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Predicting uptake of online customer service through mobile instant messaging applications

The effects of social presence on behaviour intention

Patrícia de Seabra Lopes Marcão

Dissertation presented as partial requirement for obtaining the Master's degree in Statistics and Information Management

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PREDICTING UPTAKE OF ONLINE CUSTOMER SERVICE THROUGH MOBILE INSTANT MESSAGING APPLICATIONS: THE EFFECTS OF SOCIAL PRESENCE ON BEHAVIOUR INTENTION

by

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Dissertation presented as a partial requirement for obtaining the Master's degree in Statistics and Information Management, with a specialization in Marketing Research and CRM

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ABSTRACT

Online shopping is rapidly increasing, creating new opportunities and challenges in the highly-competitive services market. In this context, companies are trying to come with new ways of connecting, as consumers seek easier and faster ways of interacting. This study employs the unified theory of acceptance and use of technology 2 (UTAUT2) as the theoretical paradigm and extends it, to explore the key factors influencing the uptake of mobile instant messaging applications in online customer service, by introducing social presence as a crucial construct. The data was collected from an online questionnaire conducted to 222 Portuguese mobile instant messenger's users. Structural equation modelling (SEM) was used to verify and validate the research model. The results showed that performance expectancy represents the greatest influence on users' intention to engage in online customer service through mobile instant messaging. In addition, social presence was found to directly impact behavioural intention and indirectly, through the mediation of performance expectancy and habit. This study fills the gap in the literature, where little attention has been devoted to examining the use of mobile instant messaging applications by organizations for online customer service. The findings will help practitioners make appropriate strategies for this new channel.

KEYWORDS

Unified Theory of Acceptance and Use of Technology 2, Mobile instant messaging applications, online customer service, social presence, informality, trust

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LIST OF ABBREVIATIONS AND ACRONYMS

AVE	Average variance extracted
BI	Behavioural intention
CR	Composite reliability coefficient
EE	Effort expectancy
HM	Hedonic motivation
HB	Habit
IDT	Innovation diffusion theory
IF	Immediate feedback
IN	Informality
MIM	Mobile instant messaging
MM	Motivational model
MPCE	Model of personal computer utilization
PE	Performance expectancy
PLS	Partial least squares
RP	Responsiveness
SCT	Social cognitive theory
SEM	Structural equation modelling
SP	Social presence
TAM	Technology acceptance model
TPB	Theory of planned behaviour
TR	Trust
TRA	Theory of reasoned action
UTAUT	Unified theory of acceptance and usage technology
UTAUT2	Extended unified theory of acceptance and usage technology

1. INTRODUCTION

Nowadays, competition is changing the way people communicate and companies have realized that to remain competitive, it is vital to deliver high-quality customer service, whether it is online or offline (Mclean & Osei-Frimpong, 2017; McLean & Wilson, 2016). As a result, companies are constantly searching for new opportunities to meet customer's evolving needs (Turel & Connelly, 2013). In the online environment, it was necessary to reduce the inability to interact with the organizations by developing new mediums for communication that offer support to the customers (McLean & Wilson, 2016). Consequently, many companies are adopting the use of mobile instant messaging applications for online customer service. Uber, Booking.com, KLM, are some of the companies which are already using this platform to communicate directly to its customers and claim they have been receiving positive feedback from them (WhatsApp, n.d.).

Mobile instant messaging apps are no longer understood as simple tools, they are complex platforms which provide tremendous conveniences for customers since it allows them to receive and share real-time information, photos, videos, audio and text messages free of charge (Peng, Zhao, & Zhu, 2016). By July 2017, the number of mobile phone messaging users worldwide was 1.82 billion and it is projected to grow to 2.48 billion users in 2021 (Statista, 2017). WhatsApp, Facebook Messenger, WeChat and QQMobile were defined as the most popular mobile messaging apps worldwide (Statista, 2018a) and many researchers believe that the usage of these applications will continue to increase over time (Ogara, Koh, & Prybutok, 2014). At the beginning of 2018, WhatsApp had 450 million daily active users (Statista, 2018b).

These apps have the potential for greater business returns since they can improve the efficiency of the communications and increase brand loyalty and trust, all the while being

considered easy to access and a cost-effective mean to provide support (Ogara et al., 2014; Peng et al., 2016). A recent study stated that when used as an online customer support platform, it contributed to increase the levels of customer satisfaction and service performance (Marino & Presti, 2018).

However, while mobile instant messaging applications have numerous potential advantages, the success of this marketing tool depends on the experience encountered during use (Mclean & Osei-Frimpong, 2017). A major drawback of online customer support, when compared to the offline, is the decreased of social cues and lack of human warmth, which makes it more impersonal, anonymous and automated (Hassanein & Head, 2007; Lu, Fan, & Zhou, 2016; Pavlou & Gefen, 2004). As a result, in the context of online customer service, social presence has become a particularly important concept due to the restriction of direct human contact in an online environment, since it can be used as a tool that enables interaction between the user and the customer service representative (Cyr, Hassanein, Head, & Ivanov, 2007; Ogonowski, Montandon, Botha, & Reyneke, 2014). Research has shown social presence as a strong predictor of user satisfaction (Ogara et al., 2014) and its perception can positively influence user trust in an online context (Hassanein & Head, 2007; Lu et al., 2016). Response speed, response frequency and information type were also considered as key factors of the measures for online service usage (Lv, Jin, & Huang, 2018).

The goal of this study is to examine which factors predict mobile instant messaging applications usage for online customer service, focusing on the extent to which this channel is perceived to replicate human-human interactions in a computer-human environment. We built on the unified theory of acceptance and use of technology 2 (UTAUT2) to predict usage intention and extend it, to incorporate social presence as an important construct for this analysis, as well as its two antecedents, immediate feedback and responsiveness. Additionally, two other constructs were added to the theoretical model: trust and informality.

Trust was considered because it plays a major role in e-commerce and in the adoption of new technologies (Ha & Stoel, 2009) and informality was added to the model since these apps tend to be more social and casual than the conventional channels, therefore it is important to study if this affects the intention of customers to interact with brands through this innovative channel (Marino & Presti, 2018).

Therefore, the theoretical contribution of this study is threefold. Firstly, we extend the UTAUT2 to create a model that better fits the research purpose and provides a greater understanding of the factors underlying the mobile instant messaging usage for online customer service. Secondly, we examine if this new channel is considered by consumers to exhibit socialness perception attributes with the addition of social presence to the model, as well as its antecedents. Lastly, this study attempts to show empirical explanations by demonstrating the significance of informality in the mobile instant messaging literature. From a practical standpoint, the findings have important implications for organizations that aim to adopt this new marketing tool since it provides valuable insights to better meet customer needs.

