



ISSN: 2230-9926

Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research
Vol. 10, Issue, 06, pp. 36978-36980, June, 2020
<https://doi.org/10.37118/ijdr.19167.06.2020>



RESEARCH ARTICLE

OPEN ACCESS

USE OF CHATBOT ON MOBILE DEVICES

¹Edson Rui Seiffert Santos, ¹Bruno Pereira Gonçalves, ¹Jean Mark Lobo de Oliveira, ¹Manfrine Silva Santos and ^{*2}David Barbosa de Alencar

¹Academic Department, University Center FAMETRO, Amazon-Brazil

²Institute of Technology and Education Galileo of Amazon (ITEGAM), Brazil

ARTICLE INFO

Article History:

Received 17th March, 2020
Received in revised form
19th April, 2020
Accepted 20th May, 2020
Published online 29th June, 2020

Key Words:

Chatbot, Mobile devices.

*Corresponding author:

David Barbosa de Alencar,

ABSTRACT

This article shows the beginning of the creation of chatbots for mobile devices and their evolution on this platform over time, it was discussed what a chatbot is and its purpose, types of chatbot and how they act according to the concepts of artificial intelligence and machine learning. A questionnaire was prepared for the general public, where it was observed that the focus of use of this tool occurs on mobile devices, with the main areas of chatbot integration, electronic commerce and call center service. It was found that in most situations the chatbot proved to be an efficient tool for the user in solving a problem, searching for information, etc. The trend is that the use of this feature will gradually grow on mobile platforms and that it will be further incorporated into the business environment.

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Citation: Edson Rui Seiffert Santos, Bruno Pereira Gonçalves, Jean Mark Lobo de Oliveira, Manfrine Silva Santos and David Barbosa de Alencar. "Use of chatbot on mobile devices", *International Journal of Development Research*, 10, (06), 36978-36980.

INTRODUCTION

Through computational advancement, each software is robust, using artificial intelligence as a means of interacting with the user. This software seeks to simulate a real conversation as occurs between human beings, but in this case between a robot and a person, aiming to facilitate the performance of routine tasks. This technology is called chatbot. Widely used as a tool on mobile devices, this technology presents some examples: Siri, Bixby, Google Now. Siri, the virtual assistant created for Apple devices in 2010, which started the development of this tool for mobile devices. In 2012, Google Now was created, developed for both Android and IOS platforms. It consists of a voice search feature that made it possible to perform the requested actions, was able to estimate the needs of users according to their navigation practice. The most recent virtual assistant is Bixby, successor to S Voice technology that was present in previous versions of smartphones, was developed by Samsung in 2017. In addition to being able to be used on the user's own device, it is capable of integrating with other products from Samsung, such as refrigerators and TVs, allowing the operation and control of all devices through voice command.

The chatbot is a tool that allows you to assimilate the input data, and through machine learning and programming, it generates a response for the user. Through this it is possible to automate different processes by placing this type of software on different devices. This technology is widely used on mobile devices, as it allows the user to establish a better interaction with the device.

BIBLIOGRAPHIC REFERENCE

Chatbots: Chatbots are a new way of interacting with a user in a more humane way, through conversation. This is very different from existing methods, which provides minimal interaction and personalization (Williams, 2018). They are software capable of simulating a conversation with a person, through artificial intelligence it is able to assimilate what is spoken or written, performs processing of natural human language, and according to its knowledge bank it generates a response to the user. This type of software is being integrated into smartphones. With this, the interaction between the human being and the machine is increasing, as there is an ease between the communication of both.

Rules-Based Chabots: According to Bortoleto (2020) it is a system of questions and answers previously constructed: when the user uses a certain keyword, the corresponding answer is sent to him. Because it is dependent on keywords it becomes a limited model, making the conversation with the user more restricted, or does not generate the expected result. In order to be able to serve efficiently, it must be programmed to deal with all kinds of possible variations. This type of chatbot is generally used to automate more frequent services that do not require a high degree of complexity for their implementation.

Chabots Based on Artificial Intelligence: Through technological advances, chatbots have started to have artificial intelligence, so it is possible that the software is able to interpret the most diverse situations, expressions, contexts and intentions during the user's communication. The robot is able to learn from conversations, in a simulation very close to human capacity and interaction (Bortoleto, 2020). Natural language processing (PLN) is a feature that allows the chatbot to detect users' language variations, being able to filter keywords, ignoring typos. After extracting all the information from the message, a more appropriate response is generated.

Machine Learning: The chatbot uses the machine learning resource, which according to Raschka and Mirjalili (2017) is a subfield of artificial intelligence that involves self-learning algorithms that derive knowledge from the data to make predictions. Rather than requiring humans to derive rules manually and build models from analyzing large amounts of data, machine learning offers a more efficient alternative to assimilate knowledge into data to gradually improve the performance of predictive models and make decisions about data movement.

