

## Conversational Robot for Practice Interviews in Creative Industries

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**Abstract**—Technology must help information professionals collect data and analyze it. For this reason, a robot called Chatcontext, programmed with Artificial Intelligence (AI), was developed in order to promote interview mastery among students in the creative industries. This technology responds to the need to develop the ability to prepare clear and relevant questions that address various types of sources. The information compiled must serve to generate journalistic texts and research reports of a qualitative nature. Students of journalism and qualitative research courses at Tecnológico de Monterrey, Mexico, worked during the February-June 2020 semester with Chatcontext. The results indicated an improvement in the ease of learning and the usability of the chatbot tool. In this sense, it was observed that the use of technology keeps university education up to date and facilitates the evaluation of qualitative factors.

**Keywords**- *Chatbot; Interview; Journalism; Research Methodology; Education Technology; Higher Education; Educational Innovation.*

### I. INTRODUCTION

It is common for students to be tasked with seeking information directly from a primary source in communication and journalism courses. They must conduct interviews with their informants to collect data that will allow them to write various articles and develop qualitative research. In this data collection process, they face different challenges because the interviewees do not always have the interest or willingness to provide the information.

Based on this need, a chatbot called *Chatcontext* was developed to help students practice their interview techniques for research and journalism courses. This robot aims to improve students' performance, reformulate their questions using Artificial Intelligence (AI), and provide a platform for several practices. As an educational tool, its principal objective is to help students improve their interviews using robots to practice beforehand.

The use of technological resources in communication and journalism courses allows students to work outside of the classroom and without their teacher's presence. Practicing with the robot can generate more commitment to mastering the technique than simply receiving instructions and recommendations from their teachers. This is especially relevant during the COVID-19 pandemic because autonomous practice is possible at any place and time.

The use of technology goes hand-in-hand with the development of digital culture and communication skills that allow a person to recognize the particular characteristics of real informants; this is imperative in the journalism field. Also, technological tools must be intuitive and easy to learn.

This paper presents the results of our study as follows. Section II provides a theoretical background. Section III gives a description of the methodology employed. Section IV presents the research results and Section V presents the conclusion of this work.

### II. THEORETICAL BACKGROUND

The technological competencies that students already have equip them to work using their cell phones and other tools, which, if combined with a chatbot developed for academic use, would allow them to improve communication and acquire ethical skills that are necessary post-graduation. These competencies, aligned with the institution's educative model, are necessary for the multimedia and multi-informed international society that awaits them.

Reen and Ramnarayan [1] conducted research at Manipal University, India, with medical students who were allowed to generate their learning products and add them to the work on social media. The authors concluded that this stance, coupled with technology, allowed the students greater autonomy, promoted critical thinking, and was conducive to immediate feedback from teachers and classmates.

Sutcliffe and Albeanu [2] mention that the journalist must also be able to create multimedia stories using mobile devices having relevant applications. These are useful to researchers, considering that much contact with informants is through face-to-face or virtual interviews, where creating empathy is vital to building trust and obtaining information.

The task involves practicing the technique, but it also requires considering ethics because respect for the person who becomes the source of information is indispensable.

### III. METHODOLOGY

#### A. Overview of the research difficulties

This study sought to measure the ease of learning and the usability of the chatbot using the Systems Usability Scale (EUS from its name in Spanish), created by Brooke in

1996 to measure this type of tool, and which was adapted in Mexico by Hedlefs Aguilar & Garza Villegas [3]. This scale measures ten aspects of using a robot developed with Artificial Intelligence on a Likert Scale. The robot was developed using the IBM-Watson system, and a hybrid application for mobile devices was generated using the system's resources. This application was available in ANDROID and iOS portals. The use of AI modules allowed structuring a conversation between the student and the bot as if it were a real conversation, mediated by technology, between two people, the interviewer and the interviewee.

