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Role of Attitude in Utilization of Jusur LMS in Saudi Arabian Universities
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Abstract

The purpose of this study was to determine the faculty members’ utilization of Jusur LMS and their attitudes toward using Jusur LMS in Saudi Arabian universities. The article also examines whether Jusur LMS utilization is affected by attitude and demographic variables such as computer experience and age. This study is quantitative in nature and employs a descriptive co-relational research design. The sample of this study consists of 454 faculty members. Data were gathered through a questionnaire, and the findings indicated that the faculty members’ attitude is more significantly related to the utilization of Jusur LMS rather than to the demographic variables. Further analysis also reveals that the overall attitude toward Jusur LMS is significantly better at predicting frequency than the volume of Jusur LMS utilization. In addition to attitude, computer experience appears to exert only little influence on Jusur LMS utilization.

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Keywords: Jusur Learning Management System; Attitude toward Jusur LMS; Jusur LMS Utilization; Saudi Higher Education

1. Introduction

The adoption of new Information Technology (IT) software such as Jusur LMS for the specific purpose of implementing it in the public educational arena is generally based on the assumption that the majority of faculty members would immediately and readily integrate it into their teaching processes. Whether or not this assumption translates into a reality, however, depends partly on the faculty members’ attitude toward Jusur LMS. Attempts of successful Jusur LMS implementation must take into account the extent to which faculty members are aware if it and have accepted it as an instructional tool (Asiri, Mahmud, Abu-Bakar, **Corresponding author. Tel.: +60127716168; fax: +60 3-89468246, E-mail address: msherbib8@hotmail.com

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& Ayub, 2012). Hence, the decision makers in the Saudi Arabian Ministry of Higher Education should be cautioned as not to readily assume that the implementation of Jusue LMS as a new e-learning tool is taking place automatically. It needs to be ascertained at this stage of development whether faculty members in general have a positive or a negative attitude toward Jusur LMS. Only then appropriate and timely measures can be taken to increase the level of awareness and acceptance in order to ensure that the implementation of Jusur LMS does not remain in name only. Attitude toward technology have been widely investigated by the researchers, because it appeared to be a significant factor in the attention to use of Information Technology (IT). According to Zhao, Pugh, Sheldon and Byers (2002), the attitudes of the faculty members play a key role in the successful of any plan aimed at implementing technology in an educational program.

Jusur LMS has been developed according to universal standards (fig.1.). The six main functions which can be achieved through the Jusur LMS environment which are as follows:

- Log in: registering students at a portal.
- Scheduling: planning courses and determining teaching methods.
- Delivery: making the course available for users.
- Tracking: following up student progress and issuing performance reports.
- Communication: students share and exchange information through forums, emails and file sharing.
- Evaluation: testing students through quizzes and examinations and grading them.

Fig. 1. (a) Screenshot of Jusur’s main interface design. (b) Screenshot of Jusur’s tools

Al-Khalifa (2010) surveyed the advantages of Jusur LMS from the perspective of students. She reported that students viewed that Jusur was user friendly, easy to operate, helped students to complete the task quickly, offered technical support in the form of error messages, enabled users to access information and activities at anytime and anywhere. On the other hand, Al-Salum (2009) pointed out the limitations of Jusur LMS features, such as accommodating only English and Arabic language content and the instructors’ dependence on the support centre.

According to Al-Judi (2011), the majority of Saudi Arabian faculty members did not use Jusur LMS to design interactive online courses and required additional training in creating interactive e-courses with Jusur LMS. Furthermore, the faculty’s overall utilization of Jusur LMS had not yet reached the required level. Similar results were reported by Woodsa, Bakerb and Hopperc (2004) who highlighted that the faculty use of innovative technology for teaching purposes still lay below the satisfactory level.