This study is organized as follows: we begin with the literature review where the hypotheses are established, and the proposed model revealed. After we describe the methodology used to gather the information needed to perform the analysis. Then, the data analysis will be completed with the help of the software to explore the relationships among the variables under investigation. Lastly, we will evaluate the results and discuss the implications of the study's findings.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. MOBILE INSTANT MESSAGING APPLICATIONS

Mobile instant messaging is a kind of mobile online chat app that provides users with a real-time text transmission over the internet, without constraints from time or geographical location (Hsieh & Tseng, 2017; Sun, Liu, Chen, Wu & Shen, 2017). It is a presence enabled messaging service which allows users to contact with others instantly, facilitating social interactions, and it can be considered a highly synchronized text-based communication (Ogara et al., 2014). Due to its characteristics, these applications have turned into a common method of online correspondence and are changing the way we communicate (Hsieh & Tseng, 2017).

Prior research concerning mobile instant messaging apps usage has been done in the educational subject area (Pimmer et al., 2019; So, 2016; Tang & Hew, 2017). The findings of these papers disclose the different advantages of mobile instant messaging apps including the continuous dialogue between teachers and students, allowing them to receive relevant feedback which can be effective in improving student learning. The usage of these applications has also been studied in the healthcare field (Ganasegeran, Renganathan, Rashid, & Al-Dubai, 2017; Giordano et al., 2015; Iversen, Melby, & Toussaint, 2013; Sener et al., 2018). Results show that it can help in obtaining opinions from experienced consultants when they are not available, facilitate faster documentation and even help with the coordination and logistics of patient care. Comparatively, to our knowledge, no studies have been conducted so far to explore the usage of the mobile instant messaging apps and underlying factors and implications associated with online customer service experience when used by a certain company.

2.2. UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

The UTAUT is a theoretical model developed by Venkatesh, Morris, Davis & Davis (2003) to explain technology acceptance, in an attempt to integrate the theory from eight previously established models. The models that were reviewed to develop the UTAUT are the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), the technology acceptance model (TAM) (Davis, 1989), the motivational model (MM) (Davis, Bagozzi, & Warshaw, 1992), the theory of planned behaviour (TPB) (Ajzen, 1991), a model combining constructs from TAM and the TPB (Taylor & Todd, 1995), the model of personal computer utilization (MPCU) (Thompson, Higgins, & Howell, 1991), the innovation diffusion theory (IDT) (Moore & Benbasat, 1996), and the social cognitive theory (SCT) (Compeau & Higgins, 1995). The UTAUT model consists of four constructs namely performance expectancy, effort expectancy, social influence and facilitating conditions, which were determined after analyzing the eight models with the goal of understanding usage as the dependent variable.

Since this model was primarily designed for organizational contexts, there was a need to develop a new model to fit a different context. As a result, UTAUT2 model was developed, as an extension of its predecessor, which focuses on consumers and the underlying factors of their intentions to use a technology (Venkatesh, Thong, & Xu, 2012). To fit the consumer context, three new constructs were added to the original model: hedonic motivation, price value and habit. Additionally, the four constructs in the original model were redefined to better fit the new context with some existing relationships being altered and with some being introduced.

Performance expectancy is defined as “the degree to which a user believes that using a particular technology would benefit him when performing certain activities” and effort expectancy as “the degree to which a user believes that using a particular system would be

free of effort" (Venkatesh et al., 2012). Social influence is "the extent to which a user perceives that important others believe that he should use a technology" and facilitating conditions concerns "the consumers' perception of the resources and support available when using a system" (Venkatesh et al., 2012).

Regarding the three new variables added to the model, price value is defined as "the user cognitive tradeoff between the perceived benefits and the cost of a technology", hedonic motivation as "the extent to which the act of using a specific technology is perceived to be enjoyable" and finally, the variable habit as "the degree to which a user tends to perform behaviours automatically because of learning" (Venkatesh et al., 2012).

This theoretical model was considered as the foundation for the present study since it has been successfully found to predict a considerable amount of variance in user intentions to use a technology (Venkatesh et al., 2003) and because it was developed based on the core strengths of each of the eight prominent models involved in its construction. Furthermore, despite its recent adoption in the literature, the validity of the UTAUT2 has already been confirmed in recent studies, to study technology adoption in consumer context (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019; Baptista & Oliveira, 2015; Morosan & DeFranco, 2016).

However, the UTAUT2 cannot be directly applied to study the behaviour under investigation (i.e., the use of mobile instant messaging applications for online customer service), thus three variables of the theoretical framework were not included in the model. Venkatesh et al. (2012) hypothesized that facilitating conditions would have a direct influence on a user's behaviour intention to use a technology since, in the customer environment, facilitating conditions are not freely available as in the employee context. However, mobile instant messaging apps provide these facilities free of charge. Also as discussed by Venkatesh

et al. (2003), the effect of facilitating conditions on behaviour intention is more likely to vanish by including both performance expectancy and effort expectancy as key predictors of behavioural intention. Therefore, in this study, facilitating conditions was proposed to have no effect on behaviour intention and was consequently excluded from the research model. This is consistent with (Lin, Chan, & Jin, 2004) which reported that facilitating conditions had no significant influence on college students instant messaging acceptance.

Price value was excluded from this research since using online service through mobile instant messaging applications is seen by customers as free of charge and can even bear lower costs than other conventional communicational channels as phone calls. This is consistent with what has been reported in some earlier studies where this variable was removed from the model due to the same reason (Alalwan, 2018; Morosan & DeFranco, 2016; Shaw & Sergueeva, 2019) and by other studies which found price value to not be significant in behaviour intention since customers weren't concerned regarding pricing issues (Baptista & Oliveira, 2015; Yang, Lu, Gupta, Cao, & Zhang, 2012).

Finally, social influence was also not considered in this study's conceptual model since, as stated by Venkatesh et al. (2003), there is less chance of customers being concerned about others' opinions as experience with the technology grows. Thus, since the participants were required to have formal experience with the application to be considered for this study, social influence was excluded. Also, this variable is shown to not be significant in voluntary contexts (Venkatesh et al., 2003). The theoretical model can be seen in Figure 1.

The role of performance expectancy and its equivalents has been consistently found to significantly influence the users' behaviour intention across different technologies (Venkatesh et al., 2003). Likewise, in mobile instant messaging adoption theory, performance expectancy has also been considered as a predictor of behavioural intention (Lu, Zhou, & Wang, 2009;

Yoon, Jeong & Rolland, 2015). Alternatively, the effect of effort expectancy on user's behaviour intention has been considered stronger when the technology is recent and vanishes as the user experience with the technology increases (Venkatesh et al., 2003). Since the goal is to predict the uptake of mobile instant messaging applications in online customer service, effort expectancy was included is this study model. For users to adopt the mobile instant messaging as a tool for customer service, it is conjectured that they need to find it easy to use as well as a useful way to improve their communications and efficiency, which will heighten their intention to use the mobile instant messaging. Consistent with the above arguments, we propose the following hypotheses:

H1a. Performance expectancy will positively influence users' behavioural intention to use mobile instant messaging for online customer service.

H1b. Effort expectancy will positively influence users' behavioural intention to use mobile instant messaging for online customer service.

Regarding mobile instant messaging literature, hedonic motivation has shown a significant impact on the behaviour intention (Jiang & Deng, 2011; Lu et al., 2009; Yoon et al., 2015). Lu et al. (2009) examined the factors that affect Chinese users' acceptance of instant messaging using the theory of planned behaviour (TPB), flow theory and TAM, and the findings show that hedonic motivation had a significant influence on the users' attitude towards instant messaging. In this study, hedonic motivation is employed as a variable that reflects entertainment gained from using the mobile instant messaging application for online customer service. According to the literature previously mentioned, it is hypothesized that the hedonic motivation of the interaction created by using the online customer service through the mobile instant messaging app will positively influence behaviour intention.

