Integrating emotional attachment, resource sharing, communication and collaboration into UTAUT2 to examine students' behavioural intention to adopt social media networks in education

Ali Tarhini*

Department of Information System,
College of Economics & Political Science,
Sultan Qaboos University,
Muscat, Oman
Email: ali.tarhini@hotmail.co.uk
*Corresponding author

Ali Abdallah Alalwan

Amman College of Banking and Financial Sciences,
Al-Balqa' Applied University,
Salt, Jordan
Email: alwan.a.a.ali@gmail.com

Dongmei Cao

Faculty of Business and Law,
Coventry University,
Coventry, England, UK
Email: ab4421@coventry.ac.uk

Nabeel Al-Qirim

Department of Information Systems and Security,
College of Information Technology,
United Arab Emirates University,
Al-Ain, UAE
Email: Nalqirim@uaeu.ac.ae

Abstract: This study aims to develop and test an amalgamated conceptual framework based on Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) with trust (TR), emotional attachment (EA), resource and material sharing (RA), communication (COM) and collaboration (COL), which might be the salient factors that may influence the adoption of Social Networking Sites (SNS) for educational purposes. Data were collected from 399 Omani university students who use SNSs for their academic purposes using a self-administrated questionnaire. Confirmatory Factor Analysis (CFA) was employed to perform reliability and validity checks, and Structural Equation Modelling (SEM) was employed to test the proposed conceptual model. As hypothesised, the findings of this research revealed that students' Behavioural

Intention (BI) was positively and significantly influenced by COM, RA, Performance Expectancy (PE), COL, EA, hedonic motivation, and habit, in their order of influencing power and explained 67.7% of the variance in behavioural intention. However, effort expectancy and TR did not have affecting impact on BI. This study could help instructors and managements at higher educational institutions to formulate strategies to encourage the students to use the social networking sites for academic purposes.

Keywords: unified theory of acceptance and use of technology; social media; Facebook; technology adoption; structural equation modelling; developing countries.

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Biographical notes: Ali Tarhini is an Assistant Professor at the College of Economics and Political Science, Information System Department, Sultan Qaboos University. He holds a PhD in Information Systems from Brunel University London, UK. His research interests include big data, cloud computing, knowledge management, social media, ICT in Information Systems and cross cultural issues in IS. He has published more than 50 articles in leading academic journals including *Computers in Human Behavior*, *Journal of the Association for Information Systems*, *Information Technology & People*, *Journal of Enterprise Information Management*, *Management Research Review*, and *British Journal of Education Technology*.

Ali Abdallah Alalwan is an Assistant Professor at Amman College of Banking and Financial studies at Al-Balqa Applied University, Jordan. He holds a PhD from Swansea University in Wales. He also holds a Bachelor's degree in Marketing and an MBA/Marketing degree from the University of Jordan. His current research interest is in the area of information systems, technology acceptance, electronic marketing, social media, Internet of Things, self-service technologies, internet banking, and mobile banking. A part of his work has been published in some refereed journals including *JFSM*, *JEIM*, *IJIM*, *ISM*, and *Telematics and Informatics*.

Dongmei Cao is a Lecturer in Business and Management at the Faculty of Business and Law, Coventry University, UK. She holds a PhD in Strategic Management from Coventry University. Her primary research interests include resource and performance management, social media behaviour, digital analysis, sustainability and innovation. Her research contexts are primarily associated with Chinese industries and consumer behaviours in China from social, cultural, psychological and environmental aspects.

Nabeel Al-Qirim is an Associate Professor, Electronic Commerce in the College of Information Technology, UAE University, since 2004. His research interest is related to studying the adoption and diffusion of different 'complex' technologies in different contexts using both qualitative (case studies, focus group, action research) and quantitative (surveys) methods, and technologies such as Big Data Analytic, IoT, Cloud Computing, E-Commerce, E-Government, and education/learning technologies. The contexts included large and small enterprises; developed and developing economies and NGOs. He has published more than 100 research papers in refereed and highly-impact international outlets (i.e., *PACIS*, *AMCIS*, *ECIS*, *IFIP*). He lead/participated in

several panels, workshops, conferences and journal's special issues. He is in the editorial advisory board of several journals (*JIKM*, *IJCEC*, *JECO*, *BPMJ*, *IJNOV*, *IDI*, *IJCA*).

1 Introduction

The use of Facebook has become very popular during the last decade (Ahani et al., 2017). The number of Facebook users exceeded 2.31 billion in 2017 which is a 15% increase compared to 2017 (Facebook, 2018). The number of users is expected to exceed 2 billion by the end of 2019 (zephoria.com). Furthermore, Facebook has become one of the most popular means of social interaction among university students themselves (Al-Rahmi et al., 2018; Toker and Baturay, 2019). In fact, Smith and Caruso (2010) noted that about 97% of university students in the USA reported actively using SNSs daily. Recently, Mouakket (2015) stated that university students usually spend around four hours each day on social networking sites. In addition, Facebook is considered a useful tool for students for connectivity and social support, fostering interaction, exchange information and resources, join educational groups and share ideas and facilitate critical thinking (Chugh and Ruhi, 2018; Vrontis et al., 2018; Ameen et al., 2019; Alshurideh et al., 2019; Chukwuere and Ejoke; 2019). In their study, Roblyer et al. (2010) compared the use of Facebook by students and faculty members. They found that the students are more likely to use Facebook and more open to use it for educational purposes. They also asserted that Facebook function primarily as communications tools between the faculty and the students. Another important aspect of Facebook is the social one. In this regard, many institutions tend to create a Facebook page to communicate and exchange information with their students (Lee and Chong, 2017). With such features, SNSs have a great potential to be used in educational and instructional contexts (Čičević et al., 2016; Willems et al., 2018; Sarwar et al., 2019).

