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Digital and Interactive Social Media among Middle East Women: Empirical TAM Study

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This study investigates the use of interactive media (WhatsApp) by Bahraini women to understand their decisions on how, why and when they use it. It supports the use of mobile technology applications to expand efficient communication and information among Arab women. Mobile technologies are very accessible to Arab women these days. A sample of 1,137 responses was collected, using a snowball sampling approach. Based on TAM literature, the study found that interactive media (e.g., WhatsApp) has enabled Bahraini women to communicate and share information with others. WhatsApp was used daily (2-3 hours) and also for sending comics and entertainment clips, important and rare news stories. Social interaction, communication, and escapism were found to be the most popular reasons for using WhatsApp. Overall, WhatsApp served as a platform used by Bahraini women to participate in social and communication activities.

Keywords: Instant messaging applications, mobile phone applications, social media interaction, TAM, WhatsApp

The use of smartphones, especially instant messaging applications (IMA), such as WhatsApp, Instagram, and Snapchat, have witnessed increasing demand in the Arab world and their use has grown very quickly, especially in the GCC region (Aljaad, 2017; Salem, 2017). These applications have allowed their users to communicate more easily with each other in their social lives, outgrowing face-to-face communication, by using text messages, images, video, email and audio messages at no cost (Salem, 2017; Sultan, 2014; Sutikno, Handayani, Stiawan, Riyadi, & Subroto, 2016). These apps have become everyday habits used by anyone, including Arab women and young adults (Aljaad, 2017; Sultan, 2014). For example, Salem (2017) found that around 28 percent of respondents used messaging apps such as WhatsApp to express views on government policies.

These platforms have become more popular for three reasons: they are not complex and they are quick and inexpensive to use (Rauniar, Rawski, Yang, & Johnson, 2014; Sultan, 2014). Harrison and Gilmore (2012) indicated that IMA had modified interpersonal interactions through more people using text-based communication. Aljaad (2017) added that smartphones had become one of the most important devices used in the Saudi education system.

Several Arab countries have adopted social media to communicate with the public and to share things around them. For example, the first international conference, Social Media Effect on Electronic Publishing, held at Jordan University, emphasized the importance

of social media, with all its functions, in people's lives (Aljaad, 2017). This is why WhatsApp is used in Saudi education by 73 percent of students, with some female students interested in using it for academic activities. This is an indication that social media (e.g., WhatsApp) can be used to spread information and enable Arab women to engage in their communities (AlBaloushy, 2015). Alqahtani (2014) found that WhatsApp is used for communicating with relatives and families in an unprecedented way. It has had a significant impact on Saudi women's means of communication with others.

Research has already examined the effects of new technologies on people's communications and lives such as emails (Falahah & Rosmala, 2012; Lampe et al., 2011), text messaging (Tess, 2013; Thurlow & Poff, 2013), chat rooms (Rollman, Krug, & Parente, 2000), MySpace (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013), blogs (Boyd & Ellison, 2007; Kaye, 2005; Lawrence, Sides, & Farrell, 2010), LinkedIn (Manca & Ranieri, 2016; Papacharissi, 2009; Tess, 2013), Facebook (Al-Harbi, 2010; Stern & Taylor, 2007) and Twitter (Kaplan & Haenlein, 2010; Kinninmont, 2013), but less attention has been given to newer technologies such as WhatsApp and their use by Arab women, especially in the GCC region. Hence, this study focuses on the use of WhatsApp by Bahraini women in order to explain better and to understand the factors that influence women's decisions on how, why and when to use WhatsApp.

IMA: WhatsApp

The IMA has monopolized instant messaging in multi-platform applications for smartphones (G3 and G4) that depend on Internet connections for the transmission of messages and information (Church & Oliveira, 2013; Statistic, 2018). New technologies now enable their users to send images, voice messages, videos, emails, print files and more (Kaplan & Haenlein, 2010; Sultan, 2014). WhatsApp is one of these apps, which was founded in 2009 by Brian Acton and Jan Koum, who formerly worked for the Yahoo app (<https://www.whatsapp.com>). WhatsApp is based in Santa Clara, California, US and it competes with some Asian messaging services such as LINE, KakaoTalk, and WeChat (Statistic, 2018).

