

Using Virtual Assistants as Relationship Marketing Instruments

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Abstract

For some years have appeared countless applications and web pages that seek to create a conversation with an end user through an artificial intelligence that reacts by answering questions either by text or by voice, as an average person does. We are talking about the so-called Chatbots, which have been acquiring great importance due to their different and practical applications in the real world as is the case of the interaction between large companies and their customers. This article aims to present an overview of what Chatbots are with their applications and background.

Chatbots are tools that allow us to simulate a person talking to real people in real time, although it is not only characterized by responding with texts, it also does so with voice, and even with emojis, this facilitates that conversations remain as natural and organic as possible to offer a better experience to the user.

Key words: chatbots, artificial intelligence, technology, satisfaction, loyalty

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1. Introduction

The rise of the Internet has led to the birth of ecommerce, which now enables customers to buy almost everything online. Thanks to its numerous advantages for the consumer (time-saving, quick, easy etc.), e-business is exploding around the world.

Social media are also omnipresent in our daily life and the majority of brands quickly figured out that it was in their best interest to be active on these platforms. Social networks have become a channel where brands are able to build relationships with their consumers and get to know their target audience. This is why most of them increasingly seek to develop their digital marketing strategies (Gallaughier & Ransbotham, 2010).

Artificial Intelligence (AI) is to an increasing extent used by companies in the customer service department. It has become an actual tool in order to increase and enhance communication with their customers, especially since Mark Zuckerberg launched the Messenger Platform in April 2016. This platform, driven by AI, aims to create "chatbots" for companies, that is, robots that are able to communicate with clients in natural language. This means that customers are now able to reach businesses via messaging apps. During the conference announcing the start of the Messenger Platform, Marc Zuckerberg declared "We think that you should just be able to message a business in the same way you would message a friend".

Artificial intelligence (AI) studies the way to give a machine the ability to simulate intelligence, to learn without being reprogrammed, to know the things that people like, or even to recognize and decompose texts. Thanks to all this and the studies carried out on the brain by psychology, many advances have been made in the technological field. An example of this is the ability to communicate with machines previously programmed and designed with these techniques, so that the host does not know that the one who is answering him on the other side of the communication is a computer program. (Cortez 2009).

Chatbots are not a recent technology, but their implications for companies are being increasingly investigated and discussed, especially since more and more companies have decided to implement a chatbot for their various theoretical advantages such as better customer experience, constant availability, cost savings etc.

2. Theoretical background

A chatbot can be defined as "a computer program aimed at simulating the conversation of a human being" (Atwell & Shawar, 2002). The term is a contraction of the words "chat" and "robot" and other names used to refer to such a device include bot, chatterbot, conversational agent, dialogue system, virtual agent, etc. Its purpose is to mimic a discussion between two interlocutors when, in fact, one of them is a human being and the other one is a machine. Chatbots are an instance of HCI (Human Computer Interaction), which is also used to refer to an interdisciplinary field that studies how human beings communicate with machines and how these machines need to be designed in order to provide the best possible user experience (Kim, 2015). Well-known examples of HCI are voice-based conversational agents such as Siri, Alexa and Google Home. In their book on Speech and Language Processing (2018), Jurafsky and Martin call them "task- oriented dialog agents" which means that they are dialog systems designed to accomplish specific tasks (like setting an alarm clock, findings hotels, leading the way etc.).

Since the beginning of computing in the 60s, we have wanted to improve the user experience in front of machines, to be able to have a human computer interaction as natural as possible. We have seen how the aesthetic part of the devices has evolved and visionaries of the industry like Steve Jobs changed the way in which we feel and see technology making many skeptics interested in discovering the potential and support of it to their way of living and working.

In business environments also the concern of how to improve contact with customers, how to achieve a fast, timely and quality service made the service channels expand, that the concept of "callcenter" or experience centers was formalized so that the client felt at all times that he is heard and that his positive or negative comments are taken into account to improve.

