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PROMOTING BEHAVIORAL INTENTIONS TO DEFEND VICTIMS OF BULLYING AMONG COLLEGE STUDENTS WITH AN INTERACTIVE NARRATIVE GAME

By

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This dissertation is dedicated to my father Yongli Wu (1957-2009) and mother Meiying Wang.

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ABSTRACT

Bullying and cyberbullying nowadays have become an issue that a substantial number of college students have to deal with. However, most people do not think they occur as frequently in universities as in high schools or middle schools, and few of them are willing to intervene in a bullying situation when they see one. The goal of this dissertation was to explore ways to promote victim defending behaviors among college students from two perspectives: 1) to examine the psychological and personal factors that determine college students' behavioral intentions to help victims and 2) to investigate the effects of playing an anti-bullying interactive narrative game on behavioral intention to help victims. To fulfill this goal, two studies – one survey and one experiment – were designed.

The first study was a survey to examine psychological factors (i.e., attitude, self-efficacy, injunctive norms, descriptive norms, and personal moral norms) and personal factors (i.e., age, gender, and trait empathy) that might influence behavioral intention to defend victims of bullying. Results from Study 1 showed that psychological factors like injunctive norms perceptions, self-efficacy, and personal moral norms regarding victim defending behaviors as well as personal factors including age, gender, and trait empathy can influence a college student's intention to help victims of bullying.

Following this, an experiment was conducted using a mixed 2 (Medium of Intervention: Interactive narrative game/Non-interactive narrative video) × 2 (Outcome Valence: Positive/Negative) × 2 (Time: Pre-test/Post-test) factorial design with an additional control group. The experiment investigated whether medium of intervention and outcome valence influenced college students' behavioral intention to defend bullied victims through the

mechanisms of presence, identification, counterfactual thinking, and guilt. Results from Study 2 showed that playing an anti-bulling interactive narrative game, *Life is Strange*, increased college students' intention to defend victims of bullying due to its ability to facilitate internal ascription of responsibility, personal moral norms for victim defending, and empathy for victims through evoking players' strong sense of presence in the game. Experiencing a negative outcome in the game also increased intention to help victims later via players' feeling of guilt.

These results and their implications are discussed.

CHAPTER 1

INTRODUCTION

Bullying is the repeated and unwanted direction of aggression or harassment by a bully towards a victim, who occupies an inferior position in the power dynamic (Olweus, 1993). A growing body of work documents that bullying is not just a rite of passage that limits itself to the realm of adolescent students in elementary and high schools. In fact, bulling continues to occur frequently among adults, including at the university level (Chapell, Casey, De ka Cruz, & Ferrell, 2004; Chapell, Hasselman, Kitchin, & Lomon, 2006; Donegan, 2012; Paullet & Pinchot, 2014) and in the workplace (Ferris, 2004; Glendinning, 2001; Glomb, & Liao, 2003; O'Moore, Seigne, McGuire, & Smith, 1998; Quine, 2001; Rayner, 1997). Additionally, with the emergence and growing importance of digital modes of interpersonal communication like text messaging and social networking, more and more bullying events are now cyberbullying events. These characteristically take place in virtual environments that allow bullies to more easily remain anonymous and thereby embolden them in their bullying. (Donegan, 2012; Kowalski, Giumetti, Schroeder, & Reese, 2012; Macdonald & Roberts-Pittman, 2010).

Several studies indicate that a substantial number of college students experience bullying and cyberbullying to some extent during college (Adams & Lawrence, 2011; Chapell et, 2004; Kowalski, Giumetti, Schroeder, & Reese, 2012; Macdonald and Roberts-Pittman, 2010; Paullet and Pinchot, 2014). Chapell et al. (2004) surveyed a sample of 1,025 college undergraduates at a northeastern public university. They found that bullying is common in college, with 27.5% of undergraduates reporting witnessing other students being bullied, 24.6% having been personally bullied, and 5.1% reporting having bullied other students. In another study, Macdonald and Roberts-Pittman (2010) surveyed 439 college students on their past experiences of cyberbullying

during college in a midwestern university. They found that 38% of undergraduates reported knowing someone who had been cyberbullied, 21.9% reporting having been personally cyberbullied, and 8.6% reporting having cyberbullied someone else. Interestingly, Kowalski et al. (2012) found that over 30% of the participants in their survey indicated that their first experience with cyberbullying was in college. Nearly a third of the college students sampled in their study, who also held employment, reported having been the target of workplace cyberbullying within the past six months. Furthermore, a positive association was found between cyberbullying and negative emotions as well as burnout and efforts to search for other jobs.

When college students were asked about their normal response if they have been a witness to cyberbullying, Paullet and Pinchot (2014) found that 2% of the 168 students surveyed answered that they would join in the cyberbullying, 18% answered that they would take no action and simply leave the online environment, and 64% answered that they would continue to read posts containing cyberbullying but not actively participate. In contrast, 21% of students responded that they would report cyberbullying to someone who could help the victim, and an additional 22% said that they would stand up to the bully. After combining all of the negative bystander responses, including joining in, watching and ignoring cyberbullying, the majority of students reported having performed some kind of bully-reinforcing bystander behavior. Furthermore, with respect to how victims react to bullying, well over half or 68% of the victims confided in their friends rather than a responsible adult. Thus, the friends of a victim, who are often bystanders to the cyberbullying incident, may play important roles in the resolution of the victim/bully conflict.

Recently, much research attention has been paid to implementing anti-bullying intervention programs among peer student groups at the elementary and high school levels in

order to enhance students' empathy for the victims (Gini, Albiero, & Altoè, 2007; Nickerson, Mele, & Princiotta, 2008) and to increase their self-efficacy to support the victims (Andreou, Didaskalou, & Vlachou, 2008; Frey, Hirschstein, Edstrom, & Snell, 2009; Stevens, Bourdeaudhuij, & Oost, 2000) in order to reduce bullying in school. Despite the substantial frequency of bullying and cyberbullying events occurring at the university level and the considerable negative effects associated with them, empirical studies evaluating the effect of peer group intervention programs on reducing bullying among college population are still lacking. The present study attempted to fill this gap in the literature by first examining the potential determinants of college students' intentions to defend victims of bullying and then by investigating the impact of an interactive narrative video game with an anti-bullying theme on increasing those intentions among college students.

CHAPTER 2

LITERATURE REVIEW

Bystander Behaviors

Research on bullying among teenagers indicates that most bullying behaviors are carried out with an intent to gain social dominance or status among peers (Juvonen & Galvan, 2008; Olweus, 1984, 1993; Salmivalli & Peets, 2009). Indeed, most bullying perpetration occurs in front of peers (Hawkins, Pepler, & Craig, 2001; Lagerspetz, Bjorkqvist, Bertz, & King, 1982). A study using a naturalistic observation method found that 88% of bullying episodes on school playgrounds had peer witnesses involved in some capacity. Among those episodes, only 19% of the times did peers intervene (Hawkins et al., 2001). Since bullies seek audience approval to solidify their dominance and power over others, how witnesses of bullying choose to react to the interplay between bullies and victims plays an important role in determining whether school environments either encourage or deter future bullying events.

In general, behaviors of witnesses to bullying can be categorized into four types. A bystander can be: 1) an assistant, who actively participates in the bullying; 2) a reinforcer, who comes to watch and provide validation to bullying by laughing, shouting, and encouraging others to watch; 3) an outsider, who tends to just leave the bullying scene and pretend not to notice what is happening, and 4) a defender, who attempts to intervene to stop bullying by confronting the bully, providing support and reassurance to the victim to buffer negative effects caused by bullying victimization, complaining to the group about what is happening, or seeking help from an authority figure (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996).

By participating in bullying, showing approval of it, or simply pretending not to notice and passing by, bystanders reward and reinforce the bullying behaviors and encourage the bully to continue with more aggressive bullying (O'Connell, Pepler, & Craig, 1999; Salmivalli et al., 1996; Schwartz, Dodge, & Coie, 1993). Meanwhile, reinforcing bullying can cause the victim to experience increased negative responses, such as increased anxiety (Craig, 1998), depression (Craig, 1998, Sweeting, Young, West, & Der, 2006), reduced self-esteem (Rigby & Slee, 1993; Salmivalli, 2010), school avoidance (Kochenderfer & Ladd, 1996), and even suicidal ideation (Rigby & Slee, 1999). On the other hand, if bystanders defend bullied victims, they can threaten bullies' social status, forcing them to stop (Salmivalli, Voeten, & Poskiparta, 2011). Giving victims social support can also mitigate the negative effects of bullying on victims' quality of life, reducing their risks of experiencing social anxiety and peer rejection (Flasphohler, Elfstrom, Vanderzee, Sink, & Birchmeier, 2009; Kärnä, Voeten, Poskiparta, & Salmivalli, 2010).

The Bystander Effect

Survey studies have found that about half of students think bullying is wrong (Boulton & Underwood, 1992; Menesini et al., 1997; Randall, 1995; Rigby & Slee, 1991; Stevens & Van Oost, 1994; Whitney & Smith, 1993). In addition, about 50% of students surveyed indicated that they had intentions to help or support the victim (Boulton & Underwood, 1992; Smith, Shu, & Madsen, 2001; Whitney & Smith, 1993). Despite the research findings that most school-aged children and adolescents are opposed to bullying, negative attitudes towards bullying and intentions to help did not necessarily transfer to actual helping behavior in reality (Ortega et al., 1999; Hawkins, Pepler, & Criag, 2001). For instance, Ortega and colleagues (1999) found that 43.5% of the students they surveyed did not take action against bullying, but at the same time, felt that this would be the right thing to do. Considering the attitude-behavior gap regarding

victim helping behavior, it is important to understand that there are several psychological obstacles that bystanders must overcome before they can intervene in bullying.

Most school bullying occurs in front of multiple witnesses. Bystanders' impulses to help a victim can initially become inhibited when there are other bystanders present, a phenomenon often known to social psychologists as the "bystander effect" (Darley & Latané, 1970). The bystander effect is a common social phenomenon that is not only limited to witnesses of bullying but also other critical situations, such as those involving crime and medical emergencies. Latané and Darley (1970) proposed that for bystander intervention to occur, bystanders must go through a sequence of decision-making, where the bystanders must 1) notice a critical situation; 2) define the situation as an emergency; 3) develop a feeling of personal responsibility; 4) believe that they have the skills to successfully intervene; and 5) reach a conscious decision to help. One negative decision at any step in this sequence can stop a bystander from intervening.

In addition, Latané and Nida (1981) suggested three psychological processes that interfere with the completion of the five steps and inhibit bystanders from helping. The first process is audience inhibition (Bierhoff, 2002; Hogg & Vaughan, 2008) or evaluation apprehension (Latané & Darley, 1970), which suggests that individuals' helping behavior might be inhibited by the mere presence of others due to a fear of making social blunders when they feel watched, especially when the incident is not considered as an emergency. Bystanders who decide to intervene in the presence of others can face multiple risks such as getting bullied themselves, losing their social influence among peers, being publicly embarrassed if the situation is misinterpreted, being stigmatized for being associated with the victim, the disruption of ongoing activities, lost time, and many other unknown but probable costs (Thornberg, 2010). When there are many bystanders present, the costs become even higher. According to the arousal

cost-reward model (Dovidio, Piliavin, Gaertner, Schroeder, & Clark III, 1991), bystanders experience aversive physiological arousal to a degree depending on the severity of a bullying event they witness. Thus, they are motivated to help the victim to reduce the unpleasant feelings elicited. The more severe the incident, the more motivated they are to help. Meanwhile, bystanders also decide whether or not to help a victim by weighing the costs and benefits of intervening. The higher the net costs of intervening, the lower the bystander's willingness to help. When individuals perceive that the bullying event is not severe enough to warrant an action and the costs of helping in the presence of others outweigh the rewards for defending a victim, helping behavior will be inhibited (Darley & Latané, 1968). This hypothesis has been supported by some empirical evidence. For instance, Bastiaensens, et al. (2014) found that when a cyberbullying incident was evaluated as not very severe, participants were less willing to help the victim, especially when other bystanders were good friends to them compared to merely acquaintances, potentially due to a fear of being evaluated negatively by their good friends.

The second psychological process that is often suggested to explain the bystander effect is diffusion of responsibility (Latané & Darley, 1970). When others are present at a bullying event, the responsibility of intervening is diffused among all the bystanders. Knowing that others are present and available to help, even if the individuals cannot see or be seen by them, allows for the reasoning that somebody has probably already initiated the helping, and so any given individual does not have to run the social risks of personally helping. Meanwhile, when there are several observers present, any potential blame for not taking action is diffused among the observers, reducing the likelihood for any individual bystander to intervene. On the other hand, if only one bystander is present in a bullying situation, the pressure to intervene will fall completely on the single bystander, making that individual more likely to help the victim. Even

if the individual chooses to ignore the event out of fear or a desire to "not get involved", he or she will have to take the full blame for the inaction.

The third psychological process that contributes to the bystander effect is known as social influence (Latané & Darley, 1970) or pluralistic ignorance (Latané & Darley, 1970). The social influence hypothesis (Bierhoff, 2002; Darley, Tegger, & Lewis, 1973; Latané & Darley, 1970) contends that potential helpers' perceptions of the social cues surrounding an ambiguous situation influence their helping behavior. Helping a victim in an emergency situation is usually a spontaneous social behavior that allows individuals little time to deliberate. According to Fazio's (1986) spontaneous processing model of the attitude-behavior relation, spontaneous social behaviors are guided by an individual's attitudes and norms that are accessible in the immediate situation in which the attitude object is encountered. However, when the situation is somewhat ambiguous, the individual must rely on social cues within the situation to help interpret it. A bullying situation often can be ambiguous, requiring the individual resort to other witnesses' responses to help define the event. The presence of other witnesses can thus inhibit helping, when the individual sees the inaction of others and misconstrues the situation as less severe than it actually is or decides that inaction is the expected behavior in this situation (Latané & Darley, 1970). On the other hand, when a bullying situation is clear and unambiguous, the process of diffusion of responsibility plays a more influential role in bystander effect.

