Effectiveness of a Web-based Instructional Design Module on Educating 6th graders on the Topic of Cyberbullying

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Abstract:
With the exponential increase in accessible and relatively inexpensive technology such as cell phones and net books, cyberbullying has also increased, particularly among youths in the United States. To combat this growing problem it is necessary to educate this vulnerable population about digital citizenship, and how to recognize cyberbullying and what youths should do if they encounter it. A web-based instructional design module was created to educate 6th and 7th grade students at a Honolulu charter school on the topic of cyberbullying. However, only 6th grade students were able to participate in the study due to logistical constraints. While most of the participants thoroughly enjoyed the module, it appeared that the test instruments were too easy, as almost 21 participants out of 31 scored 100% on the pre-test before even reading the instructional content. Despite the fact that roughly a third of the participants showed improvement, five participants' scores decreased from the pre-test to the post-test. Also, it is important to point out that the participants were already familiar with bullying and cyberbullying, which was unexpected, considering that their digital citizenship curriculum was not scheduled to begin until 8th grade. For future research, recommendations are to target a younger audience.

Introduction

Youth of today are faced with many pressures and challenges that could not have been imagined in previous decades including Sexting, drugs, and cyber-crime. School violence and bullying are problems that are becoming more severe. Furthermore since the advent of the Internet in the 1990s, cyberbullying has developed into a terrible issue. Often times, victims of cyberbullying do not know the appropriate steps to get help. The purpose of this instructional design module was to create awareness of what cyberbullying is and what can be done to stop it.

Background

Bullying is a universal problem, known to nearly every culture on earth. According to Mishna (2003), historically, bullying was either not acknowledged or merely seen as a 'normal' part of childhood. Some even considered it a rite of passage for adolescents. Now, with the exponential increase in technology that is widely accessible and ubiquitous, cyberbullying has become a pervasive problem among youth, with the perpetrators acting anonymously in many cases.

Cyberbullying is the use of the Internet, social networking sites (SNS), chat rooms or digital devices by one minor or group of minors to intentionally harm another minor or group. Cyberbullies use threats, social exclusion, spreading rumors, spamming, and hacking an individual's email or SNS account as tactics. Cyberbullying can take other forms including sending malicious codes and pornographic materials, Internet polling, and impersonating or forwarding embarrassing images or texts. Cyberbullies, limited only by their imagination can be very creative in thinking up ways to bully their victims.

For those being bullied, their own existence can become a daunting and unbearable burden to the point that they attempt or commit suicide, lash out violently against their peers or classmates, or retaliate with more bullying. To complicate matters, sometimes the bullies do not even realize that what they are doing is bullying or they think they are just joking. At the same time, the victims often do not realize that what is happening is bullying; usually they do not tell the bully to stop or tell a responsible person who can help. It may be impossible to prevent cyberbullying from occurring, but it is possible to educate children so that they can recognize cyberbullying and what they should do about it because "both children who bully and children who are victims of bullying are at risk for social, emotional, and psychiatric problems, which may persist into adulthood" (Mishna, 2003).

Methods

The Goals of the Instructional Module

The goal of this instructional design project was to develop and evaluate a web-based instructional module for educating middle school students on Oahu about recognizing cyberbullying and the appropriate actions to stop cyberbullying.

Target Audience of the Instructional Module

The module was developed for 6th and 7th grade students from a Honolulu charter school. Participation was opened to any student from the school. However, only 31 sixth grade students were able to participate in the study due to logistical constraints. This age group was selected because bullying peaks as children reach adolescence.

Furthermore, this audience was chosen because they engage in many online activities, especially social networking and use of various forms of social media, which makes them particularly vulnerable to cyberbullying. Another reason they were selected was because

it was expected that they would be unfamiliar with the topic. Participation was voluntary and no compensation was offered to any participants.