H1c. Hedonic motivation will positively influence users' behavioural intention to use mobile instant messaging for online customer service.

Habit has proven to be a good predictor of adoption for different technologies (Venkatesh et al., 2012). In this study, the objective is to understand if along with the conventional means, such as phone and e-mail, mobile instant messaging applications may also become a mean of communication between clients in need of assistance and companies. As consumers developed habitual behaviours with respect to using this new mean, we postulate that it will positively influence their behavioural intention. Thus, the next hypothesis is as follows:

H1d. Habit will positively influence users' behavioural intention to use mobile instant messaging for online customer service.

Since UTAUT was originally created it has been extensively applied to study user technology acceptance. However, researchers have criticized the model for overlooking important concepts and started to modify the model in order to increase its explanatory power (Venkatesh, Thong, & Xu, 2016). Therefore, the modification of the model by the inclusion of external variables is considered appropriate to improve its validity and applicability. Thus, the UTAUT2 was modified to better fit the context of this study by adding social presence and its antecedents, as well as trust and informality to the model.

2.3. SOCIAL PRESENCE MODEL

Social presence has been defined as a "sense of being with another in a mediated environment", which can be interpreted as the degree that a user perceives another's presence in a computer-mediated communication (Biocca, Harms & Burgoon, 2003; Lee, 2004). Social presence implies a psychological connection with the user, so when, in computer-mediated communication, the perception of social presence is low, users feel less connected since they

are not able to convey the impression of one and other and build relationships in the same manner as face to face communication (Kreijns, Kirschner, & Jochems, 2003).

Empirical studies had widely studied the use of social presence to account for the social and hedonic nature of e-services (Cyr et al., 2007; Gefen, Straub, & Karahanna, 2003; Hassanein & Head, 2007; Lu et al., 2016). Many researchers studied the effect of social presence on performance expectancy. While some consider the relationship to be positively significant (Cyr et al., 2007; Hassanein & Head, 2007; Walter, Ortbach, & Niehaves, 2015), others weren't so successful (Gefen et al., 2003). Still, we believe that there is enough empirical evidence to support the hypothesis and we propose to re-examine the relationship. Therefore, we suggest that the effect of human warmth in online customer service through mobile instant messaging app may lead to higher perceptions of usefulness.

H2a. Social presence will positively influence users' performance expectancy.

On the contrary, the relationship between social presence and effort expectancy has not been supported in previous research (Gefen et al., 2003; Hassanein & Head, 2007). However, these studies were conducted in the field of online shopping. For this reason, we propose to further examine this relationship for the study context. Thus, despite the described results, we suggest that the users' perception of how easy mobile apps are to use is fostered by the social cues present in the online customer service.

H2b. Social presence will positively influence users' effort expectancy.

Another relationship well established in literature is the direct positive effect that social presence has on hedonic motivation (Lombard & Ditton, 1997). Cyr et al. (2007) examined how social presence in a B2C e-services influence loyalty and its antecedents and his results showed that perceived social presence had a significant impact on hedonic motivation. Hence, for this research, we conceptualize that if the online support through the

mobile instant messaging app transmits a sense of human presence, the perceived hedonic motivation would be higher. In the light of the strong previous findings, we hypothesize that:

H2c. Social presence will positively influence users' hedonic motivation.

By contrast, to our knowledge, there has not been a thorough analysis of the impact of social presence on habit. To fill this gap in the literature, we propose to analyse this relationship and we hypothesize as follows.

H2d. Social presence will positively influence users' habit.

Cheung, Chiu, & Lee (2011) explored the factors that drive students to adopt online social networks and found that the intention to use these technologies is strongly determined by social presence. Contrarily, Dhir, Kaur, & Rajala (2018) investigate the determinants of user intentions to share content on social networking sites, based on the Unified Theory of Acceptance and Use of Technology (UTAUT2) and Social Cognitive Theory (SCT), in which the impact of social presence on behavioural intention was not significant. Given the mixed results and the lack of research within the study context, we wish to re-examine the relationship of perceived social presence on behavioural intention.

H2e. Social presence will positively influence users' behavioural intention to use mobile instant messaging for online customer service.

2.3.1. Informality and trust

Little research has been devoted to study the effects of an informal communication style, which is defined as a "common, non-official, familiar, casual, and often colloquial, and contrasts in these senses with formal" (Gretry, Horváth, Belei, & Riel, 2017). Since messages on mobile instant messaging apps tend to be more casual and conversational in nature and employ a predominantly informal style, it's important to examine its implications on mobile

instant messaging adoption. Gretry et al. (2017) investigated the role of informal communication style through brands' responses to consumers on social media, and their results demonstrate that the usage of this style of communication had an influence on users' initial trust with which consumers are familiar. Consistent with the previously mentioned research, we propose:

H3a. Informality will positively influence users' trust.

Comparatively, to our knowledge, no studies have been conducted so far to explore the impacts of social presence the on informal communication style. In the absence of clear theoretical justification regarding this impact and in line with the aim of the current study which focuses on the usage of the mobile messaging apps and the underlying factors associated with the online customer service experience when used by a certain company, we proposed that perceived social presence in the online customer service would directly influence informality. Specifically:

H3b. Social presence will positively influence informality.

Trust plays a vital role in the online context due to the high risk associated in the transactions (Ha & Stoel, 2009). Lack of trust perceived by the user during the decision-making process, leads to transaction aversion, due to the uncertainty and risk increase. Prior studies have also recognized trust as a key success factor in the online setting (Guinalíu, Gurrea, & Flavián, 2006; Koufaris & Hampton-Sosa, 2004). Gefen et al., (2003) define trust as "the expectation that the person or organization who we choose to trust, will not take advantage of the situation by behaving opportunistically".

Empirical research found that social presence has a direct positive effect on trust in the online setting (Gefen et al., 2003; Hassanein & Head, 2007; Lu et al., 2016). As previously mentioned, trust plays a vital role in the online context due to the associated risk, and the

presence of social cues can help create a sense of human connection, which in turn helps develop initial trust. Therefore, we conceptualize that higher levels of social cues in the online customer service through mobile instant messaging may make it come across as more transparent and consequently, more trustworthy.

H3c. Social presence will positively influence users' trust.

Hansen, Saridakis, & Benson (2018) explored the relationships between perceived risk and trust to predict the usage of social networking services for transactions and found that the effort expectancy to use these technologies was strongly determined by trust. Therefore, we hypothesize that, if a user feels that the online support given by the mobile instant messaging app can be trusted, he is more likely to perceive it as easy to use. Consequently, it can be postulated that:

H3d. Trust will positively influence users' effort expectancy.