Furthermore, Gini, Albiero, Benelli, and Altoe (2008) found that most bystanders who seem indifferent to the bullying may actually feel some measure of empathetic concern for students being victimized but lack requisite levels of self-efficacy to intervene. Self-efficacy is the belief in one's ability to succeed in specific situation or accomplish a task (Bandura, 1977, 1986). Unless a person has high confidence in his or her capacity to successfully defend the

victim, carrying out such behavior would usually be inhibited due to the perceived social risks, such as fear of retaliation, public embarrassment, or negative evaluation by peers involved.

To summarize, bystanders of a bullying incident often fail to intervene in the presence of others due to psychological obstacles, including audience inhibition, diffusion of responsibility, social influence, and lack of defender self-efficacy.

Psychological Predictors of Defender Behaviors

The theory of planned behavior (TPB; Ajzen, 1991) is commonly used as the theoretical framework for predicting helping or altruistic behaviors (Pomazal & Jaccard, 1976; Zuckerman & Reis, 1978). The theory proposes that a deliberative, planned behavior is influenced by individuals' intention to perform the behavior, which is the consequence of considering and weighing their attitudes toward the behavior, their perceived social norms regarding the behavior, and their perceived ability to enact the behavior. Additionally, perceived social norm can be further categorized into injunctive norms and descriptive norms. Injunctive norms describe one's perception of whether a behavior in question is socially approved or disapproved by one's valued others. Descriptive norms describe one's perception regarding the popularity of a certain act in one's surrounding community on a given behavioral context (Cialdini, Reno, &Kallgren, 1990).

Some empirical evidence supports the notion that making anti-bullying attitudes and social norms stronger and more accessible can increase bystander intervention. For instance, using a multilevel analysis, Salmivalli and Voeten (2004) found modest associations between anti-bullying attitudes and victim defending behaviors at the individual, student level. They also found that perceived anti-bullying descriptive norms in the classroom level predicted victim

defending behaviors at the classroom level, especially among older students. This result suggests that in addition to making students' anti-bullying attitudes salient, cultivating a classroom climate that reinforces anti-bullying norms may facilitate victim defending behaviors. Additionally, some research evidence indicates that increased accessibility of perceived injunctive norms that emphasize helping others seems to reduce bystander effects and instead increases the likelihood of helping as well. Experimental research studies by Horowitz (1971) and Rutkowski, Gruder, and Romer (1983) found that an individual bystander was more likely to help a victim in an emergency when there were other bystanders present and when all the bystanders belonged to a cohesive group whose injunctive norm was to be helpful to others, such as a college service group. Both studies suggested that the injunctive norm of being altruistic perceived by the individual bystander might have become more salient when other group members were involved, causing individuals more likely to conform to the injunctive norm prescribed by the group and to help the victim compared to when he or she was alone.

Based on this line of reasoning, the following hypotheses were proposed:

H1a. Attitudes towards defending bullied victims will be positively associated with intention to defend bullied victims.

H1b. Descriptive norms perceptions related to defending bullied victims will be positively associated with intention to defend bullied victims.

H1c. Injunctive norms perceptions related to defending bullied victims will be positively associated with intention to defend bullied victims.

In addition, the theory of planned behavior proposes that a behavior is more likely to be performed if individuals believe that they possess the requisite resources and opportunities

necessary to accomplish the behavior. Empirical evidence indicates that self-efficacy directly linked to the skills required to defend the victims of bullying is positively correlated with defender behaviors (Barchia & Bussey, 2011; Gini, et al., 2008; Pöyhönen, Juvonen, & Salmivalli, 2010; Pöyhönen & Salmivalli, 2008) and negatively associated with outsider behaviors (Gini et al., 2008; Thornberg & Jungert, 2013). An experimental study evaluating the efficacy of a peer-group, anti-bullying intervention program in middle schools (Menesini, Codecasa, Benelli, & Cowie, 2003) found that giving students specific training that enhances peer-group communication and emotional support skills prevented the increase of negative bystander behaviors and attitudes. Frey at al. (2005) similarly found that teaching elementary students skills for positive peer relations, emotion management, and recognizing, refusing, and reporting of bullying behavior resulted in declines in bullying and argumentative behaviors in class overall. Furthermore, students reported enhanced bystander responsibility and less acceptance of bullying after the training. Thus, the following hypothesis was proposed:

H1d. Self-efficacy related to defending bullied victims will be positively associated with intention to defend bullied victims.

Another behavioral model that is often used to predict helping behavior is Schwartz's (1973, 1975, 1977) norm activation model. The norm activation model proposes that helping behavior and other moral behaviors are guided by one's personal moral norm, which is the moral obligation that people hold for themselves to enact a given behavior. Furthermore, the norms can be activated when participants are first aware of the potential consequences of their act for the welfare of the individual being helped, and then feel internally responsible for the negative consequences of not helping the individual.

Previous studies have found that personal moral norms predict various prosocial behaviors (e.g. donating blood, reducing car use, De Groot & Steg, 2009). Based on this reasoning, it is possible that personal moral norms related to defending bullied victims may contribute to behavioral intentions to intervene in bullying situations, especially when individuals are aware of the negative consequences of not intervening and internally ascribing the responsibility for intervening to themselves. Thus,

H1e. Personal moral norms related to defending bullied victims will be positively associated with intention to defend bullied victims.

Personal Characteristic Determinants of Defender Behaviors

In addition to psychological determinants of defender behaviors, it is also important to take individuals' personal characteristics into consideration when designing an anti-bullying program, as several studies indicate that various individual characteristics can influence bystander behaviors (Cappadocia, Pepler, Cummings, & Craig, 2012; Van Cleemput, Vandebosch, & Pabian, 2014).

Research studies show that age is negatively associated with defender behaviors. Studies on both traditional bullying and cyberbullying indicate that older adolescents are more likely to join in the bullying, more likely to do nothing, and less willing to intervene than younger children (Bellmore, Ma, You, & Hughes, 2012; Rigby & Johnson, 2006; Rigby & Slee, 1991). Bellmore et al. (2012) explained that as adolescents grow older, they are less likely to report the bullying to an adult, because they value independence more highly in this developmental period. Further, they are more sensitive to acceptance by their peer group which inhibits them from "taking sides". However, all the studies mentioned above were conducted among adolescent

students before college. It is possible that the negative relationship between age and defender behaviors may no longer exist among college students, as they become more mature and possess more independent thinking skills. Thus,

RQ1. What is the relationship between age and intention to defend bullied victims among college students?

Evidence also suggests that female students are more likely to defend bullied victims than male students (Goossens, Olthof, & Dekker, 2006; Sainio, Veenstra, Huitsing, & Salmivalli, 2010; Sutton & Smith, 1999). Goossens et al. (2006) argued that girls behave in more prosocial ways and are more likely to appreciate defender behaviors compared to boys. The following hypothesis was proposed:

H2a. Female students will report greater intention to defend bullied victims than male students.

Finally, trait empathy is found to be associated with bystander behaviors as well. Trait empathy can be described as a disposition to recognize and share the thoughts, feelings, and perspectives of another (Bryant, 1982; Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). Trait empathy has been found to predict prosocial behaviors in various situations (Batson et al., 1988; Unger & Thumuluri, 1997). One study found that adolescents who reported lower levels of trait empathy were more likely to join in the bullying or do nothing; whereas adolescents who were more empathetic were found to be more likely to help the bullying victims (Caravita, Di Blasio, & Salmivalli, 2009; Jolliffe, & Farrington, 2006; Stavrinides, Georgiou, & Theofanous, 2010) and cyberbullying victims (Ang, & Goh, 2010; Renati, Berrone, & Zanetti, 2012;

Schultze-Krumbholz & Scheithauer, 2009; Steffgen, König, Pfetsch, & Melzer, 2011). Thus, the following hypothesis was proposed:

H2b. Trait empathy will be positively associated with intention to defend bullied victims.

Using a Serious Game as a Bystander-Intervention-Promotion Program

Previous research has investigated the effectiveness of curriculum-based programs promoting peer group bystander intervention using various delivery systems and methods. Those have included classroom-based drama (Merrell, 2004), videotaped reenactments (McLaughlin, 2009; Schumacher, 2007), and computer-adaptive software that tracks student progress within virtual simulation and provides individualized feedback (Evers, Prochaska, Van Marter, Johnson, & Prochaska, 2007).

One problem with those curriculum-based programs is that they typically target elementary through secondary school students and require considerable commitments of time and effort from teachers, counselors, principles, parents and students (Evers et al., 2007). In college, students use their own judgement to choose curriculum and manage time off, therefore, it may be unrealistic to implement an intensive curriculum-based program at the college level. Even if some universities might be able to implement the program during freshman orientation, it is still very time and effort intensive. Hence, a serious game that is designed with a purpose to teach colleges students bystander intervention behavior and can be played anywhere at any time may serve as a more effective form of bystander-intervention-promotion program in college.

Serious games are computer-delivered interventions that are designed to incorporate prosocial or educational content into video games with the goal of positively influencing people's awareness, knowledge, attitudes, and behaviors (Dörner, Göbel, Effelsberg, &

Wiemeyer, 2016). Serious games can be used to promote prosocial outcomes through multiple ways. First and foremost, serious games often simulate a realistic but safe environment for players to rehearse target behaviors without having to experience real-life consequences of making high-stakes mistakes (Albright, Adam, Serri, Bleecker, & Goldman, 2016; Sabri et al., 2010). Players are encouraged to practice behaviors and make decisions within the simulated experience, such as rehearsing daily habits like dietary planning (Peng, 2009) and smoking cessation (Khaled, Barr, Noble, Fischer, & Biddle, 2007). The computer algorithm then provides feedback on how the players performed in order to motivate behavior change (Fogg, Cuellar, & Danielson, 2009). According to situated learning theory, skills can be better acquired when they are actively practiced within the same contexts – settings, activities, and situations in which the skills would typically be used (Lave & Wenger, 1991). Similarly, social cognitive theory suggests that self-efficacy to conduct a behavior is best enhanced when a person performs and accomplishes the action within a real physical environment (Bandura, 1977). Therefore, serious games using a simulation approach to behavior intervention may be effective because of their ability to help players practice behaviors in a virtual environment and translate them into actual behaviors in real life (Christensen et al., 2013).

Serious games can also influence attitudes and behaviors through narrative persuasion (Green & Brock, 2002; Slater & Rouner, 2002). Most serious games use a cohesive narrative to organize the persuasive content embedded in the games (Baranowski, Buday, Thompson, & Baranowski, 2008). Recent theorizing about narrative persuasion in entertainment-education suggests that narratives have high absorption potential, which is the ability to disrupt recipients' real-life thoughts and feelings and foster a cognitive and emotional involvement with the storylines and characters. The power for narratives to do so allows them to more easily influence

players' adoption of the values, beliefs and behaviors promoted in the persuasive subtext imbedded in the narratives, especially when the persuasive content is an integral part of the narratives (Fisch, 2000).

An Interactive Narrative Format of Serious Game

Interactive narratives, also called "choose your adventure stories" have recently become a popular game genre with the invention of nonlinear video play devices. In an interactive narrative video game, players take on the role of a protagonist who is actively participating in an unfolding story, often a mystery. Throughout the entire story, they will be confronted with multiple choices, at which points they must decide on which choice to make. Based on their decision, the story then branches off in one of two (or more) directions until the next decision point. Depending on the combination of choices players make throughout the story, one of multiple endings will be presented in the finale of the story (Green & Jenkins, 2014). Visually, an interactive narrative game resembles a movie shot in a cinematic and scripted manner. However, unlike a traditional narrative movie, which shows a pre-authored, linear story that viewers have no control over, players of an interactive narrative game have more autonomy to control the direction of the story.

For example, a video game *Life is Strange* uses the mechanism of interactive narrative to help players explore various issues that are relevant to young adults including bystander intervention behaviors towards victims of bullying. In this game, players take the role of an eighteen-year-old college student, Max Caulfield, who navigates a series of moral dilemmas (e.g. whether to comfort a bullied victim or to attend to a recently reunited old friend). The story is made even more non-linear when Max discovered she has the super power to rewind time, giving players the ability to go back in time to fix any wrongdoing or decision they regretted. The story

started with Max witnessing her friend, Kate Marsh, being severely bullied by other students on campus. Max are provided with several decision points during which she can choose either to intervene or stand by and do nothing. Depending on the decision Max makes, either a positive consequence (i.e., Kate staying alive) or a negative consequence (i.e., Kate committing suicide) will be presented at the end.

An interactive narrative game like *Life is Strange* may serve as a form of prosocial game to promote bystander intervention behaviors. The game provides a simulated environment for players to rehearse positive bystander behaviors as if they actually witnessed a bullying event on campus. The game incorporates a cohesive narrative to present the consequences of positive and negative bystander behaviors and their effects on the victims of bullying. Therefore, it is possible an interactive narrative game like *Life is Strange* with a focus on bystander intervention may contribute to behavioral change regarding bystander intervention. The following literature review will examine the persuasive effects of interactive narrative games, using the potential influence of the game *Life is Strange* on changing victim defending behaviors as a specific example.

Persuasion in Interactive Narrative Games

Although emerging research has examined the impact of interactive narratives on attitude and behavioral change, such studies were limited to text-based interactive narratives (Jenkins, 2014). Currently, no research known to the author has investigated either the persuasive effect of game-based interactive narratives on attitude and behavior change or, specifically, their effect on increasing defender behaviors in bullying situations. Therefore, the next purpose of the study was to address this research gap. The following sections will propose the psychological processes that may be fostered in interactive narrative games and describe how these processes may contribute to stronger change in behavioral intention than traditional non-interactive

narratives or purely educational programs. Specifically, those psychological processes are presence, identification, counterfactual thinking, and guilt.

