



A REVIEW OF CONSUMERS' ATTITUDES TOWARDS CHATBOTS ADOPTION

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ABSTRACT

The purpose of this study is to present a scoping review of the available evidence-based literature concerning the consumers' attitude towards chatbots adoption. This study also throw lights on the uses of chatbots in different sectors. A research model is proposed based on the uses and gratification theory, technology acceptance model, diffusion of innovation theory. The study is done by reviewing the literature on chatbot adoption from 2016 to 2019. However, the conceptual framework and research gaps are further analyzed. This study can help to understand human- chatbot interaction. This paper will help to investigate how a chatbot can be useful in education, information retrieval, business, and e-commerce. This paper also points out that trust does not directly affect the consumer's attitude towards chatbot but indirectly influences it through attitude. This review paper presents significant improvements in chatbots in the last decade.

Keywords: Adoption, Attitude, Chatbot, Consumers, Electronic-commerce.

1. INTRODUCTION

These days it seems that almost every business has adopted its own chatbot to communicate with either their customers, their own employees or with other businesses. The market size of chatbots can grow from \$700 million in 2016 to \$3 billion in 2021. Moreover, a survey by Oracle Inc. (2016) found that 80% of the 800 interviewed businesses were already using chatbots or planned to implement them into their businesses by 2020. According to Statista, it is expected to reach \$994.5 million by 2024. Chatbots are not a new invention. The first automated chat system, credited by the literature, and was created by Joseph Weizenbaum during the years 1964-1966 in Massachusetts Institute of Technology. The name of the chatbot was ELIZA, and it was emulating a psychotherapist. (Sayginet al. 2000; Shawar & Atwell 2003).

Artificially intelligent chatbots or conversational agents can be used to automate the interaction between a company and customer. Chatbots are computer programs that communicate with its users by using natural language (Griol, Carbó, & Molina, 2013; Atwell & Shawar, 2007; Kerly, Hall, & Bull, 2007) and engages in a conversation with its user by generating natural language as output (Griol et al., 2013). Using messenger based chatbots or interactive agents can be appealing to companies because it can combine and reduce the shopping process to become one stop shopping channel. (Shopify 2016). Chatbots doesn't need platform as it uses the messenger infrastructure and there isn't any need to download the apps (van Manen, 2016; Amir, 2016).

However, with the evolution of AI (Artificial Intelligence) and the need for new approaches for human computer interaction, chatbots have become a communication channel capable of providing automated services in a personalized way. Chatbots have since then been applied to different areas, including sales and customer support. Their presentation format has also changed: many conversational agents possess voice processing, embodiment and can act over the web as well as in modules integrated to other systems such as Facebook Messenger, WhatsApp or Skype. As the purpose of this study is to review the consumer's attitude towards the chatbot adoption.



2. OBJECTIVES

Objective of this study is to review consumer's attitude towards chatbot adoption and to influence the attitude of consumers for Chatbot adoption.

3. LITERATURE REVIEW

A chatbot is an umbrella period for similar concepts consisting of chatterbots, digital marketers, and conversational retailers. (Häubl&Trifts, 2000; Xiao & Benbasat, 2007) Software programs to assist and advise consumers at the same time as making their decisions in online buying. (Motani, Shah and Mali 2016) Method on the way to put into effect an internet-based artificially intelligent chatbot that might characteristic as a personal assistant to schedule meetings. Atwell and Shawar (2007) reviewed the usefulness of chatbots in a couple of domain names (e.g. education, e-commerce) and concluded chatbots aren't alleged to replace people completely, nor ought to the flawlessly imitate a communication with a human. As an alternative, chatbots must be designed in such a way that it must help the user so that the human-computer interaction can be eased. Users primarily engage in a chatbot conversation for productivity reasons (e.g., chatbots helps users get timely and efficient support or information). Also, there are some extra motivations like entertainment, social factors, and curiosity.