Recently, Omani younger generations have shown that they are willing to adopt and use new technologies and keen to utilise all technological devices through social networking sites (Al-Wahaibi et al., 2015; Masters, 2015; Tripathi, & Al Shahri, 2016; Samuel, & Sarprasatha, 2016; Awidi et al., 2019). In addition, it is reported that the number of Facebook subscribers in Oman in 2018 are 1500,000 indicating a 32.2% penetration rate of the total population in Oman (4,654,471) (Internetworldstats.com, 2018). It has been found that the largest portion of Facebook subscribers in Oman is between 18 and 34 (trademaxoman.com). Hence, examining the main factors that may influence the adoption of SNSs (Facebook) by students is perceived an important research issue.

However, previous studies showed that students are not using Facebook for educational purposes as they expected to (Hew, 2011, Sánchez et al., 2014; Novakovich et al., 2017). Jong et al. (2014) reported that students primarily use Facebook to enhance social connectedness, but rarely for academic purposes. Along the same line of argument, Mouakket (2015) found that universities have not yet made the desirable efforts of employing SNSs as a learning platform. Therefore, it becomes imperative for universities to encourage their students to use SNSs for educational purposes as it has the potential to become a valuable means to support their educational communications and collaborations with management and faculty. As the SNS is considered a relatively new

trend, there exists relatively little theory-driven empirical research on its educational usages and so the need for research on SNSs in educational contexts is now recognised (Hsu et al., 2012; Teo, 2016; Wu and Chen; 2015; Gleason and von Gillern, 2018). In addition, there are even less research in the context of the Gulf region (Al-Ammary et al., 2014; Mouakket, 2015). Hence, examining the main factors that may influence the adoption of SNSs (Facebook) by university students is perceived an important research issue.

To address the aforementioned issues, this study aims to develop and test an amalgamated conceptual framework that examines the main factors that may hinder or enable the adoption of Facebook for educational purposes among Omani students. Specifically, this study aims at developing and empirically validating a research model that examines the relationship between performance expectancy, effort expectancy, emotional attachment, habit, trust, resource sharing, communication and collaboration on students' behavioural intention towards educational usage of Facebook in Oman. These factors are selected because of their potential impact in understanding the adoption of social networking sites. From the theoretical perspectives, the above mentioned factors are considered critical in explaining technology adoption but, to the best of the authors' knowledge, there has been no study in which all these factors were integrated together. Therefore, this study will contribute to the literature related to social networking adoption by using such variables. In addition, the empirical data which was collected from Oman will provide information about a geographical area that has been under-represented in the literature. In the literature, there are few studies that examine the effect of culture on the adoption of SNSs (Vasalou et al., 2010; Kim, 2011; Jackson and Wang, 2013; Dhir et al., 2017). Hence, we believe that the identified constructs influencing the behavioural intention towards using Facebook may differ from one culture to another and from one geographical area to another. Consequently, the findings of this study will fill the gaps in the literature owing to the contributions presented earlier. From the practical perspective, this study could help instructors and managements at higher educational institutions to formulate strategies to encourage their students to use the social networking sites for academic purposes.

The rest of the paper is organised as follows: In Section 2, research model and a summary of the literature review in the field of SNSs (Facebook) adoption are provided. In Section 3, the methodology that guided the research is described. In Section 4, data analysis and the results obtained from employing the SEM are provided. Section 5 proposes a detailed discussion of the results and their implications to both theory and practice. Finally, Section 6 concludes the paper with limitations and directions for future research.

2   Theoretical framework

The overall conceptual model is illustrated in Figure 1 and the subsections which follow explain and justify each of the predicted relationship in light of previous findings from the literature.

Figure 1   The proposed theoretical framework
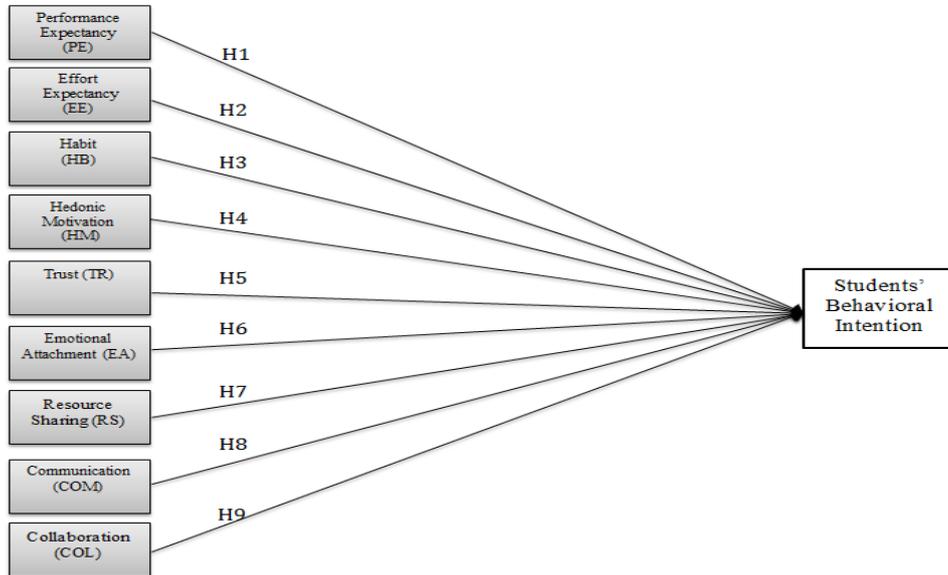
2.1   Performance expectancy (PE)