Ten billion messages were sent daily in August 2012. In June 2013, the new daily records reached 27 billion and around 1.2 billion monthly active users were reported using WhatsApp in January 2017 (Statistic, 2018). In February 2014, Facebook acquired WhatsApp for \$19 billion. Note that WhatsApp is now only available for G4 mobile phones operated by ISO, Android, Symbian and Windows Phone (and iPad unofficially) (Aljaad, 2017). The company has announced that, by the end of 2016, they will not be able to support WhatsApp Messenger on some smartphones such as BlackBerry OS and 10, Nokia S40 and Symbian S60, Android 2.1 and 2.2, Windows Phone 7 and iPhone 3GS/iOS 6. This is because these devices do not offer the kind of capabilities needed to expand WhatsApp's features in the future (<https://blog.whatsapp.com>). The current application allows communication between two or more users at the same time with chat histories recorded and visible to all parties (Rashidi, Vaniea, & Camp, 2016). This may be why it has become a very popular social media platform in several countries, such as South Africa, Malaysia, Argentina, Singapore, Hong Kong, Spain (Aharony & Gazit, 2016) and the Middle East and North Africa (MENA) (Dennis, Martin, & Wood, 2016). It synchronizes with the phone contacts, so users do not need to add names in a separate record.

As reported by Dennis et al. (2016) WhatsApp is more popular among older people (45+) in the MENA regions, with 90 percent of users using WhatsApp as a primary source

for communication with others. The report also found that Arab GCC women are more likely than men to use the Internet in general, with both equally likely to own smartphones. Arab women are found to share content via social media about music and to list more drama, fashion and children/family-oriented content such as favorite online videos.

Literature Review

New technologies are seen as a new means of communication, especially in the age of social media. The use of social media, such as WhatsApp, is one angle (Aljaad, 2017). In the past decade or so, the study of text messaging has increased in the literature, with numerous studies being carried out to understand how and why messaging (e.g., SMS, IMA, MIM) has weaved itself into daily mobile communication activities (see, e.g., Church & Oliveira, 2013). Not only has this evolution decreased the cost and convenience of mobile data plans, but it also continues to grow unabated, ultimately leading to significant decreases in Short Message Services (SMS) traffic (Church & Oliveira, 2013).

These services are popular, even among young people regardless of their place, and studies have focused particularly on the texting habits of young people as highlighted by Church and Oliveira (2013) in their study in Spain. Others (e.g., Thurlow & Poff, 2013) in Western culture have found that young and older people use texting in different ways. For example, the US Pew Research Center recent study highlighted the importance of text messaging as a key media activity in everyday life of users (Greenwood, Perrin, & Duggan, 2016). They found that 42 percent of smartphone owners aged 18-29 used messaging apps, with 33 percent of college students using them and men more likely to use them than women. Others found that factors such as cost, ease of use, social interaction and the lightweight nature of text messaging have contributed to the increased adoption of IMA among young people in Spain (Church & Oliveira, 2013). Using IMA for users mean more socialization and to stay in touch with others (Sutikno et al., 2016). Although as a closed platform, it can be used to send information to a created group / individuals in whom they can see and accept posts and videos etc. as indicated by undergraduate students, School of Communication in Israel (Aharony & Gazit, 2016).

Some literature has accumulated regarding the use of social media in the Arab world. Studies have found that these platforms can be a kind of political sphere (e.g., in the political uprising in Tunisia and Egypt) (Rauniar et al., 2014) in which users have acknowledged social media as spreading information in *real time* and as a communication platform (Arabian Gazette, 2015; Knight & Weedon, 2014). There have been a range of studies on activism on social media, concerning, for example, the Arab-uprising movements (Alqabra, 2012; Jones, 2013; Rauniar et al., 2014), while other work demonstrates that social media represent a turning point in women's political, social and civic positions in the Arab world (e.g., Abdel-Fadil, 2014, in Egypt; Al-Harbi, 2010; El Haitami, 2014, in Morocco; El Issawi, 2014, in Libya; Khamis, 2014, in Saudi Arabia). The emphasis in these studies is on how Arab women have utilized social media to agitate for their rights, equality, and social status and to overcome their cultural constraints, as well as for leisure time, entertainment and dating. Also, studies have asserted the gendering of women's identities when communicating on social media. For example, Moroccan women, in using online communication platforms, have been able to form collective identities as a strategy to portray their culture within their activities and practices (El Haitami, 2014).

Mobile-phone applications (e.g., WhatsApp) have become common in the Arab Gulf regions, and these communication techniques have been used to provide affordable and accessible communication avenues for under-represented groups across the region.