Presence

The first mechanism that may produce positive outcomes for behavioral intention change through interactive narrative games is presence. Presence is broadly defined as a media user's subjective sensation of "being there" in a scene depicted by a medium (Barfield, Zeltzer, Sheridan, & Slater, 1995), or in Lombard and Ditton's words (1997) "a perceptual illusion of non-mediation." Nicovich (2005) proposed three major elements of media formats that may determine presence. The first factor is the fidelity of a reproduction or simulation of the physical world. In other words, how realistically and vividly the displayed environment is represented. The second factor is the degree of interaction that users have with the simulated environment. This is the degree of control users have to modify and change the course of events in the simulated environment. For example, previous research showed that increasing video game interactivity through naturally mapped game controllers that mimic real-life actions can facilitate the experience of presence (Skalski, Tamborini, Shelton, Buncher, & Lindmark, 2011). The last factor is the consistency of the simulated environment. This means that there needs to be a continuity of all sensory input and interactivity in the displayed environment during the course of the event so that users are constantly reminded that the simulated environment is "real". By Nicovich's (2005) definition, video games with characteristics that support each of these elements sufficiently should engender a greater sense of presence. In addition to media format-related elements, Heeter (1992) suggests that social elements of a mediated environment, such as discerning and validating the existence of users as part of a simulated environment through the reactions of other virtual or real actors may also contribute to the experience of presence.

Drawing from this review, interactive narrative games have all the characteristics that may facilitate presence. First, one can argue that the technological features inherent in modern video games themselves can enhance presence. Such features include heightened visual and auditory vividness, and more importantly, interactive game control systems that allow players to maneuver a character or object freely and realistically in the game environment (Tamborini & Bowman, 2010). Additionally, compared to a pre-authored linear narrative video, players were given active control over the story development in an interactive narrative game. In the game, players choose protagonist's actions that usually result in immediate reactions from other characters. For example, players can be criticized by another character if they choose decisions that are not approved by the character. This could potentially lead to heightened social presence in the game environment. Over the course of the game, decisions players make will also have more profound impact on characters' fate and outcome of the story. Such heightened feelings of agency generated in an interactive narrative game could also lead to greater presence in the simulated game environment.

Although most empirical research studied presence in the context of computer-mediated communication (e.g. video games, virtual reality, etc.), based on the previous discussion that fidelity factor could promote presence, it is reasonable to assume that media users can experience certain degree of presence in non-interactive media if vivid and realistic visual images are presented in the display environment (e.g. 3D movies, photorealistic video, etc.). Based on this line of reasoning, a non-interactive narrative video with the same vivid visual and audio representation and content (i.e., story, characters, themes) as the interactive narrative game should elicit less presence than the game, but greater presence compared to an educational video with plain images and no narratives. Thus,

H3a. Participants will experience greater presence playing an interactive narrative game than watching a non-interactive narrative video and watching a non-narrative educational video. Participants will experience greater presence watching a non-interactive narrative video than watching a non-narrative educational video.

Furthermore, the experience of presence may be especially critical for facilitating stronger change in behavioral intention to defend victims of bulling after playing an interactive narrative game than watching a non-interactive narrative video or a purely educational video.

One theory supporting an association between presence and victim defending behaviors is the norm activation model (Schwartz, 1973, 1975, 1977). Based on the model and previous study hypothesis, participants' personal moral norms with regard to defending behavior should predict their intention to defend victims of bullying. Furthermore, the model contends that individuals' personal moral norms for helping can be activated when one is first aware of the adverse consequences of not engaging in helping and then internally ascribe the personal responsibility for not helping to oneself (Schwartz, 1968, 1973, 1974; Zuckerman, Siegelbaum, & Williams, 1977). In the absence of awareness of consequences (AC) or ascription of responsibility (AR), people will not realize that they are faced with a moral choice, and thus personal moral norms will not be activated to influence a given moral behavior. This model has gained various support from empirical evidence in research on prosocial (e.g., De Groot & Steg, 2009; Schwartz, 1974; Schwartz & Fleishman, 1978; Steg & De Groot, 2010) and environmental behaviors (e.g., Harland, Staats, & Wilke, 1999; Park & Ha, 2014; Stern, Dietz, & Black, 1985). For example, an experimental study conducted by Zuckerman et al. (1977) found that making the consequences of donating bone marrow to others and the actor's personal responsibility for these consequences salient in an appeal for help elicited stronger commitment to volunteering as a

bone marrow donor. Similarly, experimental research (Korte, 1969) on bystander intervention found that more participants responded to the need for help when the focus of responsibility was not diffused to others present at the time of the emergency, but solely on participants themselves.

Previous research in game-based learning has demonstrated that the experience of presence allows players to learn actively rather than passively, and afford personalized learning based on players' choices and discovery of their consequences (Konijn & Bijvank, 2009). Through playing an interactive narrative game, participants are immersed in a simulated environment where they actively make decisions regarding whether or not they should defend a victim of bullying. Thus, the heighted sense of "being there" in decision-making situations may force them to actively engage in the thought process of predicting and weighing the potential consequences of their decisions, thereby raising their overall awareness of the consequences of not engaging in victim defending behaviors. On the contrary, when participants passively watch a non-interactive narrative video that shows another character responding to a victim of bullying or a purely educational video, they are no longer pressed to actively go through the mental simulation, answering questions like "what would happen if I don't…", as the feeling of presence wanes.

Similarly, the presence engendered in a game-based intervention may also promote participants' internal ascription of responsibility for defending victims of bullying. As the sense of presence is fostered by the interactive narrative game, players gradually shift their attention from the physical world to the virtual world and become increasingly cognitively and emotionally involved with the characters, activities, and events in the virtual world (Barfield & Weghorst, 1993; Witmer & Singer, 1998). Hence, they are likely to feel a heightened sense of personal responsibility for the decisions they make as the power to make those decisions are

solely in their hands. An initial empirical study on interactive narratives supports this notion by demonstrating that reading a text-based interactive narrative in which readers chose the character's actions lead to participants feeling greater personal responsibility for the story outcomes than did reading a traditional pre-scripted narrative (Jenkins, 2014). To the extent that players feel more present in the interactive narrative game than with a traditional narrative video or a purely educational video, they are likely to walk away from the game with a stronger feeling of responsibility for defending victims of bullying in real world.

Based on this line of reasoning, the following hypotheses were proposed (shown in Figure 1).

Presence will be positively associated with awareness of consequences (H3b) and internal ascription of responsibility (H3c).

Awareness of consequences will be positively associated with internal ascription of responsibility (H3d) and increase in personal moral norm to defend victims from pre-test to post-test (H3e).

Internal ascription of responsibility will be positively associated with increase in personal moral norm to defend victims from pre-test to post-test (H3f).

Increased personal moral norm to defend victims from pre-test to post-test will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test (H3g).

Another possible mechanism through which presence may induce stronger behavioral intention to defend bullied victims is empathy. Empathy can be defined as the ability to perceive and understand another's emotions by placing oneself psychologically in that person's

circumstance (Lazarus, 1991). Previous research suggests that empathy is positively associated with prosocial behaviors (see Eisenberg & Miller, 1987 for a review). Furthermore, studies in the bystander intervention literature found that empathic reactions towards a victim of bullying may motivate a bystander to help the victim in bullying situations (Thornberg et al., 2012; Correia & Dalbert, 2008; Nickerson et al., 2008).

A previous study by Peng, Lee and Heeter (2010) have found that playing a prosocial game set in a Darfur refugee camp, *Darfur is Dying*, may enhance players' empathic reactions towards refugees more so than watching the same game as an animation or reading a text conveying the same information. As a result, participants who played the game were more willing to help refugees than others. Another study also found that playing a game that dealt with the aftermath of the 2010 Haiti earthquake enhanced players' empathy towards Haitian people, and empathy was mediated through presence experienced from the game play (Bachen, Hernández-Ramos, Raphael, & Waldron, 2016). Both studies suggest that the experience of presence induced by prosocial games that vividly portray the negative emotional suffering of a character may facilitate players' empathy for the character, and in turn facilitate helping behaviors towards similar people in real life.

In the interactive narrative game, *Life is Strange*, players are led to directly witness a character being bullied and must make decisions responding to what they see. Based on the previous review, the feeling of being present in the scene may enhance their empathetic reactions towards the bullied character as they feel more emotionally involved in the game. Furthermore, such empathetic responses may be transferred to real-life victims of bullying even when players finish the game.

Based on this line of reasoning, the following hypotheses were proposed (shown in Figure 1).

H3h. Presence will be positively associated with empathy towards victims of bullying.

H3i. Empathy towards victims of bullying will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.

Taking all these hypotheses together, the model shown in Figure 1 outlined a hypothesized model that explains the mechanisms through which presence enhanced by an interactive narrative game may contribute to an increase in behavioral intention to defend bullied victims.

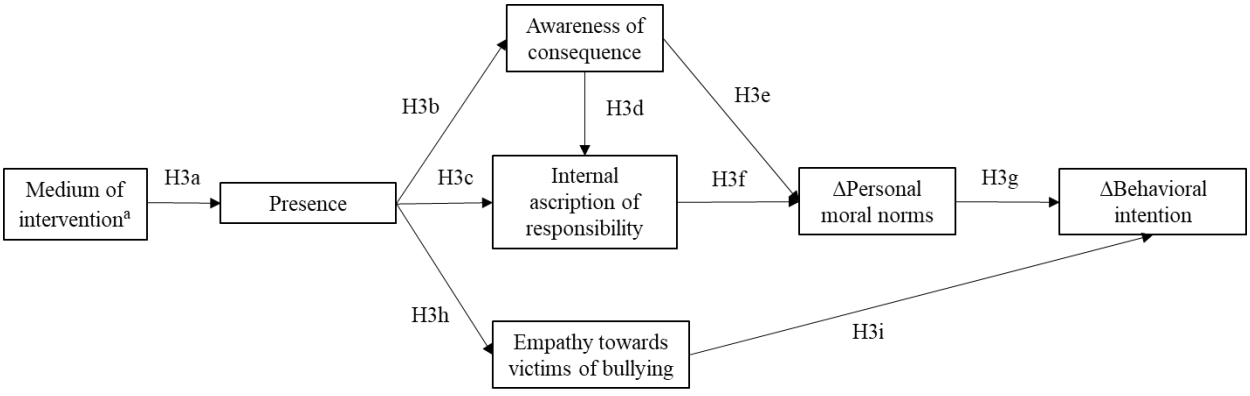

Figure 1. Hypothesized path model explaining the persuasive mechanism of presence on increasing behavioral intention

Note. [a] Medium of intervention in this model has three levels, including interactive narrative game, non-interactive narrative video, and educational video.

Identification

The second mechanism for facilitating behavioral intention change using interactive narrative games is through identification with a character. Identification with characters is a mental process that occurs when narrative recipients temporarily merge their own identities with

that of the character, taking on her perspective, feelings, and goals (Tal-Or & Cohen, 2010). In a traditional narrative movie, viewers play passive witnesses to an autonomous character performing a pre-authored story. The relationship between the viewers and the movie characters is that of observers and the observed. No matter the extent of emotional responses or empathy viewers feel for the characters, they still perceive a perceptual distinction between themselves and the characters.

On the other hand, players of an interactive narrative game are the active enactors of a story because they actively perform behaviors that may lead to different consequences. Klimmt, Hefner, and Vorderer (2009) argued that video games may elicit "true" character identification in their players, because when video game players embody a character, they completely merge themselves with the character. The claim has been supported by some empirical evidence. Klimmt, Hefner, Vorderer, Roth, and Blake (2010) found that as players control the character of the game, their self-concepts were temporarily altered to adopt the perceived properties of their avatar. Similarly, previous research on virtual reality demonstrated that after taking on the role of a digital avatar, participants automatically shift their implicit self-perceptions by ascribing the salient properties of their avatars to themselves and modifying their behaviors to comply with the traits and characteristics of their avatars (Rosenberg, Baughman, & Bailenson, 2013; Yee & Bailenson, 2007). For instance, Yee and Bailenson (2007) found that embodying a more attractive avatar prompted participants to show more intimate interaction with other avatars, including increased self-disclosure and closer interpersonal distance in the virtual environment (Yee & Bailenson, 2007). They also found that players assuming a taller versus shorter avatar behaved more confidently in a virtual negotiation task (Yee & Bailenson, 2007).

Initial research on an interactive narrative game has found that participants identified more with a game character when they played the character compared to those who only watched a video recording of the same game (Ahn and Bracken, 2017). Therefore, the following hypothesis was proposed:

H4a. Participants will report stronger identification with the main character after playing an interactive narrative game than after watching a non-interactive video.

Additionally, interactive narrative games usually produce contrasting outcomes based on players' moral decision-makings throughout the narrative. In an interactive narrative game like *Life is Strange*, making positive decisions to defend a victim of bullying will lead to a positive outcome and making negative decisions to not defend the victim will lead to a negative outcome. According to Cohen (2001), identification with a media character may be associated with audience perceptions of liking and affinity to the character. When audience members develop an emotional connection with a character, identification with the character may occur. A previous experiment further demonstrated that viewers' identification with a character in a film was influenced by the valence of character's deeds (Tal-Or & Cohen, 2010). Tal-Or and Cohen (2010) found that audience identified more with the character who conducted positive deeds than the same character who conducted negative deeds. It is possible that audience members develop a closer affinity with the good character than with the evil character based on their moral evaluation of the character (Raney, 2003) and this affective disposition toward a good character impacts identification. Thus, the outcome valence of the interactive narrative as a result of the main character's moral decision-makings may also influence individual's identification with the main character. The following hypothesis was proposed:

H4b. Participants will report stronger identification with the main character when they receive a positive story outcome compared to a negative one.

One theory supporting the association between identification and behavioral intention change is social cognitive theory (SCT; Bandura, 1986). According to SCT, people can learn a new behavior through observing and imitating another person or a fictional character performing a given behavior. However, the likelihood that an observer will actually perform the modelled behavior depends on several factors, including the observer's self-efficacy or perceived ability to perform the behavior, and the rewards and punishments associated with that behavior. Bandura (2004) further suggests that an observer's self-efficacy can be enhanced through enactive experience or vicarious experience. Enactive experience is when one performs simple tasks that eventually lead to mastery of the complex behavior, while vicarious experience can be gained from observing a model – especially one who is similar to the observer– who performs the process of accomplishing the behavior. Enactive mastery experience has a stronger influence on increasing self-efficacy than vicarious experience (Bandura, 2003).