The first chatbot ever created was designed in 1966 with the aim of simulating an interview with a psychiatrist. It was given the name ELIZA and its creator, Joseph Weizenbaum, was a psychiatrist himself. He developed this dialog system to fool his patients into believing they were talking to a real person. Regarding the evolution of chatbot systems, Atwell and Shawar (2007) argue that enhancements in technology with regard to machine learning methods, language processing and corpora accessibility enabled chatbots to become more operational over time. Chatbots have evolved so much since ELIZA that they can now have "increasingly engaging and human conversations" (Business Insider. 2020). with users.

A.L.I.C.E for example, won the *Loebnerprize* 3 times; in 2000, 2001 and 2004. Every year, this prize rewards the most realistic chatbot and the contest is based on the *Turing test*, also called "The Imitation Game", an evaluation introduced by Alan Turing, a computer scientist (Cheramy, 2019). This test requires a jury, a chatbot and an interlocutor. The jury simply need to ask questions on a computer and lead a conversation while not knowing who or what is answering them (the interlocutor or the chatbot). If they cannot guess that the machine is answering them instead of the interlocutor, it means the chatbot passed the Turing test. Likewise, the best chatbot is elected if the jury are fooled into thinking that they are talking to a human being or if it is seen as the closest to human behaviour. From 2016 onwards, one chatbot has taken the lead and wins the award every year: Mitsuku. It is now reckoned as one of the best, most humanlike chatbot online (Park et al., 2018). This competition nevertheless turned out to be controversial and has been widely criticised because many AI researchers believe that AI does not need to pass the Turing test to prove that it is efficient (Hayes & Ford, 1995). Some of these researchers, among whom Marvin Minsky, often nicknamed as "the father of artificial intelligence", think of the Turing test as a joke and a publicity ploy.

With respect to their practical purpose, chatbots have been used to various ends since their invention. Some of them have simply been designed for pure entertainment like A.L.I.C.E, a chatbot created by Robert Wallace in 1995. Such chatbots have been created to amuse users (Atwell & Shawar, 2007).

How does it work?

In general, chatbots have comparable features and infrastructures (Hundertmark & Zumstein, 2017). First, every chatbot needs a platform on which it can operate. There are a number of different platforms where users can converse with a chatbot; a website, an app, Skype, WhatsApp, Messenger. Because mobile messaging apps are constantly gaining popularity, most companies choose to offer

their services through this channel (Van Eeuwen, 2017).

Renier (2017) asserts that the popularity of apps is determined by the country users live in. Thus, naming Europe as an example, users from Germany, the UK, the Netherlands and Italy are more likely to use WhatsApp, whereas in other West-European countries like Belgium, France and Luxembourg, Messenger appears to be the most widely used messaging app.

Once the user has chosen the interface, he/she can make a request to the software. The software then receives an input in natural language and processes the request using NLP (Natural Language Processing). After that, the bot initiates an action and has to search through its database, a kind of memory where all the information is stored, in order to generate the output. The chatbot can also suggest a follow-up with a human representative when necessary.

It is important to know that there are different kinds of chatbots and that they can run differently depending on the extent to which they are powered by artificial intelligence.

First, rule-based chatbots (also called scripted chatbots) are dictated by pre-defined rules, which means that specific keywords are associated with rules and when the user's request contains particular keywords, it will activate a given rule that generates the output. This is the most basic form a chatbot can take and it is very limited because it does not really understand the request; it simply consists of "keyword matching" (Atwell & Shawar, 2007), and is therefore deprived of any form of AI. Scripted chatbots are inflexible since they are unable to answer a question with a keyword that has not been included into the script. In order to clearly understand what the user wants, the system classifies information; it selects a few keywords from the request and sorts them into distinct categories.

In order to have a more dynamic response, another type of chatbot is singled out: the similarity-based chatbot, which selects in its semantic database all the potential responses to the user's request and chooses the best one as the output. When the answer to the request is found, the software translates it back into natural language and conveys it to the user via the interface chosen beforehand.

AI chatbots represent a further category of chatbots that are powered by Artificial Intelligence. Such bots are able to process natural language and extract a formal representation of the input or start from such a representation to generate natural language, with the aim of communicating efficiently and holding an entire and consistent conversation, just like human beings would do. Some of them are even capable of learning from previous interactions to improve their performance using *machine learning*. Machine learning is a technology that makes it possible for the machine to learn rules from data and to generate outputs based on previously encountered similar data.