A chatbot is also helpful in maintaining relationships between consumers and brands. Using chatbot plays an important role in improving the experience of consumers, which, in turn, wants to rely on consumers with a particular brand (another area). The current interest in chatbots is likely related to substantial advances in computing technology and the wide adoption of mobile messaging applications. First, recent advances in Artificial intelligence and machine learning have led to the recent interest in chatbots. Second, the increased adoption of mobile Internet and messaging platforms has driven the adoption of chatbots. According to Business Insider (2016), about 3 billion people worldwide use mobile messaging applications such as Facebook Messenger, WeChat, Skype, Telegram, Slack, Viber, and Kik.

People truly have less experience to communicate with chatbots than they do with other people. Chatbots are restrained in capacity their capability to have a prolonged goal-directed discussion and can provide little in the way of frequent records and share experiences. In spite of these limitations, many humans are willing to have significant interaction with chatbots. Chatbot continues keeping the attention in users. Due to growth in Artificial intelligence development, nowadays, Chatbots are more effective than before as they can recognize the human language much better than previously. Chatbots are developing in many enterprise applications. For example- Burger King allows clients to make an order through Facebook Messenger chatbot. Expedia has also applied a chatbot on Facebook Messenger to enable travelers to view hotel selections and book the resort rooms quickly. WeChat empowers the owners of "business accounts" to embed chatbot to engage with their subscribers. Alibaba has also developed a client service chatbot – Alime, to help dealers on its e-commerce platforms to reply to their clients automatically, and it can be used in areas such as product inquiry and order confirmation.

Applying chatbots for customer contact processes has many advantages: The firm and the customers get into contact simply with one another because of the embedding of chatbots in messenger services. Customers want the chatbot to provide fast and available in the least times (Maddox 2018). Chatbots have automating simple issues, thus firms will fulfill all expectations and save service costs. As a result, shoppers are measurably happier what successively can cause loyal customers. However, few customers don't trust in the chatbots' liableness regarding complicated inquiries and assume that their technology isn't mature yet. Chatbots aren't seen as equally competent and reliable in several application areas.



S. No	AUTHOR	TITLE OF LITERATURE	OBJECTIVES	VARIABLES	FINDINGS
1	Milan Van Eeuwen(2017)	Mobile conversational commerce: messenger chatbots as the next interface between businesses and consumers.	The objective was to become aware of whether or not Dutch Millennials intent to use mobile messenger chatbots as the next interface between businesses and consumers.	Behavioral intent, attitude, perceive usefulness, perceive ease of use, compatibility, Internet privacy concerns, attitude towards the mobile advertisement	This study explores the idea of conversational commerce and studies that how Perceived Usefulness, Perceived Ease Of Use, Compatibility, Internet Privacy Concern, Attitude Towards Mobile Advertisement, Attitude towards messenger chatbots and Behavioral Intent are correlated and able to predict the consumer's mindset, which in turn predicts the behavioral intention of consumer to use the mobile messenger chatbots.
2.	BrahimZarouali, Evert Van den Broeck, Michel Walrave, and KarolienPoels (2018)	Predicting Consumer Responses to a Chatbot on Facebook	The objective was to provide plenty of required insights on how a customer responds to a Chatbot on Facebook Messenger.	Attitude toward the brand, arousal, dominance, perceived ease-of-use, perceived helpfulness, patronage intention, pleasure, perceived usefulness	Through these findings, it was clear that perceived usefulness and perceived helpfulness are two cognitive predictors that are directly related to consumers' attitudes toward the brand positively providing a Chatbot. Concerning the affective determinants, all three PAD dimensions (pleasure, arousal, and dominance) significantly predict consumers' attitudes towards the Chatbot brand. Finally, results show that all of these determinants also have an indirect effect on patronage intention, through attitude toward the brand as a mediating variable.
3.	Hio Nam Io and Chang Boon Lee(2017)	Understanding the Adoption of Chatbot	The objective was to comprehend the reception factors by directing an estimation examination dependent on clients' postings on social networking websites.	An understanding of the adoption factor is studied	For a positive response from the user, the developers and organizations have to work on how a Chatbot responds to the user. The developers must have to add a bit of humor in the response style so that it can attract the user's attention rather than losing the user's faith in the Chatbot. If a user asks a Chatbot about something the bot has to give a proper response. An improper response from Siri may humiliate or embarrass the user. There are advantages and disadvantages of having the voice highlight for Siri. Engineers should be careful when fusing the voice include when they structure their chatbots.
4	Christiane Volkle and Patrick Planing(2019)	Digital Automation of Customer Contact Processes – an Empirical	The objective was to understand that in the customer's	Ease of use, trust, perceived usefulness, behavioral intention	The application areas of chatbots were evaluated differently about their utility: customer service was evaluated with the help of personal problems, as well as about the issues of information search.