Based on this review, one possible way to increase one's perceived self-efficacy to defend victims of bullying is to actually have the individual successfully defend a victim of bullying. However, this scenario may not be easily recreated due to many physical and ethical constraints. Another way to increase self-efficacy is to have the individual watch a video that portrays a role model demonstrating the victim defending behaviors. The challenge in this method is that the observer may find the role model unlike herself, thus deeming the behavioral outcomes to the role model inapplicable to herself.

In light of these limitations, an interactive narrative game may afford a realistic yet safe environment for players to rehearse and master victim defending behaviors. The game allows

players to reenact victim defending behaviors by actively controlling the character's actions, but in the meantime vicariously observing the behavioral consequences that are imposed on the character. As players merge their self-identities with those of the game character's, the identification process occurs. The increased identification fostered by the game may raise players' beliefs that they too possess the capabilities to master the same behaviors in the real world (Fox & Bailenson, 2009; Peng, 2009). Several studies have demonstrated that video games that contain the element of role-playing can improve one's self-efficacy to imitate the modeled behavior in real world through the mechanism of identification with a game character (Christensen et al., 2013; Fox & Bailenson, 2009; Peng, 2009; Thompson et al., 2010). For example, Christensen and colleagues (2013) had young gay men assume virtual identities in a 3-D simulation game to practice self-regulatory decision-making regarding safe sex in different virtual scenarios. This helped increase their self-efficacy to exercise self-regulatory decision-making in the future and reduce risky sexual behaviors in the long-term compared to those in a wait-list control group. Similarly, in an experiment by Peng (2009), college students played a game in which they practiced dieting behaviors in a three-week period. The results showed a significant increase in students' self-efficacy to diet as a result of identification with the game character compared to a group of students who only watched a video recording of the same game.

To summarize, an interactive narrative game allows players to take on the identity and perspective of another character, through which they virtually act as the character and observe the consequences that occur to the character. The identification with the character engendered in the game enhances self-efficacy, which in turn may lead to greater intention to conduct the same

behaviors in real world. Following this line of reasoning, the following hypotheses are proposed (see Figure 2):

H4c. Identification with the main character will be positively associated with an increase in self-efficacy related to defending victims from pre-test to post-test.

H4d. Increased self-efficacy related to defending victims will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.

From a narrative persuasion perspective (Green, 2006; Slater & Rouner, 2002), identification with a character is also proposed to be a key mechanism through which narratives influence receivers' attitudes. The merging between receivers and characters forged by identification allows narrative recipients to simulate or imagine what the character is thinking, feeling, and the goal they are pursuing. The phenomenon can also occur spontaneously through an automatic priming mechanism (Bargh & Chartrand, 1999, 2000). This means a narrative recipient's similar thoughts, emotions and behaviors can be automatically activated within a short period of time after perceiving those of a media character, especially when the recipient identifies with the character (Peña, 2011). Thus, identification with a character may increase the likelihood that a narrative recipient will adopt the attitudes held by a character or implied by the experience of the character (De Graaf, Hoeken, Sanders. & Beentjes, 2012; Green, 2006; Mar & Oatley, 2008).

There is some empirical evidence for the causal relationship between identification and attitude change. For instance, De Graaf et al., (2012) manipulated identification by changing the perspective from which a story was told. They found that participants identified more with a protagonist when the story was told from a first-person perspective, and identification with the

protagonist then lead participants to later adopt attitudes that were consistent with the protagonist's. Similarly, Hoeken and Fikkers (2014) conducted an experiment where they let participants read two versions of a similar story. In each version, the protagonist and the antagonist held opposing attitudes, but the positions they held were switched between the two versions. They found that no matter which version participants read, they always identified more with the protagonist than the antagonist, and they were more in favor of whatever attitude the protagonist held.

When players play the main character in an interactive narrative game, it is expected that they will adopt the main character's attitudes as well due to enhanced identification. However, because the nature of the game requires players to choose one of the two morally opposing actions (e.g. help the victim versus ignore the victim), the main character's attitudes towards the target behaviors are purposefully portrayed as ambiguous. Hence it is unclear whether identification with character in an interactive narrative game will necessarily lead to more positive attitude towards victim defending behavior. Due to the uncertainty surrounding the relationship between identification with a character and attitude change induced in an interactive narrative game, the following research question was proposed (see Figure 2):

RQ2. Will playing an interactive narrative game on bystander intervention influence positive attitude change toward victim defending as a result of stronger identification with the main character?

If so, based on the theory of planned behavior (TPB; Ajzen, 1991), positive attitudes toward victim defending should predict behavioral intention. Thus, the following hypothesis was proposed (see Figure 2):

H4e. An increase in positive attitude toward defending victims from pre-test to post-test will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.

Counterfactual Thinking

One unique characteristic of interactive narratives that has not gained much attention in the narrative persuasion literature is counterfactual thinking. Counterfactual thinking is the generation and consideration of imagined alternatives to reality. In other words, it is a thought process that involves asking questions like "what could have happened if I had…" (Roese, 1997). Counterfactual thinking is especially common following negative events. Consideration of alternatives to negative outcomes, particularly when the counterfactuals turn those outcomes into better ones, has repeatedly been shown to elicit an intense negative reaction consisting of a mixture of emotions including sadness, self-blame, and regret (Gleicher et al., 1995; Miller & Taylor, 1995; Tykocinski, Pittman, & Tuttle, 1995, Experiment 6). Experimental research has found that explicitly including upward counterfactuals (imagined better alternatives), as opposed to downward counterfactuals (imagined worse alternatives), in a narrative that ends with a negative outcome can motivate narrative recipients to later adopt attitudes and behavioral intentions that can prevent the negative outcome if they encounter a similar event (Roese, 1994; Tal-Or, Boninger, Poran, & Gleicher, 2004).

Tal-Or et al. (2004) proposed that the psychological mechanism of how counterfactuals exert persuasive influence on attitudes and behaviors can be broken down into a series of steps. First, the counterfactual thoughts elicited by a narrative would amplify the negative emotions narrative recipients experience in response to the tragic event depicted in the narrative. For example, thinking that a severe car accident could have been prevented if the driver had obeyed a

yield sign would elicit poignant feelings of sadness, regret, and self-blame. The intensified emotions would then enhance the accessibility of the counterfactuals, resulting in a higher probability for narrative recipients to retrieve memory of those counterfactuals when they encounter a similar event subsequently (i.e., a traffic safety event). Consequently, recipients would be more likely to adopt attitudes and behaviors that are associated with the counterfactuals, such as positive attitudes and behaviors related to following traffic rules to minimize the chance of future accidents.

It is worth noting that the focus of responsibility can moderate the persuasive effect of counterfactual thoughts elicited in a narrative. Research suggests that counterfactual thoughts can only influence the attitudes and behaviors of narrative recipients when the responsibility of the negative outcome lies in the self or the character in whose place the recipients were asked to place themselves (Tal-Or et al., 2004). On the other hand, when it is someone else's behavior that could have prevented the negative events, the counterfactuals would say nothing about what the recipients themselves could have done differently to alter the outcome, rendering the counterfactuals less influential. Additionally, Tal-Or et al. (2004) found that counterfactual thoughts that are self-generated by narrative recipients have a more lasting effect on attitudes than those that are explicitly presented to the recipients. Such a conclusion is consistent with the research on self-generated cognitions demonstrating that people are most influenced by their own thoughts (Love & Greenwald, 1978; Perloff, Padgett, & Brock, 1980). These studies found that persuasive messages that encourage effortful, and self-focused cognitive processing are more influential than messages that do not engage the self (Burnkrant & Unnava, 1989; Gregory, Burroughs, & Ainslie, 1985; Lydon, Zanna, & Ross, 1988).

Since an interactive narrative game like *Life is Strange* is designed in a way that players actively make decisions that directly lead to either a negative or a positive outcome, they should feel more responsible for the story outcome in the game than those who passively watch the story unfolding on a screen. Hence, when players reach a negative outcome in the game as result of the decisions they make, it is expected that they may be more motivated to generate counterfactual thoughts like "what could have happened if I took the other routes" compared to when they receive a positive outcome. On the other hand, when participants watch a traditional narrative video that shows the story outcome as the product of the decision makings of a media character, participants may not feel the same level of responsibility for the story outcome as those who play the game, hence generating fewer counterfactual thoughts in general due to the inhibited feeling of responsibility.

Based on this line of reasoning, the following hypotheses were tested (see Figure 2).

H5a. Participants will generate more counterfactuals related to the bullying event when they receive a negative story outcome compared to a positive one.

H5b. The effect of outcome valence on counterfactual thinking will be moderated by the medium of intervention such that the effect will be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions.

H5c. Counterfactual thinking will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.

Guilt

Guilt is an unpleasant emotional feeling that is associated with "the recognition that one has violated a personally relevant moral or social standard" (Kugler & Jone, 1992, p.218).

Baumeister, Stillwell, and Heatherton (1994) and Hoffman (1994) emphasize the social and interpersonal nature of guilt, arguing that guilt often arises from interpersonal transgressions when one feels responsible for another person's negative affective state or harming another person either from actions (e.g., lying) or inactions (e.g., forgetting someone's birthday). Guilt is also found to be associated with prosocial behaviors (Tangney, Struwig, & Mashek, 2007). Baumeister et al. (1994) suggests that guilt serves various relationship-enhancing functions, including prompting people to treat others well and to avoid actions that would harm others. Several studies found that feelings of guilt motivated people to perform prosocial behaviors that mend, repair, or remedy a damaged relationship when a transgression takes place (e.g., Carlsmith & Gross, 1969; Gonzales, Manning, & Haugen, 1992). For instance, studies on the effects of guilt on compliance and victim compensation typically manipulated participants' guilt by having them commit a transgression, such as delivering painful electronic shocks to a confederate (Carlsmith & Gross, 1969). Participants were found to be more likely to compensate or agree to a request from the confederate, or even an unrelated individual when they felt guilty over the transgression (e.g., Konecni, 1972; Regan, 1971; Regan, Williams, & Sparling, 1972).

Several studies on video games found that committing immoral behaviors in a video game can also elicit feelings of guilt (Grizzard, Tamborini, Lewis, Wang, & Prabhu, 2014; Hartmann, Toz, & Brandon, 2010; Weaver & Lewis, 2012). For example, Grizzard et al., (2014) let participants play either as a terrorist or a UN soldier in a video game and found that people playing as terrorists felt significantly more guilt than those playing as UN soldiers. Similarly, Weaver & Lewis (2012) found that players behaving in anti-social ways in a game reported significantly more guilt than players behaving pro-socially.

In an interactive narrative game, players are constantly tasked with making moral decisions (e.g. defend or not defend a victim of bullying). Therefore, when players choose to not help a character, leaving the character feeling distressed, such behavior may be perceived as a moral transgression. Based on previous findings on game-induced guilt, such moral transgression is expected to arouse the feeling of guilt. The emotion of guilt aroused in the game is then expected to motivate players to harbor strong behavioral intentions to defend bullied victims in the future in order to alleviate the feeling of guilt. Thus, the following hypotheses were tested (see Figure 2).

H6a. Participants will feel more guilt when they receive a negative story outcome compared to a positive one.

H6b. The effect of outcome valence on feelings of guilt will be moderated by the medium of intervention such that the effect will be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions.

H6c. Feelings of guilt will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.

Taking all these hypotheses together, the model shown in Figure 2 outlined a hypothesized model that explained the mechanisms through which identification, counterfactual thinking, and guilt enhanced by an interactive narrative game may contribute to an increase in behavioral intention to defend bullied victims.

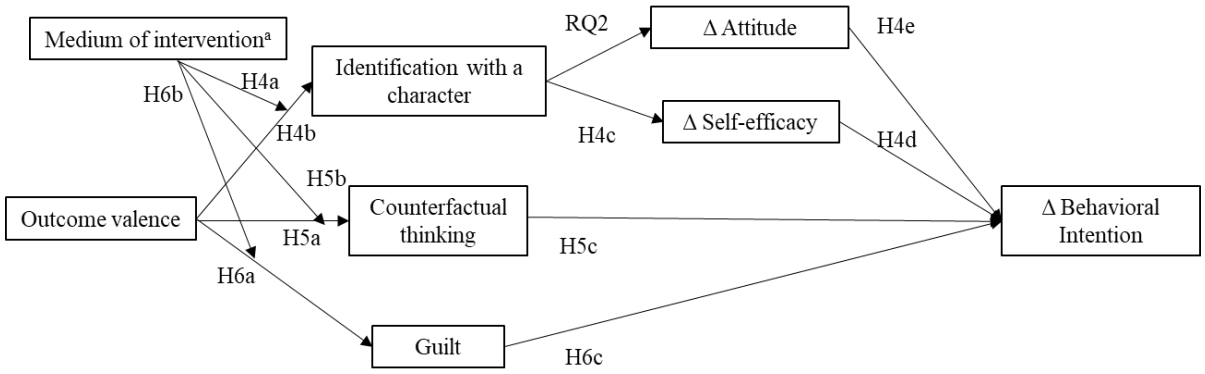

Figure 2. Hypothesized path model explaining the persuasive mechanisms of identification, counterfactual thinking, and guilt on increasing behavioral intention

Note. [a] Medium of intervention in this model has two levels, including interactive narrative game, and non-interactive narrative video.

CHAPTER 3

STUDY 1

Method

The purpose of Study 1 was to explore some of the psychological determinants (e.g. attitude, self-efficacy, norms perceptions) that may predict the intention of a bystander to defend bullied victims. Further, the study aimed to examine the extent to which personal characteristics (e.g. trait empathy, age, gender) influence behavioral intention to defend victims of bullying. A final purpose of the study was to lay out a foundation for Study 2, so that those personal characteristics that significantly affect intention to defend victims in Study 1 could be properly controlled in Study 2.

