Acceptance of Moodle as a Teaching/Learning Tool by the Faculty of the Department of Information Studies at Sultan Qaboos University, Oman based on UTAUT

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ABSTRACT

This research aims to explore the acceptance of Moodle as a teaching and learning tool by the faculty of the Department of Information Studies (IS) at Sultan Qaboos University (SQU) in the Sultanate of Oman. The researchers employed the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the effects of performance expectancy, effort expectancy, social influence and facilitating conditions on the behavioural intention of SQU faculty members to employ Moodle in their instruction. Data were collected by the interview method. Results showed the emergence of two faculty groups: one uses Moodle and one does not use Moodle. In group that uses Moodle, performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention are positively related, thereby influencing the faculty members' use behavior. In addition to the aforementioned UTAUT constructs, four additional factors affect Moodle's adoption. These moderators are gender, age, experience and the voluntariness of use, amongst which gender exhibits the least influence on Moodle adoption. That is, male and female faculty generally both use the learning platform. Although some members of the group that does not use Moodle exhibit optimistic performance expectancy for technology, the overall perception in this regard for Moodle is negative. The other UTAUT constructs exert no influence on this group's adoption of the learning platform.

1. Introduction

Higher education institutions around the world have increasingly adopted information and communication technologies (ICTs) and the Internet as tools for teaching, curriculum development, staff development and student learning (Kumpulainen, 2007; Usluel, Askar, & Bas, 2008). These institutions

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extensively use ICTs and the Internet to develop alternative options for delivering courses to students—a task that entails guaranteeing the effective use of technologies in facilitating communication and activities that support education (Alkhalaf, Drew, AlGhamdi, & Alfarraj, 2012). Employing such innovations ensures that the learning process continues to move forward, regardless of where or when it occurs. Given that the Internet is an excellent information source, educators can use specific web-based applications as teaching resources. These applications, which are often termed e-learning platforms, enable faculty members to provide students with different materials and to interact with them in real time even when they are not located in the same physical space. E-learning platforms also allow faculty members to track the evolution of the learning process and monitor student performance on specific tasks (Martín-Blas & Serrano-Fernández, 2009).

Numerous learning management systems (LMS) have been launched; some are commercial software, such as WebCT and Blackboard, whereas others are open-source applications, including the Modular Object-oriented Dynamic Learning Environment (Moodle), Ilias, ATutor and Claroline. Although all applications share common features, some offer more specific, flexible and complete features, such as role identification, assignment functionality and chat management. Moodle, as Hui Hsu (2012) describes, allows faculty to build dynamic and effective online learning sites for students. Amandum, Muliira and Fronda (2013) discusses several Moodle features that make this learning platform applicable in teaching and learning environments. Similarly, Hui Hsu (2012) deems Moodle applicable and highly popular amongst instructors around the world because of its ease of use and economy.

Numerous pedagogical studies have been devoted to the potential of Moodle as an educational platform (AlQudah, 2014; Hui Hsu, 2012; Thomas, Singh, & Gaffar, 2013), and these are typically based on the Unified Theory of Acceptance and Use of Technology (UTAUT). Venkatesh, Morris, Davis G. B., and Davis F. D. (2003) attribute the prevalence of UTAUT to the fact that it is grounded on eight technology acceptance theories or models and to its aim of integrating fragmented theories and research on the individual acceptance of information technology into a unified theoretical model.

The current work also uses UTAUT as a model in investigating the acceptance of Moodle as a teaching and learning tool by the faculty of the Department of Information Studies (IS) at Sultan Qaboos University (SQU), Oman. This approach provides educational institutions and practitioners with a context-appropriate model that can be used to evaluate the adoption of Moodle (and other technologies) in SQU in particular and in similar higher education institutions in Oman in general.

1.1 Study Context

The higher education system in Oman has changed, given that the growth of ICTs has dramatically reshaped the teaching and learning processes implemented in the country (Pulkkinen, 2007). Such change is immediately recognizable even as the Omani system is comparatively new. SQU, which is the only public university in Oman, was founded in 1986. It is a self-administered institution that comprises nine colleges (Table 1). Since the university's establishment, the SQU administration has been conscientiously working towards facilitating access to new technologies, such as the Internet, to augment its faculty's teaching processes and its students' learning development. The university's

administration officials deem the Internet an appropriate avenue from which to help students evolve into active learners.

In 1997, therefore, SQU established adequate infrastructure for Internet access. Four years later, e-learning was introduced in the institution via WebCT. In 2001, only eight online courses were offered, and only 981 students used WebCT, but by the end of autumn 2002, 40 online courses were being provided by SQU's colleges, which served 3001 students that year (Al Musawi & Abdelraheem, 2004). In 2007, the university switched to Moodle because this platform was originally developed to enable educators to create online courses that encourage interaction and the collaborative construction of learning content. Moodle provides several opportunities for faculty members to transition from being 'the source of knowledge' to being a facilitator and role model in the process of knowledge and skills acquisition (Amandu, Muliira, & Fronda, 2013).

