

Engaging Students in Bullying Prevention Efforts through Visualization

Ryan Canales*
Texas A&M University

Susan P. Limber†
Clemson University

Jan Urbanski‡
Clemson University

Oyewole Oyekoya§
Clemson University

ABSTRACT

Bullying is a complex and abusive form of peer violence that has potentially serious social and mental health consequences for children and adolescents. This project is the development of a game that will allow students to play the role of a bystander in a virtual setting, in which they choose what to do when they see the bullying happening. The expectation is that through role-playing as a bystander, the students will learn about how they can help in bullying situations. A small pilot study was conducted to assess the effectiveness of the game thus far, gather suggestions for improvements, and to help model future studies.

Index Terms: I.3.7 [Computer Graphics]: Three-Dimensional Graphics and Realism—Virtual Reality; H.1.2 [Information Systems]: User/Machine Systems—Human factors

1 INTRODUCTION

Bullying prevention programs are now ubiquitous in schools because they have been shown to reduce bullying. However, there is still room for improvement in the methods that schools employ to teach the students about what they can do in a bullying situation. Our projects aim is to provide a more immersive way to teach elementary and junior high school kids about what they can do to prevent bullying and help those who are victims of bullying. What we focus on is teaching the roles in the Olweus Bullying Circle, which is comprised of the eight roles that kids take on in most bullying situations. These roles include the student who is bullied, the student who bullies, students who support the bullying, students who see it but do nothing, and students who dislike the bullying and who might help. What were focused on are the roles that fall under the latter three; the bystanders. Bystanders are onlookers to bullying situations and can choose to be disengaged from the situation, encourage the bullying behavior in some way, or intervene by helping the victim. Although bystanders comprise the largest percentage of students, they do not always intervene on behalf of the victim. In a 2014 report on bullying in US schools [3], most students in the sample reported feeling sorry for students who are bullied. The same study found that a minority of students report that fellow students frequently try to stop bullying, and this number decreases in higher grades. The disparity between empathy and action indicates that students need the right tools to help them respond to bullying.

Although current methods of teaching bullying prevention have been shown to be helpful in bystander intervention [5], there are still ways to improve these methods and make their teaching more fun and accessible. We believe that providing a more accessible way to assist the teaching of bullying prevention in schools is a necessary step towards creating a safer environment for kids around the world. We chose to create a mobile game for various reasons, including easy access to resources to run the game, portability for ease of use,

and the familiarity kids have with a touch interface. Furthermore, it has been suggested that video games have great potential for teaching and as research tools [2]. Another justification for creating an educational game on bystander intervention is that bystanders make up the majority of students in bullying situations and, as such, would be a necessary asset in bullying prevention. Additionally, role-playing has been shown to be a successful method for teaching, and we employ that method in the game without the possible discomfort associated with role-playing among the other students and the teacher. It is because of these aforementioned reasons that we believe a game will be helpful in the prevention of bullying.

2 RELATED WORKS

Work by Sapouna, et al (2010) entitled “Virtual learning intervention to reduce bullying victimization in primary school: a controlled trial” involved a virtual bullying scenario game that collected the responses that the students gave the victim in efforts to help the victim cope with the bullying [6]. The type of bullying was different for the male and female victims; bullying for the male was more physical whereas bullying for the female was more emotional. The study had students who interacted with the software for 30 minutes per week for three weeks (the intervention group) and other students who did not use the software (the control group). The victims in the game had an artificial intelligence that reflected their self efficacy beliefs throughout the program based on the coping strategies that the students suggested. The results showed that the use of the program significantly increased the likelihood of baseline victims (those students who were bullied or were prone to being bullied) to escape victimization and also showed no negative effects for virtual bullying prevention efforts.

A study by McEvoy, Oyekoya, et al (2016) [4] suggests that bullying simulations in virtual reality may potentially be a viable method for provoking empathy in students, given that there is enough scenario customization and interactivity for greater empathy from the students.

Another project that uses virtual bullying situations is PBS’s “AIM Buddy Project” [1]. In this project, the students are asked to identify what kind of bullying, if any, they saw in one of the animated stories shown to them. It also encourages students to buddy up and engage in discussions about pro-social topics including empathy, honesty, forgiveness, generosity, and learning from others. Initial research showed that the program was well received by teachers and students and also showed an increase in self reported empathy and tolerance by the students..