Participants

A total of 107 undergraduate students enrolled in communication courses at a southeastern public university participated in the study in exchange of extra or course credit. Most of the participants were White (67.30%), followed by Hispanic (15.9%), and Black (12.1%). The majority of participants were female (71.0%). The average age among participants was 19.90 (*SD*=1.06).

Procedure

Prior to starting the questionnaire, participants were administered an IRB-approved inform consent (see Appendix A). They were then directed to complete an online Qualtrics survey that measured all the variables of interest (see Appendix B). The questionnaire ended by ascertaining demographic information.

Measures

Control variables.

Previous experience of being bullied and cyberbullied. Participants were given a definition of bullying. They were then asked a series of questions beginning with the stem: "Given this definition, a) from kindergarten to high school, and b) since you have been in college, have you ever been bullied by one or more other students?" Students were also given a definition of cyberbullying and asked "Given this definition, a) from kindergarten to high school, and b) since you have been in college, have you ever been cyberbullied by one or more other students?" All questions were answered on a 5-point Likert type scale, with 1 (never) and 5 (very frequently). An average was taken among the four items for previous experience of being bullied and cyberbullied. The scale was reliable with a Cronbach's alpha of 0.81 (M=1.77, SD=0.77)

Prior defender behaviors. Participants rated on 5 items that asked when seeing someone being bullied or cyberbullied by other students in the past, how often did they defend the victim. Sample responses included "I stood up for the victim during the confrontation," and "I reported the bullying to someone who can help". Responses ranged from 1 (never) to 5 (always). Prior defender behavior was found to be reliable (5 item, α=0.85, M=2.59, SD=0.96).

Predictors.

To measure intention and all of its psychological determinants, six victim defending behaviors that correspond to the behavioral decisions that would later occur in the interactive narrative video game were selected to form a defender behavior inventory. These behaviors were "standing up for the victim during the confrontation," "comforting the victim," "reporting the

bullying to someone who can help," "encouraging the victim to ask for help," "asking other students to support the victim," and "minimizing the spread of rumors about the victim."

Attitude towards defending victims. Attitude was measured by having participants rate how they felt about the six defender behaviors respectively. Each behavior was rated on a scale from 1 (bad) to 5 (good) and a scale from 1 (negative) to 5 (positive). Cronbach's alphas for attitude (12 items, α= 0.94, *M*=4.54, *SD*=0.69) indicate that the scale was reliable.

Defender self-efficacy. Participants were asked to rate "how confident they are that they have the ability to do…" and "How certain that they are that they can do…" each of the six defending behaviors. Responses ranged from 1 (not confident at all/cannot do at all) to 5 (highly confident/highly certain can do). Self-efficacy (12 items, α=0.92, *M*=3.99, *SD*=0.76) was found to be highly reliable.

Descriptive norm perceptions. Descriptive norm perceptions were measured by two question stems: "When witnessing another student being bullied/cyberbullied, most FSU students/students like me typically…" followed with the six defending behaviors. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alphas for injunctive norm perceptions (12 items, α= 0.92, *M*=3.37, *SD*=0.74) indicate that the scale was reliable.

Injunctive norm perceptions. Injunctive norm perceptions were measured by two question stems:" If I witnessed another student being bullied or cyberbullied, my parents/closest friends expect me to …" followed with the six defending behaviors. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alphas for injunctive norm perceptions (12 items, α= 0.93, *M*=4.10, *SD*=0.67) indicate that the scale was reliable.

Personal moral norms. Personal moral norms were measured by two question stems: "If I witnessed a student being bullied or cyberbullied, I would feel morally obligated to/personally responsible to…" followed with the six defending behaviors respectively. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). The personal moral norms index (12 items, α=0.93, *M*=3.95, *SD*=0.72) was found to be highly reliable.

Trait empathy. Trait empathy was measured by taking the average of two subscales - each made up of 7 items - from Interpersonal Reactivity Index (Davis, 1980). One subscale measured perspective taking, the tendency to spontaneously adopt the psychological point of view of others. The other subscale measured empathic concern, which assess "other-oriented" feelings of sympathy and concern for unfortunate others. Participants rated the 14 items on a scale from 1 (does not describe me well at all) to 5 (describes me extremely well) including, "I try to look at everybody's side of a disagreement before I make a decision," and "I often have tender, concerned feelings for people less fortunate than me." Trait empathy was found to be reliable with a Cronbach's alpha of 0.80 (*M*=3.74, *SD*=0.53).

Outcome variable.

Intention to defend victims. Intention was measured by 12 items. Participants were asked to rate how willing would they be and how likely would they be to do each of the six defending behaviors in the future, if they witnessed a student being bullied/cyberbullied. Response options ranged from 1 (very unwilling/very unlikely) to 5 (very willing/very likely). The intention index was found to be reliable with a Cronbach's alpha of 0.93 (*M*=4.05, *SD*=0.71).

Results

Prior to testing the hypotheses, bivariate correlations among all variables were examined (see Table 1). The results indicated significant correlations between most of the variables except for age and previous experience with bullying. In particular, intention was found to be highly correlated with both personal moral norms (r=0.74, p<0.01) and injunctive norms perceptions (r=0.79, p<0.01). Personal moral norms were also highly correlated with injunctive norms perceptions (r=0.70, p<0.01). These strong correlations indicated that personal moral norms may not be quite distinct from injunctive norms perceptions, which may cause the problem of multicollinearity when both variables are entered in the regression analysis to predict intention. Thus, tolerance and variance inflation factors (VIF) were reported alongside regression weights.

Table 1. Zero-order correlations between all variables

	1	2	3	4	5	6	7	8	9	10
1. Age	1									
2. Gender (1=Male,2=Female)	-0.20*	1								
3. Previous experience with bullying	0.05	-0.01	1							
4. Prior defender behavior	0.02	0.17**	0.20**	1						
5. Trait empathy	-0.04	0.39**	-0.06	0.40**	1					
6. Attitude	-0.16*	0.36**	-0.12*	0.24**	0.47**	1				
7. Self-efficacy	-0.20*	0.19*	0.08	0.42**	0.19*	0.28**	1			
8. Descriptive norms perceptions	-0.21*	0.19*	0.03	0.35**	0.23**	0.37**	0.40**	1		
9. Injunctive norms perceptions	-0.14	0.30**	0.04	0.48**	0.32**	0.37**	0.62**	0.48**	1	
10. Personal moral norms	-0.11	0.45**	0.04	0.54**	0.46**	0.56**	0.43**	0.47**	0.70**	1
11. Intention	-0.06	0.44**	0.06	0.49**	0.48**	0.51**	0.66**	0.49**	0.79**	0.74**

Note. * p<0.05 (one-tailed). **p<0.01 (one-tailed).

To test hypotheses H1a-e and H2a-b, and to answer RQ1, a multiple regression was conducted with intention as the outcome variable and age, gender, trait empathy, attitude, self-efficacy, descriptive norms perceptions, injunctive norms perceptions and personal moral norms

as predictors. Previous experience of being bullied and prior defender behaviors were also entered as control variables. Due to the potential for multicollinearity, tolerance and VIF were reported. An examination of tolerance and VIF indicated that, while the correlation between personal moral norms and injunctive norms perceptions was high, the collinearity diagnostics did not appear to indicate severe multicollinearity. Therefore, both variables were retained in the analysis.

H1a-e predicted that attitude, self-efficacy, descriptive norms perceptions, injunctive norms perceptions and personal moral norms with regards to victim defending would all significantly and positively predict intention to defend bullied victims. As shown in Table 2, after controlling for previous experience, prior behaviors and other personal characteristics, standardized beta weights indicated that injunctive norms perceptions (H1c), self-efficacy (H1d), and personal moral norms (H1e) significantly predicted intention. However, attitude only marginally predicted intention (H1a; p =0.06), and descriptive norms perceptions did not (H1b; p =0.44). Therefore, H1a was not supported. H1c, H1d, H1e were supported. H1b was not supported.

RQ1 asked whether age influenced intention to defend bullied victims among college students. The standard beta weight indicated that age was significantly associated with behavioral intention. Contradicting the previous finding that older adolescent students are less likely to intervene in bullying situations, older college students in this study reported greater intention to defend bullied victims. H2a-b predicted that female students and students who are more empathetic would be likely to have greater intention to defend bullied victims. After controlling for previous experience, prior behaviors, and other psychological determinants, the multiple regression indicated that female students reported significantly greater behavioral

intention (H2a), and trait empathy positively predicted behavioral intention (H2b). Therefore, H2a, and H2b were supported.

Table 2. Multiple regression for predictors of intention

	β	*t*	*p*	Tolerance	VIF
Step 1					
Previous experience of being bullied	0.09	1.56	0.12	0.75	1.34
Prior defender behaviors	-0.01	-0.11	0.92	0.63	1.58
$\Delta R^2 = 0.22$, ΔF (2,102) = 14.45, $p < 0.01$					
Step 2					
Age	0.11	2.13*	0.04	0.87	1.15
Gender (1=Male, 2=Female)	0.13	2.29*	0.02	0.73	1.38
$\Delta R^2 = 0.10$, ΔF (2,100) =7.40, $p<0.01$					
Step 3					
Trait empathy	0.15	2.45*	0.02	0.62	1.62
$\Delta R^2 = 0.09$, ΔF (1, 99) =15.47, $p<0.01$					
Step 4					
Attitude	0.12	1.88^{+}	0.06	0.58	1.72
Self-efficacy	0.27	4.30**	<0.01	0.57	1.76
Descriptive norms perceptions	0.05	0.77	0.44	0.66	1.51
Injunctive norms perceptions	0.37	4.86**	<0.01	0.38	2.63
Personal moral norms	0.16	1.95*	0.05	0.34	2.98
$\Delta R^2 = 0.38$, ΔF (5, 94) =34.07, $p<0.01$					
Total R^2 =0.79, F (10,94) =35.63, $p<0.02$					

Note. $^{+}$ $p<0.10$. * $p<.05$. ** $p<.01$.

Overall the regression model explained 79% of the variance in intention, suggesting a good data and model fit. A further look at the standardized beta weights indicated that injunctive norms perceptions were the strongest predictor of intention (β=0.37, t=4.86, p<0.01), followed by self-efficacy (β=0.27, t=4.30, p<0.01), personal moral norms (β=0.16, t=1.95, p=0.05), trait empathy (β=0.15, t=2.45, p=0.02), gender (β=0.13, t=2.29, p=0.02), and age (β=0.11, t=2.13, p=0.04).

Discussion

Study 1 was designed to examine factors that were hypothesized to influence college students' intentions to defend bullied victims. The results indicated that a number of factors – both psychological determinants and personal characteristics – influence future behavioral intention.

With regard to psychological determinants, attitude had limited influence on behavioral intention despite the finding that the average attitude toward victim defending among college students were very positive. On the other hand, college students who had higher perceived self-efficacy had greater intentions to defend bullied victims in the future. These findings supported previous research that suggested that most witnesses of bullying fail to defend bullied victims despite approving those behaviors, because they lack confidence in their ability to successfully intervene in bullying situations.

Additionally, intention to defend bullied victims was enhanced when students perceived that their significant others expected them to defend victims (i.e., injunctive norms perceptions), as well as when they held the behavior as a moral obligation for themselves in those situations (i.e., personal moral norms). However, intention was not influenced by one's perception of how others around them typically behave in those situations (i.e., descriptive norms perceptions). These results suggest that college students determine whether or not to defend bullied victims based on what is socially approved and morally correct rather than what is typical in their surrounding community. Combined with the evidence that older college students had greater intention to defend bullied victims, it is possible that college students are not as easily influenced by others' actions as their younger counterparts as they become more mature and independent thinkers.

Finally, students who are naturally more empathetic were found to have greater intention to defend victims of bullying. The finding supports previous studies that demonstrated the positive relationship between empathy and defender behavior. Similarly, female students showed greater intention to defend victims of bullying, possibly because they showed higher trait empathy compared to male students.

These findings suggest that future interventions should focus on enhancing self-efficacy as well as injunctive norms perceptions and personal moral norms related to defending bullied victims in order to enhance college students' participation in defender behaviors. Future interventions should also adopt methods that promote empathy for victims of bullying.

While Study 1 shed light on factors that can influence intention to defend victims of bullying among college students, it did not answer the question how those predictors of intention to defend victims can be enhanced. Using personal characteristics (i.e. age, gender and trait empathy) that significantly affected intention to defend victims in Study 1 as control variables, Study 2 set out to examine whether playing an interactive narrative game could increase intention to defend victims through enhancing some of its psychological predictors.

CHAPTER 4

STUDY 2

Method

Participants

A total of 180 undergraduate students enrolled in communication courses at a southeastern public university participated in the study in exchange of extra or course credit. One participant in the video-positive outcome condition was excluded due to incorrectly recalling the plot. Twelve participants in the game conditions were excluded from data analysis because they did not follow the instructions. These deletions resulted in a total *N*=167. The majority of the sample was female (75.40%), and White (60.50%), with an average age of 20.17 years (*SD*=2.87).

Research Design

The study employed a mixed 2 (Time: Pre-test/Post-test) × 2 (Medium of Intervention: Interactive narrative game/Non-interactive narrative video) × 2 (Outcome Valence: Positive/Negative) factorial design with a control group. Participants were randomly assigned to one of the five conditions: 1) game-positive outcome (n=28), 2) game-negative outcome (n=34), 3) video-positive outcome (n=34), 4) video-negative outcome (n=35), and 5) educational control video (n=36). Time was the only within-subjects variable.

Medium of Intervention was manipulated by either having participants play a video game that required them to make decisions themselves, or by having them watch a video recording of the same video game in which the protagonist made her own decisions. Additionally, an

educational control video was added as a third level of medium of intervention in the analyses that used presence as a mediator.

The control video was a non-narrative educational video created by the researcher. The video contained voice-over narration through a pre-paced PowerPoint slide show that described several different methods bystanders can use to defend bullied victims (see Appendix G for entire content). The control video used similar scenarios as those in the video game to ensure that the information conveyed in the control condition were comparable to those in the game and video conditions, but the video contained no narrative and required no interaction from participants.

