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12TH INTERNATIONAL CONFERENCE ON EDUCATION AND NEW LEARNING TECHNOLOGIES

CONFERENCE PROCEEDINGS

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A NOVEL ICT TOOL TO PREVENT BULLYING IN SCHOOLS

C. González[1], J.M. Alberola[1,2], V. Sánchez-Anguix[2], G. Monfort[1], S. Molines[1], M.D. Soto[3], S. Díaz[1]

[1]Florida Universitària (SPAIN)
[2]Universitat Politècnica de València (SPAIN)
[3]Universitat de València (SPAIN)

Abstract

In the last few years, bullying and has emerged as one of the main issues to be addressed by the Educational community. The problem of bullying in primary and secondary schools is particularly important, as students are in a sensitive age and consequences may negatively affect their adult lives too. This problem has become an active are for researchers of different disciplines. Specifically, different studies have focused this problem by means of ICT tools in order to fight against bullying in schools. According to this, in the literature we can find a wide range of ICT-based tools such as e-learning systems, intelligent tutoring systems, gamified applications, analytics, or even artificial intelligence have been proposed as technological assets against bullying. Most of these proposals focus on bullying prevention by means of educational applications. However, there is a need of ICT tools that support teachers and other educational staff in the fight against bullying, both at the detection and mitigation stage.

In this paper, we propose a novel ICT tool focused on bullying mitigation and detection. This tool is currently composed by two different components. One the one hand, this tool integrates several validated tests in order to determine the potential risk of an individual for becoming a victim or a bully. On the other hand, it also provides a notification mechanism for anonymously reporting situations related to bullying. By considering both components, the tool is able to determine those actions that should be considered by teachers and educational staff in order to mitigate potential problems and prevent future situations related to bullying.

Keywords: Bullying, ICT, research on technology in education.

1 INTRODUCTION

In the last few years, it can be observed an increasing interest on tackling bullying at schools. In fact, violence has been acknowledged as an important problem at both the national and the European Commission. The increasing use of new technologies are a new tool for bullies that allows them to ignore space and time, making it more threatening for victims [1]. According to this, it is crucial for educational institutions to have tools and mechanisms for bullying prevention, detection, and mitigation.

Researchers have tried to approach the problem from various angles, and one of them is finding out what the motivation of the stalker is. One rather enlightening concept, explained in the early 1990s, is that bullying is unprovoked, deliberate, proactive, and purposeful behavior [2]. Proactivity in bullying has led to the idea that bullies are not necessarily socially unskilled, maladjusted, or emotionally unstable people, but can use aggression quite skillfully to achieve their goals [3]. It has been suggested that bullying behavior is motivated by the bullies' pursuit of high status and a powerful, dominant position in the peer group [4].

Although it is an individual motive, the pursuit of status is clearly related to the group. It should be noted that it is the group that assigns status to its members, so bullies depend on it. This makes the network that individuals form a system of relationships of great interest for the study of how situations of aggression and intimidation are motivated and developed. Group of equals has a very significant role as regulator of rules and norms of its culture. In bullying, studies [5] exposed and declared that the behaviors of the aggressors are strengthened with the help of the accompanying persons, who fundamentally develop the role of a spectator.

With the increasing use of technology, there have been some researchers that have identified an opportunity to tackle bullying with the support of ICT tools. In the literature, we can find a wide range of ICT-based tools such as e-learning systems, intelligent tutoring systems, gamified applications,

analytics, or even artificial intelligence have been proposed as technological assets against bullying. Based on the analysis of current ICT tools, in this paper we propose a novel application called AUCO app, which is oriented to focus the bullying from the detection perspective. Therefore, this application involves not only students but also teachers and other academic staff.

The rest of the article is organized as follows. In Section 2, we provide a review of current ICT tools against bullying. In Section 3, we describe in detail the current functionalities of AUCO app. Finally, in Section 4, we draw some concluding marks and future work lines.

2 ITC TOOLS AGAINST BULLYING

In the literature, we can find several proposals of ICT tools to tackle bullying. FearNot! [6] is an immersive learning intervention tool whose role against bullying is helping victims to escape victimization, and to reduce overall bullying victimization among children. The tool consists of a virtual school populated by 3D avatars corresponding to students. Each student is associated with a role related to bullying (i.e. victims, bullies, bystanders). According to their roles, students respond to real-life bullying incidents. What is more, Artificial Intelligence techniques are included in order to learn from the victimization situations that students experience in order to adjust the efficacy of the system. This tool also considers gender characteristics. This causes that male situations include more physical bullying while female situations include more relational bullying.