Artificial Intelligence: According to Rich and Knight (1994) IA is the study of how to make computers perform tasks that, until now, men have done better. This concept is linked to the chatbot, because the purpose of this software is to carry out decision-making actions efficiently, without human interference or with as little as possible. With the use of AI the chatbot can improve its behavior through information collected on the internet or the user's browsing history, for example. An example of its application in the chatbot would be the hotel reservation, which will be carried out an analysis to compare the difference in prices on several sites simultaneously.

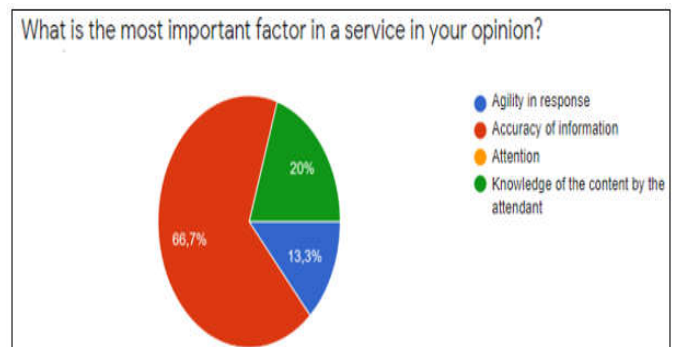
MATERIALS AND METHODS

To formulate the knowledge and develop the research, bibliographic and descriptive researches were carried out, having as support material news on websites and books that addressed the following themes: chatbots, chatbots based on rules, chatbot based on artificial intelligence, machine learning and artificial intelligence. About the chatbot it was researched about its purpose, explaining the difference between chatbot based on rules and based on artificial intelligence, being related the concepts of machine learning and artificial intelligence and its importance in chatbot. A quantitative survey was carried out using the Google Forms platform, which is a free online platform for creating forms. A form was created containing 5 multiple choice questions targeting the general public. The questions were directed to the following topics: platforms that the chatbot was used in order to achieve a result of which the chatbot platform (smartphone, computer,

virtual personal assistant) is most used by users. Chatbot effectiveness, checking according to users if the chatbot is a useful tool. The context in which this tool was used, with the objective of verifying in what type of activity (educational, online shopping, call center service, domestic use in integrated devices) the chatbot is most used. Important factors in a service, seeking to understand among the criteria (agility in response, accuracy of information, attention by the attendant, knowledge of the content) which would be the most important for users in a service. Recognition of a service performed by chatbot, which aims to understand the degree of difficulty that the chatbot can be identified.

RESULTS AND DISCUSSION

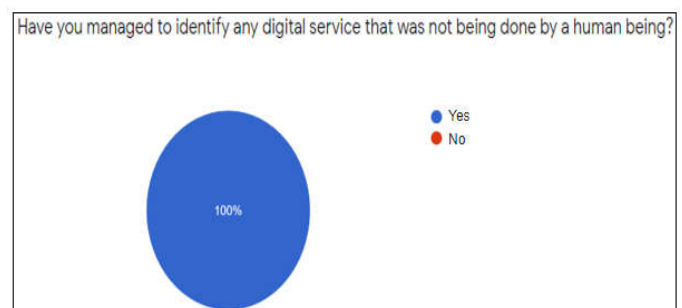
The objective of the research was to develop a questionnaire containing 5 multiple choice questions, being applied to the general public. The questions were directed to the themes of important aspects in service, identification of digital services performed by chatbots, platforms for using chatbot, efficiency of chatbot and context of use, obtaining the following results.



Source: Author (2020)

Graphic 1. Important Services

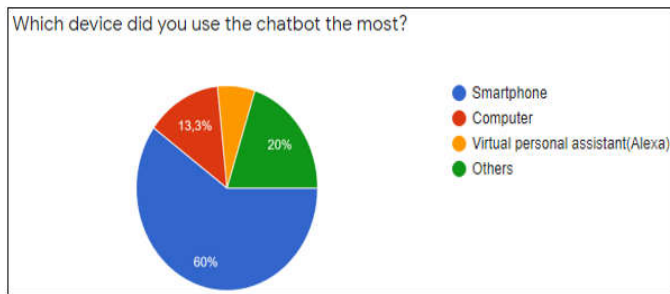
According to Graph 1, it was found that 66.7% of participants value the accuracy of the answer, 20% answered that knowledge of the content is the main factor in service and 13.3% prefer agility in the response. All these aspects are characteristics of a chatbot, therefore, it was found that the main aspect that should be considered in the development of a chatbot would be the accuracy of the response to the user.



