



Chat now... Examining the variables influencing the use of online live chat

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ABSTRACT

This paper advances our theoretical understanding of online service delivery with regard to live chat technology. Online customer support via live chat offers customers a way in which they can interact with service personnel in the online environment. Through the use of an online questionnaire and conducting structural equation modelling, the aim of this research is to understand the variables directly influencing the use of a live chat function with a customer service representative during use of a website. The findings outline eight variables that motivate the use of live chat, accounting for 71% explained variance. The research illustrates the variables influencing such use is dependent on the context for initiating the chat discussion, namely for search/navigation support or decision support. This paper offers key managerial implications, highlighting the importance of offering customers a live chat function and why website users are motivated to use live chat. The paper illustrates the role of online live chat as a service recovery tool and a service feedback tool.

1. Introduction

With over half of the world's population active online (WeAreSocial, 2019), researchers have taken great interest in exploring online service provision. The Internet was once considered as an impoverished experience due to the inability to interact with service personnel (McLean and Osei-Frimpong, 2017). However, over recent years, we have seen the rise of functions providing website users the ability to interact with other customers, businesses and service representatives (Chattaraman et al., 2019; Lew et al., 2018). Such services include social network channels, live chat systems and online help desks. Despite the environment (offline or online), organisations acknowledge that high quality customer service is of utmost importance in order to remain competitive (Wang, 2011). A high quality service can result in a range of positive outcomes including reduced complaints behaviour, positive word of mouth, satisfaction and increased re-visit intention (Martin et al., 2015; Meuter et al., 2000; Verhoef et al., 2009). As a result, many organisations have turned their attention to allocate significant amounts of resource to provide customers with a high quality customer service, thus in an attempt we have seen the introduction of live chat functions being used as customer service platforms (Chattaraman et al., 2012; Lv et al., 2018; McLean and Osei-Frimpong, 2017).

A review of the literature finds that live chat functions are often referred to as *virtual agents* (Abbattista et al., 2002), *conversational agents* (Cassell et al., 2000), and *avatars* (Chattaraman et al., 2012) and

can be operated by a human service representative or through artificial intelligence (*chatbots*). The systems enable one-to-one synchronised communication between the service provider and service receiver. Online service support is often considered as a low cost and effective form of delivering customer assistance, increasing levels of satisfaction and the overall customer experience due to the instant and constant availability of service personnel (McLean and Wilson, 2016). Live chat functions have also been noted as an aid for enhancing website interactivity, improving customer relationships and the customer experience (Yoon, 2010).

While alternative forms of communication to seek service assistance exist through face-to-face and telephone access to service representatives, many individuals operating in the online environment prefer to use live chat functions for numerous activities including, search support, navigation support and decision support (Turel et al., 2013). In spite of the usage of live chat functions over recent years, we have little understanding on what motivates individuals to use this form of online customer support across each of these activities. Thus, focusing on negative online customer experiences, we examine the variables that motivate individuals to initiate a live chat discussion with a service representative to understand the use of live chat as a service feedback tool and a service recovery tool. Examining the variables influencing the use of live chat provides website owners insights into how they can improve their online service delivery and in turn enhancing customer experiences and potentially reducing the number of customer

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service enquiries that service representatives are required to handle.

Through a comprehensive review of the literature, key facets from both Information Science and Services literature are incorporated to help gain an understanding of variables influencing the use of live chat facilities. We commence this review with a discussion on the online service encounter, followed by online customer support via live chat and finally drawing on DeLone and McLean's (2003) information systems success model to understand the variables influencing the use of a technological system.

2. Literature review

2.1. The online service encounter

According to Shumaker and Brownell (1984), customer support refers to an individual providing resources or material to another individual to benefit the receiver. Thus, customer support is suggested to reduce the impact of negative emotions such as stress and anxiety and can change the receiver's emotional response to a positive experience (Thoits, 1986). Role theory (Solomon et al., 1985) suggests that users learn the role of service providers and service receivers through the numerous service encounters they have experienced and thus expect a certain level of service from providers whether that service is delivered online or offline. If the service provided does not match expectations it is likely to elicit negative emotions and have an effect on the customer's overall experience (Turel and Connelly, 2013).

Interactions with service staff occur on a regular basis in the offline environment, however in contrast, customers are often left to service themselves in the online environment (Self Service Technology) whether they want to or not, yet organisations aim to provide a high quality customer service (Micu et al., 2019; Pham and Ahammad, 2017). Kuhlthau (1994) highlighted that intervention by service providers may aid individuals in their search for information. Kuhlthau's (1994) work on the zone of intervention outlines the importance of interaction with others in order to move through the stages of a customer's search. Information on a website may be considered as being in an ordered and certain fashion, in contrast an individual's search task or need is often characterised by uncertainty and confusion (Kuhlthau, 2004). As a result, a gap often exists between a website's provision of information and a customer's process of information search and use.

Based on Brehm's (1996) psychological reactance theory, individuals have expectations based on previous experiences. Therefore, the experiences individuals have from service encounters in the offline

environment involving communication with service representatives (conducted face-to-face or by telephone) are often taken into the online environment. Thus, individuals expect to be able to communicate and encounter a similar service in the online environment as experienced in the offline environment (Lv et al., 2018; Tombs and McColl-Kennedy, 2003). Live chat functions provide individuals with the online equivalent of offline communication with service staff and provide the 'option' for online customers to seek service support (Turel and Connelly, 2013). Thus, the adoption of technology to provide customer support services has increased in order to meet individual's evolving needs (Li et al., 2019).

In the context of this study, live chat services allow individuals to seek service-related information from a company via web-based synchronous media with a service representative who provides assistance via the same media (Turel et al., 2013). Due to the computer-mediated and somewhat distant nature of the Internet, it has been difficult for service providers to convey feelings of social presence in the online environment (Li, 2017), despite individuals' desire for personal contact (Wunderlich et al., 2012). Early provisions of online web services were often considered an impoverished experience due to limited control and the inability to communicate with service personnel (Hajli et al., 2015; McLean, 2017). However, technological advancements in developing online live chat facilities has helped to improve social presence within the online environment and the overall experience (Chattaraman et al., 2012; Go and Shyam Sundar, 2019; Sundar, 2008).

2.2. Online customer support with live chat technology

Lv et al. (2018) pertain that live chat customer support with a service representative can aid individuals to complete tasks within the online environment. Therefore, online synchronous communication with a service representative can provide an effective form of customer support and online service (Mero, 2018). Live chat technology allows users to instantly chat with an online customer service representative to help overcome problems, answer questions and obtain assistance in search and navigation of a website (Go and Shyam Sundar, 2019). Chattaraman et al. (2012) highlight three key purposes of live chat technology, firstly to serve as a search support function, secondly to serve as a navigational support function and thirdly to serve as a basic decision support function. Many blue chip organisations offer their customers an online live chat facility to enhance their online customer service (Carter, 2015). Live online human-to-human communication allows individuals to interact and engage with an organisation in a way

Table 1
Previous literature in relation to live chat.

