

Design of a Mobile Application to Prevent Bullying in High School Students

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Abstract— Currently bullying is one of the most frequent problems that occur in educational institutions, for that with the help of technology we wanted to implement in this research as prevention of bullying. Therefore, the goal is to design a mobile application to prevent bullying in high school students. Likewise, the A.D.D.I.E. methodology was used: Analysis, Design, Development, Implementation and Evaluation. In the same way, a survey was carried out with 15 high school students from different schools, to know if they have ever been victims of bullying, perhaps by their other classmates. It is recommended in the future to continue research and develop technological solutions for this problem and other social problems that affect many countries.

Keywords- A.D.D.I.E. methodology; bullying, design; Mobile application; students.

I. INTRODUCTION

Bullying is one of the main problems presented by educational institutions around the world. It is important to know that bullying is considered to be the physical or psychological harassment of a student by their peers on a constant basis. [1]. The phenomenon of bullying, also known as bullying, generates more and more concern in the educational community. This is evidenced by the increase in studies carried out on the subject, as well as in the emergence of initiatives that propose different strategies to deal with it.[2].

It is essential to know the bullying prevention programs implemented in different countries, due to the magnitude of the problem in schools. It is also necessary to reflect on the educational stages in which bullying occurs, since during early childhood education (up to six years of age) children acquire a large number of habits and customs [3]. It is important to note that childhood is characterized by self-centeredness and difficulties in expressing one's emotions due to young age and lack of verbal fluency.

Therefore, the growing insecurity in classrooms is a cause for concern not only for parents and educators, but also for the authorities, which has led to bullying no longer being considered only a school problem.

Today, students use technology to intensify their violent behavior, and it is increasingly common to find videos on the Internet that illustrate the level of rejection that can be experienced among peers. In fact, one of the characteristics of bullying is precisely that it occurs between people who share similarities.[4].

As is well known, today's young people are completely immersed in technology, and the use of mobile devices is becoming more common among children, young people and

adults. In this sense, violence is also on the rise, and new forms of violence are being sought through technology, such as cyberbullying through social networks. In this type of harassment, abusers record offensive videos or upload photos and share them through phones with Internet access, or simply leave discriminatory or rejection comments. [5].

The main objective of the research work is to prevent bullying at the secondary level of educational institutions.

The present work is structured as follows, in section number II the methodology used for the mobile application, in section III the results obtained are presented, in section IV the discussions and in section V the conclusions.

II. METHODOLOGY

For the development of the research work, the A.D.D.I.E. methodology: Analysis; Design; Development; Implementation and Evaluation.

A. Analysis

A small survey was conducted with 15 high school students to find out if they were or are victims of bullying by their peers. Also, the Google forms tool was a relevant factor, since it allows you to create free and effective forms for research. Likewise, the architecture of the system was developed as shown in figure 1, where users to be able to connect to the mobile application will have to download it with the internet and complete the registration data, whose data will be stored in Firebase and thus be able to have a better control of the data entered, the incidents registered and verify which incidents were attended.

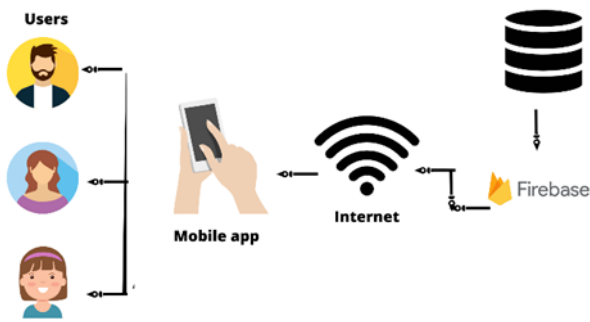


Figure 1. System architecture

B. Design

In the design of the prototype 4 buttons were considered, such as the harassment detector, incident registration, incident review, psychological area.

C. Development

In order to make the prototypes of the mobile



Figure 3. Login Module

Figure 3 shows the design of the login area, which for this requires a username and password, so in this way you can have better control of users, so that all cases of incidents that arise are attended and differentiated by administrators.



Figure 2. Main Menu

In this way, in Figure 2, the main screen of the design of the mobile application is shown, where it has two buttons to enter and to register.



Figure 4. Harassment detection module

Of equal importance in Figure 4, the module of detecting harassment is appreciated, which contains necessary information for teachers, parents, students, so that they can observe if others or themselves are victims of bullying. This

same module also presents recommendations for teachers to apply within classrooms to prevent bullying between students.



Figure 5. Incident Logging Module

In Figure 5, the incident registration module is observed where both teachers and students can record the incidents that are happening within the classroom or school. With the implementation of this module, it is expected to have better control over the incidents that arise in order to solve and thus prevent harassment within the classroom.



Figure 6. Incident Review

Therefore, figure 6 shows the incident review module where the user can see if their registered incident has been addressed.

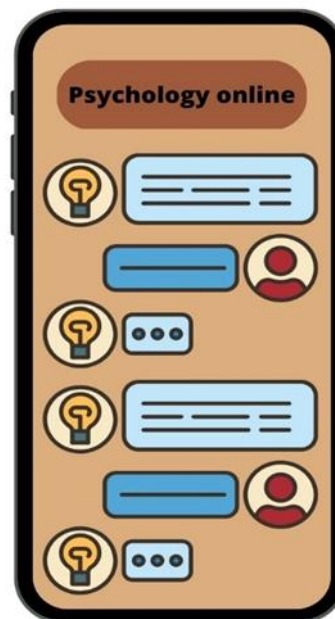


Figure 7. Psychological area

Figure 7 shows the psychology area module where the user if he wishes to talk to a psychologist can do so and decide if he does it anonymously or with his name, through the implementation of this module and hopes that students who were victims of bullying can feel safe and receive the corresponding help.