Chatbots as a business tool

Chatbots in the business context can be used for internal (intended for employees) or external purposes (intended for customers). Since the focus of this dissertation is on the use of chatbots as a way of communication with customers, attention will be drawn to this type of chatbots only.

Thanks to the rise of social media and messaging apps, companies have become conscious that developing automated dialog systems on these platforms in order to directly communicate with their customers could be a great asset to them. The potential benefits (yet to be demonstrated) seem very interesting at first sight: constant availability, reduction of staff costs, a better and personalised customer experience etc.

Most business chatbots do not rely on artificial intelligence and simply offer multiple options from which the customer has to choose. The purpose is to avoid any misunderstanding and fulfil the expectations of the customer as fast as possible (Renier, 2017). Companies often try to narrow down the request into specific categories of questions in order to lead the conversation, making the chatbot not really "intelligent" as such.

Forecasts regarding business chatbots in other countries are very optimistic; according to a survey by Oracle (2016), 80% of decision-makers in France, the Netherlands, South Africa and the UK intend to build or have already built chatbots for their business by 2020. The participants in the study were equally working in three different industries: manufacturing and high-technology, online retail and telecommunications. These industries are part of what Cui et al. (2017) call "consumer-driven industries" and are considered as the most promising sectors for chatbots in customer service. The industry of banking and insurance is equally believed to be a booming sector regarding chatbot adoption. A research conducted by Juniper (2019) portends operational cost savings in the banking industry to get to \$7.3 billion by 2023.

Chatbot user experience

Chatbot user experience refers to users' general experience when using automated dialog systems. Users might feel reluctant to use chatbots or they could, on the other hand, be open-minded and even become emotionally involved with them. This issue of emotional bonds between human beings and machines is a recurrent theme in robot ethics and evidence has been given that users are able to build a relationship with a robot and consider it as a friend (Rosenthal-von der Putten et al., 2011). Rosenthal-von der Putten et al. (2013) also demonstrated that human beings can generate emotional reactions and feelings such as empathy and friendliness towards robots.

Brandtzaeg and Folstad (2017) explored the motivational factors that drive people to make use of chatbots. They can be divided into four categories: productivity, entertainment, social purposes and novelty. The majority of participants (68%) in their survey note that productivity is the main reason why they use chatbots: fast answers, availability and ease of the task are essential. *Entertainment value* was ranked second (20%) because chatbots are considered to be "fun" and amusing. The third reason, *social purposes*, was given by 12% of the participants, who use chatbots in order to talk to "someone" when they feel lonely. The last factor is *novelty*: chatbots are relatively new to people, which is why some of the users (10%) try them out of curiosity.

A study led in 2019 (Nomura et al.) suggests that people struggling with social anxiety feel less anxious in interaction with robots than with humans. Telephobia, the fear of making or taking phone calls is also a common source of anxiety for some people. In her article on telephobia, Renuka Rayasam (2016) explains how new technologies that do not involve oral communication have helped people who are anxious on the phone to conceal their fear and to find an alternative way of communication.

Since it is believed that chatbots have witnessed a kind of "renaissance" in the past few years, one could wonder how well-known chatbots are nowadays and if they are used regularly. Many studies have been carried out in different countries about the quantity of users and frequency of use, and the results vary depending on the countries they live in.

Factors influencing user experience and attitude

Companies sometimes decide to create a whole *personality* for their chatbot in order to improve customer experience. De Meyer (2019) argues that companies are increasingly conscious of the added value of a chatbot personality as it makes the conversation much more personal and pleasant for the customer. She identifies different aspects that are part of the chatbot personality such as the *name, avatar, gender, sense of humour* and *tone of voice*.

First, the *name* of a chatbot is the showcase of the company; this is why it should be carefully chosen. Companies may decide to adopt a very simple and basic name that goes straight to the point or a name that is a bit more playful and catchy. It makes even more sense when the chatbot name directly reflects its purpose. "Woebot", for instance, is a therapy robot designed to help users deal with depression and anxiety.