According to Venkatesh et al. (2003), performance expectancy comprises the functional and instrumental utilities that could alert the individual's intention to adopt new systems. Such utilities could pertain to having more productivity, functionality, saving time and efforts, more usefulness relative to the traditional way to do activities (Venkatesh et al., 2003). In other words, when users find the technology to be useful, then they are more likely to adopt it. PE has found to be one of the most important factors that may affect the adoption of various technologies, including E-government (Williams et al., 2011; Rana et al., 2013); E-learning (Tarhini et al., 2015; Ameen et al., 2018); internet banking (Alalwan et al., 2016; Sharma et al., 2019). Furthermore, there is also extensive empirical evidence that performance expectancy is a strong determinant on the adoption of social media networks in general (e.g., Sledgianowski and Kulviwat, 2009; Rauniar et al., 2014; Merhi, 2015; Hsiao et al., 2016; Pappas et al., 2017; Machumu and Zhu, 2019; Samad et al., 2019) and in education (e.g., Mazman and Usluel, 2010; Teo, 2016; Sharma et al., 2016). In this paper, PE is defined as the degree to which a student believes that the use of Facebook is useful for educational purposes. Hence, the following hypothesis is proposed:

H1: Performance expectancy will have a positive effect on Omani students' behavioural intention to use Facebook for educational purposes.

2.2   Effort expectancy (EE)

Effort expectancy refers to the degree to which a user believes that using a certain technology is relatively free of effort (Venkatesh et al., 2012). EE is considered to be an

important factor that significantly influence the use of technology especially in the earlier stage of adoption (Venkatesh and Bala, 2008; Williams et al., 2015). Reviewing the IS literature, users were relocating to use the technology because of the issues related to how much efforts they should spend to use new technology successfully (Venkatesh et al. 2012; Ameen and Willis, 2016). In different words, as long as a new system is easy to use and simple to be applied, individuals will be more enthused to use it (Venkatesh et al., 2012). In addition, using social media networks requires users to accomplish all tasks alone without any help from the provider (website), and accordingly, requesting more efforts from the user's side (Mazman and Usluel, 2010; Hsiao et al., 2016; Alalwan et al., 2017; Sharif et al., 2019). This, in turn, makes the role of efforts expectancy more crucial in shaping the users' intention to use social media websites. In addition, EE is found to have a positive influence on Facebook adoption for academic purposes (Sledgianowski and Kulviwat, 2009, Teo, 2016). It is expected that students who use Facebook for educational purposes will be more grateful of the minimum effort required to learn features, make use of the applications, and perform social-media-related activities. Hence, we propose the following hypothesis:

H2: Effort expectancy will have a positive effect on the Omani student's behavioural intention to use Facebook for educational purposes.

2.3   Habit (HB)

Habit (HB) is defined as the extent to which people tend to perform behaviours automatically because of learning accumulated from their experience in using certain technology (Venkatesh et al. 2012). In other words, when an individual repeats an action regularly and he/she is satisfied with the outcome, the action then becomes habitual (Venkatesh et al., 2012). Habit has been included in certain continuance intention models to explain IT-use behaviour because consumers use those IT devices frequently and the behaviour becomes automatic (Arenas-Gaitán, 2015; Hsiao et al; 2016; Jawarneh, 2017). Habit was also included in the IS research that examine the adoption of social media networks (Banerjee and Dey, 2013; Al-Ammary et al., 2014; Kaur et al., 2015; Mouakket, 2015; Hsiao et al; 2016; Chuang et al., 2017). Examining the relationship between habit and intention is important as prior habitual behaviours can produce favourable feelings toward the behaviour, thereby increasing the intention (Kim, 2016). However, the relationship between the two constructs has been quite controversial (Bhattacherjee et al., 2012; Venkatesh et al., 2012; Mouakket, 2015). For example, some of the studies examined the direct impact of habit on intention (e.g., Venkatesh et al., 2012; Chiu et al., 2012), others examined the moderating role that the habit plays in the relationship between intention and usage behaviour (e.g., Limayem et al., 2007; Mouakket, 2015; Sharma et al., 2016). Although the role of habit has been examined thoroughly in many IS contexts, there is a lack of studies that have examined its role within the social network sites (e.g., Facebook) setting (Hsiao et al., 2016). Therefore, consistent with previous studies that the automaticity of behaviour decreases the need to access intention (Hsiao et al., 2016), this study will examine the direct impact of habit on behavioural intention towards using Facebook by Omani students for educational purposes. Hence, the following hypothesis is postulated:

H3: Habit will have a significant positive effect on Omani students' behavioural intention to use Facebook for educational purposes.