Author(s)	Topic of examination
This study	Examining the variables influencing the use of live chat customer support taking account of different purposes of live chat use
Cassell et al. (2000)	Examining the role of embodied computer conversational agents.
McMillan and Hwang (2002)	Online live chat- a provision of online interactivity.
Abbattista et al. (2002)	Evaluating the competence of human virtual agents in e-commerce.
Aberg and Shahmehri, 2003	Understanding the role of human live chat service representatives in providing online support.
Kuhlthau (2004)	The need for intervention during search for information.
Song and Zinkhan (2008)	The role of online communication in enhancing perceived web site interactivity.
Chattaraman et al. (2012)	The benefits of virtual agents in retail websites- overcoming search issues and trust.
Turel and Connelly (2013)	Live chat as a customer support function- examining the experience with the service representative.
Turel et al. (2013)	Examining the authenticity and e-friendliness of an online live chat customer representative.
Etemad-Sajadi (2014)	Examining the influence of computer virtual agents on web users' desire to visit an organisation's website.
Verhagen et al. (2015)	Increasing customer engagement through virtual environments.
Verhagen et al. (2011)	Understanding virtual customer service agents, examining the role of social presence and personalisation to shape online service encounters.
McLean and Wilson (2016)	Examining the role of online customer support in influencing the online customer experience.
McLean (2017)	Online customer support influencing customer satisfaction.
Mero (2018)	The effects of two-way communication on consumer attitudes
McLean and Osei-Frimpong (2017)	Satisfaction during live chat use
Lv et al. (2018)	Live chat's influence on purchase
Lew et al. (2018)	Interactivity in online live chat

that can help to establish a relationship between the customer and the website provider, thus decreasing the level of uncertainty and anxiety one may have while searching online (Mero, 2018). Table 1 outlines an overview of previous research exploring the use of online live chat facilities. The table highlights that previous studies have explored the importance of online communication. The focus of such research has been on the actual live chat service encounter with both human service representatives and artificial computer agents. In addition, research has explored some of the behavioural outcomes of such a service encounter. In contrast, this study aims to empirically examine the variables influencing an individual's use of a live chat facility with a service representative. While not included in the table, a sub-section of research has explored individuals' perceptions towards interactions with AI powered *chatbots* (e.g. see: Chung et al., 2018; Ciechanowski et al., 2019).

2.3. Variables influencing online service encounters

Numerous research studies have explored the variables capable of influencing customer behaviour in the online environment (Martin et al., 2015). The technology acceptance model (TAM) (see: Davis, 1989), along with its subsequent modifications – TAM2 (see: Venkatesh and Davis, 2000) and TAM3 (see: Venkatesh and Bala, 2008) as well as the unified theory of acceptance and use of technology (UTAUT) and its subsequent extension UTAUT2 (see: Venkatesh et al., 2012) have been predominantly used to explain the acceptance and use of new technology including websites. However, given the unique dynamics of websites and live chat facilities, such models are not comprehensive enough to explain the motivations towards using a live chat facility embedded within a firm's website.

Thus, drawing upon DeLone and McLean's (2003) updated Information System Success (IS) model, this model propose that four key dimensions influence an individual's use of a technological system, namely, system quality, information quality, service quality and satisfaction with use. DeLone and McLean's IS model overcomes the drawbacks of other technology acceptance models given that it encapsulates technology, service and information related factors in explaining the use of a technological system, while utilising existing technology theory (e.g. TAM dimensions).

In relation to *system quality*, Davis et al. (1989) introduced the importance of perceived ease of use and perceived usefulness in the adoption and use of technology within the technology acceptance model (TAM). Further to this, with regard to *service quality*, Bitter (2000) outlined the importance of the servicescape, the place in which the service takes place, which later translated to the e-servicescape within the online environment (Hopkins et al., 2009). Additionally, Gummerus et al. (2004) and Zeithaml et al. (2000) outline the importance of customisation in the service experience. Lastly, Guo et al. (2012), Rieh (2010) and McLean (2017) outline the importance of the quality of information and the credibility of the website containing the information in influencing the customer experience and subsequent customer behaviour.

Liu and Arnett (2000) as well as Torkzadeh and Dhillon (2002) outlined ease of use, usefulness, website aesthetics, information quality, website credibility and website customisation as key components of e-store *Web-Site Success* (WSS). A comprehensive review of the literature on the online service encounter since the year 2000 to the time of writing (searching the following keywords: Online Customer Experience, Website Success Factors, Website Quality, Online Service Encounter, and Technology Adoption across marketing, business, computer science and information management journals) outlines the consistency of DeLone and McLean's (2003) Information System Success dimensions and WSS variables capable of influencing customer behaviour within the online environment, namely customer satisfaction, website aesthetics, perceived ease of use, perceived usefulness, perceived website customisation, perceived information quality, perceived

website credibility and the perceived length of time spent on the website (see: Zeithaml et al., 2000; Yoo and Donthu, 2001; Cox and Dale, 2001; Yang, 2001; Loiacono et al., 2002; Yang and Jun, 2002; Yang et al., 2003; DeLone and McLean, 2003; Lee and Lin, 2005; Parasuraman et al., 2005; Kim et al., 2006; Loiacono et al., 2007; Song and Zinkhan, 2008; Hoffman and Novak, 2009; Lee and Jeong, 2010; Lee and Cranage 2011; Rose et al., 2012; Klaus, 2013; Faiola et al., 2013; Martin et al., 2015; McLean and Wilson, 2016; McLean and Osei-Frimpong, 2017; Micu et al., 2019). Such variables identified have been outlined as influencing approach and avoidance behaviour within the online environment (Rose et al., 2012). Thus, this research aims to explore the influence of these variables directly on the use of live chat technology.

2.4. Conceptual development

In the traditional offline environment, the servicescape's aesthetic cues relate to the physical layout, colour scheme, lighting, ambiance and smells influencing the service experience (Bitner, 2000). Similarly, within the e-servicescape, website aesthetics include the design, look of the website and the layout of the site (Martin et al., 2015). The aesthetic appeal of the website has an influence on the service experience and a customer's takeaway impression of the website (Martin et al., 2015; Rose et al., 2012; Mathwick et al., 2001). Reinecke et al.'s (2013) research highlight that individuals often make quick judgments on websites based on very little information and thus website aesthetics can often be seen as the start of a customer's journey and first touch point of a customer's service encounter with an organisation and ultimately determines approach or avoidance behaviour. In more detail, the design of the website refers to the sites colour, graphics, images and format (McKinney, 2004), while the layout of the website refers to the categorisation of the website and location of content. As such, individuals may seek support through contact with a live chat customer representative due to poor design and layout of the website (Chattaraman et al., 2012). Within the offline environment, individuals actively engage with service staff to locate products and services in-store when they are unable to effectively navigate the layout of the store (Bitner, 2000), thus based on Solomon et al.'s (1985) role theory, this expectation may be taken into the online environment, whereby individuals seek support in navigating through the website due to the design and layout of the site. Thus, we hypothesise:

H1. A negative perception of the website's aesthetics will increase the need to use the live chat function.

Moreover, the degree to which an individual's preferences are met is critical in online service delivery and is generally referred to as customisation (Gummerus et al., 2004; Zeithaml et al., 2000). Srinivasan et al. (2002) outline that website customisation can reduce the perception of excessive amounts of information on a website and can aid individuals in locating the required information quickly. Customised website content is suggested to increase approach behaviour towards a website such as repeat visit and loyalty (Fan and Tsai, 2010). The more content that is customisable to the individual's own needs can reduce the time individuals are required to spend searching for information (Ansari and Mela, 2003), in turn enhancing customer satisfaction (Rose et al., 2012). Providing customers with advanced search functions, filtering options and tools to customise the experience aids in reducing the perception of difficulty and higher service quality, while enhancing self-efficiency. Thus, an individual's inability to customise their experience during their online service encounter can result in negative emotions of frustration, disappointment and uncertainty (Agarwal and Karahanna, 2000). Within the offline environment, customers are able to engage in communication with a service representative, who answers questions to an individual's specific needs and preferences (Tombs and McColl-Kennedy, 2003). Thus, the lack of customisation within the online environment may drive the need for online customer support to

obtain information and support specifically aligned to the individual's needs. Therefore, we hypothesise:

H2. The perceived lack of customisation tools on a website will increase the need to use the live chat function.