Mii-School [7] consists of 17 3D scenes related to different situations, such as bullying, drug addiction or family life. This tool is focused on Secondary Education. In these situations, students are represented as avatars that interact with each other and they must choose between different actions. Related to bullying, there are 5 scenes that approach bullying from different perspectives (e.g. as a victim, as a bully).

StopTheMob! [8] is a serious game whose aim is that of preventing bullying by means of an educational game. Students are immersed in a game situated in a fictional school, where they control several characters whose actions may have positive or negative consequences in the relationships among class members. The game provides a simple and fast learning curve, allowing younger students to effectively interact with the application. In fact, the application was tested with primary schools and characters depicted have a style that is oriented towards younger audiences. The game is executable on smart devices such as tablets, making it compulsory to invest in these devices if the game is aimed to be used in the classroom. The game provides increasingly difficult scenarios, so that learners feel progression and increasingly face challenges. However, the game is static, and, every time, the game is the same for the user. This precludes the tool for being used repeatedly throughout an academic year.

Monité.org [9] is a video game that focuses on the prevention of bullying through the interactions of the main character with its universe. The game takes place in a universe conformed by different planets that is being terrorized by an evil villain. The game poses different situations to the main character that allow users to familiarize themselves with the psychological effects of bullying. In order to maximize the learning process of students, the application is aimed to be used under the supervision of teachers or parents. The target audience of this application are children between 5 and 10 years.

Happy 8-12 and Happy 12-16 [10] are two applications designed to train emotional competences. These applications are focused to students between 8-12 years old, and 12-16 years old, respectively. These applications expose students to conflict situations and they should be able to respond in an assertive way. Similarly to FearNot!, these applications consider three different roles played by students: the person that shows an aggressive behavior, the person that suffers the aggression, and bystanders. These applications consider 25 situations that are expected to train the students.

As it can be observed, most of the tools are oriented to train students by means of different virtual situations in which they show different behaviors. These tools usually incorporate attractive graphics in order to motivate their use. We can find other tools that are oriented to promote virtual and physical interaction among students, since interaction is crucial to fight against bullying. Authors of [11] developed an application called PREVER for smartphones focused on bullying detection. This tool is designed to involve not only students but also teachers. This application combines face-to-face interaction among students with virtual interaction. The teacher supervises this interaction in order to detect negative behaviors. This application is designed for children under 16. Basically, students see the classroom on their phones with augmented information related to their opponents in the

application. Students freely interact with each other and the application collects data. In addition, the application also encourages interaction in order to motivate students to participate by means of gamification techniques.

It can be appreciated that most of the tools are oriented towards students. However, they are not usually thought of as applications targeting teachers and other academic staff. These groups are one of the main actors in the fight against bullying. Therefore, it is surprising that none of the analyzed tools focuses on providing decision-making support and bullying detection capabilities for teacher and other academic staff. In all of this, the work and involvement of the teaching staff is very important, since they make crucial decisions in the integral formation of their students, participating in the elaboration of norms and habits of coexistence of plural and diverse complexity [12].

It can also be highlighted that most of the tools focus on prevention by means of educating students. Only few tools offer mitigation and detection capabilities. Detecting bullying is important, as it points out to the presence of problems in the classroom, as well as the prospective victims of bullying. We argue that, despite prevention mechanisms, some bullying problems may be inevitable. Thus, detecting bullying becomes as important as preventing bullying. AUCO app is an ICT tool focused on providing support for lecturers in the fight against bullying: both at the detection and mitigation stage.

3 AUCO APP

AUCO app is a novel ICT tool for providing support for detection and mitigation of bullying. This app can be launched as a smartphone app and in a web browser. Is widely agreed that victims and observers usually do not communicate bullying situations to teachers, other academic staff or even families. Therefore, the main contribution of AUCO app is to facilitate the detection of these situations by notifying the involved people who can take measures. First, we consider two type of roles that can be logged into the app: students and teachers/academic staff (Figure 1). In this current implementation, teachers and other academic staff can be registered and then, they can manage the registration of their students.