The SQU administration encouraged its faculty to use Moodle to facilitate the learning process and solve the numerous problems that traditional learning models present (e.g. limited print materials and low attendance). When the College of Arts and Social Sciences (CASS) adopted Moodle in 2007, only 15 online courses were offered, and only 581 students used the learning platform. By the end of autumn 2008, 30 courses were on offer in the different departments at CASS, which had 890 students that year (Al-Senaidi, Lin, & Poirot, 2009). Table 1 lists the colleges and the number of courses currently offered through Moodle

Table 1. Colleges at SQU and courses offered through Moodle

N	College	Number of online courses offered through Moodle
1	College of Agricultural and Marine Sciences (CAMS)	91
2	College of Arts and Social Sciences (CASS)	170
3	College of Commerce and Economics (CCE)	152
4	College of Education (CE)	133
5	College of Engineering (CEng)	219
6	College of Law (CL)	7
7	College of Medicine and Health Sciences (CMHS)	56
8	College of Nursing (CN)	68
9	College of Science (CS)	200
	Total	1,096

https://elearn.squ.edu.om/

As indicated in the table, the college that offers the highest number of online courses through the learning platform is CEng (219 = 19.9%), followed by CS (200 = 18.2%). And CASS (170 = 15.5%).

CASS has 11 departments, one of which is the current Department of IS. This department was established in the academic years 1987-1989. The first batch of students to enrol in this department's course offerings amounted to only 21 students, which increased to 80 by 2013. The name of the department was modified several times as the field evolved. In 1987, it was called the Department of Library Science and Documentation and then the Department of Information Science in 2002. The department was renamed the Department of IS in 2011. It trains students in different skills

in cataloguing classification, database design, website creation and information seeking behavior, among other courses.

Table 1 also presents the number of CASS courses (170) currently offered through Moodle. These courses are broken down by department in Table 2.

Table 2. Departments at CASS and Number of Courses Offered through Moodle

N	Department	Number of online courses offered through Moodle
1	Arabic	2
2	English	14
3	History	5
4	Information Studies	34
5	Sociology and Social work	43
6	Geography	21
7	Mass Communication	20
8	Tourism	21
9	Music and Musicology	1
10	Archaeology	0
11	Theatre	5
12	College General Courses	4
	Total	170

https://elearn.squ.edu.om/

Table 2 indicates that the Sociology and Social Work Department of CASS extensively uses Moodle in teaching (43 courses = 25.2%), as does the Department of IS (34 courses = 20%). Most of the other departments do not apply Moodle as frequently for teaching. As shown in the table, the History and Theatre departments use Moodle the least often (5 courses = 2.9%). In these departments, the decision regarding whether to use Moodle as an instructional tool does not primarily depend on the nature of coursework (i.e. theoretical or practical) because instruction aided by Moodle increases student comprehension and enables clear understanding. To illustrate, Watson, Mong, and Harris (2011) employed video games and online platforms in teaching the history of World War II and found that students learned more effectively and regarded the subject as more interesting with online avenues.

2. Research Problems

As a higher education institution, SQU aims to achieve several objectives, one of which is to ensure that faculty members score excellently in performance evaluations. In this respect, SQU highlights the importance of developing faculty skills, providing ‘training that develops academic staff skills and enhances performance; also the creation of appropriate incentives’ (http://www.squ.edu.om/About/About-SQU/Vision-Mission-Objectives).

The specific means by which the university intends to realise this objective are to increase the

number of faculty members who adopt ICTs and Moodle as part of their instructional strategies and to improve the faculty members' overall skills. For these purposes, SQU established a facility that is specially designed to cater to the training needs of its faculty. This facility is the Centre for Educational Technology (CET), whose goal is 'to enhance teaching and learning at SQU through supporting faculty members and departments with the latest technologies in teaching and encouraging the adoption of best instructional practices' (http://www.squ.edu.om/cet). On the basis of SQU's plan to encourag more faculty members to employ Moodle in teaching, CASS formulated its 2012 internal plan, which aspired for the department-wide usage of Moodle as a teaching and learning tool by the end of 2015.

For SQU to achieve said plan, the administration has held numerous Moodle workshops for faculty members, but few faculty members have attended the activities. The employees of CET, which is responsible for hosting these workshops, reported that although some faculty members registered for the training, they did not actually show up. The CET employees also revealed that the attendance in the online courses posted on the SQU website is inaccurate because faculty members simply requested a course template without intending to use such template or Moodle in teaching.

Although SQU and CASS have exerted considerable effort to increase the number of faculty members who use Moodle in their instruction, the university administration or the department has not conducted a study on Moodle acceptance amongst faculty. This deficiency motivates the current research, which aims to examine Moodle acceptance as a teaching/learning instrument amongst IS Department faculty members. The IS Department offers many practical subjects, most of which revolve around technology, such as networks and the Internet, databases and information systems. The technological realm is a constantly developing and rapidly changing discipline. Students enrolled in the IS Department can train in cataloguing and gain experience in designing webpages through Moodle.

As previously stated, the present study probes into Moodle acceptance amongst the faculty of the IS Department. To this end, the researchers use UTAUT to determine the effects of performance expectancy, effort expectancy, social environment and facilitating conditions on the behavioural intention to use Moodle. The questions pursued in this research are as follows:

1. What is the degree of performance expectancy for Moodle, as exhibited by the faculty members of the IS Department?
2. What do the IS faculty members' views indicate regarding the effort expectancy for Moodle?
3. What are the social factors that encourage the faculty members of the IS Department to accept Moodle as a viable teaching tool?
4. What are the facilitating conditions presented by CASS and SQU in relation to Moodle adoption?
5. What is the behavioural intention of the IS Department faculty towards Moodle?
6. How do performance expectancy, effort expectancy, social environment and facilitating conditions affect the faculty members' behavioural intention to use Moodle?
7. Are Moodle acceptance and application affected by gender, age, teaching experience and voluntariness of use?
8. How can SQU improve the manner and frequency with which Moodle is used in the university?