D. Implementation:

To install the app successfully, users needed access to an internet connection and the Play Store, which required a mobile phone with an Android operating system. It was also taken into account that, unless the emergency function of the application is used, to make calls it was necessary to have a balance in the cellular [6].

E. Evaluation

The use of the T.A.M. "Technology Acceptance Model" methodology was considered a key aspect in order to establish whether the application was accepted or rejected by the study participants. This allowed us to explore the impact that technology has on society and how the population perceives its usefulness.

III. RESULT

1. ¿Feeling intimidated or ofended by one of his colleagues?

The question was asked to know if they have ever been victims of harassment by their other classmates at school

Table 1
Intimidation

Ítems	Frequency	Percentage
Never	3	20%
Sometimes	9	60 %
Often	3	20%
Total	15	100%

Table 1 shows the results of question 1, where you had 3 options Never, sometimes and often.

Of the 15 students corresponding to 100%, 60% pointed out that sometimes, while 20% never and the other 20% often. As a result we obtained that the vast majority of the time students have been offended.

- ¿How often have you experienced any feelings of offense due to a comment made by your peers, either through social media or in person?

Table 2
Offensive comments

Ítems	Frequency	Percentage
Never	1	5%
Sometimes	10	70 %
Often	4	25%
Total	15	100%

Table 2 shows the results where 70% indicated that sometimes they have experienced offensive comments, 25% often, 5% never, for these results we can observe that in their student environment they have received offensive comments.

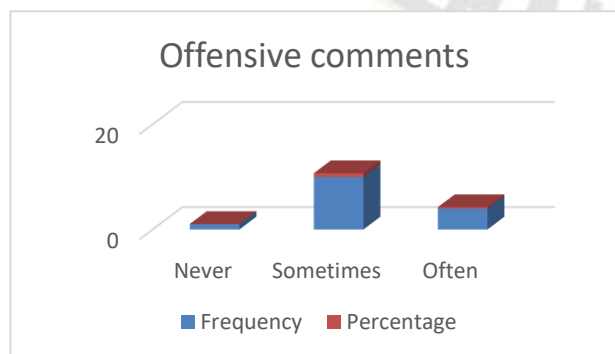


Figure 8. Offensive comments

In Figure 8, the results of question number 2 are seen graphically, this question was asked to see if the respondents

have experienced any feeling of offense for any comment given by their peers.

- Do you think a mobile app could prevent bullying in schools?

Table 3
Mobile application

Ítems	Frequency	Percentage
Yes	12	90%
No	3	10 %
Total	15	100%

Table 3 shows the results of question 3, where 90% agreed that a mobile application can prevent bullying, while 10% disagreed.

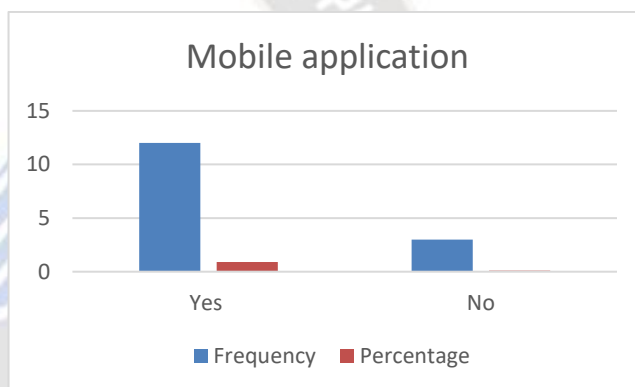


Figura 9. Mobile Application

Also, in figure 9, the results of question 3 are shown graphically, where the main objective was to know if the respondents agreed that a mobile application could prevent bullying and as a result a satisfactory answer was obtained, since 90% were in favor.

- Do you know of any application that helps detect the case?

Table 4
Detect harassment

Ítems	Frecuencia	Porcentaje
Si	0	0%
No	15	100 %
Total	15	100%

Table 4 shows the results of the question and 100% of respondents indicated that they know of any application that helps detect bullying in high school students.

IV. DISCUSSION

In the present research work was designed to prevent bullying in high school students, hoping that the prototypes designed are to the user's liking.

The modules selected for the design were requirements according to past research on the topic of bullying.

Therefore, it is known that technology is increasing and it is necessary to seek technological solutions to social problems that arise anywhere in the world. [7].

In the scientific community there is no consensus on the causes that can lead students to be bullies or victims of bullying, since they are very diverse and each case is unique.[8]. Therefore, it is difficult to determine when there is a greater probability of this type of situation occurring in an educational establishment. For this reason, it is crucial that any program or action aimed at addressing the issue of bullying focuses first and foremost on prevention, and not just intervention. That is, you should not wait to treat bullying when it already manifests itself in the classroom, but you should work to prevent it from happening [9].

V. CONCLUSION

At present, technology is used not only for communication between people, but also to offer recommendations on different topics that applications usually provide. In this sense, an application was created with the purpose of providing a guide to help for victims, suggesting various assistance options such as telephone numbers. This app also served as a guide for teachers, giving them information on the different measures they could take to prevent bullying and foster empathy.

The methodology used was A.D.D.I.E: Analysis, Design, Development, Implementation and Evaluation, since its phases were well structured to find a solution to this problem such as bullying.

Also, as future work, it is recommended to continue looking for technological solutions to prevent and eliminate bullying in schools.

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