Module Development and Design

The module was designed on weebly.com, a free and easy to use website editor. The web-based approach was selected to allow for easy construction as well as easy access by the participants and target audience. Another consideration that led me to choose the web-based approach was that the participants were digital natives – meaning that since they were born they have been surrounded by technology and have grown up using all kinds of digital devices. Digital immigrants – a term used to describe individuals born prior to the widespread use of digital technology, who have since adapted to use it – learn differently from digital natives and thus their teaching style does not cater to the learning style of digital natives (Prensky, 2001a; Prensky, 2001b). This had two implications for my module: 1) The participants would feel comfortable with the web-based medium as a format for acquiring information and 2) Being the users of various digital devices they may be susceptible to cyberbullying either as a cyberbully, a victim, a bystander or some combination of these roles and should be made aware of the risks.

Since the module was web-based, it allowed for self-pacing by the participants. A flowchart (see Figure 1) with the steps to complete the module was displayed on a projection screen at the front of the classroom for participants to reference and check their progress.

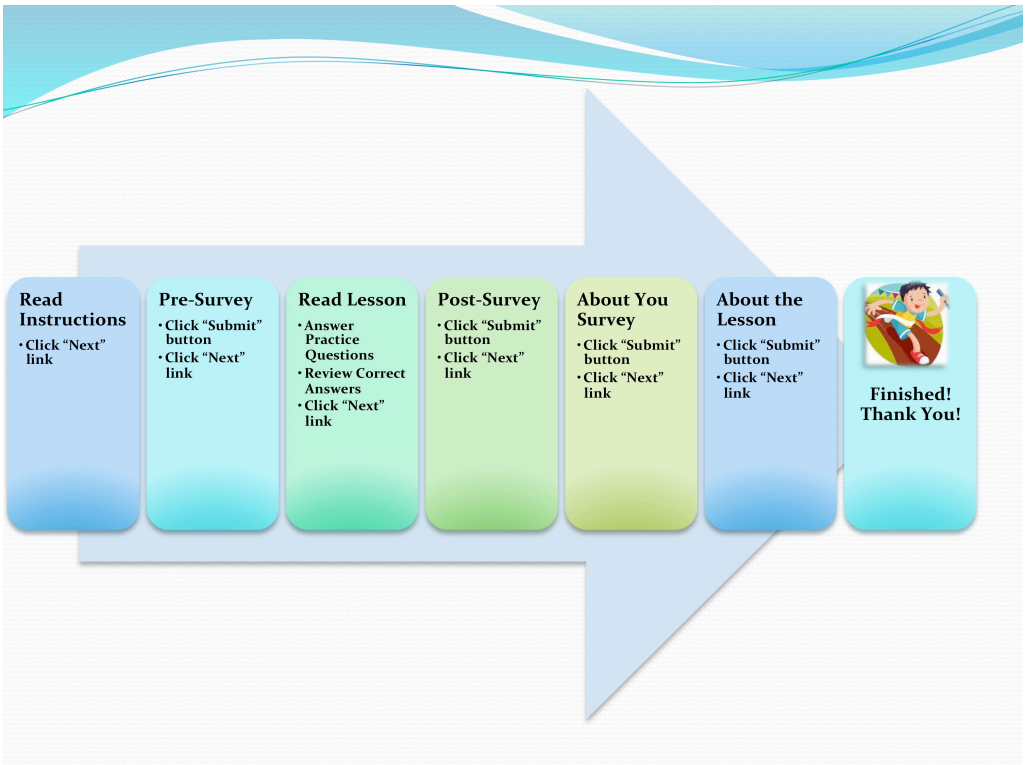

Figure 1. Module Flowchart

The module was divided into four lessons: an introduction to establish a reason for learning about cyberbullying, a discussion of what digital citizenship is, a discussion of cyberbullying, and lastly a discussion of how to stop cyberbullying. An effort was made to include images of young people using technology through out the module because I felt this would make the module more relevant to the participants. The last two lessons of the module included cartoon images from the e-Family Rules website of the Japanese organization Kokoro no Tokyo Kakumei Suishin Kyougikai (see Figure 2). Permission was obtained from the organization to use their cartoon images. These images were used to appeal to and capture the interest of the target audience.