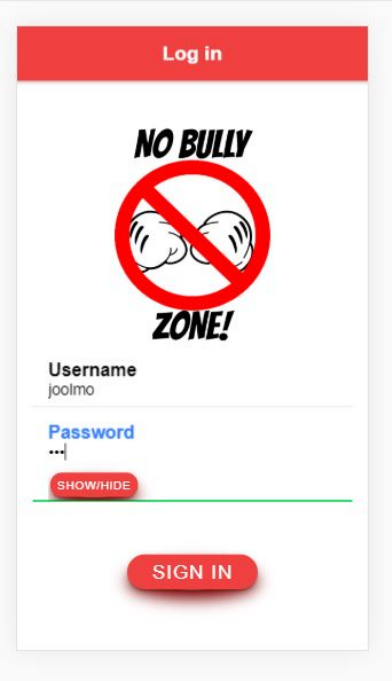

Figure 1: Login.

Each student can fulfil several forms (Figure 2). Currently, we provide the Ambivalent Sexism Inventory, a Sociogram test, and two tests related to bullying: victimization and cybervictimization. These tests are validated as tools for detecting students that show characteristics of victims or aggressors of those types of violence [13].

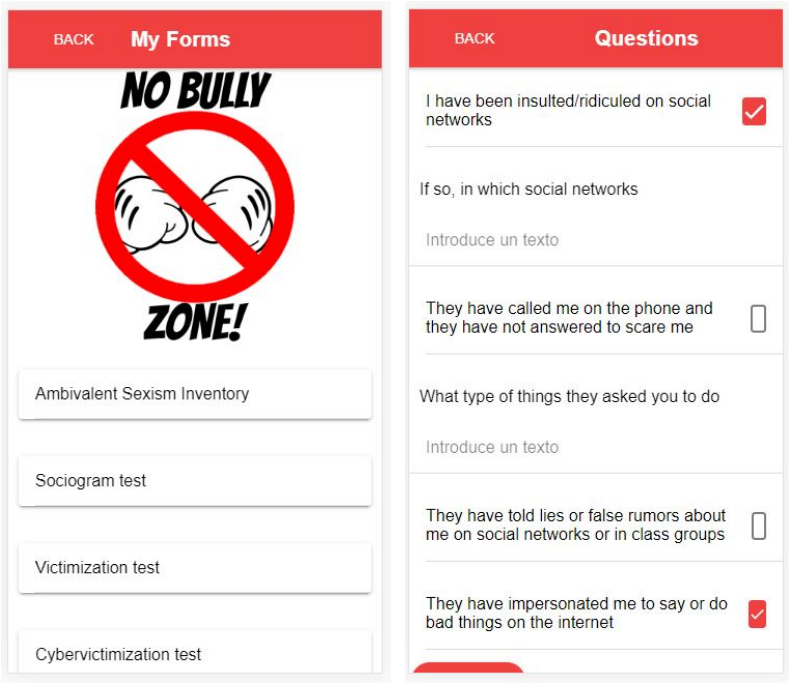

Figure 2: Validated tests.

Apart from these tests, students can submit anonymous reports to notify any situation that can occur (Figure 3). These notifications are sent to the teachers and other academic staff.