Furthermore, DeLone and McLean (2003) outline the importance of system quality, drawing upon the ease of use and usefulness of the system. A website that is not simple to use often results in customers experiencing a negative service encounter. The technology acceptance model (TAM) (Davis, 1989) has been extensively used in order to understand why individuals adopt technology. In line with DeLone and McLean's IS Success Model and the Website-Success-Factors (Liu and Arnett, 2000) two cognitive beliefs are theorised by the TAM, perceived usefulness and perceived ease of use. While subsequent research has attempted to extend the technology acceptance model over recent years (TAM2, TAM3 e.g., Ha and Stoel, 2009; Hsu and Lu, 2004), perceived usefulness and perceived ease of use of the technology have continued to be the most important influential factors in the adoption of new technologies (Kim et al., 2017). Numerous researchers (Martin et al., 2015; McLean et al., 2018; Rose et al., 2012) have also examined the role of perceived ease of use and perceived usefulness on levels of customer satisfaction.

Given the continued growth of information available on websites and the challenges of navigating through such information, the need for a website to be easy to use has become paramount (Rose et al., 2012). Thus, the ability to easily move from one section of the website to another is of upmost importance to individuals during an online service encounter (Dailey, 2004). Individuals who are unable to complete tasks with ease in the offline and online environment often need to seek customer support (Kuhlthau, 2004; Kuhlthau et al., 2008; McLean and Wilson, 2016). A website that is perceived as being difficult to use or not useful in answering an individual's query often results in them requiring to telephone customer service departments or abandoning their search (Martin et al., 2015; Rose et al., 2012; Song and Zinkhan, 2008). Thus, the research hypothesises:

H3. A website that is perceived as not easy to use will increase the need to use the live chat function.

H4. A website that is perceived as not useful will increase the need to use the live chat function.

Moreover, a key component of the IS Success Model and the WSS model is *information quality* (DeLone and McLean, 2003; Liu and Arnett, 2000; Torkzadeh and Dhillon, 2002). Researchers have highlighted information quality as a variable capable of influencing an individual within the online environment (Guo et al., 2012; Rieh, 2010). Information quality online is often associated with accuracy, relevance, how current and the usefulness of the information provided on a website (Flanagin and Metzger, 2000; Guo et al., 2012). Due to the mass of information available online with no real gatekeeper over the quality of the information, individuals are left in a situation where they are open to poor quality information (Rieh, 2010). The reliability of the content on a website can have an influence on an individual's disposition to trust and perceive lower risks and thus help the individual to make a decision (Katerattanakul, 2002). However, such evaluations on the quality of information provided online can be difficult for those who are not experts within the domain (Lucassen et al., 2013), thus *domain novices* often seek clarification of information through the use of other confirming sources and people (Metzger and Flanagin, 2013). According to Guo et al. (2012) this is in line with Daft and Lengel's (1986) Media Richness Theory that stresses the importance of the quality, reliability and accuracy of information exchanged through a particular medium. Individuals who perceive the information available to them on the website as low in quality may require further support to assist them in their decision-making. Thus, the level of quality information provided on a website has an effect on an individual's evaluation and

perception of the website (Christy and Matthew, 2005; Liu et al., 2008). Accordingly, this may act as a driver for online customer support with a service representative to obtain further clarification on the information. Thus, we hypothesise:

H5. Perceived low quality information provided on a website will increase the need to use the live chat function.

Moreover, website credibility and information quality are often two variables that are discussed together (Rieh, 2010). A review of the literature acknowledges the intertwined nature of both variables (Lucassen and Schraagen, 2011; Metzger, 2007). The website success factors (WSS) highlight the importance of trust within the online environment (Fan and Tsai, 2010), however, trust can be seen as the act of the user, whereas credibility can be seen as the property of the information or subject (i.e. the website) (Lucassen et al., 2013), thus a website can convey credibility but cannot have trust. In spite of this, researchers often refer to credibility and trust interchangeably (Fogg and Tseng, 1999). Similar to evaluating the quality of information on a website, three forms of credibility evaluation exist (Lucassen et al., 2013). Firstly, semantic credibility evaluation involves assessing the accuracy and completeness of the information provided on the website (i.e. evaluating factual accuracy). Secondly, surface credibility involves evaluating the professionalism of the website including the influence of spelling and grammatical mistakes. Lastly, source credibility refers to the source of the information on the website, accreditation associated with the website and links to such sources.

However, those individuals with little expertise on the subject area are unable to conduct a concise semantic credibility assessment due to the inability to assess the factual accuracy of the information (Lucassen et al., 2013; Westerwick, 2013). Thus, website credibility is most often based on the surface and source characteristics of the website (Flanagin and Metzger, 2007). Therefore, the evaluation of the credibility of the website is subjective and somewhat complex. Previous research (e.g., Lucassen et al., 2013; McLean, 2017; Rieh, 2010) outlines the need for assistance from a knowledgeable person in order to aid individuals in evaluating the credibility of a website. As a result, an individual's perception of low website credibility may result in them seeking support for further clarification and assurance over the information provided on the website (McLean, 2017; Sundar, 2008). Thus, we hypothesise:

H6. Perceived low website credibility will increase the need to use the live chat function.

Moreover, McLean and Wilson (2016) highlight that individuals are often time conscious during an online search activity. Hong and Hardin (2013) asserts that individuals calculate time estimations during an online activity. The WSS factors outline the need for timeliness in online service provision (Fan and Tsai, 2010). Additionally, DeLone and McLean (2003) outline the need for a system that allows individuals to complete tasks in a timely manner. Lee et al. (2010) outline that individuals have much shorter time expectations and are often impatient while conducting tasks within the online environment. Generally, customers will only wait between 8 and 15 s for a basic web page to load (Hong and Hardin, 2013). Thus, individuals often expect to complete tasks in a timely manner (Dixon and Verma, 2013). Whiting and Donthu (2006) illustrated that individuals often opt for the telephone over face to face service encounters in order to reduce time, Chattaraman et al. (2012) took this notion further and suggest that individuals may opt for live chat discussions for the same purpose, in order to reduce the length of time on a task.

Individuals who perceive to spend longer than necessary can be problematic for online service providers, resulting in individuals engaging in avoidance behaviour (Dennis and Taylor, 2006 Lee et al., 2010). Therefore, individuals perceiving to spend longer than necessary on the website may result in them requiring online service assistance due to being unable to complete tasks in an efficient and timely manner

(Hong and Hardin, 2013; McLean and Wilson, 2016). Chattaraman et al. (2012) highlight that the provision of online assistance can aid customers in guiding them to complete tasks in an efficient and timely manner. Thus, perceiving to spend longer than necessary on the website may drive the use of online customer support through a live chat function. Thus, we hypothesise:

H7. Spending longer than perceived necessary on the website will increase the need to use the live chat function.