3. Theoretical Framework

The UTAUT model, which explains technology acceptance, draws on eight technology acceptance theories or models, namely, the theory of reasoned action, technology acceptance model (TAM), motivational model, theory of planned behaviour (TPB), combined TAM and TPB, model of personal computer utilisation, innovation diffusion theory and social cognitive theory (Venkatesh et al., 2003). At the core, the UTAUT model uses behavioural intention as a predictor of technology use behaviour. The predictors of behavioural intention are based on the components that were reviewed using the eight technology adoption models. The basic form of the UTAUT model is illustrated in Figure 1.

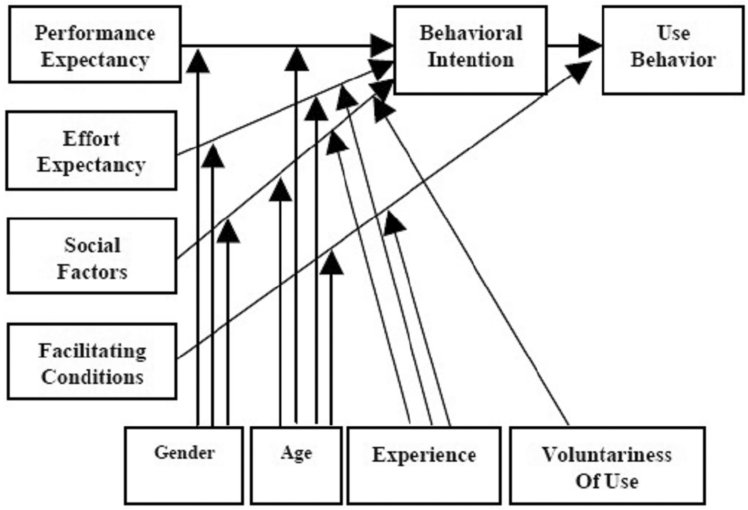

Fig. 1. UTAUT Model (Venkatesh et al., 2003)

As Figure 1 shows, the UTAUT model consists of six constructs:

1. **Performance Expectancy**: This construct pertains to the degree to which individuals believe that the use of technologies will result in performance gains. This construct may also be viewed as reflecting technology's perceived usefulness, the extrinsic motivation derived from it, its job fit, its relative advantages and the outcomes expected from it.
2. **Effort Expectancy**: This construct refers to the ease or complexity expected from technology use.
3. **Social Influence**: This construct points to the degree to which an individual is motivated by others to use technologies. Under this construct fall such social factors as subjective norms and image.
4. **Facilitating Conditions**: This indicates the extent to which the organizational and technical infrastructure required for technological support is perceived to exist. Perceived behavioral control and compatibility are amongst the specific conditions classified under this construct.
5. **Behavioural intention**: Behavioural intention is the degree to which a person has formulated conscious plans to perform or not perform a specified future behavior.

6. **Use behavior**: This behaviour refers to measured users' actual frequency of technology use.

In addition to the six constructs, four moderators are incorporated into the UTAUT model:

1. **Gender**: The effects of performance expectancy, effort expectancy and social influence on behavioral intention are moderated by gender.
2. **Age**: The effects of performance expectancy, effort expectancy and social influence on behavioral intention, as well as the influence of facilitating conditions on use behaviorr, are moderated by age.
3. **Experience**: The effects of effort expectancy and social influence on behavioralal intention, as well as the effects of facilitating conditions on use behavior, are moderated by experience.
4. **Voluntariness of use**: The effects of social influence on behavioral intention are moderated by voluntariness of use.

4. Literature Review

As stated earlier, UTAUT is the model of choice (Williams, Rana, Dwivedi, & Lal, 2010) in studies on the adoption and diffusion of information systems/information technology (IT). This model is used by many researchers who are interested in ascertaining behavioural intention towards IT and information systems. Williams et al. (2010), for instance, identified 407 articles that cited UTAUT but did not employ the model in the investigations. The authors also described an additional 450 studies in which UTAUT was fully utilized. One of the studies that cited UTAUT without actually employing the model is that carried out by Adriaanse, Voordijk, and Dewulf (2010), who highlighted UTAUT as the most dominantly used theory of adoption and diffusion. Amongst those who used UTAUT in their investigation are Laumer, Eckhardt, and Trunk (2010), who looked into performance expectancy, facilitating conditions and subjective norms as significant antecedents to use intention towards e-recruiting systems. Their findings indicate that controlling adoption research for different peer groups and exploring the differentiation effects of subjective norms on adoption may be useful in fostering a thorough understanding of the factors that drive technological adoption.

Venkatesh et al. (2003) revealed that because the UTAUT model is concerned with the variance in behavioural intention, it explains approximately 70% of such variance. This observation, however, contradicts those of other researchers. Wang and Shih (2009), for example, found that the variance in behavioural intention is 64.5% and 35.3% without interactions and 39.1% with interactions. With regard to the six constructs of UTAUT, studies have reported varying results (Thomas, Singh, & Gaffar, 2013). Im, Hong and Kang (2011) and Nassuora (2012) found a positive effect of performance expectancy on behavioral intention, whereas Jairak, Praneetpolgrang, and Mekhabunchakij (2009) found no effect. Hui Hsu (2012) and Wu and Chen (2006) revealed that performance expectancy, effort expectancy and social influence are significantly related to students' behavioral intention, time allocation and frequency of Moodle use. This result indicates that students' belief in the utility and ease with which Moodle is used, as well as encouragement from their social circles, determine their acceptance of the technological tool.