The two main levels of medium of intervention (i.e., interactive narrative game/ non-interactive narrative video) were completely crossed with the two levels of outcome valence (i.e., positive outcome/ negative outcome). In the positive outcome conditions, participants were told to make decisions or watched the protagonist making decisions that would help a bullied victim. In the negative outcome conditions, participants were told to make decisions or watched the protagonist making decisions that would eventually hurt a bullied victim.

Procedure

A week before coming to the lab, participants first completed an online questionnaire beginning with an IRB-approved informed consent form (see Appendix A). The questionnaire (see Appendix C) asked participants to respond to scales using items that indicated their attitude, self-efficacy, personal moral norms and intention in regard to defending bullied victims. These questions served as pre-test measures of those dependent variables. The questionnaire also included scales that measured a number of possible control variables, including trait empathy

(Interpersonal Reactivity Index; Davis, 1980), previous experience with bullying, and previous bystander behaviors. Lastly, the questionnaire collected demographic information of participants.

A week or more after completing the online questionnaire, participants were invited to the School of Communication research lab to complete the in-lab portion of the study. Each session lasted approximately 75-90 minutes, with a maximum seven participants per session. During the lab sessions, each individual participant was greeted and seated in front of a Dell computer separated from others by desk dividers. In all conditions, participants were first told that they were going to help the researcher evaluate some media content and its suitability for young adult audiences. After random assignment, the experiment researcher gave each participant instructions on how to proceed based on their assigned conditions.

For the two interactive narrative game conditions, participants were asked to play parts of an interactive narrative video game *Life is Strange* on the computer. Participants first read through a packet that contained a brief introduction of the story (see Appendix D) and the characters they were going to encounter (see Appendix E), and instructions on how to play the game (see Appendix F). The instructions emphasized that participants had the ability to make decisions for the protagonist *Max* by clicking one of two choices on the computer screen using a mouse clicker every time a decision point occurred. They were also told that they could change any of their decisions if they regretted them, but only at each decision point. In addition, game-positive outcome group were told to always make decisions based on what they think would help a bullied victim, and game-negative outcome group were told to always make decisions based on what they think would hurt a bullied victim. Participants were then given a 5-minute training session to get them familiar with all the actions they could perform in the game. Once they were

ready, participants were officially given the stimulus material (described in the next section) to play. The entire play session lasted from 60 to 75 minutes.

For the two non-interactive narrative video conditions, participants were asked to watch a video playthrough of the same video game. After being introduced to the story and characters (see Appendix D, E), participants randomly watched one of two versions of the video playthrough pre-recorded by the researcher. In the positive outcome version, the protagonist always started with making a bad decision, and then changed to a good decision. The video ended with the bullied victim being saved and lasted for 45 minutes, 2 seconds. In the negative outcome version, the protagonist made the opposite decisions and the bullied victim ended up committing suicide. The negative outcome video lasted for 42 minutes, 55 seconds. No interaction with the video was required on participants' part.

For the control group, participants were told they were going to watch an educational video on bullying prevention on college campus (see Appendix G). The video lasted for about 22 minutes, 7 seconds. The video presented a pre-paced PowerPoint slide show that described defender behaviors and scenarios from the video game to achieve equivalence of content.

After their respective treatments, participants completed another online questionnaire administered by Qualtrics (Appendix H). Participants first responded to some questions that determined if the manipulation of conditions was successful. Then they were asked to rate their experience of presence in the media content they were just exposed to (ITC-Sense of Presence Inventory; Lessiter, Freeman, Davidoff, & Keogh, 2001). For game and video conditions, participants also answered specific questions regarding the characters and plots, such as identification with the character, elicited emotions, and counterfactual thinking. In the last portion of the questionnaire, participants were told that because sometimes people's ability to

enjoy a game or a movie is influenced by their own attitudes and beliefs, they were asked some questions about their attitudes and beliefs toward topics related to the media content they just encountered. By suggesting that their attitudes and beliefs might have influenced their evaluations of the media content, participants were purposefully directed away from the hypothesis that the media content might influenced their attitudes and beliefs. Attitude, self-efficacy, personal moral norms and intention were measured again as well as ascription of responsibility and awareness of consequences in regard to defending bullied victims following this instruction. After completing the questionnaire, participants were debriefed (Appendix I), thanked, and dismissed by the researcher.

Stimulus Material

The interactive narrative game in the study was selected from parts of a graphic adventure video game called *Life is Strange* (see Figure 3). *Life is Strange* was released in 2015 by DONTNOD Studios and has since received multiple game awards including Most Significant Impact from The Games for Change Award. The story in the game takes place among a group of 18 years old students attending a private arts and sciences college called Blackwell Academy. In the selected portion of the narrative, it is known that a kind-hearted, shy, and religious girl called Kate Marsh had been heavily bullied by other students for her conservative views on sex and religion. She starts to experience depression and suicidal ideation when a viral video of her is released involving her uncharacteristically sexual behavior. This occurred as a result of her being drugged by a fellow student. Participants played the role of Max Caulfield, an art student, and a witness to Kate's situation. Max is an introverted girl, who keeps largely to herself. Despite her somewhat timid nature, she makes a genuine effort to show kindness to all of Blackwell's students, and will stand up for herself or others when pushed. In the beginning of the game, Max

learned that she has the ability to rewind time, allowing her to manipulate moments in time to work in her favor or to aid others if she so chooses. Over the course of the narrative, Max will be confronted with several decision points, where she must decide either to ignore or intervene with Kate's bullying. These decisions are: 1) stopping or watching the school security guard harassing Kate; 2) removing the mean comments from Kate's bedroom slate or doing nothing; 3) erasing a link to Kate's viral video on the mirror in girls' bathroom or doing nothing; 4) encouraging other students not to share the video or doing nothing; 5) encouraging Kate to go to the police or telling Kate she needs to look for proof; 6) picking up Kate's phone call to comfort her or ignoring Kate's phone call. Two opposing endings will occur as a result of the combination of Max's decisions. The more positive decisions Max makes, the more likely that she will talk Kate down from the roof. On the other hand, the more negative decisions Max makes, the more likely that Kate will commit suicide.

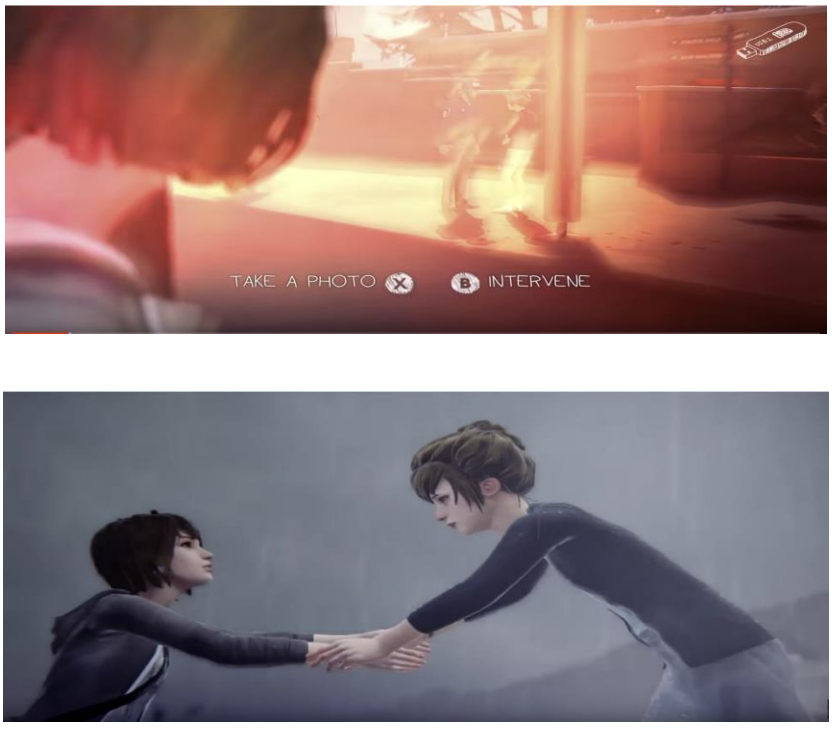

Figure 3. Screenshots of stimulus material, *Life is Strange*

Measures

All variables, unless otherwise noted, were measured on 5-point, Likert-type items with 1 representing "strongly disagree" to 5 representing "strongly agree." Because questions about identification, guilt and counterfactual thinking were specific to the characters and plots in *Life is Strange*, they were only measured after the interactive game and non-interactive video conditions. All pre-test items can be found in Appendix C and post-test items can be found in Appendix H.

Control variables.

In addition to previous experience with bullying and defender behaviors, personal characteristics (i.e. age, gender and trait empathy) that were found to significantly predict intention to defend victims in Study 1 were used as control variables in this study.

Previous experience of being bullied and cyberbullied. Participants were given a definition of bullying. They were then asked a series of questions beginning with the stem: "Given this definition, a) from kindergarten to high school, and b) since you have been in college, have you ever been bullied by one or more other students?" Students were also given a definition of cyberbullying and asked "Given this definition, a) from kindergarten to high school, and b) since you have been in college, have you ever been cyberbullied by one or more other students?" All questions were answered on a 5-point Likert type scale, with 1 (never) and 5 (very frequently). An average was taken among the four items for previous experience of being bullied and cyberbullied. The scale was somewhat reliable with a Cronbach's alpha of 0.63 (M=1.67, SD=0.55).

Prior defender behaviors. Participants rated on 5 items that asked them when seeing someone being bullied or cyberbullied by other students in the past, how often did they defend the victim with. Responses ranged from 1 (never) to 5 (always). Prior defender behavior was found to be reliable (5 items, Cronbach's alpha== 0.86, *M*= 2.58, *SD*= 0.97).

Trait empathy. Trait empathy was measured by taking the average of two subscales - each made up of 7 items - from Interpersonal Reactivity Index (Davis, 1980). One subscale measured perspective taking, the tendency to spontaneously adopt the psychological point of view of others. The other subscale measured empathic concern, which assess "other-oriented" feelings of sympathy and concern for unfortunate others. Participants rated the 14 items on a scale from 1 (does not describe me well at all) to 5 (describes me extremely well) including, "I try to look at everybody's side of a disagreement before I make a decision," and "I often have tender, concerned feelings for people less fortunate than me." Measurement of trait empathy was found to be reliable (14 items; Cronbach's alpha==0.80, *M*=3.77, *SD*=0.53).

Dependent variables.

Presence. Presence was measured by 32 items by adapting scales from the ITC-Sense of Presence Inventory (ITC-SOPI; Lessiter et al., 2001). Five items that measured the negative effects of media, such as "I felt dizzy," were not utilized due to the inapplicability of the items in this situation. The ITC-SOPI questionnaire was developed as a valid cross-media presence measure that allows users' experiences of different media to be compared. Sample items include "I felt myself being 'drawn in,'" "The scenes depicted could really occur in the real world," and "I felt that the characters and/or objects could almost touch me." The scale was found to be highly reliable with a Cronbach's alpha of 0.96 (*M*=3.09, *SD*= 0.71).

Identification. Identification with Max was measured using nine items from scale by Cohen (2001), including "I tend to understand the reasons why Max does what she does," and "At key moments in the video, I felt I knew exactly what Max was going through." Identification with Max was found to be reliable with a Cronbach's alpha of 0.87 (M=3.77, SD=0.68).

Counterfactual thinking. Since there does not yet appear to be a validated measure of counterfactual thinking, two items were created by the researcher to measure counterfactual thinking, including "To what extent did you wish the story could have had a different outcome?" and "To what extent did you wish you could have made different decisions in the story?" Responses were rated from 1 (not at all) to 5 (very much). Counterfactual was found to be reliable with a Spearman's rho of 0.70 (M=3.42, SD=1.48).

Guilt. Guilt was measured by two items by Dillard and Shen (2006). Participants rated on "To what degree they felt 'guilty' and 'ashamed' while playing/watching the game." Responses were rated from 1 (none of this feeling) to 5 (a lot of this feeling). Guilt was found to be reliable with a Spearman's rho of 0.83 (M=2.50, SD=1.46).

To conceal the true purpose of the experiment and avoid hypothesis guessing, the two items measuring guilt were embedded in a filler questionnaire that asked participants to report several discrete emotions, including sadness (3 items; α=0.87, M=3.29, SD=1.09), anger (3 items; α=0.80, M=2.97, SD=1.17), and fear (3 items; α=0.95, M=2.39, SD=1.27), that they might have experienced during the interventions.

Awareness of consequences. Awareness of consequences was measured by asking participants to rate on two items for each of the six defending behaviors respectively: "I believe failing to … causes serious negative consequences for bullying victims," and "When witnesses

of bullying fail to …, it is bad for the victims' well-being." The six defender behaviors were the same that were used in Study 1 These behaviors were "standing up for the victim during the confrontation," "comforting the victim," "reporting the bullying to someone who can help," "encouraging the victim to ask for help," "asking other students to support the victim," and "minimizing the spread of rumors about the victim." Awareness of consequences was found to be reliable with a Cronbach's alpha of 0.91 for the 12 items (M=4.35, SD=0.62).

Ascription of responsibility. Ascription of responsibility was measured by asking participants to rate two items for the six defending behaviors respectively: "I believe that I can make a huge difference in changing the outcome of a bullying incident if I …" and "I believe that I can make bullying victims feel better if I …" The scale was reliable with a Cronbach's alpha of 0.92 for the 12 items (M=4.53, SD=0.51)

Personal moral norms. Personal moral norms were measured before and after the treatment by 2 items for the six behaviors respectively: "If I witnessed a student being bullied or cyberbullied, I would feel morally obligated to…" and "If I witnessed a student being bullied or cyberbullied, I would feel personally responsible to …" Pre-test personal norm (12 item; α=0.92, M=3.94, SD=0.74) and post-test personal norm (12 item; α=0.92, M=4.20, SD=0.70) were found to be highly reliable. A variable for personal moral norm change (i.e., Δpersonal moral norm) was created by subtracting pre-test personal norm value from post-test personal norm value.