Furthermore, previous research has highlighted that satisfaction with the experience has an influence on online behaviour (DeLone and McLean, 2003; Martin et al., 2015; Rose et al., 2012). Numerous researchers have outlined that both cognitive and affective components exist in satisfaction (Yu and Dean, 2001; Liljander and Strandvik, 1997; Oliver, 1999). The cognitive component refers to the overall evaluation of the sites performance when compared to the individual's expectations. The affective component refers to the emotions experienced during the individual's encounter with the site such as, happiness and disappointment (Edvardsson, 2005). Thus, individuals who do not experience satisfaction during their service encounter often require the assistance of a service representative (Azab and Clark, 2017). Within the offline environment, service representatives often and are expected to intervene when the service does not meet the individual's expectations with the aim to perform service recovery (Kuhlthau, 2004; Petzer et al., 2017). Such expectations are often taken into the online environment; therefore, we hypothesise:

H8. Dissatisfaction with the experience will increase the need to use the live chat function.

Lastly, as asserted by Chattaraman et al. (2012), this study acknowledges the varying purposes in which live chat technology is used, namely, (1) live chat being used as a search support function, (2) as a navigation support function and (3) as a decision support function. Search support equates to the live chat representative providing information to the individual based on their search query. Navigation support equates to the live chat representative guiding the individual to appropriate areas of the website based on their needs. Lastly, decision support equates to a live chat representative assisting the individual on decisions between products, services and information. Thus, as previous research establishes the different purposes of using live chat customer support, in order to further advance our theoretical understanding of individual's behaviour in relation to live chat use, it is important that the variables influencing the use of live chat functions are assessed between each purpose. As such, the variables outlined in Fig. 1 may have a stronger or weaker influence on the individual's use of a live chat function depending on the purpose of use. Therefore, we hypothesise:

H9. The variables influencing the use of a live chat function will be dependent on the purpose of use- (1) search support (2) navigation support (3) decision support.

Overall, nine hypotheses will be tested in the study. Fig. 1 outlines a pictorial representation of the research hypotheses.

3. Methodology

An online questionnaire was used in order to capture the data required to test the hypothesised relationships. Data was collected from consumers in the UK within 5 days of them using a mobile phone network provider's web-based live chat facility (Visit website → Use Live Chat Facility → Take survey within 5 days). Following the results of a dichotomous question (yes/no), respondents indicated that they had no intention of using the live chat function prior to visiting the website. Mobile phone networks have adopted human operated web based live chat facilities as a key method of delivering customer support, therefore they offered an interesting context to study. Each mobile network's website used by the respondent was captured.

A pilot study was conducted with a sample of 22 respondents prior to collecting the data to assess the logic and design of the questionnaire. Analysis of the pilot study indicated all scales measured a Cronbach alpha $\alpha > 0.7$ with correlation significance of $p < .05$. In addition, all scale items measured a corrected item-total correlation of > 0.3 . These findings indicated the robustness of the scales and justify their inclusion in the questionnaire used in the main study (Osei-Frimpong et al., 2018).

In total, 4 different mobile network providers' live chat facilities were used in the main study namely, o2 ($n = 82$), Vodafone ($n = 57$), EE ($n = 94$) and Three ($n = 63$). Each live chat facility was powered by various platforms, however, each live chat facility allowed individuals to conduct two-way synchronous communication with a service representative. Due to the range of live chat facilities that were used in their natural setting for true customer support enquiries we are able to produce generalizable results. In total, 343 responses were collected, following data cleansing and removing those respondents with missing values, we obtained a sample of 302 usable questionnaires, which is an adequate sample size for structural equation modelling with analysis of moment structures (Byrne, 2013). The benefit of structural equation modelling is that the hypothesised model can be tested simultaneously in an analysis of the whole model of variables.

Demographic details of respondents were collected; the sample achieved a relatively even split between males (43%) and females (57%). In terms of age, the study achieved a broad representation, 18–25 (39%), 26–35 (25%), 36–45 (19%), 45–54 (12%) and 55–65 (5%). Education level of the sample found 10% had graduated from high-school, 49% graduated from further education (College) and 41% had graduated from higher education (University).

Each respondent had no intention of using the live chat function on the website prior to visiting the site. While 91% of the sample had previous experience of using a live chat function on another website. In line with Chattaraman et al. (2012), the purpose of respondents use of the live chat function was captured, (1) to serve as a search support function ($n = 101$), (2) to serve as a navigational support function ($n = 95$) and (3) to serve as a basic decision support function ($n = 106$). Subsequent multi-group analysis is conducted based on such data.

3.1. Measurement development

The questionnaire consisted of 33 scale items measuring the variables of perceived website aesthetics, perceived ease of use, perceived usefulness, perceived customisation, perceived information quality, perceived website credibility, perceived timeliness, dissatisfaction with the service experience and the use of a live chat function. All survey items used in the study were measured on a seven-point Likert scale ranging from (1) Strongly Disagree to (7) Strongly Agree. Table 2 outlines the scales and their items used in this paper.

4. Results

4.1. Preliminary analysis

Various analyses were carried out prior to structural equation modelling. Scale reliability tests were conducted as seen in Table 2 (Cronbach's Alpha) as well as data normality tests to ensure the scales used were reliable and the data was not skewed with outliers. The value for each scale was above the critical value of 0.7 (Pallant, 2013), therefore the scales provide discriminant validity. To assess the normality of the data, a z-score from the skewness and kurtosis values were calculated, this is done by dividing the skewness and kurtosis values by their standard error. The z-score for each variable falls between the values of -2.58 and $+2.58$ after a conservative statistical significance level of 0.01 was set, as a result the data can be considered as normally distributed.

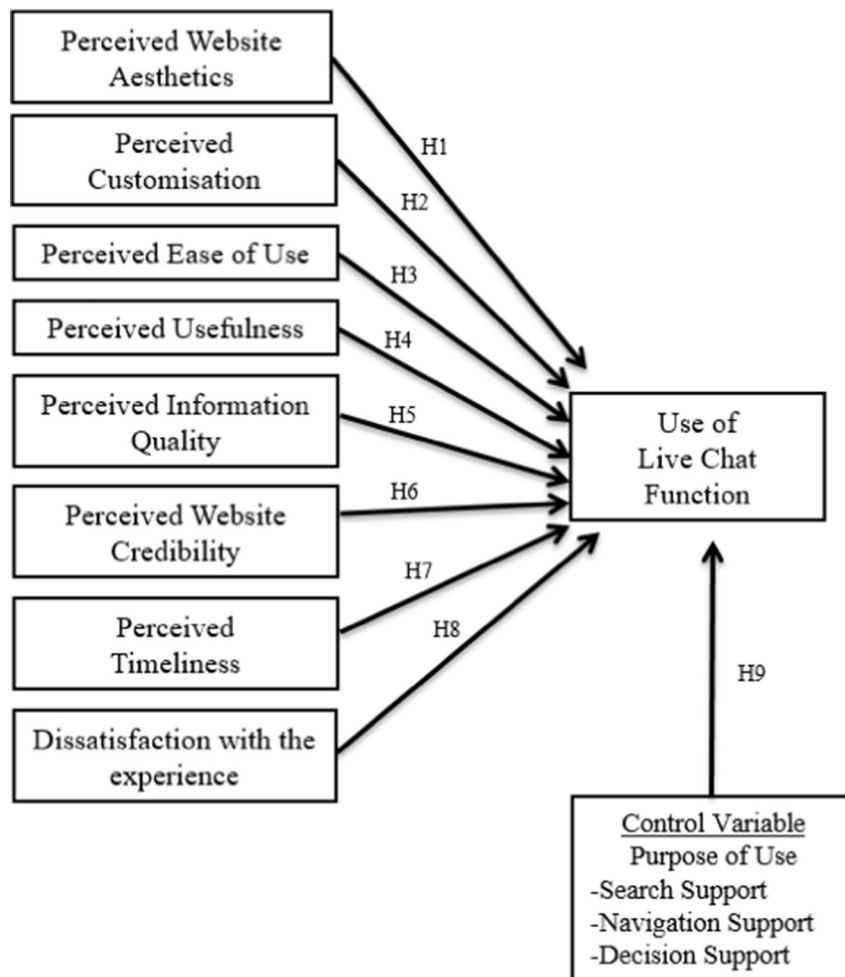


Fig. 1. Hypothesised model.