Sumak, Polančič, and Heričko (2010) discovered that social influence is a significant determinant of students' behavioral intention and that such intention extensively determines actual Moodle use. Tosuntas, Karadag, and Orhan (2015) showed that performance expectancy, effort expectancy and social influence positively affect behavioral intention. The authors also found that behavioral intention and facilitating conditions positively influence the usage time devoted to interactive whiteboards. Although Venkatesh et al. (2003) believe that performance expectancy, effort expectancy, social influence and facilitating conditions are strong determinants of technology use, Thomas, Singh, and Gaffar (2013) think, behavioral intention more strongly influences the use of Moodle. Accordingly, acceptance of this technology amongst students or faculty members is also higher. In other words, behavioral intention determines student or faculty acceptance of technology. Meanwhile, Wu and Chen (2006) claim that facilitating conditions do not influence EFL college students' behavioral intention towards Moodle.

The UTAUT model provides practicable ways to understand the acceptance of IT and information systems. Most previous studies concentrate mainly on large organizations or higher education institutions; such research also highlights the roles of age, gender and experience (Marchewka, Liu, & Kostiwa, 2007). In terms of the effects of performance expectancy, effort expectancy and social influence on behavioral intention moderated by gender, Çelik (2010) found no difference between males and females in their use of Moodle. Costa, Alvelos, and Teixeira (2012), however, revealed a gender effect on Moodle use. To ascertain whether facilitating conditions indeed factor in the acceptance and use of Moodle, Sánchez and Hueros (2010) carried out a study aimed at enhancing our understanding of the motivational factors behind students' satisfaction or dissatisfaction with the web-based learning platform. The authors surveyed 228 students, and their results showed that technical support directly influences perceived usefulness.

Studies have confirmed that Moodle use in the classroom enhances learning, even when faculty members and students are no longer located in the physical learning space (de Vega and McAnally-Salas, 2010; Govender, 2009; Georgouli, Skalkidis, & Guerreiro, 2008; Henderson, 2010). Al-Ani (2013) believes that using Moodle is a student-centred approach, wherein both students and instructors are actively engaged in knowledge building and use constructive learning activities. With respect to the use of materials developed through Moodle and their effects, Çelik (2010) stated that such materials can be used in instructional technology and material design courses. The benefits of Moodle are not restricted to materials development. Its functions are equally advantageous, thus extending the use of this learning platform beyond being a mere repository of materials.

Costa, Alvelos, and Teixeira (2012) showed that despite Moodle's considerable potential, it is used primarily as a storage medium for educational materials. Nevertheless, students recognize the importance of Moodle's other functionalities in promoting successful teaching and/or learning. As described by Biasutti and El-Deghaidy (2012), wikis serve as an online didactic tool designed to develop knowledge management (KM) processes in higher education. Their results suggest that wikis develop faculty members' competencies in KM and satisfy students' needs while enabling them to collaborate on designing interdisciplinary projects.

Numerous studies have been directed towards examining student satisfaction with Moodle. An example is that conducted by Sánchez and Hueros (2010), who illuminated the motivational factors

that influence students' level of satisfaction with Moodle. The authors found that Moodle usage is directly influenced by perceived ease of use, perceived usefulness and attitudes, thus revealing the importance of the first two factors in understanding attitude towards technology. Goyal (2011), who studied business school students' expectations from and satisfaction with Moodle, found that student satisfaction significantly improves with the use of specialized software for learning.

5. Study Design and Methods

This study focuses on the degree of influence exerted by performance expectancy, effort expectancy, social influence and facilitating conditions on the IS Department faculty's behavioral intention to use Moodle as a teaching and learning tool. This study adopted an interpretive description methodology, which is commonly used in describing and interpreting the IS Department faculty members' acceptance of Moodle as a teaching and learning instrument. According to Merriam and Simpson (1995), the goal of an interpretive descriptive study is to describe the facts and characteristics of a given phenomenon, population or interest area. Al-Saleem (2006) believes that this methodology approaches knowledge as personal and subjective, thus requiring a researcher to personally interact with participants.

The researchers conducted interviews to collect data on the subject matter pursued in this work. The interview respondents were nine faculty members. The interviews enabled the researchers to acquire a rich and comprehensive understanding of the factors and constructs that influence the faculty members' acceptance and use of Moodle as an instructional/learning tool.

5.1 Study Population

The IS Department at SQU employs 14 faculty members, but the final sample amounts to only nine respondents because three of the faculty members are the researchers and two lecturers were studying abroad to obtain a higher degree.

Table 3. Profiles of the respondents

No	Age 30-39 40-49 50-59	Gender	Teaching Experience
1	60	Male	30 years
2	55	Female	30 years
3	59	Male	25 years
4	54	Male	25 years
5	54	Female	25 years
6	54	Female	25 years
7	40	Female	20 years
8	38	Male	18 years
9	37	Male	18 years

Table 3 shows the profiles of the respondents. With respect to gender, the department has fewer female faculty (4 = 28.5%) than male faculty members (7 = 50%). In terms of age, the faculty members are 60 (1 = 7.1%), 50 -59 (5 = 35.7%), 40 (1 = 7.1%) and 30 (2 = 14.2%) years old. The faculty members have had long careers as educators; some have 30 years of teaching experience (2 = 14.2%), and the rest have worked as educators for 18-25 years (7 = 50%).