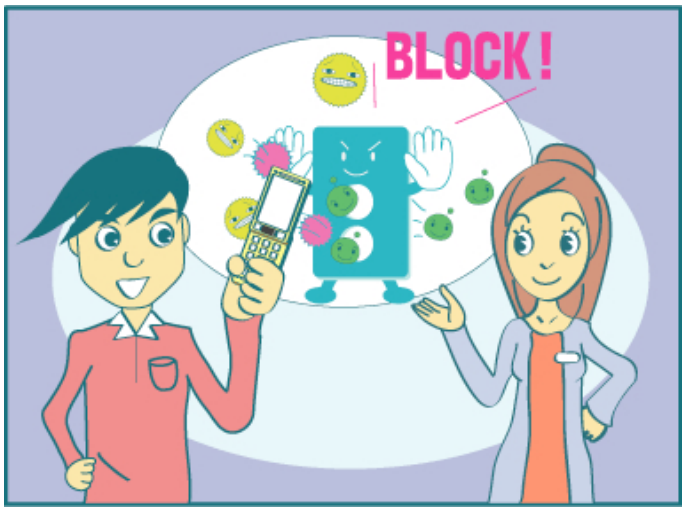

Figure 2. Cartoon image included in module.

The module used the ARCS Model of Motivation (Keller, 2008), as a guide to creating instruction that would be appealing to the target audience of 6th and 7th grade students. In an attempt to influence participants' opinions toward the topic of cyberbullying, the ARCS Model was considered throughout the design and evaluation process. The ARCS Model states that there are four elements of human motivation to consider in the motivational design process: Attention, Relevance, Confidence and Satisfaction. While bright colors were used to gain attention, photographic and cartoon images were used to establish relevance. To build confidence in the participants, written content was simplified with terminology the participants were thought to be familiar with. Lastly, the element of satisfaction was addressed by creating a module with an introduction that introduced the problem of cyberbullying, and a conclusion that then provided possible solutions to curtail the problems.

In addition to the pre-test, the embedded test, and the post-test, the module included two surveys. These were the "About You" demographic survey (12 questions) and the "About the Lesson" attitudinal survey (10 questions), which were administered at the end of the module after the post-test. The pre-test, post-test, and the demographic and attitudinal surveys were all created using Google forms, incorporating a glue motif that was familiar and visually appealing to children (see Figure 3).

Figure 3. Google form template with glue motif.

The embedded test was the only instrument created using ProProfs.com instead of Google forms. This decision was made because ProProfs.com has a feature that allows the participants to receive feedback or review their correct and incorrect responses. Google forms did not have any automated feedback feature that could show the participant if they got the question right or wrong.

An assumption was made that middle school students might click on links in the top navigation bar if it were visible. With the target audience in mind, the module was designed to be navigated only by using hyperlinked text at the bottom of each page. Most of the navigation bar was disabled so participants could not skip ahead or go back to take the pre-test over (see Figure 4).