**B. Procedure**

The EUS was applied at two different times using Qualtrics software [11] to 112 students from the *Journalism* and *Qualitative Research Methodologies* courses at Tecnológico de Monterrey on the Monterrey Campus (see Table I).

The students were previously informed about the privacy of their answers and the objectives of the research project.

Two measurements were carried out in April and May 2020. Both measurements permitted observing the usability of the chatbot and determining if it favored learning.

TABLE I. NUMBER OF STUDENTS WHO USED THE BOT

Class	Table I	
	1 <sup>st</sup> measurement	2 <sup>nd</sup> measurement
Journalism course	n=20	n=18
Research course	n=35	n=39

For the first measurement (see Table II), the bot was fed a series of basic questions. The students could interview four robots, two men and two women, about their opinions on the importance and implications of two different topics.

TABLE II. MEASUREMENT RESULTS OF USING THE CHATBOTS ON THE EUS SCALE

Topics	Table II			
	Bot 1	Bot 2	Bot 3	Bot 4
<b>1<sup>st</sup> measurement</b>				
Diversity at the Oscars	Film critic	Female film director		
Music streaming services			Audio graduate	Stay-at-home woman
<b>2<sup>nd</sup> measurement</b>				
Immigration	Priest	Female senator		
The wage gap between male soccer players and female soccer players			Soccer coach	Female soccer player

In the second measurement, another four robots were also programmed to answer what they thought would happen in the near future regarding the topic.

The selection of the topics was made based on currently relevant issues in Mexico. The choice of the robots' sex and professions in the exercises followed what was customarily associated with these topics. Doing this allowed verifying whether the students chose bots according to gender or by popular topics.

In both exercises, the students extracted information that they later used to carry out class activities. These were graded and weighted according to the academic objectives of each activity.

**C. Tools**

The *ChatContext* access screen to illustrate how students access the app is presented in Figure 1.

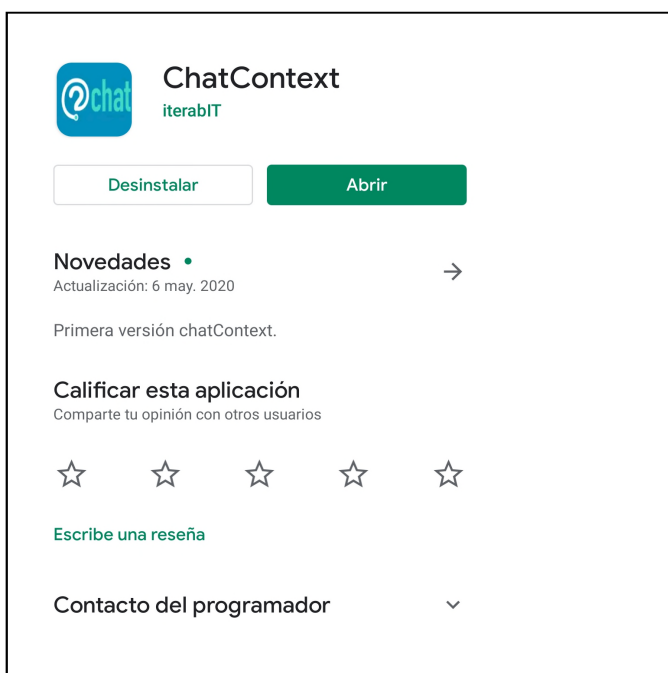


Figure 1. Android Play Store screen, where the students can access the bot.

**IV. RESULTS**

After applying the EUS, the students' means improved in the second interaction with the bot for both factors considered in this study (see Table III). This is observed for usability (means of items 1, 2, 3, 5, 6, 7, 8, and 9), denominated as Factor 1. Those that represent the ease of learning (items 4 and 10) are grouped under Factor 2. When analyzing the means with a T-test, it was determined that there was a significant difference ( $t = -2.7, p = .007$ ) for the means of Factor 1 as well as a significant difference for Factor 2 ( $t = -3.47, p = .001$ ). It is important to note that in the interview exercise that led to the first EUS measurement, each student was assigned a particular gender of bot for gender balance. However, in the second exercise

carried out a week later, the selection of both the topic and bot gender was free-choice on the students' part.

