research of Headar et al., 2013. It measures the research dimensions; satisfaction and loyalty, e-service quality, interactivity, comfort with e-learning, and familiarity with e-learning by implementing a 5-point Likert - scale used for all responses with (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). The survey questionnaire is designed and distributed to target respondent randomly. Targeted respondents are the general public who are using e-learning services in the public universities.

Thus, the literature had been reviewed and the following hypotheses were assumed:

H_1: E-service quality significantly affects behavioral intentions towards e-learning

H_2: Interactivity significantly affects behavioral intentions towards e-learning.

H_3: Student comfort with e-learning significantly affects student behavioral intention towards e-learning.

H_4: Student familiarity with e-learning significantly affects student behavioral intentions related to e-learning.

H_5: Satisfaction with e-learning affects behavioral intentions related to e-learning.

H_6: Satisfaction mediates the relationship between e-service quality and behavioral intentions with e-learning.

H_7: Satisfaction mediates the relationship between interactivity and behavioral intentions with e-learning.

H_8: Satisfaction mediates the relationship between comfort with e-learning and behavioral intentions with e-learning.

H_9: Satisfaction mediates the relationship between familiarity with e-learning and behavioral intentions with e-learning.

Accordingly, the research framework could be presented using the following figure:

Figure 3.1   Research Framework

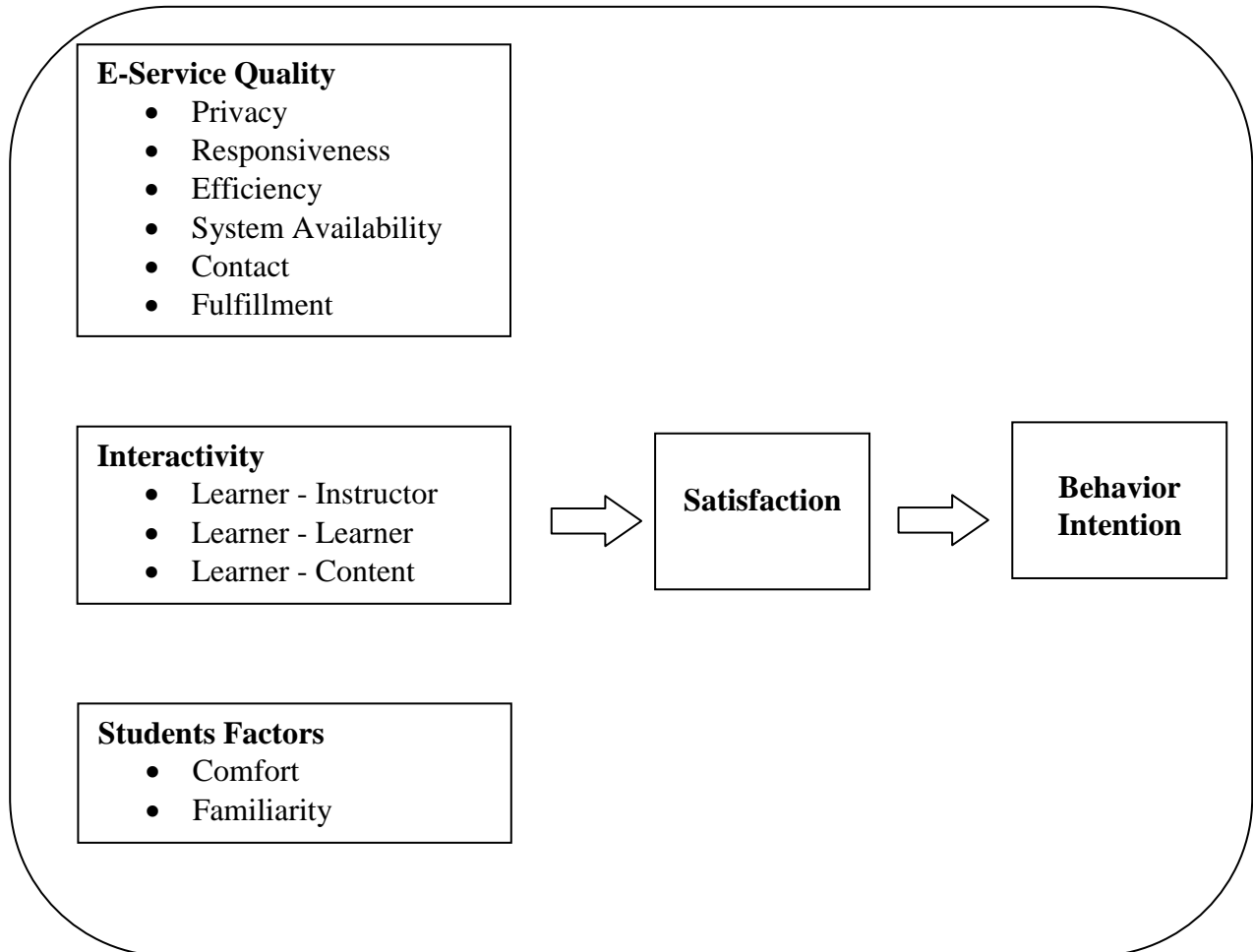**Research Results and Findings**

To test the hypotheses mentioned above, the current research used the structural equation modeling (SEM). This requires testing the validity and reliability of the research variables as well as presenting a descriptive analysis of the demographics under study. After that, the researcher will present the hypotheses testing through the model constructed using SEM.

Validity and Reliability of the Research Variables

To test the validity of the research variables, confirmatory factor analysis was used to calculate the Average Variance Extracted (AVE) and Factor Loading (FL) of each construct. Therefore, confirmatory factor analysis using the principal component method was used to examine the convergent validity of e-service quality dimensions; fulfillment, responsiveness, contact, privacy, system availability, and efficiency, as well as interactivity dimensions; Learner − Instructor, Learner − Learner and Learner − Content, in addition to Students factors; familiarity with e-learning, and student comfort with e-learning.

Table 4.1 shows the results of the AVE and FL for each variable and the corresponding constructs. It could be observed that the AVE are all above 50% and the FL are all above 0.4 after deleting some items, which means that the research variables have adequate convergent validity.

Table 4.1   Average Variance Extracted and factor Loadings of items

Variables Under Study	AVE in %	Factor Loading of Items
Satisfaction		
