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Abstract: This study investigates the implementation and evaluation of a university bot designed to improve communication and management of academic events in educational environments. With the rapid evolution of digital technology, bots have emerged as powerful tools with applications in various sectors such as e-commerce, education, and healthcare. In particular, the use of bots in customer service and event management has demonstrated significant benefits by handling frequent inquiries, providing real-time information and assisting with administrative tasks, freeing up human resources for more strategic functions. This project adopted a mixed methodological approach combining qualitative and quantitative methods to assess usability and user satisfaction with the bot. The Usability Scale System (SUS) and the User Experience Questionnaire (UEQ) were used as standard tools to collect data on user perception. The results highlighted a high acceptance of the bot, with an acceptance rate of 90%, indicating high user interest in using the application. This high acceptance underscores the bot's ability to effectively present the information users are looking for. The bot provides a list of academic events categorized by type, making it easy to find and manage information about grants, conferences, courses and other events. Its design focuses on a friendly and accessible interface that allows direct consultation without the need for conversational interaction. This project contributes to operational optimization in educational environments by providing a practical solution for the management of academic events and offers valuable insights on how to efficiently present information in similar applications. These findings are fundamental for future research and development in the creation of information systems in the educational environment.

Keywords: university bot; academic events; usability; user satisfaction; educational technology

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1. Introduction

The rapid evolution of digital technology has significantly transformed the way organizations communicate with their users. Among these innovations, automated applications have emerged as a powerful tool, offering functionalities that can improve the efficiency and accessibility of services. Automated applications, which use advanced technology to provide information and assistance, have found applications in a variety of sectors, from e-commerce to education and healthcare. [1,2].

The use of these applications in customer service and event management has proven to be particularly beneficial. These systems can handle frequent queries, provide real-time information and assist with administrative tasks, freeing up human resources for more complex functions. [3,4]. However, the success of an automated application is not only measured by its functionality, but also by the user experience (UX) and the satisfaction it provides. [5,6].

Usability is a critical component in the acceptance and effectiveness of automated applications. Nielsen [7] defines usability as a quality attribute that assesses the usability of user interfaces. In this context, this includes the system's ability to present information in a clear and accessible manner, the ease of navigation, and the user's overall satisfaction with the interaction. [8,9]. Recent studies have shown that automated applications with high levels of usability can significantly increase user satisfaction and intent for continued use. [10,11].achieve the ability of applications to provide fast and accurate responses. In addition, system customization and adaptability to individual user needs are identified as key factors influencing user satisfaction. [12,13].

User satisfaction, on the other hand, is closely linked to the perception of efficiency, effectiveness and pleasure in interacting with the application. [14,15]. A study by Almalki [1] highlights that users

value the ability of applications to provide fast and accurate responses. In addition, customization and adaptability of the system to individual user needs are identified as key factors influencing user satisfaction.

The evaluation of usability and user satisfaction in automated applications can be performed through various metrics and methodologies. Among them, the Usability Scale System (SUS) is a widely used tool that allows to evaluate the perceived usability through a standardized questionnaire. [8]. Other tools such as the Usability Questionnaire for Automated Applications (CUAA) and the User Experience Questionnaire (UEQ) also provide valuable insights into user perception. [16].

This paper explores the implementation and evaluation of an information application designed to improve communication and event management in a university environment. Through a methodological approach that includes usability and user satisfaction evaluation, it aims to provide a comprehensive understanding of how these systems can optimize operations and improve the user experience in educational contexts.

2. Methodology

The research is of an applied nature, aiming to solve specific problems related to usability and user satisfaction in the use of automated applications that provide extracurricular information such as scholarships, congresses, contests, etc., in university environments [12,13].

The study employs a mixed-methods approach (qualitative and quantitative) to gain a comprehensive understanding of user usability and satisfaction with the application, making it the unit of study [5,6]. Our target population includes all students enrolled at the university during the evaluation period of the application, in the period 2024-1. The main objective is to measure the usability and user satisfaction with the academic events application [1].

Additionally, a representative sample of 800 students from the target population will be used, selected through stratified random sampling to ensure diversity in terms of majors and years of study, emphasizing diversification in the biomedical, engineering, and social fields. To achieve this sample size, the bootstrap technique was employed to simulate a larger sample from the original 33 data collected.

This approach was particularly useful given our initial small sample size, and it allowed us to derive more robust statistical inferences. The use of bootstrap enabled us to enhance the representativeness and reliability of our sample, thus facilitating a more comprehensive and reliable analysis of user satisfaction with the academic events bot application.

2.1. Instruments/Techniques

2.1.1. Instruments/Techniques

To ensure the validity and reliability of the results, standardized tools such as the Usability Scale System (SUS) will be used. [8] and the User Experience Questionnaire (UEQ) [17]. These software engineering metrics measurement tools have proven to be effective in multiple previous studies. [18,19].

