Assessing the Satisfaction of Students from E-learning System of Jazan University: Evidence from Partial Least Squares

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Abstract

The main objective of the present paper is to determine the predictors of Students’ satisfaction about e-learning system in Jazan University. The concept of satisfactions of learners in higher educational institutions made up the most significant indicator of the quality of education. The rising establishment of web portal and e-learning systems in all colleges posed the question of quality of learning through the usage of these systems. The issue of satisfaction of learners from e-learning has attracted the attention of several scholars and researchers to find out the factors affecting the quality of learning in higher educational institutions. The conduct of a questionnaire on 421 students from higher institutions of education belonging to the University of Jazan, allowed to highlight the importance of “Facilities and Infrastructure” and “Financial aid” as the most significant predictors of the satisfaction of students from e-learning system of Jazan.

Keywords: Students’ Satisfaction, Questionnaire, Partial Least Squares, Higher Education.

Introduction

Technology continues to play primordial role in improving the standards of living of humans and in rising the productivity of factors. The present paper pose some significant questions regarding the contribution of technology in higher education in overall, and especially on students’ satisfaction. During the last decades, Saudi Arabia had implemented technology in all the economic fields, all the Saudi banks provide modern services through their electronic portals and their ATM, to facilitate the transactions
in the kingdom. The present paper attempts to determine if technology had beneficial effects on higher education in overall, and on female students in KSA.

For higher education, the University of Jazan had established the system of e-learning called “jump”. It is a new portal providing web courses, designed to help students to finish their studies online. The portal of the university allows to students to select the courses they would like to learn in the coming semester, they receive their timetable online and their attendance and final marks are done online.

The University of Jazan attributed a prime attention for the satisfaction of students through conducting every semester a questionnaire, filled by students to assess the course and its contribution on their knowledge through analyzing several fields: like technology utilized, expertise of teacher, appropriateness of the timetable.

The establishment and the activation of these online services in the University of Jazan remain in line with the trend of all Saudi higher education institutions, targeting the facilitation of access to the information and to improve the productivity of their administration and academic division. Such enhancements focusing on inserting technology in the administration made up several millions of dollars of funds allocated to modernize the administrative and academic services of the University of Jazan.

Literature Review

In overall, the satisfaction concept is related to marketing as indicator about the performance of the company offering services to its customers. Its application on higher education institutions had valuable effects to assess the effectiveness of these institutions regarding the quality of education they offer.

From managerial perspective, the satisfaction of customers remains the most significant variable reflecting the quality of the product or the service supplied in the market. In the empirical researches about students’ satisfaction, we assume that students are the direct targets of the educational process in Universities, and thus, we consider them as customers of the educational services and thus, their satisfaction made up the best indicator reflecting the quality of services perceived in the Universities.

The firm review of various studies allowed underlining the association between the concepts of education quality and students’ satisfaction. The paper of Malik et al (2010) underline the significance of quality of education as attracting factor for students to achieve their higher education through measuring the satisfaction of students in higher educational institutes.

The authors assimilated education as service provided by Universities that should make up the object of measurement and assessment to ensure the quality of education. The last conclusion remains in line with the outcome of the theoretical background of the survey of Hanaysha et al (2011). In their study, the authors attempted to identify the dimensions of competitiveness inside the Malaysian Universities to ensure the quality of education through measuring the students’ satisfaction.

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Behaviorist Theory

The theory assumes that psychological field is the best scientific approach that could illustrate the foundations of learning and knowledge transfer. Behaviorism provided explanation of learning through studying the behavior of the learner and the teacher.

According to this approach, learning is the result of physical stimuli. They also highlighted that learning is highly associated with reinforcement, training, practice, motivation and on the behavior of the learner himself. Referring to Ertmer & Newby (1993), behaviorist perspective of learning depends on the stimulus, the answer and the relationship between them. For Behaviorists, there is 2 major elements playing crucial role in learning: the learner and the environmental factors.

Psychologists, supporting the Behaviorism, studied the behavior of teachers and learners as method to find out the essence of the learning process. According to Fosnot & Perry (1996) found that skills, practices and experiences of teachers in addition to the role of clear communication are the major predictors of effective learning.