5.2 Validity and Reliability of the Interview

The researchers are using UTAUT model which is a well-established tested model. In this paper UTAUT model used is a trusted model. It was ensured that the faculty members, who are participating, fully understand the methods used in the study and the various components in the model, specially that it is translated from English to Arabic. In order to make the research reliable, each component of the model was revised and studied and tested on a number of volunteers from the IS department (the 9 faculty members) before the actual data collection.

5.3 Ethical Considerations

The study involved a number of ethical considerations. The data collection dealt with issues of participants' permission, promises to maintain their privacy, as well as the effect of the research on the participants. For example gaining access to the sample before the researchers started the data collection required that they get formal permission to conduct the study from the Vice Chancellors Adviser for Academic Affairs. The researchers were asked by the office of the Vice Chancellors Adviser for Academic Affairs for an official letter outlining their identification, study purposes, the number of participants requested, the data collection processes, and the promise to maintain anonymity and confidentiality. Also the study involved Informed Consent; the researchers outlined the research purposes to the faculty members and told them that the researchers would be happy to clarify any procedure-related doubts, and also that they, the study participants, were free to withdraw from the research at any time. In addition, anonymity was achieved in this study by replacing the participants' real names and identification with cases numbers, as well as their nationality and their academic ranking. Furthermore, the researchers achieved confidentiality of the participants through removal of identifying descriptions from published data. To achive more anonymity for the particaption the resarchers grouped the age for the particaption as well as the teaching experiences.

6. Findings

This section presents the results of the interviews with nine faculty members of the IS Department. The description of their views are intended to shed light on whether performance expectancy, effort expectancy, social influence and facilitating conditions are significant predictors of the respondents' behavioral intentions.

Acceptance of Moodle as a Teaching and Learning Tool

Table 4. UTAUT Constructs and Participations' Responses to Them Regarding Acceptance of Moodle as a Teaching/Learning Tool

construct / construct code	faculty 1	faculty 2	faculty 3	faculty 4	faculty 5	faculty 6	faculty 7	faculty 8	faculty 9
Performance Expectancy (PE)	minimally beneficial	no reason to use Moodle	useful	minimally beneficial	uncertain	uncertain	can facilitate the communication between faculty member and students'	uncertain	useful and can facilitate teaching and learning
Effort Expectancy (EE)	easy	not explored whether this tool is easy	easy	not sure whether this tool is easy	it need considerable time	may it is easy	easy	not sure whether this tool is easy	easy
Social Influence (SI)	slight pressure	absence of pressure from colleagues and students	students	visiting female faculty member	no pressure from SQU or CASS to use Moodle	no pressure from SQU or CASS to use Moodle	gender	no pressure from students or SQU	SQU is significantly committed to encouraging Moodle adoption
Facilitating Conditions (FC)	CASS and SQU have delivered numerous courses through Moodle	Moodle workshops are hosted by the department	SQU offers many training courses on Moodle	CASS provides adequate support for faculty to use Moodle	SQU and CASS support the use of technology through workshops	SQU and CASS hosted workshops in use Moodle	SQU and CASS support the use of Moodle	SQU's support for the use of Moodle	SQU's encouragement of Moodle adoption
Behavioral intention (BI)	no plans to use Moodle	does not plan to use Moodle	attended some workshops on Moodle	no plans to use Moodle	did not formulate a plan for applying Moodle	has not taken any measures to adopt Moodle	attended some Moodle workshops	no courses or workshop attended to use Moodle	planned to use Moodle
Use behavior (UB)	no	no	used Moodle to prepare exams and in teaching in general	no	no definite plans to use this tool	no	uses the tool in the classes	no	began employing Moodle when he completed his PhD programme
Gender (G)	M	F	M	M	F	F	F	M	M
Age (Age)	55-60	55-60	55-60	55-60	55-60	55-60	35-40	35-40	35-40
Experience	25-30	25-30	25-30	25-30	25-30	25-30	20-25	18-20	18-20
Voluntariness of use (V of use)	yes	yes	yes	yes	yes	yes	yes	yes	yes

From table (4) we can say that five faculty memebrs out of 9 view Moodle PE as either slightly beneficial or extermly usful, and can facilitate communication between faculty members and students. While for EE construct 4 faculty members were not sure if the use of Moodle is easy or not, because they have not used or explored its EE.

7. Discussion

Table 5 presented the nine cases of the faculty members of the IS Department and their perspectives or views regarding the UTAUT constructs. (√ ×) indicated the respondents do not have a clear view about Moodle.