2.4 Hedonic motivation (HM)

Venkatesh et al. (2012) added the Hedonic motivation in UTAUT2 to capture the role of intrinsic utilities. The users are not only interested in the extrinsic and functional benefits (i.e., usefulness, time saving, productivity) but also are more motivated by the role of hedonic motivation (i.e., playfulness, enjoyment, fun) (Venkatesh et al., 2012). The critical role of this influential factor was earlier introduced to the TAM2 model by Davis et al. (1992). Later, Venkatesh et al. (2012) also argued that the crucial impact of hedonic motivation comes from the novelty seeking and innovativeness existing in using new technologies regardless of the anticipated consequences. Unlike other traditional applications; SNS have been mainly used for entertainment purposes, such technology could accelerate the users' feeling of joy and pleasure. Basak and Calisir (2015) assert that the user can be entertained through the exchange of information, watching videos, listening to music, playing online games, as well as seeing other user's profile. Several researchers have investigated the impact of intrinsic motivation or hedonic motivation on the users' intention to use new technologies (e.g., Alalwan et al., 2014; Alryalat et al., 2016; Abed, 2016). In the SNS context, few studies have examined the role of HM on behavioural intention (Basak and Calisir, 2015; Mouakket, 2015; Yoon and Rolland, 2015; Hsiao et al., 2016) and even fewer in using SNS for educational purposes (Hamid et al., 2015; Sharma et al., 2016). In the context of this study, HM is defined as the degree to which a student believes that using SNS like Facebook for learning purposes will be associated with fun and enjoyment. These pleasurable experiences will lead the users to be intrinsically motivated to adopt it. Therefore, the following hypothesis is postulated:

H4: Hedonic motivation will have a positive significant effect on the Omani student's behavioural intention to use Facebook for educational activities.

2.5 Trust (TR)

Gefen et al. (2003, p.161) defined Trust as "individual willingness to depend based on the beliefs in ability, benevolence, and integrity". Users are largely found to rely on trust to support their decisions to use new technologies especially that related with a degree of uncertainty, intangibility, heterogeneity and vagueness (Gefen et al, 2003; Venkatesh et al., 2012). Furthermore, this feature needs additional consideration in social media networks as there is absence of human interaction between the users which leads them to question how their information shared on social media site would be handled. In social media sites, the user has to provide some private data such as age, location, interests and share pictures and videos as well as the public list of his/her friends. Hence, if the user feel that the social media site will keep his/her information confidential and not be used by any third-part or for any other purpose without the permission of the user, then they are more likely to adopt it (Dwivedi et al., 2017; Merhi et al., 2019; Gasaymeh and Waswas, 2019). Various studies on social medial adoption found trust to be a key aspect that influences the user's behavioural intention (e.g., Mansumitrchai et al., 2012; Rauniar et al., 2014; Alalwan et al., 2017; Al-Shihi et al., 2018). Accordingly, the following hypothesis has been formulated:

H5: Trust will have a significant positive impact on the Omani student's behavioural intention to use Facebook for educational purposes.

2.6   Emotional attachment (EA)

Malhotra and Galletta (1999) defined attachment as "the degree of commitment to the system based on the effect of social influences on the user". They found that EA positively influence the users' behavioural intention towards using chosen information system (Malhotra and Galletta, 1999). Reviewing the literature, few studies have explored the effect of EA on technology adoption (Kulviwat et al., 2007; Vlachos et al., 2010; Read et al., 2011; Teo, 2016). Bruner and Kumar (2005) found that the majority of previous studies that examine the influence of EA on technology adoption tend to focus on the workplace rather than consumer. In his study, Teo (2016) extended the TAM with EA as an external variable to study Facebook usage among university students in Thailand. He found that EA has direct and significant influences on all core variables in the TAM (perceived usefulness; perceived ease of use; attitude and actual usage). Hence, we propose the following hypothesis:

H6: EA will have will have a significant influence on Omani students' behavioural intention to use Facebook for educational purposes.

2.7   Resource and material sharing (RS)

The social media sites (Facebook, Twitter, etc.) has been widely used by students and professors for sharing different kind of educational materials such as projects, multimedia resources, videos, audio materials in order to complement the traditional learning model (Mazman and Usluel, 2010; Sánchez et al., 2014; Sharma et al., 2016). The use of social media sites for educational purposes has been recognised by many academic institutions around the world (Ainin et al., 2015). Furthermore, Milosevic et al. (2015) asserted that the use of social media sites enhances the communication between the students themselves and between the students and their instructors. Another study conducted by Sharma et al. (2016), the authors found that the students used the SNS (Facebook) to exchange important information regarding their group assignment. Hence, it is expected that if the students are willing to share their knowledge on Facebook then they are more likely to adopt it for educational purposes. Hence, this study proposes the following hypothesis:

H7: Resource/material sharing will have a significant positive effect on Omani students' behavioural intention towards using the Facebook for academic purposes.

2.8   Communication (COM)

One of the most important features about Facebook is allowing online users to connect to each other. Many institutions have used the SNS (Facebook) as a medium of communication between the students and the faculty members (Mazer et al., 2007). For example, the instructor may use the Facebook to inform the students about the classes, courses and assignments (Christofides et al., 2009; Baturay et al., 2017). According to Sánchez et al. (2014), the more the students communicate with their peers on SNS, the more they engage in learning activities. In the context of this study, it is expected that if the students use the Facebook to promote online connections with other users then they are more likely to adopt it for academic purposes.

H8: Communication will have a significant positive effect on Omani students' behavioural intention towards using the Facebook for academic purposes.