In technical terms, the area has the highest subscription rates for mobile devices in the world, with Kuwait being listed as the top subscriber (ratio 3:1)(GSMA, 2017). GCC citizens have often been early adopters of social media platforms (e.g., Facebook, WhatsApp, Twitter) (AlSharekh, 2016; Dennis et al., 2016; Radcliffe & Lam, 2018). These apps have become an effective way for some groups, such as GCC women's groups, to disseminate their ideas, views, and agendas (Ajwad, 2015; AlSalem, 2016). WhatsApp was effectively used, for example, by Saudi women in their driving campaign in 2013 (a campaign which succeeded in 2017) (Jamjoom & Smith-Spark, 2013) and in Kuwait for campaigning for the citizenship rights of children born to Kuwaiti mothers married to non-Kuwaitis. They used these apps as platforms to test for acceptable ideas in the region (Ajwad, 2015; AlSharekh, 2016) and they have helped to spread information locally and nationally. Information and other activities have been spread via these platforms for different purposes (Ajwad, 2015; Sutikno et al., 2016). While some research has revealed interesting insights and helped the understanding of the use of apps, in contrast, our current understanding of the role of Mobile Instant Messaging (MIM) applications is still very limited, especially among Arab women.

Technology Acceptance Model

Technology has enabled social-interaction processes between users, regardless of age, gender, and race. Thus, these online technologies (e.g., social media sites) are successful because of acceptance and usage in personal, social and professional everyday lives, as Fishbein and Ajzen (1975) and Doll and Torkzadeh (1988) indicate. One of the theories/models that may help us to understand the actual usage behavior (Bahraini women) of new technology is the Technology Acceptance Model (TAM) proposed by Davis (1989). Davis (1989) initially examines and explains the usage behavior of computer technology. The model suggests that, when users are presented with new technology, some factors influence their decision about how, why and when they will use it.

The TAM is built into two constructs: Perceived Usefulness (PU) and Perceived Ease of Use (EU) of users. While PU is defined as 'the degree to which a person believes that using a particular system would enhance his or her job performance', Perceived EU is seen as 'the degree to which a person believes that using a particular system would be free of effort'(Davis, 1993, p 320) As a result, PU and EU influence the users' attitudes toward using technology (WhatsApp). In our study, the expansion of new media (social media) has increased the opportunities for applying the TAM due to the medium requiring a higher level of interactivity from its users (e.g., WhatsApp) in comparison with other media. TAM is defined as the information systems that model how users (Bahraini women) come to accept and use a technology (WhatsApp) (Davis, 1989).

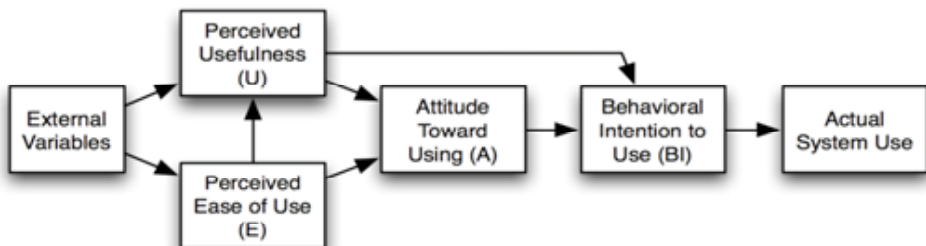


Figure 1. The TAM Early Version by Davis et al. (1989)

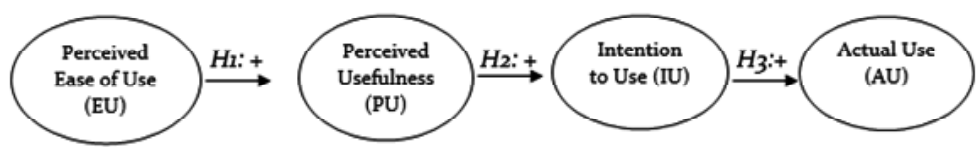
Users are also guided by their needs when they choose to use a certain service. The model, therefore, allows us to explain individual social media usage behavior and to understand, perhaps, why (the reasons) our participants (Bahraini women) use WhatsApp in their lives. The current study is based on TAM, because of its theoretical characteristics of being simple and applicable to the prediction of acceptance and usage of new technologies (WhatsApp). Accordingly, PU here is seen as the extent to which Bahraini women believe that using (WhatsApp) helps them to meet the related goal-driven needs, while Perceived EU is seen as how much further effort is needed to learn features, make use of apps and perform online-related activities (Rauniar et al., 2014). This means that the user should find it easy to assess and use the app (e.g., WhatsApp). This also means that it is important for such applications to be designed for smooth user interaction. This is why TAM assumes that Perceived EU is directly linked to PU.

TAM also hypothesises that attitudes about PU determine Intention to Use (IU) technology which leads to Actual Use (AU) (Davis, 1989). Further, Davis (1989) adjusted the original TAM by removing the ‘attitude’ construct, which has enhanced the model for it to be used for prediction and for explaining users’ behavior on three theoretical concepts (EU, PU, and IU) (Rauniar et al., 2014).