Table 5. UTAUT Constructs and Participants' Responses to Them Regarding Acceptance of Moodle as a Teaching/Learning Tool

use (√) (×) for ticking

construct / construct code	faculty 1	faculty 2	faculty 3	faculty 4	faculty 5	faculty 6	faculty 7	faculty 8	faculty 9
	positive/ negative	positive/ negative	positive/ negative	positive/ negative	positive/ negative	positive/ negative	positive/ negative	positive/ negative	positive/ negative
Performance Expectancy (PE)	√ ×	×	√	√ ×	√ ×	√ ×	√	√ ×	√
Effort Expectancy (EE)	√	√ ×	√	√ ×	×	√ ×	√	√ ×	√
Social Influence (SI)	√	×	√	√	×	×	√	×	√
Facilitating Conditions (FC)	×	×	√	√	√	√	√	√	√
Behavioral intention (BI)	×	×	√	×	×	×	√	×	√
Use behavior (UB)	×	×	√ .	×	×	×	√	×	√
Voluntariness of use (V of use)	√	√	√	√	√	√	√	√	√

Performance Expectancy for Moodle, as Exhibited by the Faculty Members of the IS Department

This section focuses on the research questions pursued in this work. The principal research question is intended to gain a thorough understanding of the UTAUT constructs that play a role in the faculty members' acceptance and use of Moodle as an open-source e-learning platform for the classroom. In particular, the researchers explored the effects of performance expectancy, effort expectancy, social influence and facilitating conditions on the faculty's behavioural intention to use Moodle.

The findings revealed the emergence of two faculty groups, namely, the positive (i.e. those who have used Moodle as an instructional/learning tool - three members) and the one that does not use Moodle (i.e. six members). The results also showed a positive relationship among performance expectancy, effort expectancy, social influence and behavioral intention. When performance expectancy, effort expectancy and social influence induce positive attitudes - a good way of thinking, feeling and viewing the use of Moodle - towards the utility and ease of use of Moodle, then behavioral intention is also positive and vice versa. This finding agrees with previously published results (Im, Hong, & Kang, 2011; Nassuora, 2012; Wang & Shih, 2009); howeverr, it contradicts the findings of Jairak et al. (2009), who found no such effects. In the use of Moodle by faculty members,

a positive relationship amongt performance expectancy, facilitating conditions, behavioral intention, age and experience was observed.

With respect to the IS Department faculty's degree of performance expectancy for technology, the results demonstrated that the faculty members hold generally positive expectations. Overall, they deem technology useful in education. In terms of Moodle use, however, three of the respondents exhibit positive expectations from Moodle, whereas six do not regard this innovation as beneficial to teaching. This result agrees with that of AlQudah (2014), who found that 11.6% of their respondents dislike Moodle and 15.9% view it as an unappealing means of teaching. In the present study, six faculty members exhibit low performance expectancy for Moodle, regarding it as no different from other technological tools, ineffective in improving students' skills and time consuming. They have not attempted to employ Moodle in their classes and instead use the Internet and PowerPoint presentations as instructional aids. This situation may be explained by Ocak's (2011) argument that faculty members' problems with blended teaching exacerbate the difficulty with which new technologies, such as Moodle, are used. This phenomenon may also be attributed to the faculty members' concerns regarding the time investment needed for training and monitoring students' work. Research has shown that faculty members' major concerns about teaching online are lack of time (Ocak, 2011; Cavanaugh, 2005; Allen & Seaman, 2006) and lack of technological and institutional support (Ansah & Johnson, 2003; Carroll-Barefield, Smith, Prince, & Campbell, 2005). Some of the faculty members in the current study go beyond rejection of Moodle as a teaching tool. Respondent #1, for example, criticized the tool as ineffective in developing or enhancing student skills. Respondent #2 doubts Moodle's effectiveness in improving student outcomes.

7.1 Faculty Members Effort Expectancy for Moodle

A mismatch between the performance and effort expectancies of six faculty members was observed. Although most of these respondents evaluated Moodle as easy to use, this positive effort expectancy did not translate to a positive performance expectancy. Some of the faculty members based their positive evaluation of effort on the information presented in the workshops that they attended or on the experiences shared by their colleagues. That is, their assessment is not grounded in first-hand experience of the tool. This suggests that effort expectancy will improve when the faculty members realize the benefits of using Moodle. This assumption contradicts the findings of AlQudah (2014), who discovered that effort expectancy is a significant barrier to Moodle adoption.

For three of the faculty members, performance expectancy corresponds with effort expectancy. This result suggests that users will adopt Moodle despite the potential difficulty in applying it if they believe in the usefulness of the tool. For the three faculty members who use Moodle in their classes, this decision was prompted by social influence. Case #3, for example, was motivated by his students' comparison of him and other faculty members who were using the learning platform. This faculty member may have been compelled to use Moodle because he is an expatriate for whom contract renewal is periodically reviewed. He feels obligated to use the educational facilities that SQU provides. Additionally, the CASS departments offer different modules, each assigned with at least two sections. Students are given leeway to choose in which section they wish to

study. If a section falls under the supervision of a faculty member who does not use Moodle, this may discourage students from registering in the course. Escobar-Rodriguez and Monge-Lozano (2012) found that student perceptions and the usefulness of Moodle platforms to faculty members exhibit a significant positive relationship, indicating the perceived usefulness of Moodle and intention to use the platform.

7.2 The Social Factors that Encourage the Faculty Members of the IS Department to Accept Moodle as a Viable Teaching Tool

For case #7, gender was the social influence that drove her to use Moodle. She was determined to prove herself in an environment dominated by men. In Islamic tradition, men bear the responsibility of taking care of the family; nevertheless, Islam does not explicitly prohibit women from pursuing professional careers. Regrettably, Arabic societies interpret Islamic teachings differently and always accord males priority in employment. This is another factor that influences SQU and CASS's decision to hire more men than women. ElSafty (2003) validates these observations, stating that although Islamic work ethic extends to women, the actual situation in the Arab labour market reflects a discrepancy between the number of females and males employed in professional settings. The statistics for the latter is higher. Some studies have explored the effects of gender on Moodle adoption and revealed statistical differences between male and female faculty. For example, Padilla-Meléndez, del Aguila-Obra, and Garrido-Moreno (2013), González-Gómez, Guardiola, Rodríguez, and Alonso (2012) and Sun, Tsai, Finger, Chen, and Yeh (2008) found a significant difference between males and females, with the latter registering higher scores in terms of receptiveness to play-based instruction/learning, attitudes and intention to use Moodle.