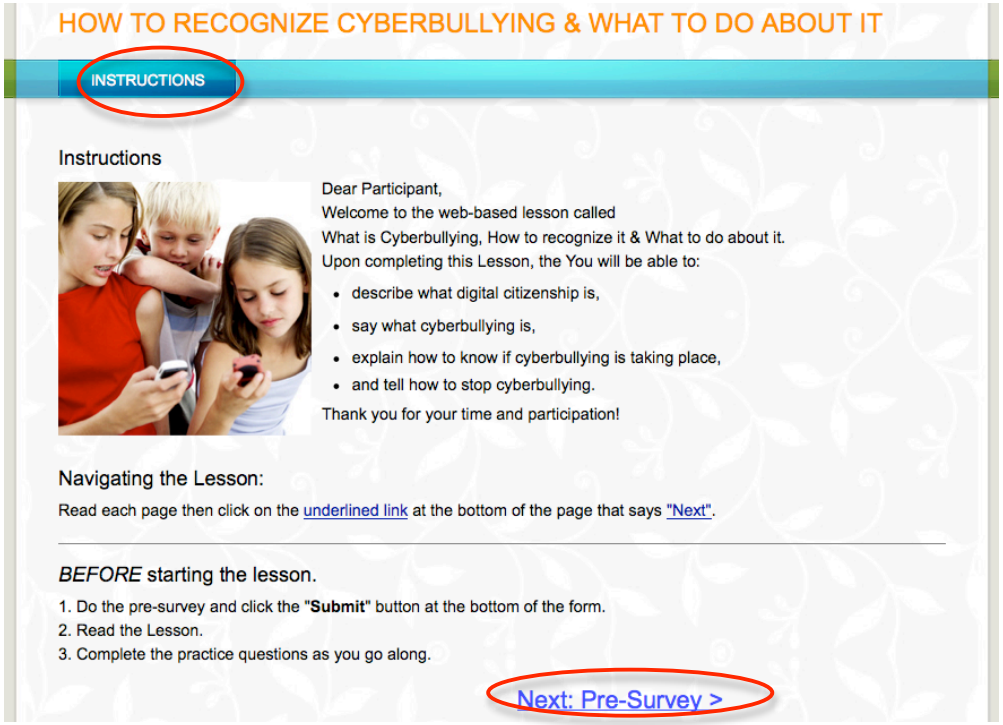

Figure 4. Limited navigation options.

Evaluation Elements

Pilot Study

A pilot study was conducted with a group of eight 6th grade students to measure the length of time required to complete the module and to see if the target audience would have trouble navigating the module. The eight pilot study participants were selected because they remembered to bring their signed consent and assent forms to school. For the most part, participants had no trouble navigating the module and all of them completed it in 45 minutes or less. The steps for completing the module were the same for both the pilot study and the small group evaluation: 1) read the instructions, 2) answer the pre-test, 3) read the module, 4) answer the embedded test questions, 5) review the correct embedded test answers, 6) answer the post-test, 7) respond to the "About You" demographic survey, and 8) respond to the "About the Lesson" attitudinal survey.

Small Group Evaluation

The small group evaluation was conducted on February 16, 2012 from approximately 12:50-1:56 PM HST. The small group took longer to finish than the pilot study group because of the school's content blocker program, which blocked the 4th lesson of the module so the participants could not access it without having it unblocked. There was only one Information Technology (IT) specialist available to unblock the webpage for each student on an individual basis. It was not an ideal situation because many students had to wait several minutes to get access and they became impatient. There were 26 participants in the small group, however, three participants' test scores were omitted from the final data set because they skipped either the pre-test or the post test.

Results

Analysis of the Pre-test and Post-test for the Pilot Study

While five out of eight participants from the pilot study scored 100% on the pre-test, embedded test and post test and showed no change or improvement of their scores, three participants did show improvement from the pre-test to the post test.

Table 1. Pilot Study test scores

Participants	Pre-test	Embedded Test	Posttest
1	100%	100%	100%
2	100%	100%	100%
3	100%	100%	100%
4	89%	89%	100%
5	89%	89%	100%
6	100%	89%	100%
7	100%	100%	100%
8	78%	78%	100%