Item 1	88.227%	0.882
Item 2		0.882
Behavioral Intention		
Item 1	89.449%	0.894
Item 2		0.894
E-Service Quality		
Item 1	60.199%	0.522
Item 2		0.553
Item 3		0.904
Item 4		0.429
Interactivity		
Item 1	71.670%	0.717

Item 2		0.717
Comfort		
Item 1	86.744%	0.867
Item 2		0.867
Familiarity		
Item 1		0.774
Item 2	84.410%	0.974
Item 3		0.785

Reliability test is an assessment of the degree of consistency between multiple measurements of a variable. Cronbach's alpha is the most widely used measurement tool with a generally agreed lower limit of 0.7. The following table provides an overview of the reliability scores. As can be seen from this table, all the alpha coefficients were above the required level of 0.7.

Table 4.2   Reliability Analysis for Research Variables

Scale	Number of items	Cronbach's Alpha
Satisfaction	2	0.855
Behavioral Intention	2	0.882
E-Service Quality	4	0.749
Interactivity	2	0.706
Comfort	2	0.767
Familiarity	3	0.890

Descriptive Analysis of the Research Variables

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures.

They include mean, minimum, maximum, range, variance, standard deviation, as well as the frequency of the variables under study.

Therefore, the frequency of an event is considered one of the tools of descriptive statistics, as frequency tables provide a very complete picture of the distribution of data for the variable.

Table 4.3 provides the frequency table for the research variables, where it could be found that none of the students in the sample under study see they are very satisfied regarding any of the research variables. On the other hand, the greatest number of the sample under study are dissatisfied regarding satisfaction (n=302) and familiarity (n=255). Also, the greatest number of the sample under study are neutral regarding Behavioral Intention (n=289) and Interactivity (n=257). Finally, the greatest number of the sample under study are satisfied regarding e-service quality (n=196) and comfort (n=257).

Table 4.3   Frequency Table for Research Variables

Variable	Frequency					Total
	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	
Satisfaction	0	302	59	32	0	393
Behavioral Intention	59	45	289	0	0	393
E-Service Quality	0	59	138	196	0	393
Interactivity	0	0	264	129	0	393
Comfort	0	104	32	257	0	393
Familiarity	61	255	77	0	0	393

Table 4.4 provides the frequency table for the demographics under study, where it could be found that 59% of the sample under study are males, while 41% are females. Also, 45% of the sample under study take one online

course in one of the public universities under study, 20% take two online courses, 16% take three online courses, 12% take four online courses, while only 7% take more than four online courses. In addition, it was found that 24% of the sample under study studied online courses for less than one hour, 35% studied online courses for one to five hours, 27% studied online courses for six to ten hours, while 14% studied online courses for more than ten hours. Finally, it was found that 23% of the sample under study are in the first year of university, 31% are in the second year, 18% are in the third year, while 28% are in the fourth year.