Case #9's decision to use Moodle was also driven by social influence. Because SQU has invested considerable effort and financial resources in encouraging faculty members to adopt Moodle, he thought it appropriate to cooperate accordingly. An additional source of motivation was that fact that Moodle helps him communicate with his students.

The six non-Moodle users are unmotivated to use the learning platform because they experience no social pressure or because they do not view Moodle adoption and contract renewal as related. Actually, SQU does not force academics to use Moodle. Although the institution keeps pace with ICT and e-learning trends, most of the academics employed in the university do not access these innovations. The researchers believe that a certain degree of pressure from organizations can facilitate technology adoption, although a consideration worth noting is that this strategy is inconsistent with the voluntariness of use construct. Organizational pressure sometimes engenders positive results. Despite the fact that CASS and the entire SQU have invested millions in technology, workshops instructional devices (e.g. laptops, LCD devices in all classrooms) and facilities to support faculty members and students, CET reported that the number of faculty members who use Moodle remains limited. Subramanian, Zainuddin, Alataw, Javabdeh, and Hussin (2014) believe that using Moodle and other LMS platforms can create economies of scale that reduce the costs of developing and maintaining content. These tasks are typically sub-contracted to third-party providers.

7.3 The Facilitating Conditions Presented by CASS and SQU in Relation to Moodle Adoption

In respect to facilitating conditions, the 9 cases referred to SQU's efforts to provide training through workshops. In spite of such initiatives, why do some faculty members continue to reject Moodle adoption? Venkatesh et al. (2003) argue that high performance expectancy, effort expectancy, social influence and facilitating conditions translate to an equally high behavioral intention to accept/use a tool. Three of the interviewed IS Department faculty exhibit high values for the four constructs, whereas the rest display both low and high values for the constructs. In the six cases, the high construct values do not lead to behavioral intention to use Moodle. For example, the performance expectancy for Moodle in cases #1 and #2 are generally positive, yet these faculty members stated that they do not see any reason to use Moodle in education. These results indicate that facilitating conditions do not determine faculty's behavioral intention to use Moodle at SQU. Wu and Chen (2006) similarly found that such conditions exert no influence on EFL college students' behavioral intention.

7.4 Behavioural Intention of the IS Department Faculty Towards Moodle

With regard to use behavior (i.e. the actual frequency of technology use), the results similarly showed that three IS Department faculty members use Moodle as a teaching and learning tool but that actual use differs among the three cases. A case in point is respondent #3, who started using Moodle in the fall 2014 semester and plans to use it in all his courses beginning in spring 2015. When case #7 discovered the advantages of Moodle, she began employing it in all her classes as well. The same holds true for case #9, who started using Moodle in 2009. For these faculty members, the UTAUT constructs are positively related. Their performance and effort expectancies are positively associated, thus motivating them to trust the usefulness of Moodle in teaching and learning. This attitude also stems from the fact that they find Moodle use a straightforward activity.

Because these faculty members deem Moodle advantageous, they are receptive to testing it and experiencing its benefits. Cuban (1986) defines this behavior as the willingness to change. For faculty members to accept and use Moodle, they first have to hold technology in high regard; as previously stated, trust is critical to technology adoption (Erdogmus & Esen, 2011; Ismail, Azizan, & Azman, 2011; Rhee, Verma, Plaschka, & Kickul, 2007).

Another possible explanation for the positivity observed in the three faculty members is the fact that they fully understand the changes that were occurring in their institution (Mitchell & May, 2009), the responsibilities that their jobs entail and the efforts that SQU and CASS have extended in resolving the difficulties associated with Moodle use and supporting technology adoption. In their research on CMS tools, Murdock (2006) and West, Waddoups, Kennedy, and Graham (2007) found that numerous institutions invest substantial resources in building technology infrastructures and offering e-learning professional development programs to faculty. These efforts create both opportunities and challenges for colleges as they provide services that assist faculty in their design and implementation of CMS applications to supplement their instruction.

As indicated earlier in the paper, use behavior is non-existent among six of the respondents.

Their decision to reject Moodle may have originated from their refusal to change and adopt new technology (e.g. cases #1, #2, #6 and #8). These faculty members regard using the Internet as a sufficient supplement to instruction. Internet usage is, to a certain extent, adequate because people can access substantial information from websites. In some cases, however, site access is a problem. Pena-Ayala, Sossa, and Mendez (2014) and Islam (2013) believe that on-demand learning and access to information and communication are facilitated by e-learning platforms. By using Moodle, students can access materials at any time in any location, and faculty members can provide different types of information to their students whenever they want. Collis and Boer (2004) consider Moodle a full package that supports some or all aspects of course preparation, delivery, communication, participation and interaction. The Moodle functionalities for these tasks are accessible via a network. Perhaps the six faculty members do not want to adopt new technology because they are averse to undergoing additional training or because they are repelled by the fact that Moodle use means considerable time investment in monitoring student assignments and chat sessions. A helpful strategy would be to inform these faculty members about the growing recognition of technology as indispensable to instruction.