2.3.2. Antecedents of social presence

Social presence has two major antecedents, which are immediacy and intimacy. Immediacy refers to "the degree of psychological distance a user perceives with another in a communication setting" and intimacy refers to "the degree of closeness that it is perceived by the user between him and the communication partner" (Han, Min, & Lee, 2015; Rice, 1993). In a computer-mediated communication, as previously mentioned, social presence is even harder to achieve due to the lack of social clues that can be transmitted virtually (Ogara et al., 2014). For this reason, immediacy and intimacy become particularly important in order to increase the social presence perceived (Han et al., 2015).

Immediacy allows users to feel less in a mediated conversation and more in an active exchange of information thereby increasing the communicator's perception of human

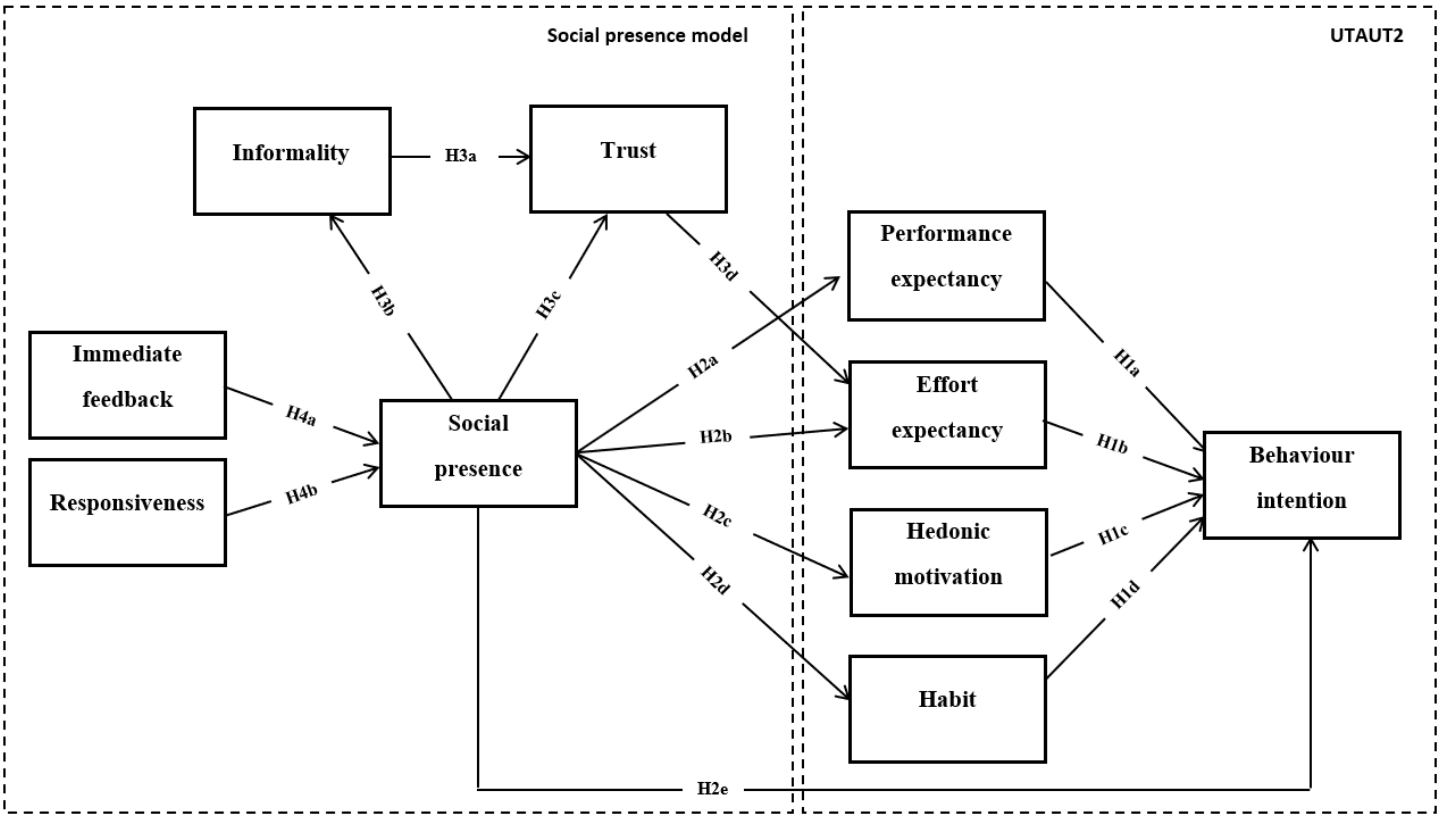
connection (Han et al., 2015; Qiu & Benbasat, 2005). High synchronicity is very important in online customer support because it provides users with immediate feedback. Moreover, mobile instant messaging already tends to get closer to face to face communication because it is usually associated with greater synchronicity (Park & Sundar, 2015). Responsiveness is related to the degree which a user feels that the messages are related to each other and present a clear sequence, in a computer-mediated communication. This characteristic has also been shown to increase social presence in previous researches, given that creates an interactive and cohesive communication is essential for the users to perceive others present (Han et al., 2015; Ridings, Gefen, & Arinze, 2002).

Hence, for this study, we propose that immediate feedback and responsiveness in the mobile instant messaging app, during the online customer service, would affect the perceived social presence by the user.

H4a. Immediate feedback will positively influence users' social presence.

H4b. Responsiveness will positively influence users' social presence.

Figure 1 – The conceptual model



3. METHODOLOGY

3.1. WHATSAPP AS THE RESEARCH CONTEXT

With more than 1500 millions of active users worldwide, WhatsApp is regarded as one of the most popular and widely acknowledged mobile instant messaging apps (Statista, 2018a). WhatsApp provides a cheap alternative, especially for international or group messaging and also many other features. Currently, the company is exploring new tools to connect businesses to their customers, by devolving an app specially made for companies which will enable them to have a business presence on the app with multiple features that will help them to communicate more efficiently with their customers.

3.2. MEASUREMENT INSTRUMENTS

All measurement items were adapted from existing scales from the literature to enhance validity, with a few being slightly altered to fit the research context. Each item was measured by a 7-point quantitative scale ranging from "strongly disagree" (1) to "strongly agree" (7).

Behavioural intention, performance expectancy, effort expectancy, hedonic motivation and habit were adopted from Venkatesh et al. (2012). The scale for social presence was adapted from Gefen et al. (2003). The scale for immediate feedback was adapted from Ferry, Kydd, & Sawyer (2001) and the scale for responsiveness from Johnson, Bruner II, & Kumar (2006). Trust was assessed with items from (Gefen et al. 2003). Finally, the scale for informality was adapted from Gretry et al. (2017). Appendix 1 shows the questionnaire items.

3.3. DATA COLLECTION

A questionnaire was developed to test the hypotheses. It was initially done in English, based on the literature, and then translated to Portuguese, since the questionnaire was administered in Portugal. After, it was translated back to English to ensure the consistency of

the content (Zikmund & Babin, 2000). The instrument used in this study was divided into three different sections. The first section had three questions about the respondents' WhatsApp usage frequency, to ensure that only active users participated in this research. The second section included the items previously defined to measure the constructs and finally, the third section contained several questions about the respondents' socio-demographics, which were used to develop a summary of demographic statistics of the sample. A pilot survey with 30 answers was conducted to confirm the reliability and assess the content and structure before the main survey was performed. Among the respondents, 11 (37%) were male and 19 (63%) were female. The mean age was 27 (SD = 5.69).