Table 4.4   Frequency Table for Demographics

Variable	Items	Frequency	Percent	Total
Gender	Male	236	59.0	400
	Female	164	41.0	
Number of Online Courses Taken	One Course	180	45.0	400
	Two Courses	80	20.0	
	Three Courses	64	16.0	
	Four Courses	48	12.0	
	More than 4 Courses	28	7.0	
Number of hours spent in the course	Less than one Hour	96	24.0	400
	1 – 5 hours	140	35.0	
	6 - 10 hours	108	27.0	
	More than 10 hours	56	14.0	
Student Grade	Year One	92	23.0	400
	Year Two	124	31.0	
	Year Three	72	18.0	
	Year Four	112	28.0	

Hypotheses Testing

In this section, the researcher will present the findings of the model significance through presenting the structural equation modeling results. This will provide a decision whether to accept or reject the hypotheses under study.

To be able to rely on the findings of the structural equation modeling, the fit indices should be calculated first for the assigned model, as they are important in knowing to which extent the model is good to represent the sample under study.

As mentioned by Hoelter, (1983), that the minimum discrepancy (CMIN) provides an indicator as to whether or not the estimated and observed matrices are different from each other. The GFI is a measure of the relative amount of variance and covariance in the sample covariance matrix that is jointly explained by the population matrix. The CFI provides an estimation of the fit of the hypothesized model being tested against that of a baseline model. Another index; which compares the hypothesized model with a baseline model, is the TLI, GFI, CFI or TLI index. If their values are close to one, then they indicate a good fit. There values could be within a range from zero to one. The RMSEA is one of the most informative criteria in covariance structure modeling, because it measures the amount of error present when attempting to estimate the population.

In the current research, SEM is employed in testing the hypothesis of the study beside the overall model that represents the summation of scale indicators. It was found that the values of the above mentioned indicators are almost acceptable, which means that all the model assumptions are valid and the researcher is able to rely on the model results in explaining the variation in the dependent variable. Table 4.5 shows the above mentioned indicators observed values and corresponding thresholds, where it was claimed that all values are almost acceptable.

Table 4.5   Fit measures of the Structural Equation Modeling
Source: AMOS

Measure	Model Results	Threshold
Chi-square/df (cmin/df)	1.627	< 3 good; < 5 sometimes permissible
p-value for the model	0.000	< 0.05
NFI	0.544	> 0.90
TLI	0.691	> 0.95
IFI	0.756	> 0.95
CFI	0.738	> 0.95 great; > 0.90 traditional; > 0.80 sometimes permissible
RMSEA	0.066	< 0.05 good; 0.05-0.10 moderate; > 0.10 bad
PCLOSE	0.005	> 0.05

The structural model comprises 13 variables, which are divided into e-service quality dimensions (including efficiency, contact, privacy, system availability, responsiveness, and fulfillment), interactivity (student–student interaction, student–instructor interaction, and student–content interaction), student comfort with e-learning, student familiarity with e-learning, e-satisfaction, and behavioral intentions.

Table 4.6 presents the standardized estimates, which indicate the relative contribution of each predictor variable to each outcome variable. In order to determine if the relationship is statistically significant, the estimate is divided by its standard error, yielding the critical ratio (CR), which can be interpreted as a t-value. Also, the corresponding P-values are presented, where a significant impact of the independent variable on the dependent variable means that the corresponding p-value is less than 0.05.

Observing the relationship between the e-service quality factors and behavioral intention, it could be observed that the p-value between efficiency and behavioral intention is 0.000, which means that p-value is less than 0.05, indicating a significant influence of efficiency on behavioral intention. Also, it could be observed that p-value corresponding to Privacy is 0.000, which is less than 0.05, indicating a significant influence of privacy on behavioral intention. Same result is observed for Responsiveness and fulfillment, where corresponding p-value was shown to be 0.000, which is less than 0.05, indicating a significant influence of both; Responsiveness and fulfillment on behavioral intention. The p-value between System Availability and behavioral intention is 0.029, which means that p-value is less than 0.05, indicating a significant influence of System Availability on behavioral intention. On the other hand, the p-value between Contact and behavioral intention is 0.130, which means that p-value is greater than 0.05, indicating an insignificant influence of Contact on behavioral intention. This means that the first hypothesis is partially supported, as the relationship between all e-service quality factors and behavioral intention is shown to be significant except for the relationship between Contact and Behavioral Intention.