TABLE III. MEASUREMENT RESULTS OF THE USE OF CHATBOT ON THE EUS SCALE

Factor	Table III		
	Moment of measurement	n	Mean
1 (Usability)	1	55	3.1818
	2	57	3.6776
2 (Ease of learning)	1	55	3.2818
	2	57	3.8596

#### A. Discussion

The results showed that using a chatbot allows immediate feedback about oral communication skills in the interview because the bot contains prepared responses for reacting appropriately in different scenarios. Qualitatively, it can be seen that as the tool is used more frequently, the students' knowledge of the platform increases, and the results demonstrate this. The application of Artificial Intelligence aims to achieve independent learning and self-reflection, in line with the needs of professional life in the 21st century.

The practice of journalistic work inside the academic field allows students to develop their skills to prepare for a professional environment [4]. This is why important accreditors like the *Accrediting Council on Education in Journalism and Mass Communications* [5] establish as entry requirements to universities a balance between the classroom and industry.

Likewise, without renouncing the traditional values of the profession, journalism schools must "incorporate the resources and digital logic" to practice professional skills "with, in, on and through the Internet" [6] because "in some cases, students study journalism without the intention of entering the profession. Instead, they learn high-level information and communication skills to advance their liberal arts studies or to pursue a related profession" [7].

Universities are committing to offer new educational strategies and practices aligned with social changes and trends. Through mobile applications, it is possible to educate professionals on how to work with cutting-edge devices and software when requesting information, manipulating the data, and making it known to the public.

#### B. Final thoughts

The confinement caused by COVID-19 has greatly reduced student interaction; therefore, mobile technology has become crucial. It is important to adapt to social conditions and understand the resources that companies are using more and more as part of customer service or for interaction with employees. Therefore, updating educational

paradigms for future creators and information transmitters is vitally important.

The results show a significant improvement in the ease of learning and usability (according to the EUS) when performing a second interview exercise using Chatcontext. Artificial intelligence can impact the intrinsic learning of the tool and favor the development of more natural conversations, allowing the student to extract more information when doing class exercises.

#### V. CONCLUSION

The use of a robot to practice class activities is not just a call to adapt to socially-distanced education; it also takes advantage of the technological offerings in world markets that promote the digital literacy of students who are preparing to be future professionals.

As Mulrennan [8] points out, students in communication and journalism, when using social networks through mobile devices, can take a proactive role in acquiring their skills, develop more confidence when exploring new technologies, and apply them in various situations. This approach is based on a heutagogical stance that promotes autonomous and self-determined teaching by the students [9]. In this sense, the introduction of a chatbot in academic activities is relevant. It allows students to practice interviews at any time and place without limiting time or repetition of exercises. A greater amount of practice can promote mastery of the technique and the ability to overcome difficulties when faced with varying and challenging answers.

It is important to note that during 2019, Internet users in Mexico increased by 4.3 percentage points and numbered 80.6 million users, representing 70% of the population over six years old. On the other hand, households with fixed or mobile Internet represent only 56.4% of the population [10]. This is an indicator that the university needs to work with various types of technology and online resources for both the school community and society.

This exercise used a robot to extract information during practice interviews. The activity was limited to two different subjects. However, without a doubt, enriching the chatbot with more information and Artificial Intelligence will provide the opportunity for measurements and assessments in taxonomic areas, ease of use, skills development, and implementation in work areas beyond those contemplated in this research project. For example, the reported chatbot could interact with students and offer parameters that allow predicting student behavior based on the questions, their character, how the students ask the questions, and if their style corresponds to formal or informal attitudes. The possible uses of Artificial Intelligence are infinite, so it is relevant to carry out diverse research that impacts Social Sciences and Humanities, where remote learning offers high potential.