Empathy towards victims of bullying. Empathy towards victims of bullying was measured by 6 items taken from a previous study by Stevens, Van Oost, and De Bourdeaudhuij (2000). Sample items included "Students who are bullied feel sad about it," and "I'm upset when another student is being bullied." Empathy was found to be reliable with Cronbach's alpha of 0.89 for the 6 items (M=4.58, SD=0.50).

Attitude toward defending victims. Attitude was measured before and after the treatment by having participants rate how they felt about the six defender behaviors respectively. Each behavior was rated on a scale from 1 (bad) to 5 (good) and a scale from 1 (negative) to 5 (positive). Cronbach's alphas for attitudes at pre-test (12 items; α= 0.89, *M*=4.67, *SD*=0.49) and post-test (12 items; α= 0.91, *M*=4.77, *SD*=0.41) indicate that the scale was reliable. A variable for attitude change (i.e., Δattitude) was similarly created by subtracting pre-test attitude value from post-test attitude value.

Defender self-efficacy. Before and after the treatment, participants were asked to rate "how confident they are that they have the ability to do…" and "How certain that they are that they can do…" each of the six defending behaviors. Responses ranged from 1 (not confident at all/cannot do at all) to 5 (highly confident/highly certain can do). Pre-test self-efficacy (12 item; α=0.90, *M*=3.94, *SD*=0.74) and post-test self-efficacy (12 items; α=0.91, *M*=4.28, *SD*=0.66) were found to be highly reliable. A variable for self-efficacy change (i.e., Δself-efficacy) was also created by taking the difference between pre-test and post-test self-efficacy.

Intention to defend victims. Intention was measured before and after the treatment by 12 items. Participants were asked to rate how willing would they be and how likely would they be to do each of the six defending behaviors in the future, if they witnessed a student being bullied/cyberbullied. Response options ranged from 1 (very unwilling/very unlikely) to 5 (very willing/very likely). Pre-test intention (12 items; α=0.89, *M*=4.06, *SD*=0.62) and post-test intention (12 item; α=0.90, *M*=4.31, *SD*=0.59) were found to be highly reliable. A variable for intention change (i.e., Δintention) was also created by subtracting pre-test intention value from post-test intention value.

Results

Manipulation Check

To ensure the proper manipulation of the independent variable outcome valence, participants in interactive narrative game conditions were asked immediately after playing the game what decision in the game they had made and what decision-making instruction they followed. One participant was excluded due to incorrectly recalling the decision-making instructions, and eleven participants were excluded from the data analysis due to their failures to follow the given instructions. Similarly, participants in non-interactive narrative conditions were asked what final decisions Max had made in the video they watched. One participant was excluded from data analysis due to incorrectly recalling Max's decisions. This resulted in a total *N* of 167.

A series of chi-square and ANOVA tests were conducted to check for any differences in sociodemographic characteristics between conditions (see Table 3). Then, a series of one-way ANOVAs were conducted to check for group differences with respect to trait empathy, previous experience with being bullied and prior bystander behaviors that may affect the outcome variables (see Table 4). There were no significant differences between the five conditions with regard to all these control variables.

Table 3. Participants' sociodemographic characteristics between conditions

Characteristics	Game-positive outcome (n=28) *M* (SD)	Game-negative outcome (n=34) *M* (SD)	Video-positive outcome (n=34) *M* (SD)	Video-negative outcome (n=35) *M* (SD)	Control (n=36) *M* (SD)	*p*[b]
Age, years	19.36 (0.95)	20.47 (3.65)	19.94 (1.07)	20.54 (2.81)	20.36 (4.01)	0.47
Gender	n (%)[a]	n (%)[a]	n (%)[a]	n (%)[a]	n (%)[a]	
Male	9 (32.1)	7 (20.6)	7 (20.6)	8 (22.9)	9 (25.0)	0.84
Female	19 (67.9)	27 (79.4)	26 (76.5)	27 (77.1)	27 (75.0)	
Missing	0 (0.0)	0 (0.0)	1 (2.9)	0 (0.0)	0 (0.0)	
Ethnicity						
White/Caucasian	19 (67.9)	20 (58.8)	22 (64.7)	20 (57.1)	20 (55.6)	0.26
African American	3 (10.7)	4 (11.8)	1 (2.9)	7 (20.0)	2 (5.6)	
Hispanic/Latino	6 (21.4)	7 (206)	7 (20.6)	8 (22.9)	8 (22.2)	
Asian	0 (0.0)	1 (2.9)	2 (5.9)	0 (0.0)	4 (11.1)	
Multiracial	0 (0.0)	1 (2.9)	2 (5.9)	0 (0.0)	0 (0.0)	
Missing	0 (0.0)	1 (2.9)	0 (0.0)	0 (0.0)	2 (5.6)	

[a] Percentage may not sum to 100% due to rounding.
[b] Test of association was done from ANOVA test (continuous variables) and chi-square test (categorical variables). No differences were found in sociodemographic characteristics between conditions.

Table 4. Manipulation checks to confirm expected similarities in control variables between the conditions

Control variables[a]	Game-positive outcome (n=28) *M* (SD)	Game-negative outcome (n=34) *M* (SD)	Video-positive outcome (n=34) *M* (SD)	Video-negative outcome (n=35) *M* (SD)	Control (n=36) *M* (SD)	*F*[b]	*p*
Trait empathy	3.74 (0.41)	3.83 (0.52)	4.01 (0.71)	3.76 (0.62)	3.96 (0.70)	0.72	0.58
Previous experience with being bullied	1.70 (0.51)	1.63 (0.51)	1.57 (0.85)	1.63 (0.65)	1.43 (0.62)	0.30	0.88
Prior defender behaviors	2.69 (0.77)	2.42 (0.93)	2.58 (1.08)	2.46 (1.14)	2.77 (0.87)	0.76	0.55

[a] Control variables that were considered are those that may affect the outcome variables. No differences were found in such variables between groups.
[b] Eight separate one-way ANOVAs analyzing the differences between the conditions.

Direct Effects on Behavioral Intention and Related Constructs

Before any hypothesis testing, a 2 (time: pre-test/post-test) × 5 (condition: game-positive outcome/game-negative outcome/video-positive outcome/video-negative outcome/control) repeated measures MANCOVA was performed on attitude, self-efficacy, personal moral norms and behavioral intention measured from both pre-test and post-test as dependent variables. Control variables, including age, gender, trait empathy, previous experience with being bullied, and prior bystander behavior, were included in the model as covariates. The total sample size was 167. The main purpose here was to examine if there were any direct main or interaction effects of time and condition on behavioral intention and its related constructs.

An examination of the multivariate effects indicated that after controlling for the covariates, there was no significant multivariate main effect for the four constructs as a group in relation to time (Roy's largest root=0.02, F (4, 154) = 0.73, p = 0.57), or condition (Roy's largest root=0.04, F (4, 157) = 1.65, p = 0.16). However, there was a significant, multivariate time × condition interaction effect on the four constructs as a group (Roy's largest root= 0.12, F (4, 157) = 4.86, p <0.01).

Further univariate analyses indicated that after controlling for the covariates, the time × condition interaction effect was only significant for behavioral intention to defend bullied victims, F (4, 157) = 3.93, p < 0.01, but not for attitude, F (4, 157) = 0.35, p = 0.84, self-efficacy, F (4, 157) = 1.20, p = 0.31, and personal moral norms, F (4, 157) = 1.64, p = 0.17. Post-hoc, simple effects analyses using the Fisher's LSD test were conducted to determine the effect of time on behavioral intention at each level of the conditions (see Figure 4). A significant increase in behavioral intention was observed from pre-test to post-test for the game-positive outcome group (b=0.43, SE=0.10, p < 0.01), the game-negative outcome group (B=0.43, SE=0.09, p <

0.01), the video-positive outcome group (*B*=0.23, *SE*=0.09, *p* = 0.01), and the video-negative outcome group (*B*=0.20, *SE*=0.09, *p* =0.02). There was no significant pre- and post-test change in behavioral intention for the control group (*B*= 0.01, *SE*=0.09, *p* =0.91). Therefore, from pre-test to post-test, the two game conditions showed the greatest increase in behavioral intentions to defend bullied victims, the two video conditions showed intermediate increase in behavioral intentions to defend bullied victims, and the control condition showed no increase in behavioral intention to defend bullied victims.

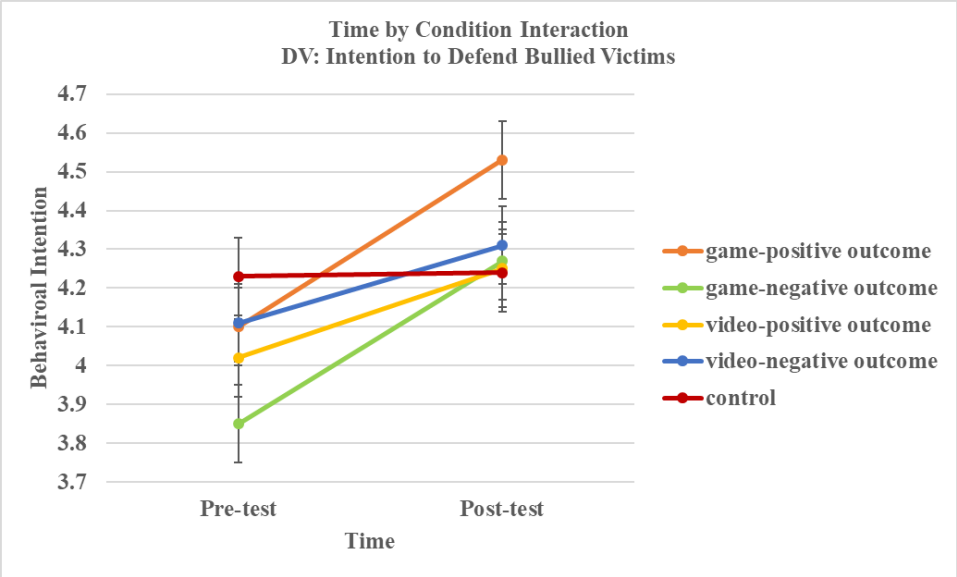

Figure 4. Interaction effect of time by condition on intention to defend bullied victims
Note. n = 167. After controlling for age, gender, trait empathy, previous experience with being bullied, and prior bystander behavior, the time × condition interaction effect on intention was significant (*F* (4, 157) = 3.93, *p* < 0.01).

Then the control group was excluded from the analyses, and a 2 (time: pre-test/post-test) × 2 (medium: game/video) × 2 (outcome valence: positive/negative) repeated measures MANCOVA was performed on attitude, self-efficacy, personal moral norms and behavioral intention. Again, age, gender, trait empathy, previous experience with being bullied, and prior

bystander behavior were controlled for in the model. The total sample size was 131. The purpose of the test was to further examine if medium of intervention or outcome valence had any main or interaction effects on the change in behavioral intention and its related constructs from pre-test to post-test. Consistent with the previous findings, only a significant univariate time × medium interaction effect on behavioral intention was observed, F (1, 122) = 5.38, p = 0.02, after controlling for covariates. Post-hoc, simple effects analyses showed that participants exhibited significantly greater behavioral intention change from pre-test to post-test in the interactive game groups (B=0.43, SE= 0.07, $p < 0.01$) than in the non-interactive video groups (B= 0.22, SE=0.06, $p < 0.01$).

Hypothesis Testing

Path model involving presence.

Presence. H3a. predicted that participants would experience greater presence playing an interactive narrative game than watching a non-interactive narrative video and watching a non-narrative educational video. Participants would also experience greater presence watching a non-interactive narrative video than watching a non-narrative educational video. To examine this hypothesis, a one-way between-subjects ANOVA was conducted with three-level medium of intervention (i.e., interactive narrative game/non-interactive narrative video/non-narrative educational video) as the between-subjects variable. The total sample size was 167.

A significant main effect of medium of intervention on presence was observed, F (2, 164) = 25.55, $p < 0.01$. Post-hoc comparisons using Tukey's HSD test indicated that there were significant pairwise differences among all three of the media of intervention at $p < 0.05$. As shown in Figure 5, participants who played the interactive narrative game reported the highest

level of presence (*M*=3.63, *SE*=0.06), participants who watched the non-interactive narrative video reported an intermediate level of presence (*M*=3.10, *SE*=0.08), and participants who watched the non-narrative educational video reported the lowest level of presence (*M*=2.75, *SE*=0.11). Therefore, H3a was supported.

To further explore if there was any main effect of outcome valence or interaction effect between medium and valence on presence, a 2 (medium: game/video) × 2 (valence: positive/negative) between-subjects ANCOVA was performed on presence with control group excluded in the analysis. The total sample size was 131. Consistent with previous test, there was a significant main effect of medium on presence, F (1, 127) = 26.44, p<0.01. However, there was no evidence for a main effect of valence or an interaction effect between medium and valence. Fs (1,127) <3.92, ps >0.05.