Also, the relationship between Efficiency and Behavioral Intention was found to be the strongest, with CR of 6.404. Also, the relationships between Responsiveness, Privacy, fulfillment and Behavioral Intention were found to be strong with CR of 5.389, 4.452 and 4.091 respectively. After that, the relationship between system availability and behavioral intention was found to be weak, with CR of 2.170. Finally, the relationship between contact and behavioral intention was found to be the least, with CR of 1.513.

Regarding the relationship between the interactivity factors and behavioral intention, it could be observed that the p-value between student–student

interaction and behavioral intention is 0.068, which means that p-value is greater than 0.05, indicating an insignificant influence of student–student interaction on behavioral intention. Also, it could be observed that p-value corresponding to student–instructor interaction is 0.075, which is greater than 0.05, indicating an insignificant influence of student–instructor interaction on behavioral intention. Same result is observed for student–content interaction, where corresponding p-value was shown to be 0.380, which is greater than 0.05, indicating an insignificant influence of student–content interaction on behavioral intention. This means that the second hypothesis is rejected, as the relationship between all interactivity factors and behavioral intention is shown to be insignificant.

Observing the relationship between Student Comfort and behavioral intention, it could be observed that the p-value between Student Comfort and behavioral intention is 0.000, which means that p-value is less than 0.05, indicating a significant influence of Student Comfort on behavioral intention. Thus, the third hypothesis is supported.

Testing the relationship between Student Familiarity and behavioral intention, it could be observed that the p-value between Student Familiarity and behavioral intention is 0.022, which means that p-value is less than 0.05, indicating a significant influence of Student Familiarity on behavioral intention. Thus, the fourth hypothesis is supported.

Regarding the relationship between Satisfaction and behavioral intention, it could be observed that the p-value between Satisfaction and behavioral intention is 0.009, which means that p-value is less than 0.05, indicating a significant influence of Satisfaction on behavioral intention. Thus, the fifth hypothesis is supported.

Table 4.6   Structural Equation Modeling Results for the first model without the mediation effect

Source: AMOS

			Estimate	S.E.	C.R.	P
Efficiency	<---	Behavioral Intention	.289	.045	6.404	***
Contact	<---	Behavioral Intention	.074	.049	1.513	.130
Privacy	<---	Behavioral Intention	.222	.050	4.452	***
System Availability	<---	Behavioral Intention	.053	.024	2.179	.029
Responsiveness	<---	Behavioral Intention	.160	.030	5.389	***
Fulfillment	<---	Behavioral Intention	.163	.040	4.091	***
student–student interaction	<---	Behavioral Intention	.112	.061	1.823	.068
student–instructor interaction	<---	Behavioral Intention	.070	.040	1.781	.075
student–content interaction	<---	Behavioral Intention	.049	.056	.879	.380
student comfort	<---	Behavioral Intention	.131	.033	4.008	***
student Familiarity	<---	Behavioral Intention	.084	.037	2.298	.022
Satisfaction	<---	Behavioral Intention	.145	.056	2.605	.009

Table 4.7 presents the standardized estimates, which indicate the relative contribution of each predictor variable to each outcome variable in the presence of the mediation impact of satisfaction. It could be claimed that a lower significance impact of the independent variable on the dependent variable mediated by the mediator than the direct impact of the independent variable on the dependent variable with no mediation means that there is a partial mediation of the mediator. On the other hand, if the relationship turns to be insignificant in the presence of the mediator, then there is a full mediation of the mediator.

Observing the relationship between the e-service quality factors and behavioral intention mediated by satisfaction, it could be observed that the p-value between efficiency and behavioral intention is 0.021, which means that p-value is less than 0.05, indicating a significant influence of efficiency on behavioral intention. Same result is observed for Responsiveness and fulfillment, where corresponding p-values were shown to be 0.025 and 0.003, which is less than 0.05, indicating a significant influence of both; Responsiveness and fulfillment on behavioral intention mediated with satisfaction. The significance shown in this case is lower than the significance shown in the direct relationship between efficiency, Responsiveness and fulfillment on behavioral intention. On the other hand, the p-values of Contact, Privacy and System Availability were shown to be 0.252, 0.349 and 0.168 respectively, which are greater than 0.05, indicating an insignificant impact of the latter variables on behavioral intention mediated by satisfaction. The above results mentioned means that satisfaction was found to be a partial mediator between efficiency, responsiveness, fulfillment and behavioral intention. In addition satisfaction is a full mediator between privacy, system availability and behavioral intention.