		Research on Customer Acceptance of different Chatbot Use-cases	perspective, chatbots are used most often for direct customer contacts.		
5	AsbjørnFølsta d, CecilieBertinussenNordheim and Cato Alexander Bjørkli (2018)	What Makes Users Trust a Chatbot for Customer Service? An Exploratory Interview Study	The objective was to identify the relevant factors for affecting users' trust in chatbots for customer service.	Users' trust in a Chatbot is studied	The findings of the study have been presented as a preliminary step towards a theoretical framework of belief in chatbots for customer service. Conclusions also suggest a different implication for Chatbots developers and designers.
6	Petter Bae Brandtzaeg and AsbjørnFølsta d(2017)	why people use chatbots	The objective was to identify what is the main purpose of using chatbots.	productivity, entertainment, social/relational and novelty/curiosity	The main conclusion relates to the recognition of significant satisfaction in earlier U&G literature: productivity, entertainment, social and relational purposes, and novelty. This study provides the necessary insights into motivational factors related to the use of conversational interfaces.
7	Xueming Luo(2002)	Uses and Gratifications Theory and E-Consumer Behaviors	The objective was to eliminate the lack of literature by adding well-utilization and satisfaction structure for online consumer behavior.	In formativeness Entertainment, irritating and attitude	First of all, electronic marketers should not only provide useful information to web users but rather to entertain them in cyberspace and move forward. This is because web entertainment value is the most important determinant of users' approach towards the web, which can be more consistent use of more satisfied users and the web. Second, e-marketers should avoid confusing or irritating surfers by such practices as too flashy and big-size graphics, messy presentation of the information, or even deceptive content on the Web.
8.	Margaret Meiling Luo, William remas(2014)	Uses & gratification and acceptance of web-based information services: An integrated model.	The objective was to identify the main motivation for the use of WIS and Developing an	Perceive usefulness, perceive ease of use, motivation, behavioral intention, and behavioral	This study provides new insight into major IT acceptance principles like TAM1 and TAM2, and seriously considering the principle of planning behavior that both internal and external purposes explain the use of WIS and the important role in increasing satisfaction after consumption



			integrated model which interprets and predicts WIS adoption	usage	Play. The purpose of recreation was an intrinsic motivation that influenced the use of behavior beyond the influence of behavioral intentions. The motive utility was an external stimulus and was considered easy to use in its antiseptic usage.
9.	Paul Legrisa, John Inghamb, Pierre Collettec(2003)	Why do people use information technology? A critical review of the technology acceptance model.	The objective was to provide an important analysis of research methods, To highlight convergence or deviation in the results and, To bring out the additional value of TAM in interpreting the use of the system.	Subjective norms, belief, attitude, behavioral intention, perceived usefulness, perceived ease of use	Tam has proved to be a useful theoretical model to help understand and explain the behavior of the user in IS implementation. It has been tested in much empirical research and the tools used with the model have proved to be quality and to get statistically reliable results.
10	Ismail Sahin(2007)	Detailed review of Rogers diffusion of innovations theory and educational technologyrelated studies based in roger's theory	The objective was to examine the adoption of technology in higher education and the educational environment	Studies four key components- innovation, communication channels, time, and social system.	Findings of the study the adoption of technology in education was very less. Broad adoption strategies should be kept in mind to adopt computer technologies for instructional purposes, incentives, training programs, and obstacles.
11	Arno scharl, Astriddickinger and Jamie Murphy(2005)	Diffusion and success factors of mobile marketing(2004)	The objective was to Check out the most successful form of mobile communication.	Consumer s attitude, perceive usefulness, perceive ease of use, consumer attention, consumer intention, consumer behavior, and	A content analysis of the fortune global 500 web sites investigated the adoption of mobile business models and technology by region and industry. The results suggest geographical and industry differences in the spread of mobile marketing. The results of qualitative and quantitative studies provide managers insight into current mobile marketing and mobile advertising.