Research Questions and Hypotheses

This study examines the uses and perceptions of WhatsApp by Bahraini women. It also examines the reasons for using WhatsApp. The research questions are, therefore, concerned with exploring and perceiving WhatsApp in terms of Bahraini women.

- RQ1: What are the reasons for respondents using WhatsApp?
- RQ2: How do Bahraini women perceive using WhatsApp?
- RQ3: How do Bahraini women integrate with WhatsApp in their daily activities?



- H1: The Perceived EU of WhatsApp is positively related to PU.
- H2: The PU of WhatsApp is positively related to the IU of WhatsApp.
- H3: The IU of WhatsApp is positively related to the AU of WhatsApp.

Method

Participants

Data were collected from 1,137 women participants across Bahrain. Out of 1,137 responses, 16 responses were dropped for not having WhatsApp accounts (1.4%). The final sample size was 1,121, summarised in Table 1.

Table 1. Sample characteristics

Age	Percent
<19	0%
20-30	74.3%
31-40	12.9%
>41	12.8%
Education	
Secondary school	3.2%
High school	75.6%
University and above	21.2%
Occupation	
Student	59.3%
Employee	25.1%
Housewife	15.7%

Measures

Data were gathered in Arabic, and via an online survey, googlesurvey.com, and a questionnaire was developed containing three sections of closed-response (e.g., yes/no) and multi-response items, with a total of 12 questions. Before proceeding, bear in mind that because the data were gathered via an online survey, the generalisability and the findings of this study are limited to those respondents who responded to this survey and the study should still be considered as exploratory. However, the 1,121 participants used here, given the limitations of time, cost and local culture in terms of reaching out to women, have perhaps provided a reasonable cross-section. The questionnaire comprised three areas: Section (1) was linked to demographic information (e.g., age, education, occupation). Section (2) asked about whether respondents had WhatsApp accounts, their favorite time for using WhatsApp, the hours spent using it, their preferred information and their interaction with others. Section (3) was linked to their reasons for using WhatsApp. The scales for perceived EU, PU, IU, and AU were adapted from prior studies (Davis, 1989; Rauniar et al., 2014; Venkatesh & Davis, 2000). Items were modified to reflect the measurement of WhatsApp users on a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). The validity of the questionnaire was tested by reviewing it to ensure that words were linguistically clear, that items were relevant and that no biased words and phrases were included.

Procedure

The research was conducted in Bahrain between January and March 2017. To capture a diverse sample of WhatsApp women users, participants were recruited by asking female business students enrolled at undergraduate and postgraduate levels at the University of Bahrain to send WhatsApp messages with a survey link to all their WhatsApp contacts and to encourage them to take part in the survey voluntarily, with assurances of confidentiality stated on the consent form. Because of the difficulty of reaching women in Bahrain face-to-face, the sampling was chosen as a snowball sampling where respondents can invite/recruit others via their group contact lists (family members, friends, colleagues, etc.) to participate. The survey took approximately 8-12 minutes to complete.

Analysis

Data analysis was quantitative, initially comprising the computation of simple percentages, frequencies and crosstabs using SPSS software version 22.0. These analyses were employed to describe the demographic trends in the use of WhatsApp by Bahraini women. A chi-square (χ^2) test was applied to nominal-level data to determine whether variables measured on nominal or categorical scales were associated with each other. Bivariate correlations (Pearson r) were run to test the hypotheses. Finally, in all analyses of the data, the statistical significance was fixed at a level of 0.05. This is because, conventionally, this level of statistical significance has been observed to be followed in the social science field.

Findings

Time Spent on WhatsApp

The majority of respondents (84%) used WhatsApp in Afternoon, while 12.5% used it At No Specific Time and 3.5% during Morning. Young women (87.5%) were more likely than those aged 31-40 (84.9%) and 41+ (65.1%) to use WhatsApp during the Afternoon. Female students (87.8%) were more likely than employed (78.6%) and housewives (87.2%) to use WhatsApp during the Afternoon.

Different amounts of time were spent on WhatsApp by respondents, with 44.9% spending devoting 2-3 hours daily, while the rest (33.6%) spent more than five hours and 21.5% spent 4-5 hours. Those aged 41+ (73.3%) were more likely to spend 2-3 hours daily on WhatsApp compared with those aged 31-40 (20.5%) and 20-30 (21.9%). 61.8% of housewives spent between 2-3 hours daily, compared with 52.3% of employees and 38% of students.