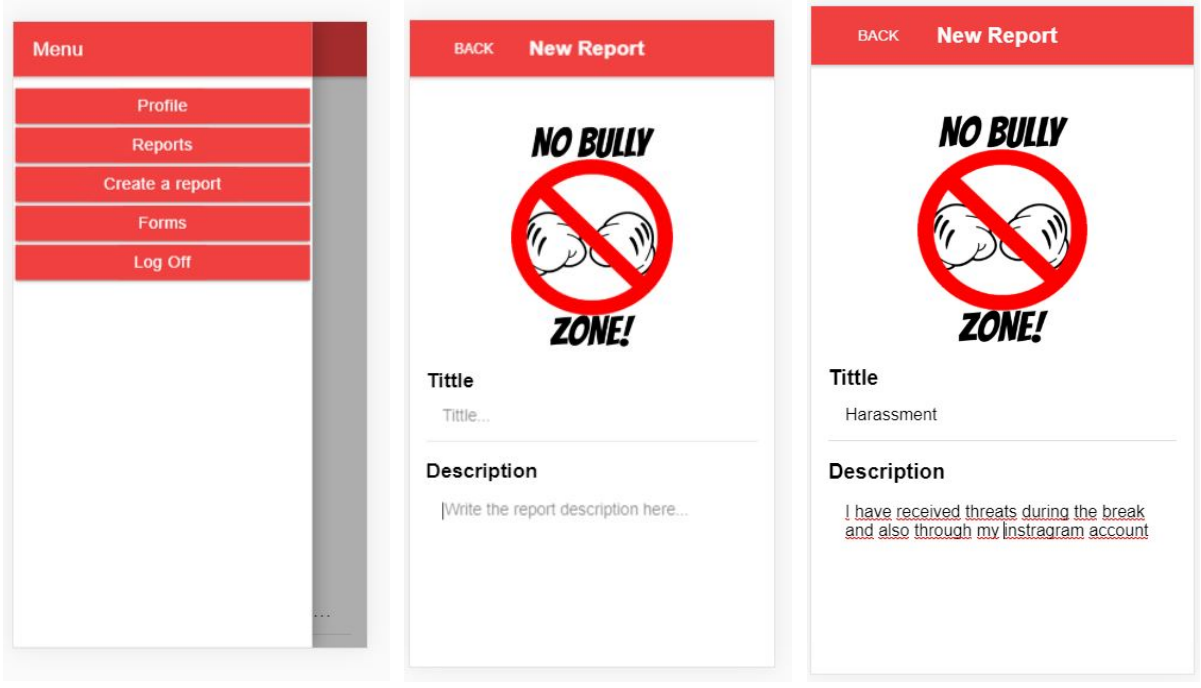

Figure 3: Reports.

From the perspective of teachers and other academic staff, they can manage classrooms and invite students to their classes (Figure 4).

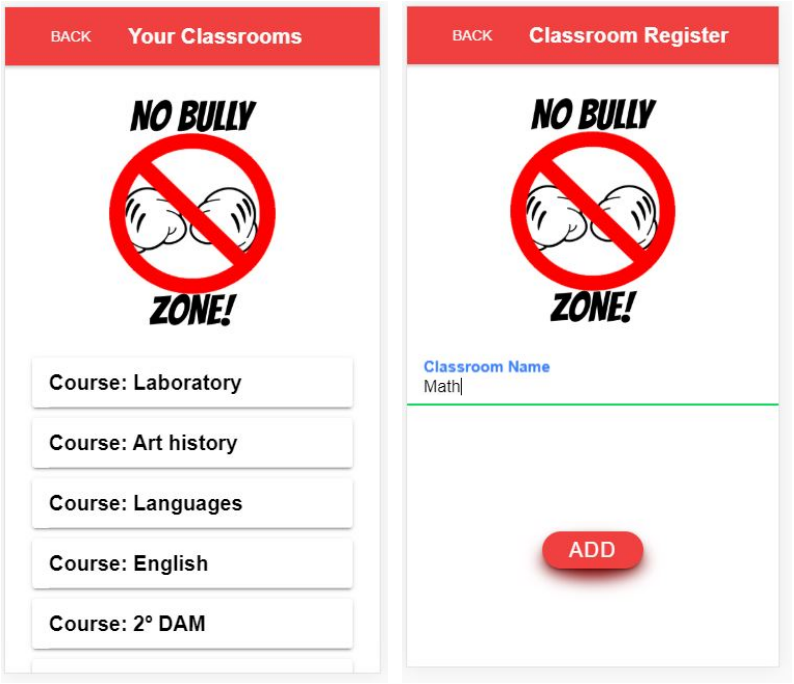

Figure 4: Classrooms management.

In addition, they receive notifications from those reports sent my students (Figure 5).