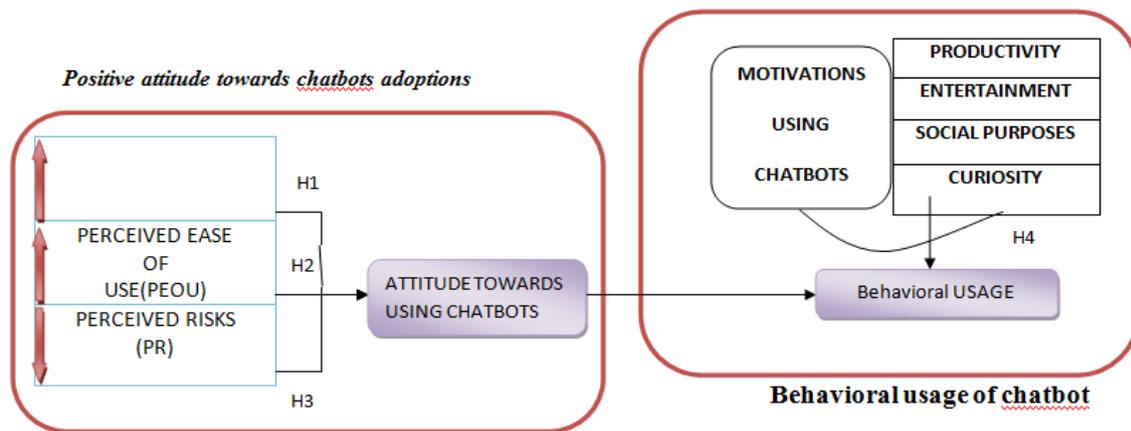
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12	Rizal Edy Halim, Filipus Christian(2013)	The Effect of Perception and Attitude Toward Consumer Complaint Behavior	The objective was to describe the approach of complaints against consumer beliefs and complaints against the behavior of their complaint.	Perception variables- attitude toward Complaining, perceived likelihood of a successful complaint, and the perceived value of complaint. Personal variable- factors of alienation, controllability and prior complaint experience	The findings of this study show that many different antigens such as isolation; The former complaint experience and control will be different from the complaint. Apart from this, attitudinal and perceptual factors play partial mediation for that relationship.
13	Rashid khan &Anik das(2018)	Introduction to chatbot	The objective was to introduce to the chatbot.	Introduction to a Chatbot is studied	This study explains that what are chatbots, the journey of a chatbot and a brief history of a chatbot, recent development in a chatbot, growth of chatbot and Chatbot user interface elements.
14	Saahil Goel (2017)	The future of conversational commerce and chatbots	The objective was to understand the future of conversational commerce and chatbots.	The future of conversational commerce and chatbot is studied	Conversational commerce and chatbots are not just altering the means of business communication but also providing new and modified means of analyzing consumer data to render personalized services. Though it is currently impossible to measure the magnitude of these intelligent technologies in the business, they are the most significant tools to stay ahead of the game.
15	MomchilHardalov, Ivan Koychev, and PreslavNakov(Towards Automated Customer Support	The objective was to study on automating customer support on	Towards automated customer support is	The finding was that Seq2Seq performed best concerning another model. The experiments of this study have shown that generative neural models outperform retrieval-based ones, but they struggle



	2018)		Twitter using two types of models: (i) retrieval-based (IR with BM25), and (ii) based on generative neural networks (seq2seq with attention and Transformer).	studied	when very few examples for a particular topic are present in the training data.
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4. CONCEPTUAL FRAMEWORK

Based on the reviewed literature and previous studies three concepts of the Technology Acceptance Model have been discussed: perceived usefulness, perceived ease of use and attitude. Moreover, in the Diffusion of Innovations Theory presented some determinants that play an active role pushing consumers to adopt a technology. That is, the author selected perceived risks as the main variable related to DOI theory. The UGT comprehensive nature helps to explain not only the domestic features of electronic media but also their business and work features (Luo & Remus, 2014).