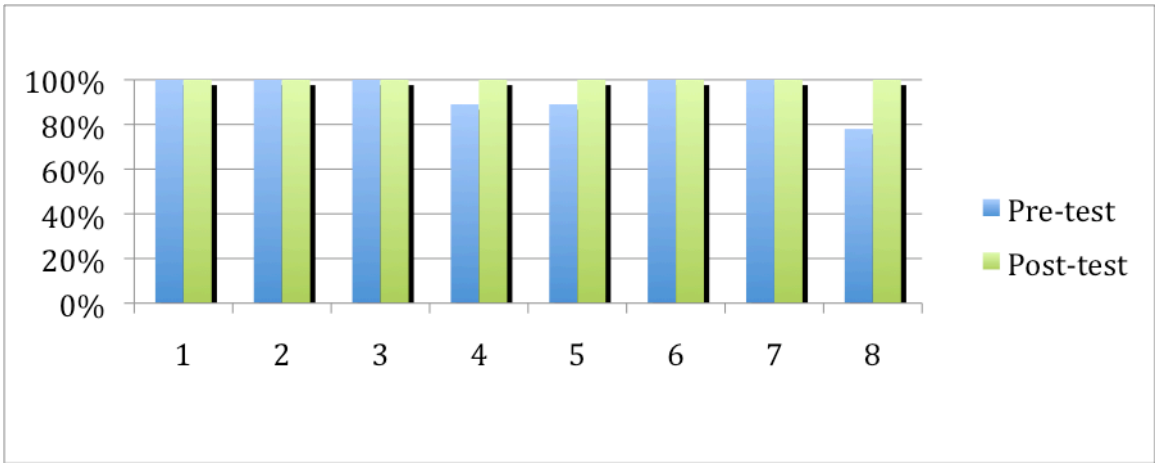

Figure 5. Pilot study test scores

Analysis of the Pre-test and Post-test for the Small Group Evaluation

The lowest score on the pre-test was 56% while the lowest score on the posttest was 78%. The average score for the pre-test was 94.26% and on the post-test the average was 95.22%. While five participants performed worse on the post-test than on the pre-test, six showed improvement and eleven scored 100% on all three test instruments. One participant performed the same on the pre- and post-tests, but slightly worse on the embedded test.

Table 2. Small Group test scores

Participants	Pre-test	Embedded test	Post-test
1	100%	100%	100%
2	100%	100%	100%
3	100%	100%	89%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	89%
7	100%	100%	100%
8	100%	100%	100%
9	100%	100%	100%
10	100%	89%	100%
11	89%	100%	100%
12	100%	56%	89%
13	89%	100%	100%
14	100%	100%	89%
15	100%	78%	100%
16	100%	100%	100%
17	100%	100%	100%
18	89%	100%	100%
19	89%	100%	100%
20	89%	78%	89%
21	67%	67%	78%
22	56%	78%	89%
23	100%	89%	78%