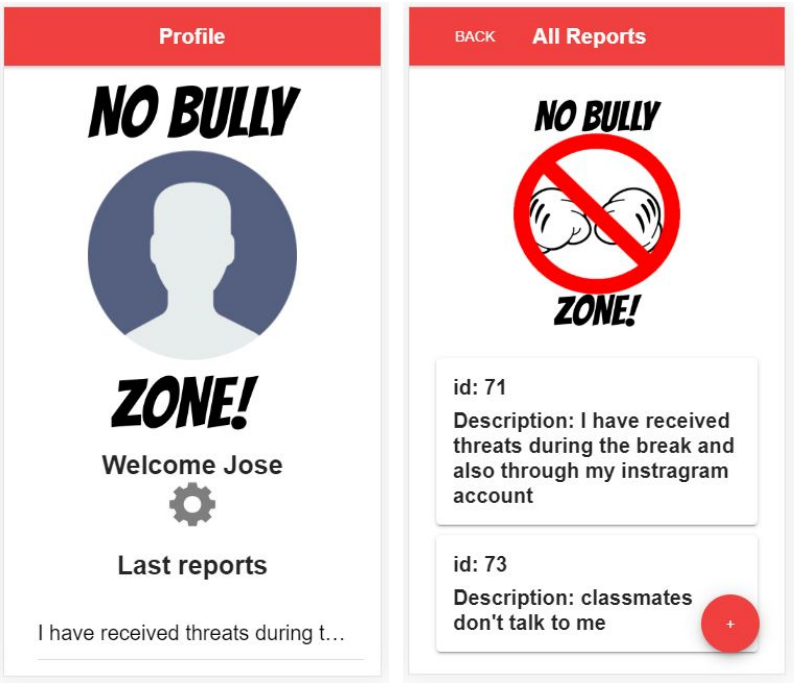

Figure 5: Reports.

Finally, tests submitted by students can be managed and other tests can be created apart from those that are provided (Figure 6). It must be pointed out that in case that the results of any test show potential risk of an individual for becoming a victim or a bully, this is notified to the teacher or academic staff.

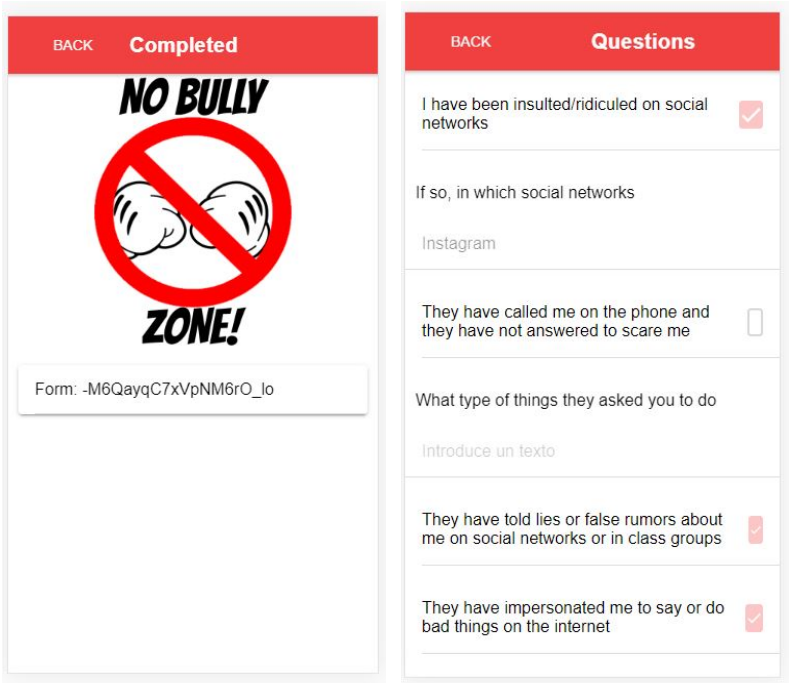

Figure 6: Tests.

4 CONCLUSIONS

Most of the ICT tools that are currently available to tackle bullying are focused on prevention by means of educational applications oriented to students. These types of tools usually incorporate attractive graphics to involve students in hypothetical situations related to bullying. However, current tools are not usually thought of as applications targeting teachers and other academic staff. Although education is important for prevention, teachers and other academic staff may need mechanisms for bullying detection and mitigation.

In this paper we propose a novel ICT tool that involves these main actors in the fight against bullying. As bullying may be inevitable, tackling both mitigation and detection is as important as prevention. Hence, AUCO app provide different types of tests that determine potential situations related to bullying. In addition, this application also incorporates anonymous forms that are submitted by students to notify bullying-related situations.

In its current implementation, AUCO app do not incorporate decision support mechanisms to choose on the best strategies to follow in class to tackle the type of bullying that has been identified. This is one of the next future work lines. These mechanisms will guide teachers and other academic staff in the selection of the best strategies based on expert knowledge and experience. Another line that will be explored is the use of Artificial Intelligence mechanisms for detecting potential victims of bullying through inputs available in a classroom environment. In addition, we plan to carry out a pilot with different groups of students to test the tool in a real scenario.

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