3.4. PARTICIPANT PROFILE

The survey was administered online and the data was collected for 3 months (from June to the beginning of September) in 2018. There were 222 answers to our survey, however, 19 were excluded because they didn't use WhatsApp frequently or because they had never used WhatsApp and 3 answers were excluded from the sample because they were considered invalid. There was no missing data in the sample because participants couldn't submit their response without answering all the questions.

Therefore, there were 200 valid answers: 76.5% of the sample was female, 45.5% were aged between 18-30 years and 81.5% have higher education degrees. More than half of the participants (83.5%) use WhatsApp daily and only 92 (46%) participants had already used WhatsApp to contact a company for customer support. Table 1 shows the demographic distribution of the sample.

Table 1 – Demographic distribution of sample

Demographic Category	**Results**	
Gender	Male	23.5%
	Female	76.5%
Age	18-30	51.5%
	30-55	47.5%
	55 plus	1%
Education Level	Basic Education	39.5%
	Bachelor	41.5%
	Master	17.5%
	Doctoral	1.5%
WhatsApp Usage	Daily	94%
	Weekly	6%
Used WhatsApp for customer service	Yes	46%
	No	54%

4. RESULTS

The research model was analyzed using Structural Equation Modelling (SEM). This statistical technique estimates causal relations by combining statistical data and qualitative causal hypotheses. There are two types of SEM techniques: (i) covariance-based techniques and (ii) and variance-based techniques. For this research, we used partial least squares (PLS), which is a variance-based technique, since it does not require a big sample, has no restriction on normal distribution of the items and because the research model is considered complex. The data analysis was completed using a two-stage process, where first the measurement model was examined to ensure the reliability and validity of the research instrument, followed by the analysis of the structural model to test the hypotheses. Smart PLS 3.0 software was used to analyse the hypothesized relationships defined by the theoretical model.

4.1. MEASUREMENT MODEL

The measurement model was assessed for construct and indicator reliability and for convergent and discriminant validity. The indicators' reliability was evaluated through the observation of the factor loadings, which should be greater than 0.7 and statistically significant. SP2 was excluded from further analysis due to its low loading and lack of statistical significance. All other items exhibited loadings greater than 0.7 so we can confirm that there were no problems with the indicators' reliability (Hulland, 1999).

The constructs' reliability was assessed using the composite reliability. This criterion is the most suitable when doing PLS analysis since it considers that the indicators have different loadings and that they should be greater than 0.7 (Henseler, Ringle, & Sinkovics, 2009). Each construct had values higher than the threshold, and therefore there was evidence of internal consistency. To ensure convergent validity, it is important that the average variance extracted (AVE) is greater than 0.5 to guarantee that the latent variables can explain more than half of

the variance of the indicators (Fornell & Larcker, 1981). All constructs' AVE were above 0.5, thus guaranteeing convergent validity. Table 2 shows the Cronbach's alpha, composite reliability and average variance extracted for all the measurement items. Appendix 2 shows the loadings and cross-loadings of the items of each construct.

Table 2 – Reliability and convergent validity

Constructs	Cronbach's Alpha	CR	AVE
Behaviour intention (BI)	0.929	0.955	0.876
Performance expectancy (PE)	0.930	0.950	0.826
Effort expectancy (EE)	0.924	0.946	0.813
Hedonic motivation (HM)	0.885	0.928	0.811
Habit (HB)	0.936	0.954	0.840
Social presence (SP)	0.868	0.918	0.790
Responsiveness (RP)	0.897	0.928	0.763
Immediate feedback (IF)	0.919	0.940	0.758
Trust (TR)	0.942	0.958	0.852
Informality (IN)	0.898	0.936	0.831

Notes: 1. CR: Composite reliability; AVE: Average variance extracted.

For discriminant validity, the square root of the AVE needs to be greater than the correlations coefficients between the constructs (Fornell & Larcker, 1981). These results can be seen in Table 3. Additionally, another criterion to assess discriminant validity is to verify that the loadings have higher values than their cross-loadings. Since no indicator had loadings with lower values than their cross-loadings and the square root of the AVE's of each latent variable was higher than its correlation with other constructs, there was evidence of discriminant validity. Appendix 2 shows the loadings and cross-loadings.

Table 3 - Discriminant validity

	BI	PE	EE	HM	HB	SP	RP	IF	TR	IN
BI	**0.936**									
PE	0.789	**0.909**								
EE	0.565	0.638	**0.902**							
HM	0.526	0.593	0.477	**0.900**						
HB	0.715	0.765	0.554	0.513	**0.916**					
SP	0.538	0.543	0.406	0.494	0.518	**0.889**				
RP	0.534	0.567	0.594	0.558	0.562	0.621	**0.873**			
IF	0.483	0.603	0.549	0.556	0.541	0.552	0.666	**0.871**		
TR	0.444	0.497	0.513	0.429	0.527	0.589	0.649	0.505	**0.923**	
IN	0.418	0.464	0.433	0.538	0.458	0.573	0.646	0.648	0.533	**0.911**

Notes:
1. PE: Performance expectancy; EE: Effort expectancy; HM: Hedonic motivation; HB: Habit; SP: Social presence; RP: Responsiveness; IF: Immediate Feedback; TR: Trust; IN: Informality,
2. Diagonal elements are the square roots of AVEs and off-diagonal elements are the correlations.