Regarding the use of an *avatar*, Takeuchi and Nagao (1993) demonstrated that people are more open to a conversation with a computing machine if it has a facial display. But what should this facial display look like? Dowling (2000) claims that avatars have an influence on consumers' behaviour and attitude towards the chatbot. Their expectations vary according to the degree of visual reality of the avatar: people are more likely to have high expectations if the avatar is humanlike rather than if it is cartoon-like.

Personality involves character traits too, among which sense of humour. Companies can opt for a funny chatbot if they want to add an entertaining dimension to user experience. Humour is for Pilato et al. (2008) one of the most complex aspects of human personality.

Satisfaction

Giese and Cote (2000) point out that, according to the analysis of the literature and empirical validations, there are three essential components of consumer satisfaction: a rapid emotional response, which varies in intensity, focused on product choice, purchase and consumption. In this context, satisfaction is limited to an affective response that reflects it as a holistic evaluative result, this being the meaning in which it is perceived in this paper. This difference does not exclude the importance of knowledge in determining satisfaction. However, knowledge is the basis for the

formation of satisfaction, inducing it, without overlapping it. According to the results of the field data and supported by the existing literature in the field, these components are applied in various situations and on various users.

Phillip Kotler and Gary Armstrong (2008) consider that there is a link between the value perceived by the consumer and his satisfaction, "customers seek maximum value. They form certain expectations about value and act on them. They will buy from the company they think offers the most value to the customer, defined as the difference between the total value for the customer and the total cost for the customer". At the same time, customers have significant power over the company by showing loyalty, "perceive more real differences between products and show less brand loyalty."

Both customer satisfaction and loyalty are related to consumer behavior, an important area of analysis of Marketing. Consumer behavior is the study of ways in which people, groups, or organizations buy or use goods, services, ideas, or experiences to meet their needs and desires. Consumer research helps to continuously improve products and services, as well as to establish pricing policy and develop marketing campaigns (Kotler, 2006).

H1. User satisfaction with virtual assistants has a positive impact on overall customer satisfaction with the organization.

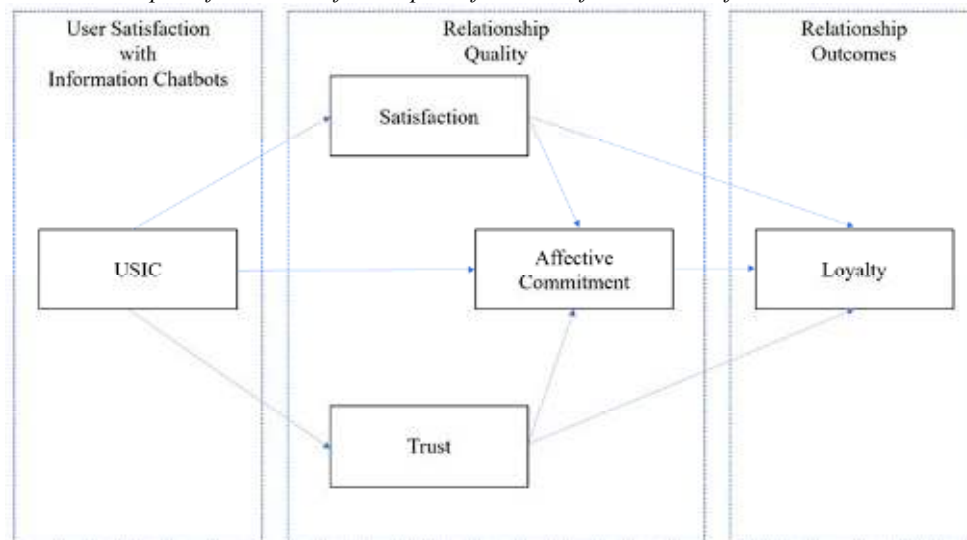
Customer loyalty

H2. User satisfaction with virtual assistants has a positive impact on the general trust of customers in the organization.

H3. User satisfaction with virtual assistants has a positive impact on the affective commitment to the organization.