3 GAMEPLAY

The game has several characters including the student who bullies, a student supporting the bullying, a student who is bullied, the player, and three other bystanders in the class. There is also currently a rudimentary point based reward system. The game starts with a character customization screen, in which the player can customize various attributes from shirt, eye, and hair color to gender and skin tone. The other bystanders in the scene are customized randomly. The player is spawned in the front of the class and once they pass a certain line, the other characters are activated and students start to walk into the classroom. The player is free to interact with the non-playable characters as they wish. There are two goals defined initially, one is to turn in their homework at the front of the class and

*e-mail:rechannels01@gmail.com

†e-mail:slimber@clemson.edu

‡e-mail:jurbans@clemson.edu

§e-mail:ooyekoya@clemson.edu

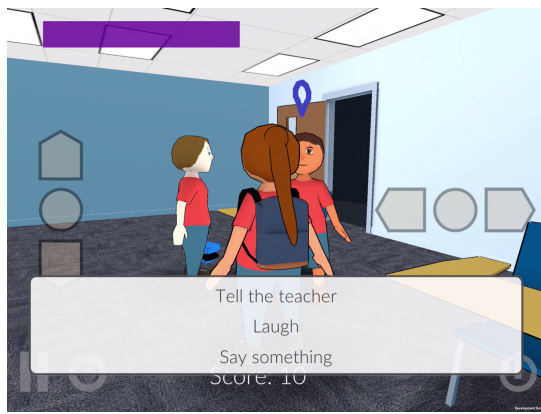


Figure 1: Player (center) intervening in bullying.

the other is to sit at their desk before class starts. However, during this phase, a student in the back of the class starts to bully one of the students. The player is notified on screen about it and can choose to intervene or go on to their desk. If the player interacts with the other bystanders in the class after this point, they all say something in response to the bullying, according to what role they play. If the player chooses to do something, they can walk to where the bullying is happening and choose what to do from there. There are currently three main options if the player chooses to do something. The player can say something to the bully to stop them, tell the teacher, or laugh. In the case of the first option, the player will have dialogue telling the bullies to stop, after which they will respond then go to their desks. If the player chooses the “tell the teacher” option, they are notified to walk over to where the teacher is. Once they approach the teacher, dialogue pops up notifying the teacher, and the teacher responds then walks to the situation. If the player laughs, the bullies stay and continue. In the cases that the player helps the student who is being bullied, the result will be positive feedback in the form of dialogue from the other students, including the victim, and a point increase. If the player laughs, then points will be deducted and the other students will react negatively. After the player goes to their desk, the game ends, then a small lesson comes up. The lesson includes information about bullying, teaching the bullying circle by asking the player what roles they saw in the scene, and then further educates the students based on what options they chose. It is then suggested that the student play the game again and choose a different option.

4 METHODOLOGY AND RESPONSE

We conducted a small pilot study with 5 students from elementary ($N=2$) and middle school ($N=3$). We gave minimum instruction on how to play, and let them roam the class and choose what to do. All of the participants chose to help in some way during their first and second rounds, but then experimented on subsequent plays. While they were playing, they gave positive feedback, saying things along the lines of “This is fun!” and wanting to go and try different things in the virtual classroom. We received additional feedback from the participants through a semi-structured interview. The overall response was that the game was fairly easy to play, but that there should be more scenarios in different settings, more dialogue from the characters, and more options for character customization. All of these can be added as the project moves forward.

5 RESULTS

The initial development has shown success in our small pilot study, and further development can certainly help with getting students engaged in learning about what they can do to help prevent bullying.

The extra engagement helped the students remember what roles they saw in the scenario and think about what roles most kids their age play and what they can do.

6 DISCUSSION AND FUTURE WORK

The main limitations were that we were limited to a very small pilot study and also limited in time. However, given the response from our pilot study, the project has potential for more development, with current plans being to further develop the game then deploy it to a few local schools for further studies. Based on the responses we collected from the initial study, incorporating additional scenes and scenarios would make the game more enjoyable and engaging for the students. We believe that extending the options the player can have throughout the game will also contribute to a better overall experience, further adding to the justification for creating such a game. As development moves forward, we plan to implement a more developed reward system, more scenes, and flesh out the scenery in the game with more detail. Additional features worth considering are limited scenario customizability and better interactivity through cues and 3D buttons. We also plan to deploy the game to not only mobile devices, but to PC and Mac as well. Future studies will also involve more students.

ACKNOWLEDGMENTS

The authors wish to thank Dr. Oyewole Oyekoya, the Visualization REU program director at Clemson University. This material is based upon work supported by the National Science Foundation under Grant No. 1359223.

REFERENCES

- [1] E.P. Bowers, et al. “The Arthur interactive media study: Initial findings from a cross-age peer mentoring and digital media-based character development program.” *Journal of Youth Development* 10.3: 46-63, 2016.
- [2] M.D. Griffiths. “The educational benefits of videogames.” *Education and health* 20.3: 47-51, 2002.
- [3] H. Luxenberg, S. P. Limber, D. Olweus. “Bullying in US schools: 2014 Status Report”. Center City, MN: Hazelden Foundation, 2015
- [4] A. M. Kelly., et al. “Through the eyes of a bystander: The promise and challenges of VR as a bullying prevention tool.” *Virtual Reality (VR)*, 2016 IEEE. IEEE, 2016.
- [5] J. R. Polanin, D. L. Espelage, and T. D. Pigott. A meta-analysis of school-based bullying prevention programs’ effects on bystander intervention behavior. *School Psychology Review*, 1:47-65, 2012.
- [6] M. Sapouna, et al. “Virtual learning intervention to reduce bullying victimization in primary school: a controlled trial.” *Journal of Child Psychology and Psychiatry* 51.1: 104-112, 2010.