7.5 Are Moodle Acceptance and Application Affected by Gender, Age, Teaching Experience and Voluntariness of Use

In addition to the four constructs explored in this work, four moderators were also investigated (i.e. gender, age, experience and voluntariness of use). Unlike the four constructs, these moderators are not fundamental factors. Nevertheless, they still affect use behaviour by means of their influence on the four base constructs. Gender can moderate performance expectancy, effort expectancy and social influence (Liu, 2013). The present study found no gender effects on Moodle use; that is, both the male faculty members (2) and female teacher (1) apply Moodle in their instruction. This finding differs from that of Çelik (2010), who reported that female participants ($X = 4.40$) show a higher level of positivity towards Moodle than do males ($X = 4.21$) ($r = .04$, $p < 0.05$). The researchers result may be attributed to the fact that the male faculty believe in Moodle's effectiveness in fostering enjoyable learning and comprehensive teaching. The female faculty member explained that gender issues urged her to use Moodle; the males working in CASS and SQU are confident that they are knowledgeable about everything and regard females as having inferior abilities. Research indicates that women tend to be more sensitive to others' opinions than men; social influence is therefore more salient in technology adoption among women (Venkatesh et al., 2003)

Age is another factor that may play a role in Moodle acceptance. The age of three faculty members (37-59) exert a positive effect. Possibly, these faculty members began maximizing technology at a young age, making the transition to Moodle adoption easy for these respondents. The workshops may have also been extensively helpful in familiarizing the faculty with the features and functionalities of the learning platform. Kao, Wu, and Tsai (2011) concluded that age difference only moderately influences faculty members' motivation to avail of web-based professional development. The authors suggest that faculty members across different age groups tend to possess a statistically similar motivation to access web-based professional development programs.

Perhaps the adoption decision of the three faculty members in the current study is associated with their age. Case #3 is a 59-year-old faculty member who is aware that hard work is paramount to contract renewal at SQU. The university system imposes age limitations on its employees; faculty members aged 60 or older are confronted with more challenges in maintaining tenure. Case #9 is employed by CASS, and his motivation to use Moodle stems from his self-imposed obligation to refrain from wasting the department's resources and the university's investment in technology.

In the current work, the experience of faculty members may be one other factor that drives Moodle acceptance and adoption. The three faculty members who use Moodle, for instance, have been teaching for a long period. The shortest teaching experience is 18 years (case #9). This observation agrees with that of Stone and Chapman (2006), who found that faculty members with a teaching experience of 10 years or less believe that the most authentic and effective interactions can be achieved only through face-to face instruction. In the case of faculty who acquire education abroad (as in cases #7 and #9), either in the UK or the US, they would have been exposed to sophisticated technology. They apply such innovations while they are overseas and then bring the technological know-how that they learned when they return to Oman. This acceptance may be passed on to students. By contrast, the six other faculty members have had long teaching careers but chose to reject Moodle.

Voluntariness of use may have advanced Moodle acceptance among the faculty of the IS Department. This construct is associated with social influence, behavioral intention and use behaviorr. At times, however, the absence of pressure to use prevents adoption. As previously discussed, SQU does not compel faculty members to use Moodle, but three of the respondents chose to adopt this innovation because their performance expectancy for Moodle is positive. Each of these respondents also experienced social motivation to use Moodle. For instance, case #3 encountered social pressure on two fronts: encouragement from his students and pressure from his employment arrangements (i.e. he is on-Omani and employed on a contractual basis). Case #7's behavioral intention and use behavior were also affected by social factors. In her case, some form of duress drove her to use Moodle, seeing as she was compelled to prove that she is as equally qualified as the male faculty members. Case #9's acceptance of Moodle stemmed from his appreciation of the efforts of SQU. Conversely, the six faculty members who do not use Moodle may have been encouraged to reject the technology because SQU left the decision to use it in the faculty members' hands (i.e. voluntariness of use). No pressure was felt by these faculty members to use the learning platform.

8. Recommendations for Improving Moodle Adoption

For SQU to increase the number of faculty members who adopt Moodle, a helpful strategy would be to probe into the attitudes and perceptions of faculty members on the basis of UTAUT. This model will help the university administration understand the decision to either accept or reject an introduced innovation. The researchers hope for this research to serve as a point of departure from which SQU and CASS can implement Moodle adoption strategies. As indicated by the results, certain UTAUT constructs (e.g. performance expectancy) can contribute to the improvement of

Moodle acceptance among the faculty members. In the case of the six respondents who do not incorporate Moodle in their teaching, for example, SQU and CASS should increase the faculty members' awareness of Moodle's usefulness and benefits. In addition, SQU and CASS should incorporate Moodle use as a consideration in contract renewal or as a competence requirement for academic promotion. This measure counts as positive social influence, wherein contract renewal and promotion serve as incentives for Moodle adoption.

8.1 Conclusion

From the interviews with IS faculty members both positive to and does not use Moodle emerged as options chosen. The use of Moodle exhibits a relationship among performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention, which in turn, affects the faculty members' use behavior. In addition to these constructs, four moderators (gender, age, experience and voluntariness of use) influence the decision to use Moodle. Among these moderators, gender exerts no effect on Moodle adoption.

With regard to the respondents who do not use Moodle, although some of the members exhibit positive performance expectancy for technology in general, the expectation for Moodle was negative. The rest of the UTAUT constructs exerts no influence on Moodle acceptance/use.

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