In order to identify if any differences existed between the websites that were used in the study to assess the generalizability of the results, a repeated measures ANOVA was conducted. The results showed, $f(7, 296) = 2.43$, $p = .179$, which can therefore be concluded as a non-significant difference as the p value is > 0.05 . As a result, this provides the study with a broad and representative set of websites that can produce generalizable results with regard to variables driving the use of a live chat facility. Additionally, MANOVA tests were conducted with regard to age, Wilks Lambda = 0.67, $f(7, 296) = 1.68$, $p = .151$ and gender, Wilks Lambda = 0.63, $f(7, 296) = 2.34$, $p = .164$ again highlighting no significant difference between males and females and the aforementioned age groups.

Moreover, following Podsakoff et al. (2003), we developed a common latent factor and assigned it with all the items of the principal constructs included in the model in AMOS Graphics as an extension of the confirmatory factor analysis. The variances of each item as explained by the principal construct were computed and examined. The CLF value equalled 0.541, to which the common method variance is the square of such value, which equals 0.292. Therefore, the common latent factor suggests that there is no significant common method bias in this data as the calculated variance (29.2%) is below the threshold of 50% (Ranaweera and Jayawardhena, 2014). Therefore, we can conclude that common method bias is unlikely in the results.

4.2. Structural equation modelling

In order to test the research hypothesis previously outlined, Structural Equation Modelling (SEM) was adopted in this study with the

use of AMOS Graphics 24. Structural equation modelling with an analysis of moment structures takes a confirmatory approach to SEM (Byrne, 2013). SEM involves two important parts, firstly, that the casual process under study is represented by a series of structural equations (regressions) and secondly, the structural relationships can be modelled pictorially to offer a clear illustration of the theory under study. Structural equation modelling is conducted in two steps, first the CFA measurement model and second the structural model. The CFA measurement model outlines the causal relationships between the observed variables and the underlying latent variables. The structural model on the other hand outlines the casual relationships of the theoretical constructs between exogenous and endogenous variables or among endogenous variables. Thus, the measurement model was specified and estimated in AMOS graphics. The fit statistics show the measurement model has good fit ($\chi^2_{(634)} = 1186.337$, $p = .001$, $\chi^2/df = 1.87$, RMSEA = 0.054, RMR = 0.016, SRMR = 0.042, CFI = 0.948, GFI = 0.969, NFI = 0.953). Along with the fit statistics all loadings were adequate and significant at $p < .05$.

In addition, convergent and discriminant validity were supported due to the following, (1) all loadings were significant ($p < .001$), (2) the composite reliability for each construct exceeded 0.70 (Fornell and Larcker, 1981), and (3) the average variance extracted (AVE) for each construct exceeded the recommended benchmark of 0.50, and also meets the requirement of above the maximum shared variance (MSV) (Hair, 2010) as seen in Table 3. Furthermore, the discriminant validity is assessed, by calculating the square root of the AVE for each construct, where it should exceed the inter-correlation for each construct (Hulland, 1999; Hair, 2010).

Table 2
Scale measurements.

Variable	Scale reference	Adapted scale	Cronbach's alpha (CR)
Website aesthetics	Mathwick et al. (2001).	<ul style="list-style-type: none"> ● The website was not attractive ● The website was not well organised ● The website was not well designed ● The website has good layout (R) 	0.898
Ease of use	Gefen (2003).	<ul style="list-style-type: none"> ● The website was not easy to use. ● I was not able to easily search for what I want. ● The navigation was not quick and easy. 	0.867
Customisation	Song and Zinkhan (2008)	<ul style="list-style-type: none"> ● I was not able to choose which link and when to click it. ● While I was on the site, I could choose freely what I wanted to see. (R) ● While surfing the site, my actions did not decide the kind of experiences I got. ● I was not able to use advanced search filters 	0.831
Information quality	Flanagin and Metzger (2000); Guo et al. (2012).	<ul style="list-style-type: none"> ● I was not able to see if the information was current. ● I was not able to see if the information was complete and comprehensive. ● I was not able to tell if the website provides accurate information. ● The information on the web site was not easily understandable. 	0.822
Website credibility	Flanagin and Metzger (2000)	<ul style="list-style-type: none"> ● I was not able to see an official “stamp of approval” ● I was not able to check to see whether the contact information for the organisation is provided on the site. ● I was not able to verify the website's accreditation or credentials. 	0.769
Perceived usefulness	Davis (1989); Yoon and Kim (2007)	<ul style="list-style-type: none"> ● The website does not enable me to accomplish tasks ● The website does not perform well ● The website is not useful 	0.782
Perceived timeliness	(McLean and Wilson, 2016)	<ul style="list-style-type: none"> ● I spent more time than I would have liked on the website. ● It took longer than I expected to complete tasks on the website. ● It took too long to complete tasks on the website. ● The length of time spent on the website was acceptable. (R) 	0.831
Dissatisfaction with the service experience	Song and Zinkhan (2008)	<ul style="list-style-type: none"> ● I am not satisfied with the experience. ● This online experience is exactly what I needed. (R) ● This online search experience has not worked out as well as I thought it would. ● I am happy with my experience (R) ● My experience has been disappointing 	0.902
Use of live chat	Kuhlthau (2004); Song and Zinkhan (2008).	<ul style="list-style-type: none"> ● I used online assistance when on the website ● I utilised the live chat facility on the website ● I engaged in conversation with a live chat service representative. 	0.988

Following the assessment of the CFA measurement model, the data was tested for measurement invariance. The purpose of such tests is to assess the assumption that the fixed factor loadings are the same across different groups i.e. for search support, navigation support and decision support, and should be established in order for further multi-group analysis to be meaningful (Vandenberg and Lance, 2000; Horn and McArdle, 1992). Thus, a CFA was conducted for each form of support (Search, Navigation and Decision) where the ‘goodness of fit’ values were assessed to evaluate the fit of the model for each purpose of using live chat. The results revealed that each of the CFA measurement models achieved ‘goodness of fit’ (*Search Support* = $\chi^2 = 1.868$; RMSEA = 0.058; CFI = 0.969; *Navigation Support* = $\chi^2 = 1.856$; RMSEA = 0.057; CFI = 0.971; *Decision Support* = $\chi^2 = 2.055$; RMSEA = 0.063; CFI = 0.966), which also signifies that the factor structure of each of the groups are similar (Alexa, 2016). Therefore, we

can conclude the data fits well across each purpose of use. Additionally, the measurement and structural invariance assessment was carried out to evaluate equivalence across groups at the measurement and structural level. This test was conducted by assigning constraints to the groups and then calculating the difference in the CFI value from the Configural model and the constrained model, the results illustrated a CFI difference of < 0.01, affirming equivalence across each type of support (Cheung and Rensvold, 2008).

As a result, due to a good fit from the CFA measurement model, the researcher can proceed to the second step, specifying and estimating the hypothesised structural model. The fit statistics of the structural model show ‘goodness of fit’ ($\chi^2_{(22)} = 48.311$, $p = .001$, $\chi^2/df = 2.19$, CFI = 0.962, NFI = 0.955, GFI = 0.981, SRMR = 0.017, RMSEA = 0.051, RMR = 0.013) and providing supporting evidence for the hypothesised relationships. Further examination of the standardised

Table 3
Convergent and discriminant validity tests.