In previous studies, the utilization of technology has been measured in several ways. For instance, Turner, Kitchenham, Brereton, Charters and Budgen (2010) asserted that the actual utilization of a technology, specifically that of computer networks, could be measured using either objective or subjective formats. Objective measures are usually generated by using the system’s tracking tools to calculate the number of times faculty staff logged on to the system, while the subjective measures of usage are based upon...
individual opinion, usually documented via a completed questionnaire. Other researchers like Jones and Hubona (2006) contended that the actual utilization of a system should rather be assessed while dividing it into two sub-dimensions of frequency and volume based on the time and the period in which the system is used. They believed that the individual beliefs variables could explain frequency of usage better than volume of usage.

The Saudi Arabian Ministry of Higher Education has introduced Jusur LMS four years ago. However, its successful implementation strongly depends on the attitude of faculty members towards Jusur LMS. This paper examines the relationship between the end-users’ attitude and Jusur LMS utilization in Saudi Arabian universities. Other variables such as computer experience and age are also investigated to test their effects on Jusur LMS utilization.

2. Literature Review

2.1. The Role of Attitude toward Jusur LMS

According to Fishbein and Ajzen, “attitude can be described as predisposition to respond in a consistently or unfavorable manner with respect to a given object” (Fishbein & Ajzen, 1975, p. 6). Schafer and Tait (1986) refer to attitude as a set of feelings and tendencies that influence a person’s decision toward people, ideas, or objects. These feelings and tendencies can be positive or negative and can be formed in relation to objects or people. The attitudes variable consists of the three components affection, cognition, and behaviour. The affective component usually represents an individual’s emotional response or liking to a person or object, the cognitive component reflects a person’s factual knowledge of a person or object, and the behavioural component involves a person’s overt behaviour directed toward a person or object (Zimbardo, Ebbesen, & Maslach, 1977). Al-Khaldi and Al-Jabri (1998) asserted that individual attitude consists of what a person feels about an object (affective), think (cognitive), and plan to do in the future (behavioral).

The success of any initiative intended at implementing technology in an educational program depends strongly upon the attitudes of the faculty members involved (Al-Erieni, 1999; Clay, 1999; Davis, Bagozzi, & Warshaw, 1989; Hamdi, 2002; Zhao, et al., 2002). Faculty members who hold positive attitudes toward technology in general feel comfortable using it and are more ready to overcome arising obstacles (Albirini, 2006; Hamdi, 1991). Teo (2008) examined the attitudes towards the use of computers shared by pre-service teachers and found that a significant relationship existed between the overall attitudes and the level of computer confidence. Al-Khaldi and Al-Jabri (1998) reported that the instructors’ attitude did not only relate to the use of computer among the users but could also predict their computer usage. Faculty members with positive attitudes toward technology felt comfortable using it and were more ready to overcome arising obstacles (Albirini, 2006).

According to Hamdi (1991), one of the major challenges to the use of IT in education are the instructors’ attitudes toward technology. She stated that the instructors’ positive attitudes toward technology could only be enhanced if they were aware of their new roles as supervisors and facilitators of a technological model of instruction. Pac (2008) noted that if educators perceived a proposed technology system as fulfilling their own or their students’ needs, they were more likely to incorporate it into their teaching.

Since positive attitude predicts the actual use of technology, the attitude factor has been widely measured in the arena of technology use (Kim, Chun, & Song, 2009; Porter & Donthu, 2006; Yang & Yoo, 2004). For example, Yang and Yoo (2004) investigated the relationship between the affective attitudes and the cognitive attitudes of users and the extent of their usage of technology. They found that technology usage
was more predicted by cognitive attitudes than affective attitudes. Moreover, Porter and Donthu (2006) concluded that the users’ attitude toward using the Internet was positively associated with their usage. McGill and Klobas (2009) examined the role of task–technology fit in Learning Management System (LMS) success and found that the users’ utilization of LMS was affected by their attitude toward LMS. In the same context, Kim et al. (2009) categorized attitudes toward using technology into strong and weak attitudes. Strong attitudes fully mediated the effect on using technology, while weak attitudes seemed to be only partially related to the use of a system. Hence, if faculty members have formed positive attitudes toward Jusur LMS, they are more likely to be motivated to use Jusur LMS.