Constructivist Theory

According to the constructivist theory, Learning is a global process of construction that depends on development and deep understanding of the course rather than the learner attitude of skills. The interaction of learner with the course made up the principal motivation to improve their knowledge.

According to constructivist approach, learning is the result of active process of construction. In the paper of Dubinsky & McDonald (2001), the author asserted that the construction of knowledge relies on personal experiences and environmental factors affecting directly the process of learning. Referring to Elworthy (2004), constructivism stems from the psychological foundations, the doctrine gave prime attention for the crucial role of experiences and presentation on learning outcome.

Cognitive Theory

Wu et al (2010) highlighted the significance of social cognitive theory to illustrate the emergence of e-learning a highway to facilitate the transfer of knowledge. The authors asserted that social cognitive theory made up a wide empirical model that had been validated through several empirical researches. The theory focuses on illustrating and expecting the change in human attitude and to determine the innovative manner to facilitate the education and the transfer of knowledge to students.

Cognitive theories gave prime attention for issues related to the manner of receiving information, organizing, storing and retrieving by learner. Thus, the acquisition of knowledge is considered as mental activity resulting from internal coding and assimilation by students.

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The authors also underlined the significance of environmental factors as driving the learner’s attitude, the researchers stressed the contribution of social and physical environments on the performance of learning in higher institutions. The impact of physical and social environmental components on the quality of e-learning in Saudi Arabia in the present research.

In the last decades, Saudi Arabia spent huge amounts to ensure the quality of education in its educational institutions, including the universities, targeting the accreditation of the numerous colleges performing inside the kingdom. The program of quality assurance and accreditation applied in all Saudi universities target to enhance the quality of learning and teaching to improve the quality of training and knowledge of future human capital.

Previous Studies

The thorough review of literature regarding the contribution of technology allowed to underline the abundance of researches on that issue from several online services provided by Universities: especially e-learning and web courses.

In fact, the utilization of technology in e-learning needs some abilities from the students to use these portals. The present conclusion is shared by the paper of Liaw (2008)\(^8\), the author attempted to better understand the dissatisfaction of some students from e-learning system, and found the significance of self-efficacy of student to utilize the system and thus to ensure its satisfaction from the online learning in the Universities of Taiwan in 2008.

According to Laia et al (2015)\(^9\), the importance of skills of students in technologies is a major predictor of academic satisfaction from e-learning programs. Students with technological skills are more satisfied by the e-learning system implemented in Malaysian Universities.

In the empirical investigation of Eom & Wen (2006)\(^10\), the authors underlined the significant contribution of six variables: self-motivation, learning style, interaction, instructor feedback, course structure and instructor facilitation as the major predictors of the perceived learning outcome in online education in Universities of New Zealand.

The e-learning has recorded rapid growth inside Universities, as highway to deliver information for students and to facilitate the transfer of knowledge, inciting educational institutions to enhance the quality of online education through determining the key factors affecting the satisfaction of students.

According to Sun et al (2006)\(^11\), the market of e-learning has grown by more than 36% in 2006 in USA. In their survey, the authors found that panel of factors are influencing the satisfaction of students in American universities: anxiety of computer, flexibility and quality of the online course, ease of use of the system and the attitude of the teacher.

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In the research of Wu et al. (2010), the authors attempted to assess the satisfaction of students from the e-learning system through conducting a questionnaire on 212 participants utilizing the method of Partial Least Squares. The results highlighted the importance of several factors contributing statistically significant on the students’ satisfaction: the self-efficacy of the student, the overall climate of learning and the performance expectations are the principal drivers of the satisfaction of students in Taiwanese Universities.

For Paechter et al. (2010), the conduct of a survey on 2196 students form 29 universities in Austria regarding their expectations and their experiences from online courses. From the empirical investigation arose that the aspects of the course and the students’ goals are the most significant factors playing pivotal role for the success of e-learning in Austrian universities.

According to Violante & Vezzetti (2015), the examination of the level of satisfaction of students from web-based learning allowed to underline the major contribution of interactivity as the most important factor for the success of e-learning system in Italian medial universities. The same finding is shared by Venkataraman & Sivakumar (2015).