The SUS consists of 10 items with responses on a 5-point Likert scale, ranging from "Strongly disagree" to "Strongly agree". Scores are calculated using the following formula:

$$\text{SUS Score} = 2.5 \times \left(\sum_{i=1}^{5}(Q_{2i-1} - 1) + \sum_{i=1}^{5}(5 - Q_{2i}) \right) \tag{1}$$

Where Q_{2i-1} are the odd numbered items and Q_{2i} are the even numbered items. The total SUS score ranges between 0 y 100.

The UEQ measures user experience through 26 items divided into six scales: Attractiveness, Perspicuousness, Efficiency, Dependability, Stimulation and Novelty. The items are also answered on a

7-point Likert scale, ranging from -3 (very negative) to +3 (very positive). The scores for each scale are calculated as the mean of the corresponding items.

Table 1. Description of the scales of the User Experience Questionnaire (UEQ).

Scale	Items	Score Range	Interpretation
Attractive	6 items	-3 a +3	Overall evaluation
Insight	4 items	-3 a +3	Clarity and understanding
Efficiency	4 items	-3 a +3	Speed and organization
Dependability	4 items	-3 a +3	Control and predictability
Stimulation	4 items	-3 a +3	Motivation and interest
New at	4 items	-3 a +3	Innovation and creativity

In addition, data privacy policies will be implemented to protect participants' personal information, ensuring that all data collected is handled confidentially and securely. According to Følstad, Nordheim and Bjørkli [20], it is crucial to ensure user confidence in data management in interactions with automated systems. To this end, data will be anonymized and stored on secure servers with access restricted to the research team only. Participants will also be informed of their rights and their informed consent will be sought prior to data collection.

2.2. Descriptive Table of Variables

Descriptive tables summarizing the key variables of the study will be presented.

Table 2. Description of questionnaire responses on interest in academic events and use of a bot.

DESCRIPTIVE TABLE	Variables	N° Resp.	Statistics
What type of events academics you are interested in receive information?	Scholarships	12	Mean: 8
	Congresses	7	D.E: 3.37
	Courses	9	Min: 4
	Others	4	Max: 12
Would you be interested in use a bot to inform you automatically on academic events?	Si	28	Mean: 10.6
	No	1	D.E: 15.04
	Not sure	3	Min: 1
			Max: 28
How often do you think that you would use a this guy?	Several times a week	11	Mean: 8
	Occasionally	9	D.E: 2.45
	Once a week	6	Min: 6
	Daily	6	Max: 11
How would you like to receive updates on academic events?	Push notifications in the application	25	Mean: 10.6
	E-mail address	6	D.E: 12.66
	SMS text messages	1	Min: 1
			Max: 25

3. Results and Discussion

3.1. Predictive Model Results

The logistic regression model was trained to predict students' interest in using an information bot about academic events. The table below shows the coefficients of the bootstrapped model using 800 observations simulated from the original 33 observations [21]:

Table 3. Coefficients of the bootstrap fitted logistic regression model [22].

Variable	Estimate	Std. Error	z value	Pr(> |z|)
(Intercept)	5.9502	0.6035	9.860	6.2236e-23
Events_Interest	0.7188	0.1270	5.661	1.5010e-08
Frequency_Use	-1.4915	0.1751	-8.517	1.6333e-17
Preference_Notif	-0.7019	0.2314	-3.033	2.4230e-03

The confusion matrix and model performance metrics are presented below. [23]:

Table 4. Confusion matrix of the predictive model.

		Prediction	
		No	Sí
Reality	No	19	0
	Sí	71	710

Accuracy (Accuracy): $\frac{19+710}{19+0+71+710} \approx 91.125\%$
Sensitivity (Recall): $\frac{710}{71+710} \approx 90.91\%$
Specificity: $\frac{19}{19+0} = 100\%$

These results indicate that the model performs well in predicting students' interest in using the informational bot.
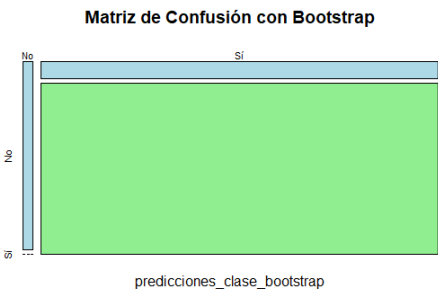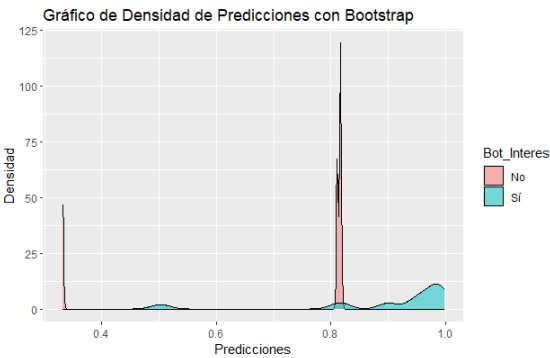

Figure 1. Confusion matrix graph.