2.2. Computer experience and age variables

According to Henry and Basile (1994), demographic factors and user characteristics are also likely to have an impact on the use of technology. Variables such as age and computer experience have been identified as non-attitudinal variables affecting technology use. In respect to age it was observed that young faculty members working as lecturers or assistant professors were more likely to use innovative technology than older faculty members (Al-Saif, 2005). Porter and Donthu (2006) observed that more senior faculty members chose to avoid the use of computer and internet caused by perceived levels of difficulty and anxiety associated with the former. Al-Gahtani, Hubona and Wang (2007) and Teo (2008), on the other hand, did not observe any age impact among instructors in their behavioural intention to use technology.

Computer experience has been also identified as another factor influencing the extent to which faculty members use IT in their lecture halls (Al-Khaldi & Al-Jabri, 1998; Burton-Jones & Hubona, 2006; Teo, 2008; Tondeur, Hermans, Braak, & Valcke, 2008; van-Braak, 2001). For example, Al-Khaldi and Al-Jabri (1998) found that the extent of computer experience directly affected the utilization of technology used in instruction. Tsai and Tsai (2010) found that individuals who used the internet more than two hours per day tended to use computer technology more than those who has less experience in this field. Similarly, van-Braak’s (2001) study revealed a positive relationship between computer experience and use in respect to those faculty members who frequently used such networks at home. Hence, it can be established that age and computer experience play a key role in the use of Jusur LMS among Saudi Arabian faculty members.

3. The study

A wide array of studies has investigated the beliefs and attitudes of faculty members towards different sets of ICT. Thus far, the investigations on the faculty members’ attitudes towards Jusur LMS in Saudi Arabia are limited. The theoretical foundation of this research is based on the research of Albirini (2006) and Burton-Jones and Hubona (2006). The purpose of this study was to determine the faculty members’ level of Jusur LMS utilization as well as the faculty’s attitudes toward using Jusur LMS in Saudi Arabian higher education. It furthermore aimed at examining the relationship between the faculty members’ utilization of Jusur LMS in relation to their attitudes. Additionally, the faculty members’ personal characteristics such as age, experience in using computer were also included in order to determine their effects on Jusur LMS utilization. Finally, studying how the overall attitude could predict the frequency of utilization more than volume of usage seems to be important. This study aimed at answering the following research questions:

1. What is the faculty members’ utilization level of Jusur LMS?
2. What are the faculty members’ attitudes toward Jusur LMS in education?
3. Is there a significant relationship between the parts of attitude scale and utilization of Jusur LMS?
4. Is there a significant relationship between characteristics of faculty members including age and years of computer experience and utilization of Jusur LMS?
5. Does the overall attitude predict the frequency more than volume of utilization?

4. Methodology

This study is quantitative in nature and employs a descriptive co-relational research design. The target population for this study counts 18328 faculty members teaching at 11 Saudi Arabian public universities applying Jusur LMS for teaching and learning procedures in May 2011. The selected universities are geographically located in the central, western, northern, and southern region of Saudi Arabia.

By using the proportional stratified cluster sampling, one university of each region is chosen randomly, and the number of participants from each university determined in proportion to the population size. The data are subsequently subjected to descriptive and inferential analysis. Descriptive analysis involves frequencies, percentages, means, and standard deviation, while inferential analysis includes Pearson’s product-moment correlation coefficient, and simple linear regression. The obtained quantitative data are analyzed by using the Statistical Package for Social Sciences (SPSS) Version 19.0.