Figure 1 depicts our conceptual model, including the links between user satisfaction with information chatbots and focal relationship quality components (customer satisfaction, trust and affective commitment) and outcomes (customer loyalty).

Figure no. 1 Conceptual framework of the impact of user satisfaction with information chatbots



Source: Author's contribution

3. Research methodology

Considering our conceptualization of user satisfaction with information chatbots (USIC) as a perceptual construct, the most appropriate research method is a survey. The research is based on theoretical benchmarks to ensure the conceptual clarification of the terms satisfaction, loyalty, trust, attachment and to analyze the research conducted so far in this direction. This is an epistemological approach for a deep understanding of the topic.

The questionnaire, as the main working tool, was adapted to the investigated population and uses simple and unambiguous terms, terms that are easy to understand and do not require further explanation. Questions are short, generally no more than 20 words. The structure is formalized and includes a first introductory sentence regarding the purpose of the research. This allows the subjects to start expressing themselves easily, without difficulty. For all items in our questionnaire, we used seven-point Likert-type scales ranging from 1 ('completely disagree') to 7 ('completely agree').

4. Findings

We relied on covariance-based structural equation modelling, which can provide unbiased estimates of direct and indirect effects between latent variables.

Table no. 1 Structural equation modelling results

Hypothesis	Paths	β	<i>t</i> value
1	User satisfaction with information chatbots $\rightarrow$ satisfaction	0.589	38.706
2	User satisfaction with information chatbots $\rightarrow$ trust	0.413	17.059
3	User satisfaction with information chatbots $\rightarrow$ affective commitment	0.062	1.861

Source: Author's contribution

We tested all hypotheses by examining the significance of the respective path coefficients. Direct positive effects of user satisfaction with information chatbots on customer satisfaction, trust and affective commitment emerge.

User satisfaction with information chatbots has the greatest impact on customer satisfaction ($\beta = 0.589$) and trust ($\beta = 0.413$). The impact of user satisfaction with information chatbots on affective commitment, though significant at the 0.1 level, is very low ($\beta = 0.062$). User satisfaction with information chatbots strengthens the level of customer satisfaction throughout the organization and has a positive impact on trust.

5. Conclusions

Our empirical study confirms our hypothesized relationships. We thus add to the understanding of user satisfaction with information chatbots and its impact on customer loyalty, which is fully mediated by relationship quality.

User satisfaction with information chatbots may not guarantee loyal customers, but they help improve relationship quality, which then increases customer loyalty.

It should be noted that the area of customer service within an organization is essential to generate trust to customers since good service can be an important factor such as keeping a customer or losing it. However, several companies are still unaware that there are computer tools that can help them optimize these services more easily than you think. The digital world is increasingly a means of customer service, thanks to the ease of access to electronic devices, so companies need to adapt to make efficient use of electronic channels to ensure empathetic, effective, efficient experiences that adapt to each client.

Seeking to have a better user experience, companies invest in developments aimed at ensuring that each Chatbot has the capacity for understanding and intelligence; for this, it is necessary to have professionals who are able to incorporate elements of Artificial Intelligence as support.

Chatbots turn out to be very useful when it comes to business as for any need where it is reflected in the customer service part. They mark a beginning to be able to reach a natural language between a machine and the human being with the help of all the algorithms that were used in their development and that today the most advanced robots have it. Chatbots are more complex than they seem because of their ability to store new questions and associate answers.

These conversation agents act as customer service representatives, giving answers in natural language and offering more focused information for conversation with a user. The Chatbot is required to have the same tone, sensitivity, and behavior as a human service agent, but it is also required to process information faster than a human.

One question arises: can chatbots be the future of communication? In 2013, Salomonson et al. believed they should only be considered as alternative tools and were not ready to replace human workers yet due to their numerous limitations. Nevertheless, they claimed that with the continuous improvements of communication technology, the advantages of chatbots were likely to surpass the disadvantages and would lead to a gradual replacement of human workers. For other experts, chatbots should be considered as complementary tools to human customer service (Zumstein & Hundertmark, 2017) and should not aim to perfectly mimic the language of a human being but to make life easier for the users (Abu Shawar & Atwell, 2007).

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