Given the results, it is worthwhile to continue exercising this Artificial Intelligence tool and see if the learning and

usability levels increase among students in the creative industries.

The data provided by the users facilitate analyses that reinforce the relevance of the tool and lead to understanding its benefits as an innovation in the classroom. Undoubtedly, these times of change in education require new ways to connect at a distance. Using robots can be considered as supports for literacy and comprehension in multiple areas. They offer the advantage of maintaining the students' attention as they engage them.

The use of this type of technology highlights the importance of updating education for future managers. The universities have to offer new educational strategies that encourage students to participate more while increasing their self-efficacy [6]. The future communicators are today's students; therefore, universities have to offer educational strategies relevant to future needs.

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#### REFERENCES

- [1] R. Reen and K. Ramnarayan, "Heutagogic approach to developing capable learners," *Medical Teacher*, vol. 39, no. 3, pp. 295-299, March 2017, <https://pubmed.ncbi.nlm.nih.gov/28019131/> doi: 10.1080/0142159X.2017.1270433
- [2] C. Sutcliffe and C. Albeanu, "12 essential self-taught journalism skills" September 2, 2016, Retrieved: August 2020, <https://www.journalism.co.uk/news/ten-essential-self-taught-journalism-skills/s2/a557267/>
- [3] M. I. Hedlefs Aguilar and A. A. Garza Villegas, "Comparative analyses of the Usability System Scale (EUS) in two versions" RECI Revista Iberoamericana de Las Ciencias Computacionales e Informática [Ibero-American Journal of Computational Sciences and Informatics], vol. 5, no. 10, pp. 44, Dec. 2016, <https://doi.org/10.23913/reci.v5i10.48>
- [4] M. Deuze, "On Media and Entrepreneurship as Ways of Being in the World: a Challenge to Journalism Education" In Robyn Goodman & Elaine Steyn (Ed.), *Educación Global de Periodismo en el siglo XXI: Retos & Innovaciones* [Global Journalism Education in the 21st Century: Challenges & Innovations], pp. 283-300, 2018.
- [5] AECJMC. *Accrediting Council on Education in Journalism and Mass Communications*, 2019.
- [6] L. Lugo-Ortiz, "The academia, the media, and the ideal professional: A generalist-multimedia journalist" *Communication and Society*, vol. 29, no. 4, pp. 271-286, 2016, <https://doi.org/10.15581/003.29.4.271-286>
- [7] J. Foote and F. Wao, "Global Journalism Education in the XXI Century. Challenges and Innovations" (R. S. Goodman & E. Steyn (eds.); pp. 286-307, 2018. Knight Center for Journalism in the Americas, School of Journalism. Retrieved: August 2020, <https://knightcenter.utexas.edu/books/Educacion-Global-de-Periodismo-May15-vd-cover.pdf>
- [8] D. Mulrennan, "Mobile social media and the news: heutagogy where enables journalism" *Journalism & Mass Communication Educator*, vol.73, no. 3, pp. 322-333, 2018.
- [9] S. Hase and C. Kenyon, "From andragogy to heutagogy," *Ultibase Articles*, vol 5, pp. 1-10, 2000.
- [10] Instituto Nacional de Estadística y Geografía [National Institute of Statistic and Geography], "En México hay 80.6 millones de usuarios de internet y 86.5 millones de usuarios de teléfonos celulares: ENDUTIH 2019" [In Mexico, there are 80.6 millions of internet users and 86.5 millions of mobile phone users] 2020. Retrieved: August 2020, [https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2020/OtrTemEcon/ENDUTIH\\_2019.pdf](https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2020/OtrTemEcon/ENDUTIH_2019.pdf)
- [11] Qualtrics. [Online] <https://www.qualtrics.com/>, Retrieved: August 2020,