	CR	AVE	WA	PT	DIS	EOU	PC	PIQ	PWC	PU	ULC
Web aesthetics (WA)	0.898	0.722	0.849								
Perceived timeliness (PT)	0.831	0.619	0.325	0.787							
Dissatisfaction (DIS)	0.902	0.736	0.261	0.289	0.858						
Perceived ease of use (PEOU)	0.867	0.754	0.303	0.204	0.310	0.868					
Perceived customisation (PC)	0.831	0.722	0.289	0.177	0.212	0.278	0.850				
Perceived information quality (PIQ)	0.822	0.765	0.191	0.153	0.164	0.193	0.256	0.874			
Perceived web credibility (PWC)	0.769	0.787	0.403	0.221	0.243	0.207	0.111	0.279	0.887		
Perceived usefulness (PU)	0.782	0.746	0.277	0.242	0.220	0.344	0.212	0.233	0.224	0.864	
Use of live chat	0.988	0.822	0.401	0.511	0.502	0.493	0.479	0.386	0.279	0.508	0.906

CR - Construct Reliability; AVE – average variance extracted.

Table 4
SEM regression estimates.

Hypotheses				Standardised estimate β	t-Value	R ²
H1	Website aesthetics	→	Use of live chat	0.601**	2.36	0.71
H2	Perceived customisation	→	Use of live chat	0.688***	5.11	0.71
H3	Perceived ease of use	→	Use of live chat	0.711***	6.24	0.71
H4	Perceived usefulness	→	Use of live chat	0.663**	2.61	0.71
H5	Perceived info quality	→	Use of live chat	0.612***	5.44	0.71
H6	Perceived web credibility	→	Use of live chat	0.312**	2.19	0.71
H7	Perceived timeliness	→	Use of live chat	0.761**	2.77	0.71
H8	Dissatisfaction with experience		Use of live chat	0.681**	2.22	0.71

*** $\rho < .001$.
** $\rho < .05$.

path coefficient regression weights and statistical significance can be seen in Table 4.

The results outlined in Table 4 show strong regression coefficients and statistically significant relationships, $p \leq .05$ with substantial variance explained, supporting each of the research hypotheses. Overall, the variables influencing the use of live chat explains 71% of variance which is considered a large effect (Cohen, 1998), when compared to well-known technology adoption theories such as TAM explaining on average 40% variance (Legris et al., 2003). In support of H1, a significant relationship was found between how aesthetically appealing the website is and the use of a live chat function. Thus, a website that is not well designed with poor layout and seemingly unappealing to the customer influences the use of a live chat facility. In support of H2, a website that does not provide customers with a customised experience, allowing them to select content relevant to their needs, freely moving through the website with their actions individualizing their experience drives the use of a live chat function.

Furthermore, the results show that a website that is perceived not easy to use influences the use of a live chat function, supporting H3. In addition, a website that is perceived as not enabling customers to complete tasks influences the use of a live chat function with a human service representative, supporting H4.

Further to this, a significant relationship was found between information quality and the use of a live chat function. Websites that provide low quality information that the customer perceives not to be current, accurate, relevant and comprehensive drives the use of a live chat function, supporting H5. The results also show a relationship between perceived website credibility and the use of live chat, while this relationship has the lowest level of significance among all relationships, the relationship is significant and shows an individual moderate prediction of live chat use. Thus, a website that does not appear credible to the customer will influence the use of a live chat function, supporting H6.

The results further illustrate the importance of customers' time calculations during their online experience. A significant relationship

was found between customers perceiving to spend longer than necessary on the website and the use of live chat facility, supporting H7. Moreover, the results show customers that experience negative emotions of disappointment and dissatisfaction with the experience drives the use of a live chat function, thus supporting H8.

4.2.1. Multi-group analysis

Following the evaluation of the structural model, multi-group effect analysis was conducted in AMOS 24. The effects of the purpose of using live chat based on Chattaraman et al. (2012) three distinct categories were assessed, namely, (1) live chat being used as a search support function, (2) as a navigation support function and (3) as a decision support function. As previously highlighted, a search support function equates to the live chat representative providing information to the customer based on their search query. A navigation support function equates to the live chat representative guiding the customer to appropriate areas of the website based on their needs. Lastly, a decision support function equates to a live chat representative assisting the customer on decisions between products, services and information.

The multi-group analysis in AMOS allowed for comparison between paths within the structural models for the three identified purposes of live chat support. A chi square difference test can be used for such comparison, however criticism has been aimed at such an approach (Hair, 2010), thus a comparison between the paths for each 'purpose' (group) in terms of estimate and confidence intervals allows for a calculation of difference for each purpose (Hair, 2010). Groups were created for each purpose of live chat ((1) Search Support, (2) Navigation Support and (3) Decision Support), each regression path was named for analysis, followed by selecting bootstrapping, where the bootstrapping confidence output outlines the confidence interval between each group. This procedure was repeated for each hypothesised relationship in the study for each of the three purposes, as highlighted by Chattaraman et al. (2012), for using live chat with a service representative. Table 5 outlines the results of our multi-group analysis.

From the in-depth analysis in Table 5, it can be seen that there is no

Table 5
Multi-group analysis (search support/navigation support/decision support).

Relationship	Search support (SS) Path coefficient (β , p)	Navigation support (NS) Path coefficient (β , p)	Decision support (DS) Path coefficient (β , p)	SS-NS significant difference 'p value'	SS-DS significant difference 'p-value'	NS-DS significant difference 'p-value'
WA → LC	$\beta = 0.621, p = .039$	$\beta = 0.688, p = .013$	$\beta = 0.302, p = .044$	$p = .371$	$p = .041$	$p = .045$
PT → LC	$\beta = 0.777, p < .001$	$\beta = 0.791, p < .001$	$\beta = 0.271, p = .053$	$p = .233$	$p = .026$	$p = .023$
DIS → LC	$\beta = 0.702, p < .001$	$\beta = 0.699, p < .001$	$\beta = 0.369, p = .038$	$p = .314$	$p = .044$	$p = .046$
PEOU → LC	$\beta = 0.793, p < .001$	$\beta = 0.801, p < .001$	$\beta = 0.413, p = .41$	$p = .094$	$p = .036$	$p = .033$
PU → LC	$\beta = 0.668, p = .019$	$\beta = 0.702, p = .013$	$\beta = 0.548, p = .046$	$p = .121$	$p = .046$	$p = .045$
PC → LC	$\beta = 0.701, p < .001$	$\beta = 0.698, p < .001$	$\beta = 0.565, p = .034$	$p = .202$	$p = .112$	$p = .095$
PWC → LC	$\beta = 0.210, p = .068$	$\beta = 0.233, p = .059$	$\beta = 0.611, p = .012$	$p = .113$	$p = .028$	$p = .028$
PIQ → LC	$\beta = 0.302, p = .047$	$\beta = 0.297, p = .058$	$\beta = 0.711, p < .001$	$p = .316$	$p = .013$	$p = .015$

(WA = Website Aesthetics, PT = Perceived Timeliness, DIS = Dissatisfaction, PEOU = Perceived Ease of Use, PU = Perceived Usefulness, PC = Perceived Customisation, PWC = Perceived Website Credibility, PIQ = Perceived Information Quality).

Table 6

Multi-group analysis.

(Search support-navigation support vs decision support).