2.9 Collaboration (COL)

Facebook is a platform that can be used to develop new collaboration models as it allows the users to join groups and connect with users that share the same interests (Selwyn, 2007; Sánchez et al, 2014). A study by Maloney (2007) found that the conversational, collaborative, and communal qualities of Facebook will enhance the students' learning process. Ainin et al. (2015) concluded that the use of SNS allow the students to enhance their relationship with their instructors. Their results were supported by Hamid et al. (2015) who found that the use of SNS enrich the students' academic experience. In the context of this study, collaboration among the students could be through joining the academic groups related to their classes, departments and schools as well as sharing their projects and ideas. This in turn will enhance their academic performance (Mazman and Usluel, 2010; Sharma et al., 2016; Alajarmeh and Rashed, 2019). Hence, it is expected that if the students are willing to collaborate using the SNS then they are more likely to adopt it for academic purposes. Therefore, the following hypothesis is postulated:

H9: Collaboration will have a significant positive effect on Omani students' behavioural intention towards using the Facebook for academic purposes.

3 Methodology

3.1 Sample and procedure

This study is based on a non-probabilistic and self-selection sampling method, a convenience sample. More specifically, data were collected between January and February 2017 by means of self-administrated questionnaire containing 42 items from Omani university students who use social media networks for their educational purposes. The usage of social media networks among Omani university students is relatively high. Therefore, the sample used well represents the population considered for the research.

The survey was pre-tested with four faculty members having expertise in management information, and then pilot-tested with 41 potential respondents to provide valid, reliable and unbiased results, and to detect any potential problems such as difficulty, time, wording and to check whether necessary changes has been applied before the start of the actual survey (Sekaran and Bougie, 2011). The results obtained from pilot study led to modifying four questions.

The questionnaire was distributed to a total of 550 Omani university students who use social media networks for their educational purposes; 412 were returned indicating a 74.6% response rate. The potential users were briefly informed about the aim of the study and that their participation is on a purely voluntary basis. After screening for missing data, we retained 399 questionnaires for data analysis. These included 56.7% female and the mean age range varies from 18 to 30, and their self-rated internet experience was either some or experienced. In terms of educational level, 85% were undergraduate and 15% had postgraduate degree or above.

3.2   Measurement

The items used in the proposed theoretical framework were adopted from previous literature related to technology adoption. More specifically, items related to the UTAUT2 factors (performance expectancy, effort expectancy, hedonic motivation, habit and behavioural intention) were mainly adopted from Venkatesh et al. (2012) and related social media networks adoption studies (Rauniar et al., 2014; Basak and Calisir, 2015; Mouakket, 2015; Ifinedo, 2016). In addition, trust was measured using four items adopted from Mansumitrchai et al. (2012), Baek and Morimoto (2012) and Kim (2016). Items used to measure communication, collaboration and resource sharing were adopted from the work of Sánchez et al. (2014) and Sharma et al. (2016), and finally emotional attachment were adopted from the work of (Kulviwat et al., 2007; Read et al., 2011; Teo, 2016). These questions were measured using a 7-point Likert scale, ranging from 1-strongly disagree to 7-strongly agree.

4   Data analysis

In this research, we employed SPSS to compute the descriptive statistics, whereas Structural Equation Modelling (SEM) approach was used during the analysis of the data. More specifically, a two-step approach was employed to examine the relationships among the constructs within the proposed framework as suggested by Anderson and Gerbing (1988) and Hair et al. (2010). The reliability and validity of the instrument measures were assessed using the measurement model, and then the research hypotheses were tested using the structural model.

4.1   Descriptive statistics

As can be shown in Table 1, the mean values of all items employed in this study were above the mid-point of 3.5 and ranged between 4.22 and 5.21, which suggests the respondents had given generally positive responses to the items being measured. The standard deviations ranged from 1.32 to 1.54, which shows a fair spread of scores around the mean.

Table 1   Descriptive statistics of the constructs

Factor	Mean	Standard deviation
PE	5.21	1.60
EE	4.46	1.52
HB	4.35	1.71
HM	4.42	1.74
TR	4.21	1.63
EA	4.5	1.68
RS	4.78	1.54
COM	4.46	1.70
COL	4.73	1.68
BI	4.68	1.55

4.2 Step one: analysis of measurement model

A Confirmatory Factor Analysis (CFA) was employed using Maximum-Likelihood Estimation (MLE) procedure to estimate the model's parameters, where all analyses were conducted on variance-covariance matrices (Hair et al., 2010). As recommended by Hu and Bentler (1999) and Hair et al. (2010), the overall model was assessed using the following fit indices: Root Mean Square Residuals (RMSR), the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Adjusted Goodness-of-Fit Index (AGFI), Goodness-of-Fit Index (GFI), Normed Fit Index (NFI) and Parsimony Normed Fit Index (PNFI).

Table 2 shows the actual and recommended fit indices for our sample after the improvement in model fit. In order to ensure good model fit, four items (EE4, TR2 and EA3 and HM2) were removed from the initial model. As can be shown in Table 2, the results of the model showed a good fit with the sample data. Hence, the next step is to assess convergent validity, discriminant validity in addition to reliability.