Regarding the relationship between contact and behavioral intention mediated by satisfaction, it was found to be insignificant but the direct relationship between contact and behavioral intention with no mediation was insignificant as well. Accordingly, there is no mediation impact as there is no direct impact. Thus, the sixth hypothesis is partially supported.

Considering the relationship between interactivity factors and behavioral intention mediated by satisfaction, it was found to be insignificant but the direct relationship between interactivity factors and behavioral intention with no mediation was insignificant as well. Accordingly, there is no mediation impact as there is no direct impact. Thus, the seventh hypothesis is rejected.

Observing the relationship between Student Comfort and behavioral intention mediated by satisfaction, it could be observed that the p-value between Student Comfort and behavioral intention is 0.000, which means that p-value is less than 0.05, indicating a significant influence of Student Comfort on behavioral intention. The significance shown in this case is lower than the significance shown in the direct relationship between Student Comfort and behavioral intention. Thus, the eighth hypothesis is supported.

Observing the relationship between Student Familiarity and behavioral intention mediated by satisfaction, it could be observed that the p-value between Student Familiarity and behavioral intention is 0.036, which means that p-value is less than 0.05, indicating a significant influence of Student Familiarity on behavioral intention. The significance shown in this case is lower than the significance shown in the direct relationship between Student Familiarity and behavioral intention. Thus, the ninth hypothesis is supported.

Table 4.7   Structural Equation Modeling Results for the second model with the mediation effect

Source: AMOS

			Estimate	S.E.	C.R.	P
Efficiency	<---	Behavioral Intention	.086	.037	2.314	.021
Contact	<---	Behavioral Intention	.047	.041	1.146	.252
Privacy	<---	Behavioral Intention	.043	.045	.937	.349
System Availability	<---	Behavioral Intention	.122	.088	1.380	.168
Responsiveness	<---	Behavioral Intention	.493	.220	2.243	.025
Fulfillment	<---	Behavioral Intention	.107	.036	2.972	.003
student–student interaction	<---	Behavioral Intention	.148	.143	1.036	.300
student–instructor interaction	<---	Behavioral Intention	.019	.011	1.669	.095
student–content interaction	<---	Behavioral Intention	.014	.020	.683	.495
student comfort	<---	Behavioral Intention	.240	.047	5.152	***
student Familiarity	<---	Behavioral Intention	.015	.007	2.100	.036

Discussion

With respect to the relationship between e-service quality dimensions and behavioral intentions, a strong significant relationship was found. Efficiency, Responsiveness, Privacy and fulfillment are the most important dimensions that form students' behavioral intentions, followed by System Availability. System availability is also significantly related to behavioral intentions, while contact is insignificantly related to behavioral intentions. This finding is similar to a great extent to the results obtained by Headar et al., 2013.

Regarding the effect of interactivity on behavioral intentions, all interactivity factors are found to be insignificantly affecting behavioral intention. This means that students are not able to get any information about lectures, tests, course material, or even feedback from the instructors through the university website. This result contradicts totally with that obtained by Headar et al., 2013.

Both student comfort and familiarity with e-learning are found to affect students' behavioral intentions. This could be interpreted as the fact that as long as students are comfortable in using the e-learning system and are familiar with it, they are willing to reuse it in the future.

Another finding relates to e-service quality dimensions, comfort with e-learning, and familiarity with e-learning, and their effects on behavioral intentions mediated by student satisfaction with e-learning. Satisfaction was found to mediate the relationship between e-service quality factors (Efficiency, Privacy, fulfillment, Responsiveness and system availability), Student familiarity and student Comfort and behavioral intentions either fully or partially. This result totally contradicts with that of Headar et al., 2013. This might be referred to the fact that students of public universities are not obliged to use the online service as those of private universities. Despite that this is not really good, but this gives the chance for students not

to use the university website unless they are really satisfied with it and willing to reuse it.

Conclusion and Recommendations

This study investigated the quality perception of bank customers in Egypt and the differences in relative importance they attach to the various quality dimensions using both; e-service quality and internet banking models. The internet banking model appears to be a more reliable scale to measure banking service quality, and provide a useful diagnostic role to play in assessing and monitoring service quality in banks. E-learning in public universities is still missing a lot of focus to reach the space where to find satisfaction is not a mediator at all.

The study showed the impact of e-service quality on the behavioral intention which was shown to be a strong one. Thus, public universities should give a lot of care and support to the different e-service quality factors, especially efficiency, responsiveness, privacy and fulfillment respectively.

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