Figure 2. prediction density.

3.2. Discussion

These findings support the hypothesis that an informative app about academic events would be well received by students, suggesting a high likelihood of user satisfaction [20,24]. The implementation of such a tool could significantly improve the user experience by providing a convenient and effective way to receive updates on academic events.

Logistic regression results indicate that interest in academic events and frequency of potential app use are significant predictors of students' willingness to use this type of technology [25,26]. Although the preference for type of notification did not show a clear statistical significance in this model, it is still a relevant aspect to consider in future research or system improvements [27,28].

The literature has highlighted the importance of usability and user experience in the acceptance of emerging technologies such as automated applications. [29,30]. In the context of educational and information applications, perceived usefulness and ease of use play a crucial role in the adoption and continued use of these tools. [31,32].

The high accuracy of the model in the test set suggests that the application could be an effective solution for providing information on academic events, minimizing errors and maximizing user satisfaction. However, it is important to consider that practical implementation may face additional challenges, such as integration with existing systems and customization according to individual preferences [33,34].

In summary, these results underscore the feasibility and potential positive impact of integrating an information application in university environments, highlighting the importance of designing user-friendly and customized interfaces that align with the preferences and needs of end users [35,36].

Appendix A. Project Repository on GitHub

To access the source code and additional resources for this research, visit our repository on GitHub: beginitemize

- Project repository on GitHub

Appendix B. Evaluation Forms

To access the evaluation forms used in this study, please visit the following links:

- User interest form
- User satisfaction form

Appendix C. User Survey Data

This section presents the data obtained from the user surveys used in the study:

- Complete user survey data

Appendix D. Application Requirements table

Table A1. Classification of Requirements according to the MoSCoW Method.

Category	Requirement	Priority (MoSCoW)
Functional	Login and Sign In Requirements	Must have
	Database Requirements	Must have
	User Interface Requirements	Must have
	Response Generation Requirements	Must have
	Dialog Management Requirements	Must have
	Predictive Analytics Requirements	Should have
	Error Tracking Requirements	Should have
	High Availability and Management Requirements	Could have
Non-functional	Security	Must have
	Reliability	Must have
	Performance Requirements	Should have
	Availability	Should have
	Maintainability	Could have
	Portability	Could have

Appendix E. Additional Images

Additional images are presented here to complement the study:

Figure A1. Form 1.

Figure A2. Form 2.

D	E	F	G	H	I	J
Si es que hubiera una ap	¿Qué tipo de eventos ac	¿Estarías interesado/a er	¿Con qué frecuencia cre	¿Cómo te gustaría recibi	¿Hay algo más que te gustaría mencionar sobre tus expecta	
Información actualizada (	Congresos	Sí	Una vez por semana	Notificaciones push en la aplicación		
Información actualizada (	Cursos	Sí	Varias veces por semana	Notificaciones push en la	No	
Información actualizada (	Cursos	Sí	Ocasionalmente	Notificaciones push en la aplicación		
Notificaciones personaliz	Comunicados importante	Sí	Una vez por semana	Notificaciones push en la	Que no notifique absolutamente todo, es decir, que se pueda	
Notificaciones personaliz	Becas	Sí	Varias veces por semana	Notificaciones push en la	Que no sean muy molestos e insistentes	
Información actualizada (	Congresos	Sí	Varias veces por semana	Notificaciones push en la	No	
Facilidad para obtener de	Becas	Sí	Una vez por semana	Notificaciones push en la		
Notificaciones personaliz	Becas	Sí	Una vez por semana	Notificaciones push en la aplicación		
Información actualizada (	Congresos	Sí	Ocasionalmente	Notificaciones push en la aplicación		
Notificaciones personaliz	Cursos	Sí	Varias veces por semana	Notificaciones push en la	No	
Información actualizada (	Becas	Sí	Diariamente	Notificaciones push en la aplicación		
Notificaciones personaliz	Becas	Sí	Varias veces por semana	Correo electrónico		
Notificaciones personaliz	Talleres	No	No estoy seguro/a	Correo electrónico	Ninguno	
Notificaciones personaliz	Cursos	Sí	Diariamente	Notificaciones push en la aplicación		
Información actualizada (	Talleres	Sí	Varias veces por semana	Notificaciones push en la	No	
Notificaciones personaliz	Cursos	Sí	Ocasionalmente	Notificaciones push en la aplicación		
Notificaciones personaliz	Congresos	Sí	Una vez por semana	Notificaciones push en la aplicación		
Información actualizada (	Becas	No estoy seguro/a	No estoy seguro/a	Correo electrónico	No	
Información actualizada (	Becas	Sí	Varias veces por semana	Notificaciones push en la aplicación		
Información actualizada (	Becas	Sí	Ocasionalmente	Notificaciones push en la	No	
Información actualizada (	Becas	Sí	Varias veces por semana	Notificaciones push en la	Me gustaría que se pueda utilizar sin conexión a internet o p	

Figure A3. sample in excel.

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