Previous research has indicated the dominance of WhatsApp as a communication platform in the Arab world. Rashidi et al. (2016) reported that 9 in 10 (93.2%) of Saudi respondents used WhatsApp daily to connect with friends, family, co-workers, drivers, plumbers, contractors, etc. Others have confirmed the spread of WhatsApp as it is recommended by friends and family or through what is called 'social influence' (Church & Oliveira, 2013; Salem & Mourtada, 2015).

Type of Information Preferred on WhatsApp

Besides sending/receiving text messages, images and links to information, the majority of respondents preferred sending comics and entertainment clips, important/rare news stories and fewer sports information (Table 2). Those aged 20-30 were more likely than others to prefer comics/entertainment, personal video, and songs/plays/film clips, while those aged 41+ preferred more important news and religious information. Housewives and employed women preferred more important news and religious information than did others, while student women were more likely to enjoy personal videos. The results are supported by Church and de Oliveira (2013).

Table 2. Type of information preferred on WhatsApp

Items	1	2	3	4	5
All	71.6%	43.1%	39.4%	36.5%	24.5%
Age					
20-30	75.1%	35.7%	41.2%	30.5%	26.2%
31-40	69.2%	58.2%	39%	50.7%	17.8%
41+	47.3%	70.5%	24.7%	56.8%	18.5%
χ^2	47.046**	77.129**	14.324**	51.743**	7.618*
r	-0.20**	0.26**	-0.11**	0.21**	-0.08*
Occupation					
Student	75.8%	35%	41.5%	29.5%	28.2%
Employee	64.2%	51.9%	37.5%	39.3%	20%
Housewife	62.4%	59.6%	30.3%	58.4%	15.2%
χ^2	20.323**	46.670**	7.695*	20.323**	16.546**
r	-0.13**	0.20**	-0.08**	0.20**	-0.12**

Note: χ^2 : * $P < 0.05$, ** $P < 0.001$. r : Pearson correlations significant at * $P < 0.05$, ** $P < 0.01$ (2-tailed)

1: Comic/entertainment clips; 2: important/rare news stories; 3: Personal video clips; 4: Religious info clips; 5: Songs/plays/film clips

Interestingly, significant negative correlations were found between age and type of information preferred on WhatsApp comics/entertainment and personal video clips (Table 2). These showed that older users and housewives used WhatsApp less for entertainment, personal video and art clips. They used it more for important news and religious information.

Type of Information Producing Interaction on WhatsApp

When respondents were asked to state the type of information which led them to interact with others on WhatsApp, the strongest preference was for pictures/images (60.7%), followed by sharing/suggesting ideas (56.4%), personal information (55.5%) and video clips (38.1%).

Those aged 20-30 (62.7%) were more likely to interact with others by sending personal information than those aged 31-40 (44.5%) and 41+ (24%). Those aged 20-30 (63.4%) interacted more with others by sending pictures/images than did those aged 31-40 (56.8%) or those aged 41+ (48.6%), whereas those aged 41+ (66.4%) were more likely to send share/suggest ideas than those aged 31-40 (61.6%) and 20-30 (53.7%).

University-educated women (63.8%) were more likely to interact with others by sending pictures/images than were those at secondary school (52.8%) and high school (50.6%). Students (62.9%) were more likely than employees (49.5%) and housewives (36.5%) to interact with others by sending personal information and sending pictures/images (students 63.8%, housewives 56.2%, employees 56.1%).

Reasons for Using WhatsApp

Respondents were also asked to provide their reasons for using WhatsApp. The most important reason was social interaction, followed by communication, occupying leisure time with enjoyment and entertainment, increasing knowledge and information, searching for job goals, making new friendships, advertising social events, curiosity and escaping from problems. Table 3 summarises the results.