4.1 Respondents

Anticipating that a certain percentage of prospective participants would not respond to the questionnaire, 70% more faculty members than necessary to achieve the minimum sample size were invited to participate in the survey. The research instrument was in the form of an online questionnaire. In collaboration with the National Center for E-learning and Distance Learning (NCEL) in Saudi Arabia, a total of 666 faculty members were emailed the link to the survey questionnaire on 15 June 2011. The individuals in question were employed at four selected Saudi Arabian public universities, and out of this 454 responses were valid and analyzed. The response rate amounted to 68.2%.

4.2 Instruments

A utilization scale was developed to obtain the information needed for the study. The design of the questionnaire was guided by reviewing past literature (Al-Asmari, 2005; Burton-Jones & Hubona, 2006; Chang, 2008; Coulter, 2004; Turner, et al., 2010). It consisted of 18 numbered items and was divided into two sections, namely frequency (13 items) and volume of utilization (5 items). Frequency of Jusur LMS use was measured by the number of times (e.g. twice per month) a faculty member utilized the system in the teaching and learning process. Volume referred to amount of time (e.g. 60 minutes per visit) spent by a faculty member using Jusur LMS over the same period. Both these two sub-scales were a 5 point Likert scale. In the frequency domain, respondents could rate their usage as always (> three times/month), often (thrice/month), sometimes (twice/month), rarely (once/month) or never (not at all). The volume of utilization domain, on the other hand, could be rated by the respondents as either “Never”, “Less than 30 minutes /visit”, “31 – 60 minutes /visit”, “61- 90 minutes/visit” or “More than 90 minutes/visit”. In regard of validity, utilization scales was evaluated primarily on content validity by a panel of three expert judges In terms of reliability, the Cronbach’s alpha reliability coefficients for these frequency and volume sub-scales were 0.79, 0.83 respectively, 0.87 alpha coefficient was rustle for the whole scale.

In respect to the attitude scale, a well documented instrument was adopted as the basis for designing the questionnaire for this study. Albirini’s (2006) Attitude Scale was modified to meet the attitude objective
of this investigation whose explicit permission to use and modify the instrument was obtained beforehand. The Attitude Toward Using Jusur LMS Scale was divided into three different domains which were affect (1-5 items), cognition (6-13 items), and behavior (14-20 items). The scale was a 5 point Likert scale (from 5 = strongly agree to 1 = strongly disagree). Eight items were formulated negatively, while the remaining items were formulated positively. In terms of reliability, Cronbach’s alpha reliability coefficients for the three sub-scales were: affect = 0.81, cognition = 0.87, and behavior = 0.82, while the Cronbach’s alpha value for overall scale was 0.90.

5. Result

5.1. Utilization of Jusur LMS

Based on mean scores, the Utilization Scale was categorized into three levels, namely low, moderate, and high Jusur LMS usage. Mean scores within the range of 2.34 to 3.67 were considered as being at a moderate level, mean scores below 2.34 as a low level, and mean scores above 3.67 a high level. Table 1 illustrates that the faculty members’ volume of usage was at a moderate level with a mean score of 2.58 (S.D.=.86). This indicates that seventy-eight point eight (78.8%) of the faculty members spent one hour or less on average per visit in the Jusur environment while browsing its features, chatting with students, teaching synchronously, discussing in forums, and reviewing student reports.

Table 1. Distribution of mean scores on the Volume of Jusur LMS Utilization Sub-scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Percent (%)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>8.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30*</td>
<td>39.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-60*</td>
<td>39.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61-90*</td>
<td>11.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;90*</td>
<td>1.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Minutes per one visit.

In terms of frequency of Jusur LMS utilization, the responses also reflected a moderate level (M= 2.93, SD= 1.04). 65% of the respondents used Jusur LMS sometimes (40.3%) or rarely (24.7%). This suggests that more than half of respondents utilized the Jusur LMS tools (e.g. Announcement tool, Assignment tool, Grade Book tool) at an average frequency of one or twice a month.