Table 2 Model fit summary for the final measurement and structural model

Fit index	Recommended value Hair et al. (2010)	Measurement model	Structural model
χ^2 / df	< 5 preferable < 3	1.93	1.82
Goodness-of-Fit Index (GFI)	> 0.90	.919	.921
Adjusted Goodness-of-Fit Index (AGFI)	> 0.80	.875	.877
Comparative Fit Index (CFI)	> 0.90	.948	.950
Root Mean Square Residuals (RMSR)	< 0.10	.074	.071
Root Mean Square Error of Approximation (RMSEA)	< 0.08	.059	.057
Normed Fit Index (NFI)	> 0.90	.927	.929
Parsimony Normed Fit Index (PNFI)	> 0.60	.761	.768

4.3 Construct reliability, convergent validity, and discriminant validity

As recommended by Hair et al. (2010), the validity and reliability of the items supposed to measure each factor were assessed using the Composite Reliability (CR), Average Variance Extracted (AVE). Hair et al. (2010) suggested that CR should be above 0.7 in order to establish good reliability and that the AVE should be above 0.5 and CR is greater than the AVE in order to establish convergent validity. In order to establish discriminant validity, the square root of the AVE for a given factor should be significantly larger than its correlation coefficients with other factors (Hair et al., 2010). As can be seen in Table 3, the CR for all factors was above the recommended value and ranged from 0.727 to 0.878, which means that the factors had adequate reliability. In addition, the AVE was above 0.5 and this indicates that the constructs had sufficient convergent validity. Furthermore, the square root of AVE is significantly higher than their correlation values, and this suggest that discriminant validity appears satisfactory at the factor level in the case of all factors.

4.4   Step two: test of structural model

As can be shown in Table 4, the standardised path coefficients in the hypothesised model showed that students' behavioural intention to use social media networks for educational purposes was positively and significantly influenced by communication, resource and material sharing, performance expectancy, collaboration, emotional attachment, hedonic motivation, habit and trust, in their order of influencing power and explained 67.7% of the variance in behavioural intention. Thus, hypotheses H1, H3, H4, H6, H7, H8 and H9 were supported by the data. However, effort expectancy and trust did not have affecting impact on BI. Hence, H2 and H5 were not supported in this research.

Table 3   Construct reliability, convergent validity and discriminant validity

	CR	AVE	PE	EE	HB	HM	TR	EA	RS	COM	COL	BI
PE	.858	.603	.776									
EE	.727	.564	.703	.871								
HB	.872	.774	.626	.437	.875							
HM	.866	.764	.733	.490	.818	.874						
TR	.735	.548	.365	.291	.345	.387	.669					
EA	.782	.581	.669	.496	.701	.757	.506	.880				
RS	.869	.690	.659	.603	.574	.673	.389	.489	.831			
COM	.878	.706	.665	.449	.493	.613	.382	.473	.777	.840		
COL	.857	.782	.604	.516	.483	.584	.307	.414	.759	.931	.885	
BI	.865	.791	.631	.445	.583	.667	.410	.592	.727	.835	.537	.889

Table 4   The research model results, coefficients

Number	Proposed relationship	Estimate	Result
H1	PE → BI	.231**	Supported
H2	EE → BI	.070	Not Supported
H3	HB → BI	.175*	Supported
H4	HM → BI	.183*	Supported
H5	TR → BI	.101	Not Supported
H6	EA → BI	.208**	Supported
H7	RS → BI	.252***	Supported
H8	COM → BI	.267***	Supported
H9	COL → BI	.220**	Supported

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$; NS $p > .01$.

5   Discussion

This study was conducted with intention to provide a clear and accurate picture of the main aspects that could shape Omani students' adoption of Facebook for academic purposes. Indeed, factors extracted from the UTAUT2 along with trust, emotional attachment, resource and material sharing, communication, and collaboration all were proposed and validated in one augmented model. As mentioned in the introduction section, SEM was employed and its results largely supported the current proposed model. In specific, all fit indices extracted regarding the confirmatory factor analyses approved that the measurement model adequately fit the observed data. This is alongside all criteria related to construct validity and reliability was successfully matched. In the second stage of SEM, results were also able to confirm the predictive validity of the structural model by supporting the most hypotheses proposed.

As presented in the results section, communication was the most significant factor predicting Omani students' intention to adopt SMN for educational purposes. This means that students, who perceive Facebook as an effective channel and platform to contact with their colleagues and teachers, are more likely to be motivated to adopt Facebook. Indeed, Facebook is one of the most successful Web2 applications that allow users to build their own virtual community and have a high extent of interactivity over such platform. Accordingly, students perceive Facebook as a good platform to get more involved in the learning and educational process. This thought is in the line with what has been confirmed by number of researchers like Mazer et al. (2007); Christofides et al., (2009) and Sánchez et al. (2014).

Resource and material sharing was the second important factor considered by Omani students to adopt Facebook. As reported by Mazman and Usluel (2010); Sánchez et al. (2014); Sharma et al. (2016), Facebook provide users with large space to share different kinds of academic and educational material (i.e., projects, multimedia resources, videos, audio materials). This makes Facebook having more privileges to have some resources without a time and place restrictions instead of traditional tools to have the same material. Thus, students seem to be more interested to adopt and use social media platforms like Facebook to capture the educational material required. Such results are comparable with what has been discussed by Mazman and Usluel (2010); Sánchez et al. (2014); Sharma et al. (2016).