Table 3. Reasons for using WhatsApp

Items	1	2	3	4	5	6	7	8	9
All	87.1%	76.2%	57.2%	34.8%	24.1%	21.5%	18.7%	12.4%	7.5%
Age									
20-30	74.7%	79.4%	63.6%	29.8%	24.3	23.4%	15.5%	14.4%	69.4%
31-40	13.0%	75.3%	43.2%	46.6%	34.2	21.2%	29.5%	7.5%	12.9%
41+	12.2%	58.2%	34.2%	51.4	13%	11.6%	26%	5.5%	17.6%
χ^2	2.686	30.851**	57.099**	35.843**	18.040**	10.219**	21.986**	12.849**	1.951
r	-0.39	-0.16**	-0.22**	0.17**	-0.51	-0.09**	0.12**	-0.10**	0.39
Occupation									
Student	59.4%	81%	65.7%	27.2%	34.4%	25.2%	14.2%	68.1%	75.6%
Employee	25.2%	74.4%	44.2%	44.6%	23.6%	14.7%	26.3%	20.6%	18.8%
Housewife	15.5%	60.7%	45.5%	47.8%	9.6%	19.1%	23%	11.3%	23.5%
χ^2	0.236	32.737**	49.593**	42.541**	37.181**	13.789**	21.924**	5.313	5.108
r	-0.11	-0.17**	-0.19**	0.18**	-0.06*	-0.08**	0.11**	-0.07*	0.04
Education									
Secondary	69.4%	63.9%	2.9%	3.0%	5.6%	38.9%	2.8%	14%	3.5%
High level	84.2%	71.4%	19.4%	22.5%	22.8%	25.3%	19.3%	13%	15.3%
University	88.6%	78%	77.7%	74.4%	25.2%	19.9%	77.8%	7.1%	81.2%
χ^2	13.458**	7.678*	3.480	0.657	2.587*	9.798**	0.682	8.049*	1.921
r	0.10**	0.08**	0.02	-0.02	0.07*	-0.09**	0.02	0.06*	0.03
Note: χ^2 : * $P<0.05$, ** $P<0.001$. r: Pearson correlations significant at * $P<0.05$, ** $P<0.01$ (2- tailed)									
1: social interaction; 2: Communication; 3: For leisure/enjoyment; 4: Knowledge/info; 5: Job goals; 6: New friendship; 7: Ad/events; 8: Curiosity; 9: Escapism									

Statistically, younger and student women (this also applies to some highly educated women) were more likely to use WhatsApp for communication, leisure, new friendships, curiosity and escapism than were others. The results were also supported by negative associations when Pearson correlations were applied. This is an indication that age, occupation, and education level have an impact on the reasons that respondents use WhatsApp in everyday life.

Perceptions of Using WhatsApp

Finally, respondents were asked to identify their perceptions of using WhatsApp and a list of 10 items was provided. The most popular items were (showing in Table 4): ‘to communicate easily with my family and friends’ [EU4] (85%), ‘to re-connect with old friends [IU2] (59%), ‘to introduce events and issues’ [EU1] (47.1%), ‘means of communication with my family’ [IU3] (35.8%), ‘to be more social’ [PU3] (33.9%), ‘to express my opinion freely’ [EU3] (30.8%), ‘building my opinion on issues and events around me’ [PU1] (28.4%), ‘to enhance my opinion via discussion with others’ [IU1] (28.2%), ‘to gain new skills on how to deal with my family’ [EU2] (27.4%), and ‘to believe in myself more’ (14.2%) [PU2].

Table 4. Perceptions of using WhatsApp

Item	Ease of Use [EU]			Perceived Usefulness [PU]				The intention of Use [IU]		
	[EU1]	[EU2]	[EU3]	[EU4]	[PU1]	[PU2]	[PU3]	[IU1]	[IU2]	[IU3]
All	47.1%	27.4%	30.8%	85%	28.4%	14.2%	33.9%	28.2%	58.8%	35.8%
Age										
20-30	44.1%	25.7%	32.7%	85.2%	24%	75.8%	73.8%	29.8%	75.4%	74.4%
31-40	59.6%	37%	27.4%	89.7%	39.7%	12.4%	11.2%	29.5%	12.7%	14%
41+	52.1%	27.4%	23.3%	79.5%	42.5%	11.8%	15.1%	17.8%	11.8%	11.5%
χ^2	13.544**	8.008*	6.036*	6.125*	31.369**	.237	3.534	8.992*	1.594	1.496
Occupation										
Student	43.6%	23.9%	33.7%	86.6%	23.7%	15%	34.6%	30.3%	60%	58.5%
Employee	56.1%	31.9%	23.2%	85%	36.1%	9.8%	26%	28.4%	26%	25.8%
Housewife	46.1%	33.1%	32%	79.2%	33.7%	18%	43.8%	20.2%	14%	15.7%
χ^2	12.698**	10.085**	10.559**	6.124*	18.062**	6.919*	15.969**	7.015*	3.884	.206
Education										
Secondary	3.5%	47.2%	4%	2.7%	2.5%	39%	58.3%	3.4%	2.7%	3.4%
High level	20%	24.9%	19.7%	21%	22.3%	17%	34%	18.7%	20%	21.4%
University	76.5%	27.2%	76.3%	76.3%	75.2%	12.4%	33%	78%	77.4%	75.2%
χ^2	1.285	7.893*	1.662	5.180	.942	21.378**	9.983**	1.717	3.062	.177

Note: * $P < 0.05$, ** $P < 0.001$ (not all results were significant).