Relationship (hypotheses)	Search/navigation support (SNS) Path coefficient (β , p)	Decision support (DS) Path coefficient (β , p)	SNS-DS significant difference 'p value'
WA \rightarrow LC	$\beta = 0.646$, p = .022	$\beta = 0.302$, p = .044	p = .045
PT \rightarrow LC	$\beta = 0.788$, p < .001	$\beta = 0.271$, p = .053	p = .022
DIS \rightarrow LC	$\beta = 0.704$, p < .001	$\beta = 0.369$, p = .038	p = .046
PEOU \rightarrow LC	$\beta = 0.797$, p < .001	$\beta = 0.413$, p = .41	p = .032
PU \rightarrow LC	$\beta = 0.697$, p = .018	$\beta = 0.548$, p = .046	p = .040
PC \rightarrow LC	$\beta = 0.704$, p < .001	$\beta = 0.565$, p = .034	p = .086
PWC \rightarrow LC	$\beta = 0.211$, p = .066	$\beta = 0.611$, p = .012	p = .028
PIQ \rightarrow LC	$\beta = 0.299$, p = .053	$\beta = 0.711$, p < .001	p = .012

(WA = Website Aesthetics, PT = Perceived Timeliness, DIS = Dissatisfaction, PEOU = Perceived Ease of Use, PU = Perceived Usefulness, PC = Perceived Customisation, PWC = Perceived Website Credibility, PIQ = Perceived Information Quality).

significant difference between any of the variables driving the use of a live chat function in the context of requiring *search support* and requiring *navigation support* from a live chat customer representative. The results show that perceived website aesthetics, perceived customisation, perceived ease of use, perceived usefulness of the website, perceived information quality and dissatisfaction with the experience both equally influence the customer experience in both purposes of using live chat. Notably, the credibility of the website does not influence the use of a live chat function when a live chat discussion is initiated when requiring *search* or *navigation support*.

Thus, due to a non-significant result between each purpose, Search Support and Navigation Support, these were combined to create Search/Navigation Support. Thereafter further analysis was conducted as shown in Table 6 comparing the paths influencing the use of live chat between Search/Navigation Support and Decision Support.

However, in support of H9, the analysis highlights interesting significant differences between *decision support* and both *search support/navigation support*. With exception of perceived customisation of the website, significant differences (p < .05) were found between all other paths. Website Aesthetics, Dissatisfaction with the Experience, Perceived Ease of Use and Perceived Usefulness all drive the use of a live chat function when *decision support* is required, however each of these relationships are more significant when a live chat function is used for the purpose of *search support/navigation support* with Table 6 showing a significant difference p < .05.

In contrast, perceived information quality is more important in driving the use of a live chat function when customers require *decision support*, rather than for *search support/navigation support*. Further to this, the results in Table 6 outline the non-significant effect of perceived website credibility driving the use of a live chat function when seeking *navigation/search support*. However, perceived website credibility has a significant effect and substantial prediction (p = .012) in driving customers to use live chat during the context of requiring *decision support*.

5. Discussion

Within the offline environment we have an understanding of what drives customers to seek service assistance. However, within the online environment, we had limited understanding and empirical insight. The findings of this research take a step forward and outline the variables directly influencing the use of a live chat function with a service representative. The results highlight that negative experiences of the IS success model factors and the website success factors (WSS) including, the aesthetics of the website, the technology factors involving the ease of use and usefulness of the website, the level of customisation the website provides individuals, the quality of the information provided on the website, the credibility of the website along with the length of time spent on the task and the level of satisfaction with the experience all

directly influence the use of a live chat function. Each of these variables account for 71% explained variance in live chat use.

In line with Chattaraman et al. (2012), three distinct purposes exist for using a live chat function with a service representative, (1) as a search support function, (2) as a navigation support function and (3) as a decision support function. However, this research asserts that there is no significant difference in the variables influencing the use of live chat when used for search and navigation support. The results found that the website aesthetics in terms of the design and layout of the website influence the use of a live chat function with a service representative when the purpose of the live chat discussion is for *search/navigation support*. However, website aesthetics are less important in driving the use of live chat when a chat is initiated for *decision support*. Thus, poor website aesthetics is an important driver in using a live chat function when support is required for *search/navigation*, outlining the importance of website layout (Martin et al., 2015).

Moreover, with the mass of information and the difficulty of navigating through such information, previous research highlights the importance of a website being easy to use (Rose et al., 2012). The technology acceptance model (Davis, 1993) outlines perceived ease of use and perceived usefulness as two important variables influencing the use of technology. A website that does not allow customers to move from one part of the website to another with ease motivates the use of a live chat function with a service representative. Those individuals using a live chat function for *search/navigation support* are more likely to do so due to the website being perceived as not easy to use in comparison to those initiating a live chat discussion for *decision support*.

Additionally, the usefulness of the website plays an important role in driving the use of a live chat function. A website that does not perform appropriately or enable individuals to complete their task efficiently motivates the need for online customer support and the use of live chat functions, however, such a factor is more important in initiating a live chat discussion for the purpose of *search/navigation support* than for *decision support*. Thus, it can be seen that *technology* factors including the layout and design of the website as well as the perceived ease of use and usefulness of the website have more significant influence on driving the use of live chat for the purpose of *search/navigation support*.

Furthermore, the quality of the information provided on the website drives the use of a live chat facility with a service representative. A website that provides information that is not current, complete, accurate, comprehensive and easily understandable is considered of low quality (Guo et al., 2012). Previous research outlined the methods in which customers use to evaluate the quality of information (Lucassen et al., 2013). Low quality information on a website drives the use of a live chat function to seek further clarification or assurance from a customer service representative. Perceived low quality information influences the use of a live chat system more significantly when used for the purpose of *decision support* in comparison to *search/navigation*

support, where individuals may not assess the quality of the information and rather are occupied by *technology* factors in locating information.

The credibility of the website has been highlighted as an important variable in influencing a customer's experience within the online environment (McLean, 2017). Individuals often assess the credibility of a website based on credibility cues such as accreditation, credentials and contact information (Flanagin and Metzger, 2000). While the credibility of the website drives the use of a live chat facility, further analysis highlights that perceived website credibility only influences the use of a live chat facility when it is used for the purpose of *decision* support. Thus, website credibility does not drive the use of a live chat facility when it is used for *search/navigation* support. Therefore, individuals who are making important decisions may require the use of a live chat facility for further assurance through communication with a service representative.

Previous research highlights the time conscious nature of individuals within the online environment (McLean and Wilson, 2016; Hong et al. Alexa, 2016). The longer customers perceive to spend on the website plays an important role on motivating a customer's use of a live chat facility. However, further analysis identified that the time conscious nature of customers within the online environment is context specific. Spending more time than perceived necessary is a significant driver of using live chat for the purpose of *search/navigation* support, however the length of time spent on the website does not drive the use of a live chat facility when used for *decision* support. Thus, should individuals spend longer than perceived necessary on the website due to being unable to find the information or services required or move through the website freely, they are more likely to initiate a live chat discussion with a service representative. Previous research highlights that should individuals perceive to spend longer than they perceive necessary on the website, they will experience negative emotions of disappointment, frustration and dissatisfaction (Hong and Hardin, 2013). Accordingly, such individuals may abandon their search and become unlikely to patronise the services of the website again in the future. Thus, those website providers who do not offer customers online customer support via live chat technology could be eluding customers that online live chat technology can recover.