Omani students were also noticed to be stimulated to use Facebook by intrinsic utilities (i.e., entertainment, joy, and cheerfulness) that could be extracted from using this platform. Thus, and according to current analyses results, hedonic motivation is critical factor contributing to students' intention to use Facebook for educational purposes. This impact could be returned to the nature of SNS and Facebook particularly as a ground-breaking and novel technology, and in turn, making users have a feeling of playfulness and enjoyment when use it. This is in addition to fact that Facebook has been originally established for entertainment and socialising purposes which makes users experience over such platforms more interesting even for more professional activities like learning and educational ones. These results are on agreed manner with what proposed by Venkatesh et al. (2012) in UTAUT regarding the role of hedonic motivation. As well as, other studies like Alalwan et al. (2016); Basak and Calisir (2015); Mouakket (2015); Yoon and Rolland (2015); Hsiao et al. (2016) reached smaller results with what has been supported in the current study for the impact of hedonic motivation on the behavioural intention.

Omani students' intention was found to be significantly predicted by the role of habit. This means that, by the daily and extensive interaction between students and social media platforms along with the positive outcomes captured from such interaction, students forms a kind of habitual behaviour toward using Facebook. Such results are in the line with thought of Venkatesh et al. (2012) regarding the impact of habit on both behavioural intention and actual adoption. Indeed, and according to what is proposed in the conceptual model and what is found in the results, Omani students are more likely to be motivated to adopt Facebook for educational services as long as they formulate a favourable habitual behaviour toward such platforms. These results have been largely supported by several IS studies (i.e., Banerjee and Dey, 2013; Al-Ammary et al., 2014; Kaur et al., 2015; Mouakket, 2015; Hsiao et al; 2016).

Emotional attachment was approved to have a significant positive influence on the behavioural intention to use Facebook. Among the students who are emotionally involved with others over the social media, the likelihood of using Facebook reaches the highest level. Indeed, the abilities and features of Facebook which allow users to have more interactivity and engagement with others, users are going to have more emotional and cognitive attachment either with the main platforms like Facebook in the current study or with the community of users over this platform. This, in turn, makes them more motivated to adopt and continue using Facebook for different aims (i.e., educational, social, and even for entertainment). These results are very similar to those extracted by Bruner and Kumar (2005) and Teo (2016).

As expected, performance expectancy was found to have a significant impact on the students' intention to use Facebook. To put differently, as long as students perceive using Facebook more beneficial and improving their academic performance, they will be inspired to adopt this platform. Such results could be attributed to the convenience and capability of Facebook to serve students to attach different kinds of academic martials posted in this platform without time and place restrictions. This is in addition to ability of this platform to allow students ask and receive answers in more appropriate and flexible manner instead of traditional academic ways. Results of performance expectancy could also be attributed in the light of other results extracted regarding the role of other factors like collaboration, resource and material sharing, and hedonic motivation. As reported by many studies over the IS area, if users perceive using the targeted system as more enjoyable (Alalwan et al., 2016; Tarhini et al., 2015), and useful way to have more information and interact with people (Sánchez et al., 2014; Sharma et al., 2016); they are more likely to perceive this system as more productive and useful in their daily life.

Unexpectedly, trust did not a significant influence on the Omani students' intention to use Facebook. Social media as any other online platforms comprising an extent level of risk and uncertainty because of the absence of the physical human interaction. This is in addition to the fact that users are usually requested to disclose some of their private information (i.e., age, gender, address, interest), and accordingly, there is always a concern regarding the level of privacy and trustworthiness available in the targeted platform. Therefore, it could be plausible concluded that let Omani students have a higher inclination to capture adequate level of trust and integrity in the Facebook in order to be really motivated to use such platform. This is in the line with proposition of Gefen et al. (2003) and other studies verified the crucial role [of trust on the behavioural intention to adopt social media applications (see Mansumitrchai et al., 2012; Rauniar et al., 2014).

Furthermore, the results of the current study disapproved the impacting role of efforts expectancy on the Omani student's intention to use Facebook for educational purposes. Accordingly, it could be concluded that Omani students are not concerned about the extent of how much Facebook is ease to use to form their decision to use or reject using this platform. These results regarding the role of effort expectancy could be returned to customers' awareness and confidence to cope with new systems quickly and effectively. This could be as outcomes of the users' extensive interaction and experience to cope with different kinds of technologies on daily bases. As users have more experience with different social media platforms and as mentioned when discussed the role of habit, users seem to have more habitual behaviour to interact with social media platforms. Thus, the impacting role of effort expectancy could not be crucial for such kind of technology. Even though these results are not in accordance to these found by Venkatesh et al. (2012), there are many studies over the IS have disapproved the affecting of effort expectancy on the behavioural intention (see Alalwan et al., 2016; Curran and Meuter, 2007).

6   Conclusions

6.1   Findings and implications

Social Networking Sites (SNSs), such as Facebook, can be considered a useful platform to foster connectivity, networking and interaction, and exchange of information, resources and ideas, which consequently promote critical thinking and innovation in educational setting. The use of these sites has been growing globally and locally in Oman, especially among young generations such as college students. The objective of this study was to assess the factors that influence students' adoption of SNSs (such as Facebook) for educational purposes in Oman based on the extension of UTAUT2 model. Specifically, the study aimed to develop and empirically validate a research model that examines the impact of performance expectancy, effort expectancy, emotional attachment, habit, trust, resource sharing, communication and collaboration on students' behavioural intention towards educational usage of Facebook in Oman. Based on 399 students in Oman, the study found that all these investigated factors are critical to the Omani college students' intention to use Facebook for educational purpose except for effort expectancy. Based on the order of their significance, the study found that communication, resource and material sharing, hedonic motivation, the role of habit, emotional attachment, trust and performance expectancy significantly impact students' intention to use Facebook for educational purpose. Such results provide useful insights and implications for researchers, practitioners and SNS developers.