These authors found that interaction of students with the content of e-learning course had major role in the satisfaction of students in higher educational institutions. Referring to Kuo et al. (2014), the survey applied on a sample of 221 students, authorized to highlight that learner interaction with the online course had significant influence on students’ satisfaction.

According to the survey of Zhang et al. (2005), the implementation of interactive video of learning had positive and significant impact only if it is associated with an instructional video in that system. The instructional video demonstration had raised the satisfaction of learners from the system of e-learning. Referring to Shee & Wang (2008), the authors highlighted the important contribution of the web interface of learning in influencing the satisfaction of students.

**Empirical investigation**

In the present paper, we attempts to find out the impact of various factors on the satisfaction students from the e-learning system in Jazan University. The data collected from a questionnaire applied on 421 students from 7 principal colleges from Jazan University. The model of the paper is in line with the SEM: Simultaneous Equations Model, as presented in Figure 1.

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Methodology

The empirical research focuses on the conduct of a questionnaire that we utilized to determine the effect of each variable on learners’ satisfaction from the e-learning system. In the present paper, we adopted the method of Partial Least Squares (PLS), by using the software SmartPLS19.

Findings

The estimation of the model by using the software SmartPLS allowed to find the following findings:

<table>
<thead>
<tr>
<th>Table I Validity tests of the model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilities of Students</td>
</tr>
<tr>
<td>Administrative services</td>
</tr>
<tr>
<td>Contribution of teachers</td>
</tr>
<tr>
<td>Facilities</td>
</tr>
<tr>
<td>Financial aid</td>
</tr>
<tr>
<td>Satisfaction from e-learning</td>
</tr>
</tbody>
</table>

The firm analysis of the results of Table 1 authorizes to highlight that the model was well presented by the questionnaire. The different latent variables utilized in the model are fitting with the items chosen to measure them.

The value of Cronbachs alpha, exceeding 0.6, are revealing the high correlation between the variables of the model and their factor grouping. Thus, the measures conducted are reflecting effectively the latent variables.

For the Average Variance Extracted (AVE) values, we can denote that they are exceeding the critical value of 0.6, this allows to underline the convergent validity of the model is verified. For the value of Composite reliability, exceeding the value of 0.8, they confirm the good fitness of the model with reality, they confirm that the questions utilized in the questionnaire are fitting with the items of the model.

Table II Matrix of correlation

<table>
<thead>
<tr>
<th></th>
<th>Abilities of Students</th>
<th>Administrative services</th>
<th>Contribution of teachers</th>
<th>Facilities</th>
<th>Financial aid</th>
<th>Satisfaction e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilities of Students</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrative services</td>
<td>0.473</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Contribution of teachers</td>
<td>0.6382</td>
<td>0.5946</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.3183</td>
<td>0.526</td>
<td>0.4742</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Financial aid</td>
<td>0.3674</td>
<td>0.4232</td>
<td>0.4769</td>
<td>0.4316</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Satisfaction e-learning</td>
<td>0.4156</td>
<td>0.4504</td>
<td>0.5274</td>
<td>0.5625</td>
<td>0.5781</td>
<td>1</td>
</tr>
</tbody>
</table>

For the matrix of correlation presented by table 2, it arose that all the latent variables utilized in the model are positively correlated. It seems also the high association between “Contribution of teachers” and “Administrative Service”, the big correlation indicates the serious environment of working inside the colleges of Jazan university. Also, we could underline the big correlation between “Abilities of Students” and “Contribution of teachers”, students with good abilities are better instructed facilitating the transfer of knowledge and teachers are contributing in improving these abilities through the courses and lectures.