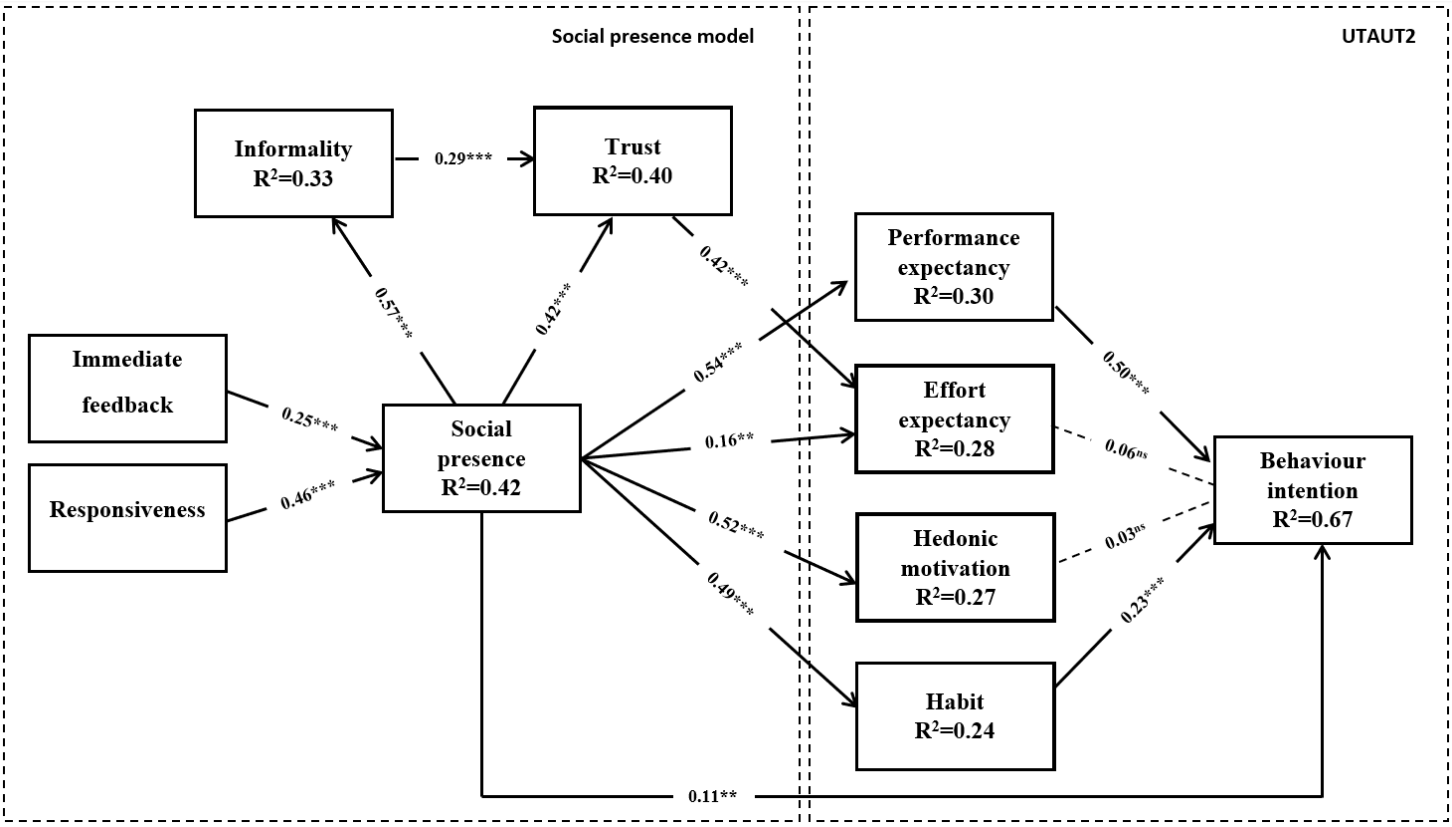
4.2. STRUCTURAL MODEL

Since the measurement model met all of the evaluation criteria, it was possible to analyse the structural model. The analysis of hypotheses and constructs' relationships was done through the examination of the standardized paths. A bootstrapping with 5000 resamples was used to estimate the path significance levels, based on t-statistics values. The results can be seen in Figure 2.

The model explains 66.5% of behavioral intention to adopt online customer service through mobile instant messaging applications. Performance expectancy ($\hat{\beta}$ = 0.498; $p < 0.01$) and habit ($\hat{\beta}$ = 0.227; $p < 0.01$) were found to be statistically significant. Thus, hypotheses H1a and H1d are supported. Hypotheses H1b i.e. effort expectancy ($\hat{\beta}$ = 0.063; $p = 0.261$) and H1c i.e. hedonic motivation ($\hat{\beta}$ = 0.030; $p = 0.705$) are not supported to explaining behavior intention.

Social presence was found to be statistically significant to explain performance expectancy ($\hat{\beta}$ = 0.543; p < 0.01), effort expectancy ($\hat{\beta}$ = 0.159; p < 0.05), hedonic motivation ($\hat{\beta}$ = 0.494; p < 0.01), habit ($\hat{\beta}$ = 0.518; p < 0.01) and behavior intention ($\hat{\beta}$ = 0.109; p < 0.05) which means that all H3 are supported. Furthermore, social presence was found to be statistically significant to explain Informality ($\hat{\beta}$ = 0.573; p < 0.01) and trust ($\hat{\beta}$ = 0.422; p < 0.01), informality was found to be statistically significant to explain trust ($\hat{\beta}$ = 0.292; p < 0.01) and trust was found to be statistically significant to explain effort expectancy ($\hat{\beta}$ = 0.419; p < 0.01), meaning the hypotheses H4a, H4b, H4c and H4d are all supported. For social presence, 42% of variation is explained in the research model. Both immediate feedback ($\hat{\beta}$ = 0.248; p < 0.10) and responsiveness ($\hat{\beta}$ = 0.456; p < 0.01) were found to be statistically significant to explain social presence, so hypotheses H4a and H4b are supported.

Figure 2 - Results of structural equation modelling



Notes: 1. *p<0.10, **p<0.05, ***p<0.01.

In order to enhance our analysis of the users' intention to adopt the online customer service through mobile instant messaging applications, we have examined possible boundary conditions with the variables collected. Age and gender were used to test if they were able to strengthen or weaken any hypothesized relationship in the research model. However, no relevant moderating effects were discovered. A multigroup analysis was also performed using the variable that shows if the user had already used WhatsApp to talk to a company before. The results were once again negative, revealing no relevant findings.

5. DISCUSSION

5.1. THEORETICAL IMPLICATIONS

As technology improves and consumers' expectations become increasingly more demanding, mobile instant messaging apps are rapidly turning into a powerful tool for enhancing customer care. This study analyses the factors influencing the uptake of mobile instant messaging applications in online customer service by developing a research model that combines the well-known theoretical model for adoption, UTAUT, with social presence, to account for the effect on perceptions resulting from the restriction of direct human contact in an online environment. Results indicated that the proposed model has good explanatory power in predicting the behaviour intention to adopt mobile instant messaging apps for online customer service.

Findings indicate that among the constructs of UTAUT2 model, performance expectancy and habit have a positive impact on behavioural intention, whereas effort expectancy and hedonic motivation not. The results reveal that performance expectancy represents the greatest influence on users' intention to engage in online customer service through mobile instant messaging, suggesting that consumers who perceived the mobile instant messaging for customer service as useful, tend to adopt it. These findings are consistent with the literature, which has emphasized the significant influence of this construct, considering it the strongest predictor of behavioural intention (Venkatesh et al., 2003). Regarding Habit, it could be argued that customers who will habitually use mobile instant messaging applications for online customer service are more likely to adopt it.

The results show that effort expectancy has no significant direct influence on the intention to use online customer service through mobile instant messaging apps. This is consistent with previous research that has emphasized the loss of effect of effort expectancy on behavioural

intention after the user is comfortable with the technology (Venkatesh et al., 2012; Yoon et al., 2015). Even though they haven't yet tried the online customer service, they are active users of WhatsApp. Contrary to previous findings, the results of this study did not support the inclusion of Hedonic Motivation as a predictor of behavioural intention. The literature had emphasized the important effect of hedonic motivation on mobile instant messaging, however, this may not be applicable when using this technology for online customer service (Hsieh & Tseng, 2017). From a wider perspective, the results confirmed the validity of the UTAUT2 to explain the intention to use this new type of online customer service.

Additionally, the findings also support the use of an extended version of the model that includes social presence as it plays a key role in predicting the uptake of online customer service through mobile instant messaging applications. Social presence appears to have equally important impacts on performance expectancy, habit, hedonic motivation, trust and informality, as the path coefficients are comparable. From a theoretical point of view, if the channel is considered by consumers to exhibit socialness perception attributes, the user can have a more favourable attitude towards that technology.