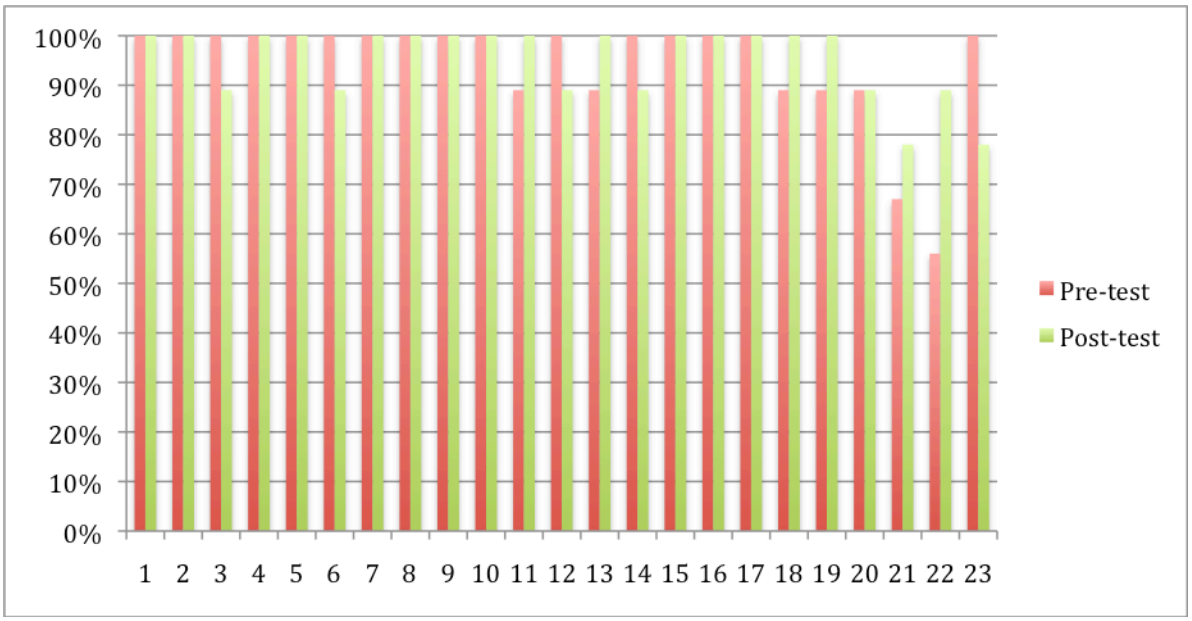

Figure 6. Small Group test scores

Comments from Participants about the Design of the Module

Many of the participants commented through the "About the Lesson" survey that they liked the module and in particular that it was easy to read and the cartoon images helped them to grasp the meaning of each section. One participant did say that they would have liked to learn more about what viruses or malware could be used to infect their personal digital devices that they should be aware of. Another participant wanted to see *"more examples of cyber-bullying, like something easy to comprehend like a small short video."*

For the data collected from the "About the Lesson" survey, eight responded during the pilot study and twenty-six responded during the small group evaluation. Six participants responded that before reading the module they did not feel prepared to deal with cyberbullying, sixteen were neutral, and twelve felt they were already prepared to deal with cyberbullying. Twenty-six participants responded that after reading the module they felt more prepared to deal with cyberbullying, seven were neutral and one said they felt less prepared. Twenty-seven participants felt that the module was easy to follow, while six were neutral and one said it was difficult. Twenty-four participants said the topic of the module was relevant or important to them, thirteen were neutral, one said it was not relevant or important. Thirty participants said that after reading the module they felt more aware of cyberbullying while four were neutral.

Addressing Comments from Participants

A few participants commented that they would have enjoyed the module more if it had included a game. This was because a number of them had participated in another instructional design module that did include a game. While the inclusion of a game could

have made the module more 'fun' it would not necessarily improve the learning outcomes of the participants. Based on the fact that more participants reported feeling aware and prepared to deal with cyberbullying after reading the module compared to prior, I feel that they gained something positive from the experience. The majority of the participants responded that the module was easy to follow and that the topic was relevant or important to them, which means my use of the ARCS model was a success.

Implications or Discussion

In the pilot study, five out of eight participants scored 100% on the pre-test and post-test which leads me to believe the test instruments were too easy and that the participants were for the most part already knowledgeable on the topic of cyberbullying. Prior to administering the module, I asked the participants how many knew what bullying and cyberbullying were. Almost all the students raised their hands to say that they knew what it was and to give the explanation or definition they had learned. This surprised me because I had been told that the students at this particular school would be taught about digital citizenship and cyberbullying in the 8th grade not the 6th grade. When I asked the students how they already knew what cyberbullying was, they said they learned about it in their "learning lab." In the future, I think it might be beneficial to target a younger audience without any previous knowledge on the subject of cyberbullying. This would also be important because cyberbullying is starting at younger and younger ages, as early as the third grade (Aftab, n.d.).

An anomaly that was noticed was that five participants of the small group evaluation performed slightly worse on the post-test compared to the pre-test, but the difference for these participants was minimal (one or two questions incorrect out of nine). I believe this was because I did not place enough emphasis to the participants on taking the time to read the questions carefully and then to select the answer in a thoughtful manner. Four of the five participants whose scores decreased went from 100% on the pre-test to 89% on the post-test.

Conclusion

Cyberbullying should not be a part of growing up. When children can recognize it and know what appropriate action to take, then they have the tools to stop it. This instructional design module helped to prepare and educate the participants about what constitutes cyberbullying as well as the measures one should take to stop it. However, given that many of the participants demonstrated knowledge of the topic of cyberbullying in the pre-test, I would recommend implementing a cyberbullying awareness and preparedness curriculum with a younger age group, 3rd to 5th grade students perhaps. Furthermore, a future area of research that could be pursued might be to modify the module content for children with special needs or disabilities. Parents of digital natives, who are often digital immigrants, also need to be made aware of the risks of cyberbullying so that they can teach their children about it. Thus developing a module targeting such adult learners would also be important.

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