Source: Author (2020).

Graphic 2. Attendant identification

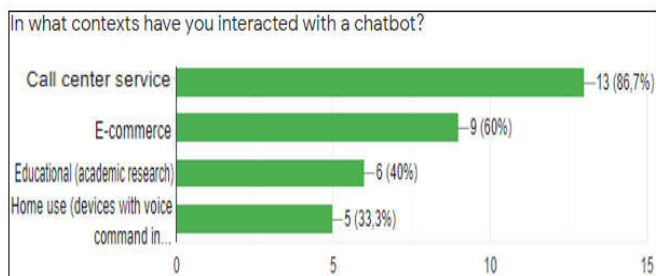
It was found in Graph 2 that all people who have used any digital service (customer service, research, etc.) were able to identify that they were interacting with a robot. There is an increase in the use of the chatbot tool by several companies to facilitate their services.



Source: Author (2020)

Graphic 3. More use of chatbot service

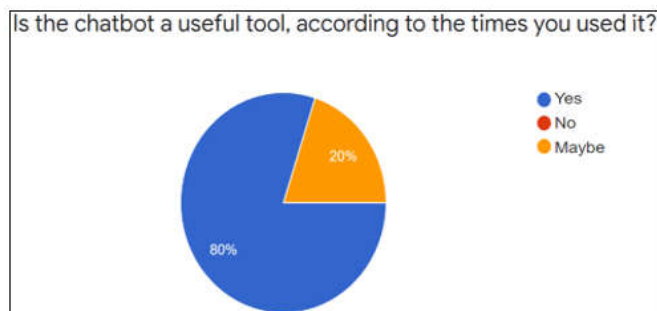
In relation to Graph 3, 60% of participants use chatbot more frequently on smartphones, this tool is used on the computer by 13.3% of participants, 6.7% use it on virtual personal assistants (Alexa). It is observed that the highest percentage of use was on mobile devices, due to the ease of access and due to many people spending more time using the smartphone than any other device..



Source: Author (2020)

Graphic 4. Chatbot interaction context

According to graph 4, a large part of the interaction with chatbot takes place in the branches of call center and electronic commerce, it is observed that many companies are investing in the automation of their answering services to facilitate communication with the user. Then, the field of education and home use (devices with voice command integration) are new to using chatbot technology.



Source: Author (2020)

Graphic 5. Usage time

It can be seen in Graph 5, that 80% of the participants considered the chatbot to be an efficient tool, while 20% considered its efficiency doubtful. Therefore, the chatbot proves to be a very useful tool, even though several adjustments are still needed to increasingly improve the quality of interaction with the user.

Conclusion

According to the research and results of the graphics presented, it can be observed that the chatbot is a very present tool in the services of companies, due to its main characteristics: agility, accuracy of information, knowledge bank. All of this facilitates the user's interaction with the various platforms that the chatbot is used, having as the main one, the smartphone due to the great majority of people spending most of their time using this device. It was observed that the chatbot is easily identified, so an improvement in the quality of this tool is necessary, as the idea is that the chatbot simulates a conversation with a person in a natural way. When analyzing the branches that the chatbot is being implemented, it can be noted that a large part is due to electronic commerce and call center service, that is, companies are increasingly looking for automated ways to perform their services.

Acknowledgments: I thank God, for helping me to face all obstacles, giving strength and wisdom to carry out this work and the family members for the support during this stage.

REFERENCES

BORTOLETO, Renata. Planejamento e operação em mídias sociais. 1. Ed. São Paulo: Senac São Paulo, 2020.

CABRAL, Isabela. O que é chatbot? Entenda como funciona o robô que conversa com você. Disponível em: <https://www.techtudo.com.br/noticias/2018/03/o-que-e-chatbot-entenda-como-funciona-o-roboto-que-conversa-com-voce.ghtml>. Acesso em: 9 de maio de 2020.

RASCHKA, Sebastian; MIRJALILI, Vahid. Python Machine Learning: Machine Learning and Deep Learning with Python, scikit learning and TensorFlow. 2. Ed. Birmingham: Packt, 2017.

RICH, Elaine; KNIGHT, Kevin. Inteligência Artificial. 2. Ed. São Paulo: Makron Books, 1994.

SANTOS, Gabriel. Chatbot com inteligencia artificial: o que é e como funciona. Disponível em: <<https://take.net/blog/chatbots/chatbot-inteligencia-artificial>>. Acessoem: 9 de maio de 2020.

WILLIAMS, Sam. Hands-On Chatbot Development with Alexa Skills and Amazon Lex. 1. Ed. Birmingham: Packt, 2018.