Our research extended and provided evidence for the inclusion of the informality construct in this context. Informality and social presence together explained 40 per cent of trust meaning that, individuals are more likely to trust the online customer service through mobile instant messaging apps if they perceive the conversion as informal and if it conveys a feeling of human contact. Since trust plays such a vital role in the online service environment, these relationships can be advantageous in order for the user to adopt the technology. Also, this study demonstrated that social presence explains 33 per cent of informality, which demonstrates evidence for this new relationship.

Finally, the impact of immediacy and intimacy related characteristics of social presence demonstrate that responsiveness and immediate feedback would affect the sense of social presence among the WhatsApp users for online customer service and, together, explained 42 per cent of the variation of social presence. However, Responsiveness was found to be the largest contributing factor in forming consumers' sense of social presence, meaning that our respondents valuable appropriate and relevant responses in order to feel more connected. This outcome is consistent with previous research (Han et al., 2015) and can translate to be one of the main advantages over chatbots for online customer service.

5.2. MANAGERIAL IMPLICATIONS

From a practitioners' point of view, results from this study can have direct implications for organizations and providers of online customer service support since mobile instant messaging apps can be a useful alternative and a powerful complementary communication tool. When using online customer service through the mobile instant messaging applications, service representatives communicate with the customers through text-based communication and thus facial expressions are often unavailable, therefore it is important in order to achieve a satisfactory experience to increase the levels of social presence perceived.

Our results indicate that immediate feedback and responsiveness play a powerful role in increasing the social presence, evidencing the importance of a responsive customer service representative that provides high-quality information and a short wait time during their online service encounter. Therefore, practitioners should seek to provide appropriate and relevant responses and timely feedback, such as developing automatic responses that can be adapted to each customer and make sure that the representatives of the service ensure a continuous mediated interaction by handling a limited number of conversations simultaneously, in order to provide customers with a prompt, individual service in a timely manner.

Our findings also indicate that the success of online service through mobile instant messaging adoption depends mostly on whether the consumers perceived it as a useful tool. Hence, online marketers should emphasize on providing a suitable and helpful online service in order to make it convenient, fast and useful for consumers. Managers should also ensure that their representatives offer high-quality services to encourage the customer's habit of using this platform. To promote trust between the technology and users, service providers should ensure that online service operates reliably and securely and, as seen by the results, practitioners should ensure that the conversation is considered informal, so staff training should be considered a priority.

5.3. LIMITATIONS AND FUTURE RESEARCH

There are several limitations to this study all of which require further investigation and additional research. First, a non-random sampling procedure was used in this study, which may adversely impact the generalizability of the findings. Furthermore, the findings indicated that the majority of respondents are young (18- 35 years old) and educated which may not accurately reflect the targeted population. Also, the current study was centred on a particular country and half of the sample used lives in the same city. Therefore, there is a need for further investigation in future research to assess whether the conclusions can be applied to other studies.

The variables of the model are subjectively measured by capturing users' perceptions in relation to their future behaviour. Although this methodological approach is commonly used (Herrero, San Martín, & Garcia-De Los Salmones, 2017; Morosan & DeFranco, 2016) in research adoption, Venkatesh et al. (2012) recommend using the effective usage. At the time this study was done, the WhatsApp business application had not yet been released in Portugal and very few companies were using regular WhatsApp for customer service. Further research

should replicate and adapt this current study after the application is released and companies start to adopt it.

The current study found that Hedonic motivation has no impact on behaviour intention which is not consistent with previous research (Jiang & Deng, 2011; Lu et al., 2009; Yoon et al., 2015). Hence, we recommend re-examining this relationship.

Lastly, the model only explains 42% of the variance of social presence. Although findings demonstrate the importance of the antecedents, immediate feedback and responsiveness, to explain social presence, some important factors may not be included in the research model and may be useful to provide users with a more socially rich environment.

6. CONCLUSIONS

This study provided valuable insights about the key factors influencing the uptake of mobile instant messaging applications in online customer service. This study contributes to the current literature by highlighting the significant role of social presence in strengthening interpersonal connections in the online service through mobile instant messaging, which may be the key underlying factor that drives user adoption in this context. Our results confirmed that consumers who perceived the mobile instant messaging for customer service as useful tend to adopt it since performance expectancy represents the greatest influence on users' intention to engage in online customer service through mobile instant messaging. The findings also provided evidence for the inclusion of the informality construct in this context.

It is important to mention that this study was conducted before the WhatsApp business application was released in Portugal and we anticipate that the strength of the relationships between constructs may alter following the exposure to the technology. However, this study demonstrates that conducting technology acceptance research at early stages can be valuable.

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8. APPENDIX

APPENDIX 1 - QUESTIONNAIRE ITEMS

	Construct	Mean	S.D.	Loading	Source
Behavioural intention (BI)					
BI1.	I intend to use WhatsApp online support in the future.	5.6	1.7	0.91	Venkatesh, Thong, & Xu (2012)
BI2.	I would always try to use WhatsApp online support in my daily life.	5.2	1.8	0.93	
BI3.	I plan to use WhatsApp online support frequently.	5.0	1.9	0.96	
Performance expectancy (PE)					
PE1.	WhatsApp online support would be useful in my daily life.	5.6	1.6	0.91	Venkatesh, Thong, & Xu (2012)
PE2.	Using WhatsApp online support would increase my chances of achieving things that are important to me.	5.2	1.7	0.91	
PE3.	Using WhatsApp online support would help me accomplish things more quickly.	5.5	1.6	0.93	
PE4.	Using WhatsApp online support would increase my productivity.	4.9	1.8	0.89	
Effort expectancy (EE)					
EE1.	Learning how to use WhatsApp online support would is easy for me.	6.1	1.2	0.87	Venkatesh, Thong, & Xu (2012)
EE2.	My interaction with WhatsApp online support would be clear and understandable.	5.9	1.3	0.91	
EE3.	WhatsApp online support would be easy to use.	6.0	1.3	0.93	
EE4.	It would be easy for me to become skilful at using WhatsApp online support would	5.8	1.4	0.90	
Hedonic motivation (HM)					
HM1.	Using WhatsApp online support would be fun.	4.5	1.7	0.94	Venkatesh, Thong, & Xu (2012)
HM2.	Using WhatsApp online support would be enjoyable.	5.2	1.5	0.90	
HM3.	Using WhatsApp online support would be very entertaining.	4.1	1.9	0.86	
Habit (HB)					
HB1.	The use of WhatsApp online support would become a	5.1	1.8	0.91	Venkatesh,