A Chi-square test (χ^2) was run to determine the significant differences among independent and dependent variables. The results are summarised in Table 4. In terms of Ease of Use [EU], those aged 31-40 often used WhatsApp for introducing events and issues, gaining new skills on how to deal with family and communicating easily with family and friends, while those aged 20-30 used it for expressing opinion freely. Female students were more likely than others to use WhatsApp to express opinion freely and to communicate easily with family and friends. Employed women seemed to use WhatsApp for introducing events and issues, while housewives used it for gaining new skills regarding dealing with family. Women at the university level used WhatsApp more than others for introducing events and issues, expressing opinions and communicating easily with family and friends.

Perceived Usefulness [PU] was also different, with those aged 20-30 using WhatsApp less often to build an opinion on issues and events, instead tending to use it to believe in themselves and to be more social. It seemed that employed and secondary school-level women used WhatsApp for building an opinion on issues and events, while housewives used it for believing in themselves and for being more social.

When it comes to intention to use [IU], those aged 20-30 and female students were more likely than others to use WhatsApp for enhancing opinion via discussion with others, re-connecting with old friends and communicating with family.

The results from the BivariateCorrelations (Pearson r) indicate that **H1** and **H2** hypotheses were supported, while **H3** was only supported if we consider the hours used (**RQ3**) by respondents rather than their preferred time for using WhatsApp (**RQ2**). The first hypothesis was supported, suggesting that [EU1] was positively correlated with [PU1] ($r=.347$, $P < 0.01$); [PU2] ($r=.162$, $P < 0.01$); and with [PU3] ($r=.114$, $P < 0.01$). [EU2] was correlated positively with [PU1] ($r=.305$, $P < 0.01$), [PU2] ($r=.305$, $P < 0.01$); and with [PU3] ($r=.174$, $P < 0.01$). [EU3] was positively correlated with [PU1] ($r=.197$, $P < 0.01$); but not with [PU2] ($r=.347$, $P < 0.01$); or with [PU3] ($r=.284$, $P < 0.01$). [EU4] was only positively correlated with [PU1] ($r=.089$, $P < 0.01$); [PU2] ($r=-.021$, $P > 0.05$)) [PU3] ($r=.039$, $P > 0.05$). This means that communicating easily with family and friends does not correlate with respondents believing in themselves and being more social.

The second hypothesis was also supported. [PU1] was positively correlated with [IU1] ($r=.233$, $P > 0.01$); [IU2] ($r=.144$, $P > 0.01$); and with [IU3] ($r=.144$, $P > 0.01$). [PU2] was positively

correlated with [IU1] ($r.232, P>0.01$) [IU2] ($r.125, P>0.01$) [IU3] and with ($r.186, P>0.01$). [PU3] was positively correlated with [IU1] ($r.232, P>0.01$); [IU2] ($r.139, P>0.01$); and with [IU3] ($r.237, P>0.01$).

The third hypothesis was not fully supported, as we found no correlations between intention to use ([IU1], [IU2], [IU3]) and times of use (Q2) (morning, afternoon, no specific time), while positive correlations occurred between intention to use and hours of use (Q3), as in the following: [IU1] was correlated with Q3 ($r.179, P>0.01$); [IU2] was correlated with Q3 ($r.087, P>0.01$); and [IU3] was correlated with Q3 ($r.056, P=0.060$). This means that our results supported only the respondents' hours of use of WhatsApp, but not the time of use.

Discussion

The online survey investigated the use and perceptions of WhatsApp by Bahraini women aged 18 and older. Evidence emerged that this platform has been widely patronized by Bahraini women in Bahrain, as the majority of respondents had a WhatsApp account and were active on it. Most respondents used WhatsApp during *Afternoon*, although no reason was given for this, this seems to be a suitable time for Bahraini women to communicate with others and to share their social communication. This result was not surprising at all as some have already indicated that WhatsApp is the top preferred social media in the Arab world (GSMA, 2017; Salem & Mourtada, 2015) and social media is used for everyday habits (Sutikno et al., 2016; Ziani & Elareshi, 2016).

Although the online-survey methodology applied here was not equipped to recruit statistically representative samples of the national population of Bahrain, the robustness of its findings is reinforced by their similarity with past work on social media (e.g., WhatsApp). Previous research in the GCC region has confirmed the widespread use of social media platforms as a new way of communication and a new source of information as well as a means of facilitating other activities (Arabian Gazette, 2015; Ghannam, 2011; Salem & Mourtada, 2012, 2015).