Table III Impact of the variables on students’ satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Original Sample</th>
<th>Standard Error</th>
<th>T-Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilities of Students -&gt; satisfaction e-learning</td>
<td>0.0882</td>
<td>0.1006</td>
<td>0.8761</td>
</tr>
<tr>
<td>Administrative services -&gt; Facilities &amp; infrastructure</td>
<td>0.526***</td>
<td>0.0659</td>
<td>7.9851</td>
</tr>
<tr>
<td>Administrative services -&gt; satisfaction e-learning</td>
<td>0.173*</td>
<td>0.0987</td>
<td>1.7566</td>
</tr>
<tr>
<td>Contribution of teachers -&gt; satisfaction e-learning</td>
<td>0.160*</td>
<td>0.1048</td>
<td>1.7266</td>
</tr>
<tr>
<td>Facilities &amp; infrastructure -&gt; satisfaction e-learning</td>
<td>0.310***</td>
<td>0.0933</td>
<td>3.3245</td>
</tr>
</tbody>
</table>

Interpretation and Discussion

Table 3 shows the nature of the relationships existing among the various latent variables of the model. The abilities of students had positive but statistically non-significant on their satisfaction from e-learning. The easiness of utilization of the portal web and the system of e-learning of Jazan University did not need strong knowledge in information technology to access the courses, it illustrates the non-significance of abilities in technologies of students did not really affect their satisfaction from the e-learning system in overall.

The administrative services had a positive effect on the facilities of the colleges, the impact is statistically significant at 1%. For the impact of administration on students’ satisfaction from e-learning the effect is positive and statistically significant at 10%. In fact, the administrations of all colleges of Saudi Universities provide valuable online services for teachers and students through their web portal. The administration of Jazan University attempts to enhance their facilities through continuous control the upgrade of its systems...
for one purpose: to improve the online services. As concluded by Selim (2007)\textsuperscript{20}, the author stressed that administration of the university and facilities are the essential keys to the success of e-learning system.

Regarding the positive relationship existing between the contribution of teachers and the satisfaction of students from e-learning system, we could illustrate the finding by the efforts exerted by all teachers of the colleges through uploading the courses and the syllabus through the system of e-learning, called “jump”. The bulk of teachers in Jazan University are developing slides and presentation to facilitate the transfer of information in class and through the system of e-learning of the university. The present argument is shared by the survey of Sun et al (2008)\textsuperscript{21}, the authors found that interaction with the teacher played major role in the satisfaction of students in Taiwanese Universities.

Facilities and infrastructure of higher educational institutions in Jazan had a positive impact on the satisfaction of learners from e-learning system, the effect is statistically significant at 1%. The utilization of recent servers and new technologies and software had necessarily positive impact on the quality of e-learning, and thus, on satisfaction of students. As underlined by Lee & Lee (2008)\textsuperscript{22} and Eom et al (2006)\textsuperscript{23}, the quality of facilities provided by universities as: infrastructure, hardware, software are promoting learning across distances, ending by positively affecting the satisfaction of students from e-learning process.

For the financial aid provided by the university to students, it has a positive impact and statistically significant at 1%, we could illustrate the finding by the low fees of access to internet in Saudi Arabia in addition to the financial aid provided (226$/per month) had facilitated their access to internet through mobile network, and the access to new technology gadgets through the bought of smartphone or tablet.

As recommendation, the university should allow more attention for the contribution of teachers in the system of e-learning and to the enhancement of administrative services that remains, significant only at threshold of 10%. The University of Jazan should focus on improving the online services of the different administrations, changing, adding and deleting courses is not allowed online in the colleges, reducing the overall contribution of the administration in the colleges of higher education in Jazan.

**Conclusion**

The present paper elucidated that Jazan University had exerted several efforts to improve the quality of learning, especially, through the introduction of e-learning system. The survey had shown that students are satisfied from the e-learning experience through the system of “jump”.

Financial aid and the quality of infrastructure and facilities in the university had played pivotal role in the satisfaction of students utilizing the system of e-learning. Although, there is a contradiction with other surveys, the abilities of the students in technologies did not have a significant impact on the satisfaction of students, due to the simple interface utilized by learners and the ease of utilization of the platform of web courses by learners.


The utilization of other social variables that could play the role of predictors of the satisfaction of students to determine if there are discrepancies related to gender. In addition to the deep analysis of the satisfaction by gender in the University of Jazan could make up another interesting issue to analyze.

Acknowledgment

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