	habit for me.				Thong, & Xu (2012)
HB2.	I would be addicted to using WhatsApp online support.	4.8	1.9	0.93	
HB3.	I must use WhatsApp online support.	4.7	1.9	0.90	
HB4.	Using WhatsApp online support would become natural to me.	4.8	2.0	0.92	
Social presence (SP)					
SP 1	When using WhatsApp online support, I would feel a sense of human contact.	4.6	1.8	0.91	
SP 2	When using WhatsApp online support, I would feel a sense of personalness.	4.0	1.9	-0.285	Gefen, Straub, et al., 2003)
SP 3	When using WhatsApp online support, I would feel a sense of sociability.	4.7	1.7	0.90	
SP 4	When using WhatsApp online support, I would feel a sense of human warmth.	3.8	1.9	0.86	
Responsiveness (RP)					
RP1	If I used WhatsApp online support, I would think that the response I receive is relevant.	5.3	1.5	0.90	
RP2	If I used WhatsApp online support, I would expect to get some information which will meet my expectations.	5.3	1.6	0.83	Johnson, Bruner, and Kumar (2006)
RP3	If I used WhatsApp online support, I would think that the response I receive is suitable.	5.4	1.4	0.91	
RP4	If I used WhatsApp online support, I would want to get some information that would be useful to me.	5.7	1.5	0.85	
Immediate feedback (IF)					
IF1	I would use WhatsApp online support if I wanted to send and receive information quickly.	6.0	1.4	0.78	
IF2	I would use WhatsApp online support if I wanted to know immediately the answer to my problem.	5.2	1.7	0.87	
IF3	I would use WhatsApp online support if I wanted to let others know immediately my answer.	5.3	1.7	0.91	Ferry, Kydd and Sawyer (2001)
IF4	I would use WhatsApp online support because it wouldn't take long to express my opinions to others.	5.3	1.6	0.92	
IF5	I would use WhatsApp online support because I wouldn't want to wait long to receive the responses I requested.	5.4	1.6	0.86	
Informality (IN)					
IN1	If I used WhatsApp online support, I could communicate	5.3	1.6	0.88	Gretry, Horváth,

	in a more informal way.				Belei, & van Riel (2017)
IN2	If I used WhatsApp online support to solve my problems, I could communicate in a more casual way.	5.3	1.6	0.92	
IN3	If I used WhatsApp online support to solve my problems, I could communicate in a more easygoing way.	5.2	1.6	0.93	
Trust (TR)					
TR1	I feel that the online support through WhatsApp would be honest.	5.2	1.5	0.94	
TR2	I feel that the online support through WhatsApp would be trustworthy.	5.1	1.5	0.92	
TR3	I feel that the online support through WhatsApp would care about customers.	5.3	1.4	0.91	Gefen et al. (2003)
TR4	I feel that online support through WhatsApp would provide me with good service.	5.4	1.4	0.92	

APPENDIX 2 – LOADINGS AND CROSS-LOADINGS

	BI	PE	EE	HM	HB	SP	RP	IF	TR	IN
BI1	**0.911**	0.691	0.550	0.456	0.636	0.467	0.499	0.417	0.418	0.348
BI2	**0.932**	0.781	0.522	0.516	0.682	0.519	0.513	0.487	0.405	0.415
BI3	**0.963**	0.739	0.516	0.501	0.687	0.522	0.486	0.450	0.423	0.406
PE1	0.800	**0.906**	0.662	0.486	0.699	0.483	0.508	0.545	0.470	0.405
PE2	0.694	**0.909**	0.526	0.574	0.692	0.486	0.498	0.548	0.484	0.433
PE3	0.719	**0.928**	0.633	0.518	0.695	0.491	0.549	0.585	0.429	0.434
PE4	0.645	**0.892**	0.485	0.586	0.696	0.517	0.504	0.513	0.425	0.416
EE1	0.425	0.521	**0.874**	0.393	0.434	0.304	0.474	0.470	0.423	0.348
EE2	0.540	0.613	**0.907**	0.466	0.543	0.393	0.572	0.465	0.478	0.427
EE3	0.493	0.544	**0.929**	0.389	0.481	0.363	0.529	0.494	0.467	0.401
EE4	0.565	0.611	**0.896**	0.463	0.529	0.393	0.556	0.548	0.477	0.380
HM1	0.519	0.549	0.433	**0.943**	0.479	0.477	0.507	0.504	0.394	0.538
HM2	0.525	0.621	0.549	**0.901**	0.520	0.484	0.573	0.609	0.455	0.456
HM3	0.341	0.395	0.257	**0.856**	0.361	0.351	0.402	0.346	0.281	0.458
HB1	0.665	0.721	0.537	0.432	**0.912**	0.468	0.541	0.537	0.468	0.421
HB2	0.632	0.692	0.507	0.447	**0.928**	0.475	0.497	0.497	0.530	0.407
HB3	0.622	0.698	0.490	0.496	**0.902**	0.478	0.480	0.502	0.452	0.426
HB4	0.697	0.693	0.498	0.503	**0.924**	0.479	0.540	0.450	0.481	0.426
SP1	0.583	0.571	0.414	0.494	0.545	**0.908**	0.616	0.552	0.570	0.570
SP2	-0.094	-0.067	-0.107	0.118	-0.073	**-0.301**	-0.128	-0.069	-0.187	0.009
SP3	0.443	0.474	0.375	0.443	0.449	**0.899**	0.576	0.500	0.528	0.541
SP4	0.377	0.373	0.271	0.361	0.360	**0.859**	0.437	0.396	0.457	0.387

RP1	0.551	0.591	0.539	0.555	0.573	0.647	**0.900**	0.602	0.610	0.635
RP2	0.463	0.475	0.462	0.479	0.471	0.489	**0.830**	0.592	0.508	0.507
RP3	0.422	0.458	0.541	0.480	0.475	0.568	**0.908**	0.581	0.603	0.562
RP4	0.406	0.428	0.532	0.413	0.418	0.419	**0.853**	0.548	0.531	0.533
IF1	0.470	0.515	0.573	0.433	0.478	0.468	0.686	**0.780**	0.559	0.576
IF2	0.375	0.502	0.400	0.461	0.494	0.433	0.477	**0.873**	0.357	0.461
IF3	0.406	0.513	0.438	0.502	0.480	0.469	0.532	**0.906**	0.386	0.515
IF4	0.404	0.524	0.439	0.491	0.436	0.494	0.553	**0.924**	0.409	0.559
IF5	0.442	0.563	0.529	0.523	0.471	0.525	0.633	**0.864**	0.476	0.684
TR1	0.393	0.431	0.423	0.368	0.434	0.545	0.566	0.424	**0.940**	0.503
TR2	0.365	0.375	0.412	0.326	0.405	0.502	0.494	0.385	**0.920**	0.444
TR3	0.379	0.479	0.494	0.417	0.512	0.548	0.603	0.504	**0.911**	0.475
TR4	0.488	0.533	0.548	0.457	0.573	0.572	0.710	0.534	**0.921**	0.538
IN1	0.421	0.493	0.434	0.506	0.432	0.529	0.590	0.664	0.456	**0.883**
IN2	0.433	0.434	0.386	0.483	0.444	0.549	0.589	0.541	0.503	**0.921**
IN3	0.284	0.341	0.365	0.484	0.375	0.486	0.587	0.570	0.498	**0.930**

Notes:

1. PE: Performance expectancy; EE: Effort expectancy; HM: Hedonic motivation; HB: Habit; SP: Social presence; RP: Responsiveness; IF: Immediate Feedback; TR: Trust; IN: Informality,