Table 2. Distribution of mean scores on the Frequency of Jusur LMS Utilization Sub-scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Percent (%)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>8.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>24.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td>40.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often</td>
<td>18.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>7.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2. Jusur LMS Attitude

As Table 1 illustrates, faculty members’ overall attitudes toward Jusur LMS were positive with a mean score of 3.84 (SD = 1.15). The respondents’ positive attitudes were evident within the affective (mean = 3.75), cognitive (mean = 3.82) and behavioral (mean = 3.73) domains. About 66.1% of the respondents had positive (33.9%) or highly positive (32.2%) affect toward computers. These respondents felt comfortable with Jusur LMS, were excited about the adoption of Jusur LMS in their universities, considered using Jusur LMS enjoyable, liked to talk with others about Jusur LMS, and liked to use it in teaching. Within the cognitive domain, most of the respondents agreed (26.4%) and strongly agreed (36.8%) that Jusur LMS saved time and effort, enhanced students’ learning progress, was a fast and efficient means of getting information, should be used in all subject matters, improved the quality of
learning in universities, was worth the time spent on learning it, was needed in the classroom, and generally did more good than harm. In the behavioral domain, the majority of the respondents expressed positive (40.7%) or highly positive (27.1%) behavioral intentions. They would do things by Jusur LMS rather than by hand, learn about it, use it as much as possible, intend to employ Jusur LMS in the near future, prefer teaching their students online rather than face to face.

Table 3. Distribution of mean scores on the attitude toward Jusur LMS scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Percent (%)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD</td>
<td>D</td>
<td>N</td>
</tr>
<tr>
<td>Affect</td>
<td>8.4</td>
<td>5.9</td>
<td>19.6</td>
</tr>
<tr>
<td>Cognition</td>
<td>7.0</td>
<td>4.4</td>
<td>25.3</td>
</tr>
<tr>
<td>Behavior</td>
<td>6.8</td>
<td>7.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Overall attitude</td>
<td>6.6</td>
<td>4.8</td>
<td>20.7</td>
</tr>
</tbody>
</table>

5.3 Correlation

This study also explored the correlation between the faculty members’ utilization of Jusur LMS and their attitude, computer experience, and age. In Table 4, a summary of the correlation between faculty responses’ scores on general Jusur LMS utilization scale and attitude, computer experience, and age. The overall attitude is related to Jusur LMS utilization, indicated by a correlation coefficient of .501 at \( \alpha = .01 \). Moreover, each one of the three attitude components is significantly and correlated with Jusur LMS utilization, implying that faculty members who had a positive attitude toward Jusur LMS tended to use the system more often or frequently. The computer experience variable also reflected a slightly positive relationship to the use of Jusur LMS, while the faculty members’ age did not correlate with their Jusur LMS usage.

Table 4. Correlation of faculty members’ utilization, attitude, computer experience, and age

<table>
<thead>
<tr>
<th>Scale</th>
<th>Affect</th>
<th>Cognition</th>
<th>Behavior</th>
<th>Computer Experience</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jusur LMS Utilization</td>
<td>.541**</td>
<td>.442**</td>
<td>.451**</td>
<td>.146**</td>
<td>-.037</td>
</tr>
<tr>
<td></td>
<td>(.0001)</td>
<td>(.0001)</td>
<td>(.0001)</td>
<td>(.001)</td>
<td>(.426)</td>
</tr>
</tbody>
</table>

**p< .01

5.4 Regression analysis

Table 5 summarizes the results of the linear regression analyses used to compare the influence of the overall attitude on two dependent variables, namely the volume and frequency of Jusur LMS usage. Overall, attitude accounted for 13% and 22% of the variance in volume and frequency usage respectively. It suggests that the overall users’ attitude could explain frequency usage scores twice more than volume of use. The attitude factor contributed significantly to both volume of usage (\( \beta = .36, p < .0001 \)) and frequency of use (\( \beta = .47, p < .0001 \)). The significant positive betas indicate that respondents scoring higher on the attitude factor were more likely to frequently utilize the system for the teaching and learning process (frequency) or to spend a reasonable amount of time using the Jusur LMS over the same period (volume).