TAM, UGT and DOI integrated models (Luo & Remus, 2014)

4.1 Perceive Usefulness- refers to a users’ subjective probability that using a specific system/technology will increase his or her job performance (van Eeuwen, 2017). It has been extensively verified in the existing literature that perceives usefulness certainly influences the customers’ attitude towards chatbot in a positive manner. (Zarouali, et al,2018 ; Volkle et al 2019, Luo and Remus, 2014; Legrisa, et al, 2003; Eeuwen, 2017).

Therefore, the first hypothesis is proposed:



H1- There is a positive relationship between perceived usefulness and the consumers' attitude towards chatbots. Therefore, a positive level of perceived usefulness leads to a positive attitude towards chatbots.

4.2 PerceiveEase of Use-is defined as the degree to which a person believes that using a system is free of physical and mental effort (van Eeuwen, 2017). It has been verified from exiting literature that perceive ease of use certainly influences the customers' attitude towards chatbot. (Eeuwen, 2017; Luo and Remus, 2014; Zarouali, et al, 2018; Volkle et al2019; Scharl, et al, 2005).

Therefore, the second hypothesis is proposed:

H2- There is a positive relationship between perceived ease of use and the consumers' attitude towards chatbots.

4.3 Perceived Risk- refers to "the consumers' level of uncertainty relating to a desired outcome". Different studies related to the adoption of a new online technology such as internet banking and mobile commerce considered also consumers' privacy concerns and the issues related to that (van Eeuwen, 2017). There is a negative relationship between perceived internet privacy risk and people willingness to provide information for internet-based transactions (Dinev& Hart, 2006).

Therefore, the third hypothesis is proposed:

H3- There is a negative relationship between perceived risks and the consumers' attitude towards chatbots.

In 2017 P. B. Brandtzaeg and A. Følstad identify the main motivations for chatbot use. In the following lines each motivation will be briefly described (Brandtzaeg&Følstad, 2017). Main motivations are:

4.3.1 Productivity- is the main motive for using chatbots. In connection to productivity the respondents highlighted factors such as ease of use, speed and convenience.

4.3.2 Entertainment- consumers perceive chatbots as fun and entertaining. These kinds of users are usually curios to explore chatbots and the limits or their abilities (Brandtzaeg&Følstad, 2017).

4.3.3 Socialand Relational Purposes- These people see chatbots as personal opportunity of interaction that constitutes a social value. For these people chatbots represent a way to avoid loneliness and fulfill a desire for socializing. (Brandtzaeg&Følstad2017). Curiosity is also a factor included in the UGT that represents a motivation for consumers to use a technology. In this case, they perceive chatbots as something new that they should try and learn before others (Rogers, 2003).

Therefore, the fourth hypothesis is proposed:

H4- Productivity represents the first and strongest motivation that push consumers to actually use chatbots compared to entertainment, social relations and curiosity.

5. CONCLUSION

This scoping review will contribute to a better understanding and a broader perspective on how consumer's attitudes affect the adoption of chatbot. Over the last few years topics such as artificial intelligence and the application of this technology have been discussed by the most important companies and entrepreneurs such Satya Nadella (CEO of Microsoft) and the Elon Musk. For this reason, the literature review aimed to discuss the main theories concerning the adoption of modern technologies focusing on chatbots. Chatbot possibly speaks to another worldview, individuals who will interface with information and administrations later on. This study



provides needed insight into the motivational factors related to the use of conversational interfaces. And the findings of this study can hopefully, be used as a benchmark for future studies in India and other developing countries.

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