The results pertain that the *technology* related factors such as the design and layout of the website, the perceived ease of use and perceived usefulness of the website, along with the ability to complete tasks using the technology in a timely manner all influence the use of live chat more significantly when used for the purpose of *search/navigation* support. On the other hand, non-technology related factors such as the perceived credibility of the website and the perceived information quality are more important when individuals are more involved with their tasks and require support to help make decisions, such as the purchase of a product. Thus, the *technology* factors become less important when individuals are making decisions on products, services or information, but more important when locating information on the website.

Moreover, websites that offer customers the ability to customise their experience can reduce the perception of excessive amounts of information on a website and can aid customers in decision making and locating the required information quickly (Srinivasan et al., 2002). Thus, it is not surprising that a website that offers little customisation to the individual's specific needs influences the use of a live chat facility with a service representative in each context of use, for *search/navigation* and *decision* making. Providing customers with advanced search functions, filtering options and tools to customise the experience aids in reducing the perception of difficulty and higher service quality, while enhancing self-efficiency and in turn could reduce a customer's use of a live chat facility. Within the offline environment, customers are able to engage in communication with a service representative, who answers questions to a customer's specific needs and preferences, providing a customised service experience (Tombs and McColl-Kennedy, 2003).

Thus the lack of customisation tools within the online environment influences the need for online customer support through a live chat function.

Moreover, encountering service failure where individuals become dissatisfied with the service experience motivates them to use live chat customer support within the online environment. However, those individuals who use the live chat facility for *search/navigation* support are more likely to initiate a live chat discussion due to dissatisfaction than those seeking *decision* support. Thus, individuals who are unable to find the information or services required are likely to become dissatisfied with their experience and require the intervention where service representatives can perform service recovery.

The results highlight that customers expect to be able to communicate with a service representative within the online environment. A live chat function offers customers an alternative to abandoning their search and a more convenient means of seeking customer support. Therefore, while the findings highlight that negative experiences with the aforementioned variables drive the use of live chat, such a function may offer website providers the service recovery tool required to meet customer needs and expectations.

5.1. Practical implications

This study offers website providers numerous practical implications. The results of the research outline the importance of a live chat function with numerous variables motivating an individual to initiate a live chat discussion. Practitioners should note that live chat systems can be used as both a service feedback tool and a service recovery tool. The results illustrate that negative experiences of the website can motivate individuals to seek support via live chat, thus enabling website owners to perform service recovery. Additionally, depending on the purpose of an individual's live chat use, this research provides website owners with knowledge on the elements of the website that require improvement, thus providing website owners with service feedback. Practitioners should note that two key *purposes* exist for using live chat; (1) as a search support/navigation support function and (2) as a decision support function.

As individuals use a live chat facility for *search/navigation* support due to poor website design and difficulty in using the website, managers ought to pay close attention to the aesthetics of the website, how easy the website is to use and how useful the website is in enabling individuals to complete their tasks. Managers can continually assess these variables through website usability testing. Refinement of such variables that drive the use of a live chat facility will reduce the number of live chat discussions that service representatives are required to handle.

Individuals who use live chat facilities for *decision* support require further clarification due to low quality information and low website credibility. Thus, managers should ensure that customers are provided website credibility cues such as official stamps of approval, relevant contact information and visible credentials/associations to enhance perceived website credibility (Flanagin and Metzger, 2000). In addition, information quality cues such as time and date stamps, referenced sources and no missing content aid in enhancing the perception of higher quality information (Guo et al., 2012). Accordingly, providing individuals with such cues may reduce the number of live chat discussions that are initiated to aid in decision making, thus resulting in a lower number of customer service enquiries live chat representatives are required to handle.

Furthermore, managers should note the time conscious nature of individuals during *search/navigation* motivates the use of a live chat facility. Thus, should individuals be unable to retrieve the information they are seeking in a timely manner, they will need to seek the assistance of an online service representative. This is an important implication for managers, as the absence of customer representative intervention through the use of a live chat facility would result in customers abandoning their search on the website (Kuhlthau, 2004).

Therefore, a live chat function may act as a service recovery tool and help to service customer's evolving needs. Additionally, continued usability testing on the time it takes individuals to complete tasks on the website will likely enhance the customer experience and in turn reduce the need to interact with online service representatives.

In spite of this, a website that offers customers the ability to customise their experience through the use of advanced search tools, filtering content and personalised content can reduce the requirement to initiate a live chat discussion with a service representative. Previous research has highlighted that a customer's ability to customise their experience can reduce the perception of difficulty in using the website and in turn can aid customers in their search/navigation of the website (Fan and Tsai, 2010; Rose et al., 2012). Therefore, it would be advantageous for website providers to offer a website that provides customers with a high level of website customisation in order to reduce customers' use of a live chat function for service assistance.

Previous research has found that customers who experience negative emotions and dissatisfaction during their experience will abandon their online activity (Flavian-Blanco et al., 2011). However, this research highlights that dissatisfaction is a driver for seeking online customer service assistance through the use of live chat facilities and thus such facilities may act as a service recovery tool for service providers. In addition, managers are able to record the questions posed to live chat representatives in order to make further functional improvements to the website. Therefore, as well as serving as a service recovery tool, a live chat function can serve as a service feedback tool to aid in improving the website.

6. Limitations and future directions

The findings and implications of this study are somewhat constrained by certain limitations, some of which provide opportunities for future research. The aim of this research was to take the first steps in investigating the variables that *directly* motivate the use of online customer support with a service representative through a live chat facility. Some of the variables in this study may act as antecedents of other variables, therefore future research should explore the structure of the theoretical model.

While this study highlights that online customer support through live chat functions could perform as a form of service recovery, future research should explore the impact of live chat use on the overall customer experience.

In addition, this research focuses on human live chat customer representatives, as there are a growing number of *bot* artificial intelligence live chat systems, other avenues of research could explore the variables influencing use with such systems as well as customer perceptions of such systems.

Moreover, this research focuses on a specific service setting, while it would seem reasonable that the findings would extend to similar online service settings, further research in other service settings may prove fruitful in order to develop our theoretical understanding on what motivates the intention to use live chat facilities.

Lastly, as known UK mobile network brands were used in this study, our results with regard to credibility not influencing the use of a live chat facility for search or navigation should be used with caution as brand influence was not accounted for, future research could explore the role of brand image in relation to the use of live chat facilities.

7. Conclusion

This research has advanced our theoretical understanding with regard to online service delivery and individuals' use of online customer support through live chat technology. While live chat has been deployed on numerous websites, we had little understanding on the variables that motivate customers to initiate a live chat discussion with a service representative. This research has indeed made the initial steps

in highlighting the variables that directly motivate the use of an online live chat facility with a customer service representative. The results pertain that IS success model and WSS factors of perceived website aesthetics, perceived ease of use of the website, perceived usefulness of the website, perceived customisation, perceived information quality, perceived website credibility, the length of time spent on the website and the level of satisfaction with the experience all influence the use of a live chat facility with a customer service representative, accounting for 71% explained variance.

However, the research finds that the variables influencing the use of a live chat facility can depend on the context for initiating the chat discussion, namely for search/navigation or decision support. Technology factors such as the design, layout, ease of use, time spent on the website and the usefulness of the website are more significant in driving the use of live chat for search/navigation support. On the other hand, the credibility of the website and the quality of the information are more significant in driving the use of a live chat facility for decision support. Nevertheless, website owners that provide customers with the ability to customise their experience, utilising advance search functions will reduce a customer's use of a live chat facility.

Lastly, while this research has found that negative perceptions of the aforementioned variables influence the use of a live chat facility, live chat customer support can perform as a service recovery tool as well as a service feedback tool to aid in improving the website.

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