Table 5. Simple linear regression analyses using overall attitude scores to predict volume and frequency of Jusur LMS utilization.
6. Discussion and Conclusion

The above results suggest that the utilization of Jusur LMS in Saudi Arabian universities has reached a moderate level. In other words, faculty members use it on average twice a month for less than one hour. The respondents showed positive attitudes toward the use of Jusur LMS. The respondents’ positive attitudes were evident within the affective, cognitive and behavioral domains. The faculty members seemed to have welcomed the introduction of Jusur LMS in their universities. The majority of faculty members considered Jusur LMS a viable instructional tool which helped them to achieve the learning goals. The finding of this research confirmed those of Al-Khaldi and Al-Jabri (1998), Albirini (2006), Davis et al. (1989), Kim et al. (2009), Teo (2008), and Yang and Yoo (2004).

The findings of the study also indicated a strong and positive correlation between faculty members’ utilization and their attitude toward Jusur LMS. This result lies within the limits of the expected as most research conducted worldwide has emphasized that a positive attitude toward a new technology is important for its successful implementation (Al-Khaldi & Al-Jabri, 1998; Davis, et al., 1989; Hamdi, 2002; Pac, 2008; Shapka & Ferrari, 2003; Teo, 2008; Zhao, et al., 2002). The positive attitudes towards Jusur LMS shared by faculty members constitutes a critical factor in the effective utilization of technology. Thus, an essential factor for the successful implementation of Jusur LMS in Saudi Arabian universities is developing a positive attitude toward this system.

In general, demographic variables seem to be less related to the utilization of Jusur LMS. No significant relationship could be established for user age and Jusur LMS utilization. This finding is in line with Al-Gahtani, Hubona and Wang (2007) who also could not confirm a direct or indirect relationship between the age of Saudi Arabian faculty members and the performance expectancy of computer use. Teo (2008) also did not observe any age impact on the instructors’ intention to use technology. On the other hand, computer experience was found to be significantly related to the overall level of use of use, even though the strength of this correlation was small. In other words, faculty members with many years of computer experience tended to utilize Jusur LMS more frequently in their teaching practice and vice versa. The extent of computer experience directly affected the utilization of technology used in instruction (Al-Khaldi & Al-Jabri, 1998; Burton-Jones & Hubona, 2006; Teo, 2008; Tondeur, et al., 2008). Hence, experienced faculty members were more likely to integrate Jusur LMS into their teaching than those with less experience.

The different influence of the factor of faculty members’ attitude in predicting volume and frequency usage constitutes an interesting finding in this study. Frequency usage is most closely associated with overall attitude toward Jusur LMS. The faculty members who like Jusur LMS, possess sufficient knowledge of it, and plan to use it, are likely to utilize its tools more frequently, for example its assignment tool when uploading or downloading projects or term papers, and its file exchange tool to share the course documents with their students. The overall attitude did not explain a great variance on the volume scores which was consistent with Burton-Jones and Hubona’s (2006) findings that the total of volume use of e-mail and processing systems among instructors was lower than their usage frequency of the same systems, adding that “volume is influenced by more factors than frequency” (p. 710).
The above results have practical implications for educational organizations in Saudi Arabia that aim at encouraging the utilization of Jusur LMS among academic staff. Universities should take the existing attitudes of faculty staff into account before deciding whether the system is going to be utilized or not. This would direct their attention and hence their developmental programs in using Jusur LMS towards two directions in which to exert their efforts. Firstly, they need to encourage those faculty members with negative attitudes to use Jusur LMS by providing them with basic information about the system and its benefits. Reluctant staff should not feel coerced to use the system in their classrooms and should be given priority in attending workshops. Secondly, teaching staff already professing positive attitudes towards Jusur LMS should be supported in view of further developments and improvements of the already existing environment. Positive faculty members should come to understand the developmental process as sustainable and they being part and parcel of it.

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