The findings here have been further confirmed by other Arabic studies. For example, Rashidi et al. (2016) surveyed views on WhatsApp in Saudi Arabia and found that the nature and intent of WhatsApp application tended to be more social, informal and conversational. Results also showed that respondents had different reasons for using WhatsApp (**RQ1**). Social interaction, communication, and leisure were the reasons that were highlighted most for Bahraini women using WhatsApp daily. This can be seen as a step forward for Bahraini women in becoming online activists and using social media (e.g., WhatsApp) to share information on different matters related to them. These apps can also be used to overcome the problems that Arab women and GCC women have when it comes to communicating and engaging with others. Being involved in group discussions can help Bahraini women to be aware of things and of skills that they have and which are needed in their communities and families. Activities on social media (e.g., WhatsApp) can enable these women to be more open and media-literate (Abubakar, Dasuki, & MacGranaky, 2017).

The current study supports the findings that WhatsApp is perceived (**RQ2**) to support more natural social interaction and communication (GSMA, 2017; Sutikno et al., 2016). Bahraini women surveyed here have different perceptions of using WhatsApp. For example, they perceived WhatsApp as a way of enabling them to communicate easily, and a means of re-connecting with old friends and introducing events and issues. These findings are in agreement with several studies that have highlighted use of social media (WhatsApp)

(Alhabash, Park, Kononova, Chiang, & Wise, 2012; Dunne, Lawlor, & Rowley, 2010; Manca & Ranieri, 2016; Raacke & Bonds-Raacke, 2008; Ziani, Elareshi, & Alrashid, 2017).

In this study (in response to question 3), users were often able to send free text messages and images as well as comics and entertainment, news stories, videos and art clips daily (Rashidi et al., 2016; Thurlow & Poff, 2013). Our respondents interacted and engaged with others on WhatsApp by posting pictures/images and sharing/suggesting ideas. Older women (41+) seemed to use WhatsApp to share and suggest ideas, while younger women (20-30) and highly educated women (university level) used WhatsApp for more personal purposes and for sending pictures/images to interact and engage with others. This has led to Bahraini women being able to discuss issues on social media and to use social media as platforms that empower them and enable their voices to be heard (Abubakar et al., 2017).

The TAM has helped us to understand and explain the use of social-media acceptance and Bahraini women's behavior regarding WhatsApp. The findings here supported some of the relationships between the original TAM constructs, such as Perceived EU and PU (**H1**) and PU and IU (**H2**). The most positive of these correlations indicated social-media users' behavior and their Intentions to Use [IU] WhatsApp. This also suggests that such an app needs to be easy to use and to help users to achieve specific social-media site-related activities. This was highlighted by the type of information that was interacted with by users. The non-significant correlation between Intention to Use and Actual Use (**H3**) indicated that the time of use is not a matter for Bahraini women, but that hours of use are more important to them. This is, in fact, true as now people can assess information and interact with others in no time at all.

Conclusion

The current study is, to our knowledge, one of the first to investigate Bahraini women's use and perceptions of WhatsApp, using the TAM framework. Given the popularity of WhatsApp worldwide and in the Arab world, this study is of great importance in better understanding this phenomenon, especially in the GCC region. The study focuses mainly on the use and perceptions of WhatsApp to understand the functions of WhatsApp and how it facilitates communication. It attempts to explain the reasons for using WhatsApp and Bahraini women's decisions on how, why and when they use it.

The study findings provide evidence of social media's capacity to improve women's communication and knowledge within the limited communication sphere for women in the GCC region. Overall, WhatsApp can be seen as a platform that women use to contribute and share information related to women's matters such as social interaction, communication, and escapism. Our findings are, therefore, in line with the discourse on women gender matters in which evidence has suggested that the use of social media would help Arab women to communicate and give them a voice with which to reach out.

The findings of this study have implications for educational and socio-economic policies that target Arab women and the issue of women's empowerment in the Arab world and the GCC region. For example, it has been reported that the illiteracy rate among Arab women is high, with Arab governments implementing different programmes to tackle these issues in recent years, especially in the GCC region. Overall, then, this study adds to a growing body of related work on the use of social media (e.g., WhatsApp) by women.

We understand how and why Arab women use social media remains a topic under research investigation, one with the potential for significantly enhancing women's

development. In proposing areas for potential research, the limitation of this research is acknowledged. This research was limited to Bahraini women and was carried out in a short period. Using a snowball sampling procedure in this study, as well as an online survey, facilitated the accomplishment of our task but we acknowledge this as a limitation. The results of this study apply to the surveyed respondents (Bahraini women) only and therefore may differ for other people, genders and cultures. However, there is always scope for conducting a longitudinal study by the existing result to provide more insight on how WhatsApp is used and perceived in the Arab world about the TAM literature.

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