First the study developed a model to assess the factors that influence the adoption of SNSs for educational purpose, and empirically validated the model in under investigated country, Oman. With the increasing use of SNSs among college students, the adoption of SNSs, as a learning platform, can be very promising for educational institutions. However, the literature (Hew, 2011, Sánchez et al., 2014; Alamri, 2019; Komodromos et al., 2018) indicated that SNSs are not utilised by educational institutions as they should be, and students are mostly using SNSs for social networking and rarely for educational purpose (Jong et al., 2014). Accordingly, this current study provided researchers and practitioners with insights that provide a better understanding of the factors that improve

the utilisation of SNSs, such as Facebook, as a learning platform among college students. This understanding better enables educational institutions' decision making and planning for the adoption of SNSs or even any other learning platform. Few studies that provided such insights especially in the gulf region are by Al-Ammary et al. (2014) and Mouakket (2015).

Second, the findings suggest that the most critical factors that impact the adoption of SNSs for educational purpose are related to the SNSs platform, specifically communication, and resource and material sharing. Adopting a SNS that provides a powerful platform for communication, and resource and material sharing will enrich the development of online learning community and learning activity. The more the students communicate with their peers on SNS, the more they engage in learning activities (Sánchez et al., 2014). The importance of SNS's level of communication facility is also confirmed by Mazer et al. (2007), Christofides et al. (2009) and Sánchez et al. (2014). Furthermore, adopting a SNSs that offer abundant space to share multimedia educational resources and materials (such as projects, assignments, audio and video materials etc.) is crucial to improve students' behavioural intention and adoption, information and knowledge sharing and hence nurture learning environment. Research also indicated that SNSs as Facebook is highly used by instructors and students because it enables educational material sharing (Mazman and Usluel, 2010; Sánchez et al., 2014; Sharma et al., 2016). Thus, educational institutions should adopt SNSs platforms that enable such capabilities to improve students' adoption and consequently foster learning. SNSs developers should continue to strengthen the platforms with different communication and resources sharing facilities.

Third, the results suggest that the following set of factors that influence students' adoption and behavioural intention to use SNSs for educational purpose are related to individual values such as hedonic motivation, the role of habit as well as emotional attachment. Therefore, adopting a platform that offers students' joyful and pleasant learning experience is important for students' adoption. Also, the students' habitual behaviour, the extensive daily use of Facebook platform by students, impacted the students' behavioural intention to use SNSs (i.e., Facebook) for educational purpose. Such joyful experience and role of habit are very often linked to the SNSs use as proposed by researchers including Venkatesh et al. (2012), Mouakket (2015), and Hsiao et al. (2016). In addition, students' emotional attachment to the SNS (e.g., Facebook) platform or/and with the connected community of users is crucial to the students' behavioural intention to use Facebook for educational purpose, which is also consistent with Bruner and Kumar's (2005) and Teo's (2016) studies. Moreover, students' trust on Facebook platform is important to their intentional behaviour to use it for educational purpose. This finding underlines the importance of the privacy, security and integrity of the SNSs on developing student's trust on consequently their adoption. It is very critical that individuals and organisations to be aware of privacy and security facilities and controls of SNSs to assure a trustworthy learning environment. Therefore, educational institutions should ensure the adoption of enjoyable and trustworthy SNS platform and aligned with their adoption with students' habitual behaviour to foster educational use and adoption.

Fourth, unlike efforts expectancy, performance expectancy of SNSs was the final significant factor that influences students' behavioural intention to use SNSs (Facebook) for educational purpose. Performance expectancy of a technology use is related to improving productivity, functionality, time and efforts, and usefulness relative to the

traditional way to do activities (Venkatesh et al., 2003). Students' use SNSs as they perceive it as more productive and useful in their daily life to do so (Sánchez et al., 2014; Sharma et al., 2016). With all the above factors in place, it seems that efforts expectancy, ease of use, is not a critical factor on students' intention to use SNSs for educational purpose. This finding is inconsistent with Venkatesh's et al. (2012) proposition, but similar to Alalwan's et al. (2016) and Curran and Meuter's (2007) findings. Accordingly, educational institutions and instructors should adopt and ensure that their courses include useful and productive educational activities and use of SNSs to promote students' adoption.

In conclusion, SNSs has good potential to enrich the learning environment at academic institutions. This study proposed and significantly tested a model of the factors that influence students' behavioural use of SNSs (specifically Facebook) for educational purpose in under-investigated region, Oman, and provided useful insights for educational institutions' stakeholders (managers and instructors) on how to utilise Facebook and other SNSs to motivate students and enrich their learning and educational process.

6.2 *Limitations and future research*

This study has some limitations. First, the study investigated the model in one SNSs platform, Facebook; testing the model in other platforms use is important to ensure the generalisability of the findings. Similar, the study's sample was collected from one academic institution in Oman; more research can be conducted at several organisations in different countries to improve the generalisation of the findings. Also, cross-cultural investigation in the Middle East and across the globe will provide more significant insights into students' adoption of SNSs for educational purpose. For a better understanding of factors that enable or inhibits the use of SNSs for educational purpose, future studies should also assess the instructors' perspective. The study should integrate also other models to provide more comprehensive perspective. Finally, future research may combine different research methodologies and longitudinal study to investigate the students' adoption.

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