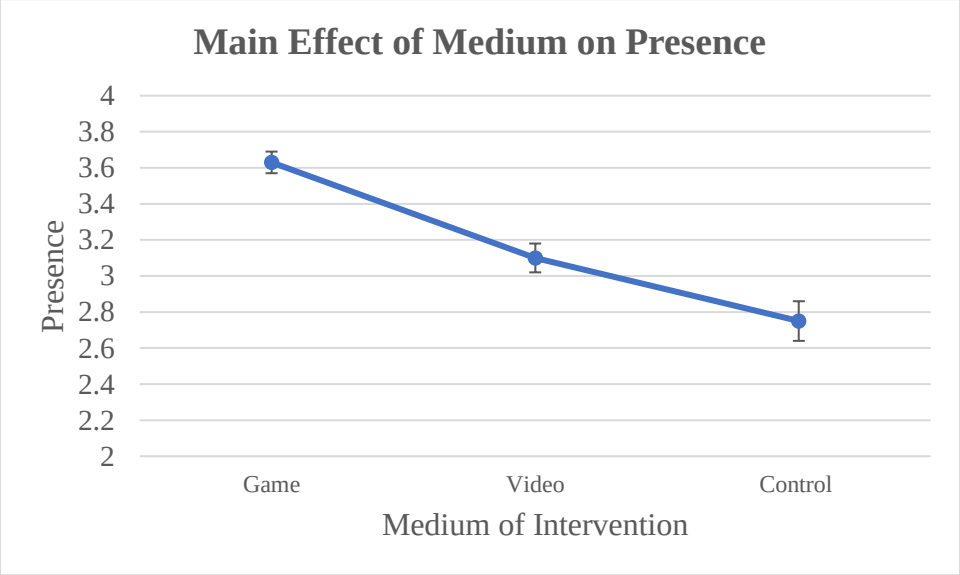

Figure 5. Main effect of medium of intervention on presence

Path analysis. H3b-i explored the mechanisms through which presence generated by different media of intervention might influence change in behavioral intention to defend victims of bullying (see Figure 1). Given that participants experienced the greatest presence in an interactive narrative game, followed by a non-interactive narrative video and a non-narrative educational video, it was predicted that the feeling of presence would drive behavioral intention to defend bullied victims by enhancing participants' awareness of consequences, then internal ascription of responsibility, and then personal moral norms related to victim defending. Presence was also predicted to drive behavioral intention via facilitating empathy toward victims of bullying.

Structural equation modeling (SEM) with the software program Mplus 8.2 was used to test the overall fit of the hypothesized path model and to examine the path coefficients of all variables together in the model. The independent variable, medium of intervention, was dummy coded as control=1, video=2, and game=3. Behavioral intention change from pre-test to post-test was the dependent variable. All control variables including age, gender, previous experience with bullying, prior defender behaviors, and trait empathy were included in the model as covariates. The total sample size was 167.

The overall model-data fit of the hypothesized path model was not obtained, as the overall model fit indices did not reach the recommended cutoff values ($\chi^2_{(11)} = 70.92$, $p < 0.01$, RMSEA = 0.18, SRMR=0.07, CFI=0.84, TLI=0.27), using goodness-of-fit criteria identified by Hu and Bentler (1999).

A closer examination of the individual path coefficient (see Figure 6) indicated that although most path coefficients in the model were significant after controlling for the covariates, those paths involving awareness of consequences were not. Specifically, presence only

marginally predicted awareness of consequences (H3b; β = 0.13, *SE* = 0.07, p = 0.07), and awareness of consequences did not significantly predict personal moral norms (H3e; β = -0.13, *SE*= 0.09, p = 0.16). H3b was not supported. H3e was not supported. However, awareness of consequences did significantly predict internal ascription of responsibility (H3d; β = 0.55, *SE*= 0.06, p < 0.01). H3d was supported. Furthermore, post-hoc analyses of indirect effects showed that both indirect paths going through awareness of consequences were non-significant: 1) medium, presence, awareness of consequences, Δpersonal moral norms, Δbehavioral intention (β= -0.003, *SE*= 0.003, p = 0.28), and 2) medium, presence, awareness of consequences, ascription of responsibility, Δpersonal moral norms, Δbehavioral intention (β= 0.01, *SE*= 0.004, p = 0.11).

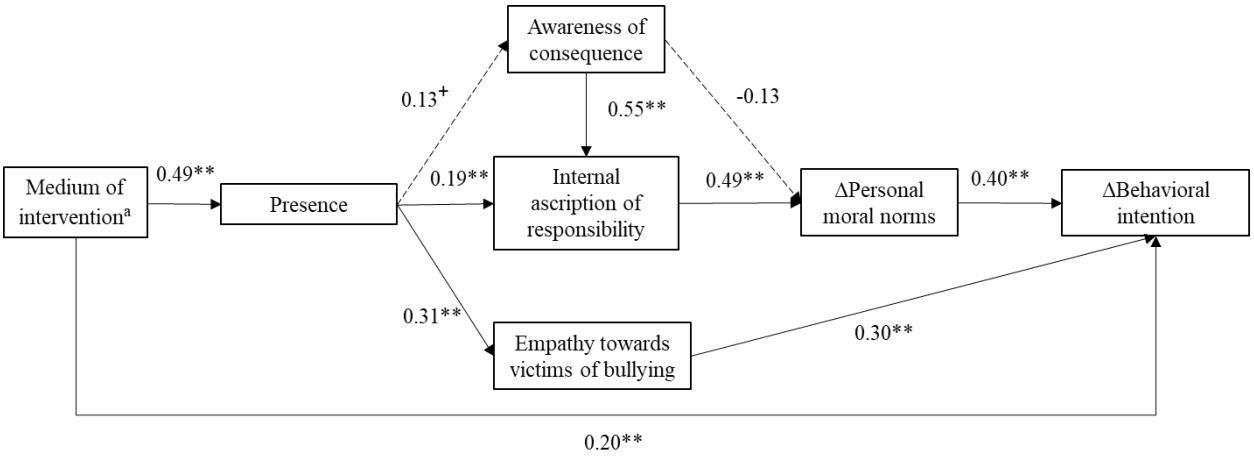

Figure 6. Path analysis results testing the hypothesized path model examining the persuasive mechanisms of presence.

Note. n=167. All coefficients were standardized. Solid lines indicate significant paths at the 0.05 level or higher, while dashed lines indicate non-significant paths. Control variables included age, gender (1=Male, 2=Female), trait empathy, previous experience with bullying, and prior defender behaviors. Age was significantly associated with Δbehavioral intention (β= -0.15, *SE*= 0.07, p=0.02). Compared to male participants, female participants reported greater presence (β= 0.15, *SE*= 0.07, p=0.03), awareness of consequences (β= 0.27, *SE*= 0.07, p<0.01), and empathy toward victims (β= 0.18, *SE*= 0.07, p=0.01). Trait empathy was significantly associated with empathy toward victims (β= 0.22, *SE*= 0.07, p<0.01) and Δpersonal moral norms (β= -0.17, *SE*= 0.08, p=0.03). Prior defender behavior was significantly associated with awareness of consequences (β= 0.19, *SE*= 0.08, p=0.02). [a] Medium of intervention in this model has three levels, including interactive narrative game, non-interactive narrative video, and control video. + p <0.10, **p < .01.

Thus, awareness of consequences was excluded from further analyses. A new model was specified to improve the model-data fit. Figure 7 depicts the respecified path model. Based on model modification indices produced from the original model, two additional paths that made theoretical sense were included: 1) a path from presence to Δpersonal moral norms (*M.I.* = 12.88), and 2) a path from internal ascription of responsibility to empathy towards victims (*M.I.* = 37.75).

First, considering the entire sample (n=167), the data were a good fit for the model ($\chi^2_{(6)}$ = 5.19, p=0.52, RMSEA<0.01, SRMR=0.01, CFI=1.00, TLI=1.02). Consistent with previous results, the model showed that after controlling for covariates, medium of intervention had a significantly positive direct effect on Δbehavioral intention (β= 0.19, *SE*= 0.06, p<0.01), as well as a significantly positive total indirect effect on Δbehavioral intention (β= 0.11, *SE*= 0.03, p < 0.01). Thus, the direct effect of medium of intervention was stronger than its total indirect effect mediated by presence on Δbehavioral intention. Overall, the total effect of medium of intervention on Δbehavioral intention was β= 0.30, *SE*= 0.06, p < 0.01, and the model accounted for 38% of variance within Δbehavioral intention.

A closer examination of the individual path coefficients was then conducted (see Figure 7). First, medium of intervention had a significant positive influence on presence (H3a; β= 0.49, *SE*= 0.06, p<0.01). Following that, the mediational effects of presence on Δbehavioral intention took two main routes. For the first route, presence significantly and positively influenced internal ascription of responsibility (H3c; β= 0.26, *SE*= 0.07, p<0.01). H3c was supported. Internal ascription of responsibility, in turn, significantly and positively influenced Δpersonal moral norms (H3f; β= 0.34, *SE*= 0.08, p<0.01). H3f was supported. Although not hypothesized, presence was also found to have a significantly positive direct effect on Δpersonal moral norms

(β= 0.27, *SE*= 0.07, p<0.01). Finally, Δpersonal moral norms (H3g; β= 0.38, *SE*= 0.06, p<0.01) had a significantly positive influence on Δbehavioral intention to defend bullied victims. H3g were supported.

For the second route, presence significantly and positively influenced empathy toward victims (H3h; β= 0.19, *SE*= 0.06, p<0.01). H3h were supported. Although not hypothesized, presence also indirectly influenced empathy towards victims through internal ascription of responsibility, which had a significantly positive effect on empathy toward victims (β= 0.47, *SE*= 0.06, p<0.01). Finally, empathy toward victims significantly and positively influenced Δbehavioral intention to defend bullied victims (H3i; β= 0.29, *SE*= 0.07, p<0.01). H3i was supported.

Post-hoc analyses of indirect effects showed four significant indirect paths from medium of intervention to Δbehavioral intention:1) medium, presence, Δpersonal moral norms, Δbehavioral intention (β= 0.05, *SE*= 0.02, p<0.01), 2) medium, presence, empathy, Δbehavioral intention (β= 0.03, *SE*= 0.01, p=0.02), 3) medium, presence, internal ascription of responsibility, Δpersonal moral norms, Δbehavioral intention (β= 0.02, *SE*= 0.01, p=0.01), and 4) medium, presence, internal ascription of responsibility, empathy, Δbehavioral intention (β= 0.02, *SE*= 0.01, p=0.01). Thus, the indirect effects of medium of intervention on Δbehavioral intention were mainly mediated first through presence and then via Δpersonal moral norms or empathy toward victims.

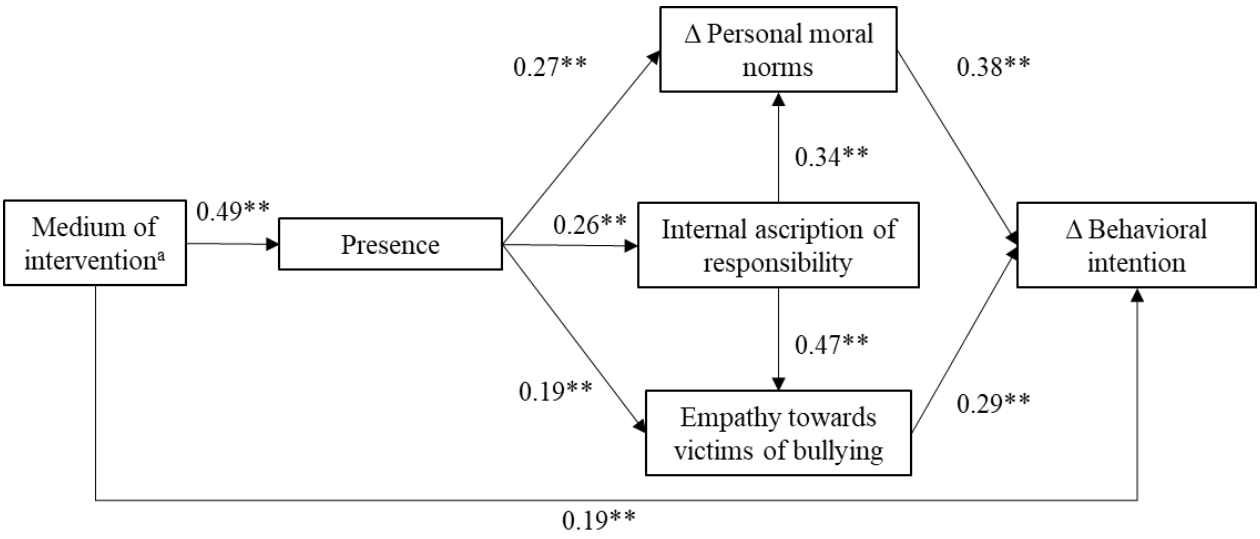

Figure 7. Path analysis results testing the respecified path model examining the persuasive mechanisms of presence

Note. n=167. Solid lines indicate significant paths at the 0.05 level or higher. All coefficients were standardized. Control variables included age, gender (1=Male, 2=Female), trait empathy, previous experience with bullying, and prior defender behaviors. Age was significantly associated with Δbehavioral intention (β= -0.14, *SE*= 0.06, *p*=0.02). Compared to male participants, female participants reported greater presence (β= 0.15, *SE*= 0.07, *p*=0.03) and internal ascription of responsibility (β= 0.16, *SE*= 0.07, *p*=0.03). Trait empathy was significantly associated with empathy toward victims (β= 0.16, *SE*= 0.07, *p*=0.02) and Δpersonal moral norms (β= -0.18, *SE*= 0.08, *p*=0.02). Prior defender behavior was significantly associated with internal ascription of responsibility (β= 0.19, *SE*= 0.08, *p*=0.01). [a] Medium of intervention in this model has three levels, including interactive narrative game, non-interactive narrative video, and control video. **p < .01.

Path model involving identification, counterfactual thinking, and guilt.

To test the direct main and interaction effects of medium of intervention and outcome valence on identification, counterfactual thinking and guilt, a 2 (medium of intervention: interactive narrative game/non-interactive narrative video) × 2 (outcome valence: positive outcome /negative outcome) between-subjects MANOVA was performed on identification with Max, counterfactual thinking and guilt as dependent variables. The control group was excluded from the analysis due to inapplicability (i.e., no outcome). The total sample size was 131.

An examination of the multivariate effects indicated that there were significant multivariate main effects for the three constructs as a group in relation to medium of intervention (Roy's largest root=0.48, F (3, 125) = 19.86, $p < 0.01$), and outocme valence (Roy's largest root = 2.67, F (3, 125) = 111.43, $p < 0.01$). There was also a significant, multivariate medium of intervention × outcome valence interaction effect on the three constructs as a group (Roy's largest root= 0.22, F (3, 125) = 9.19, p <0.01). Further univariate analyses on each dependent variable is discussed in the below sections.

Identification. H4a. predicted that participants would experience greater identification with the main character they played in the interactive narrative game than the same character they watched in the non-interactive narrative video. In line with those prediction, there was a significant main effect of medium of intervention on identification with Max (F (1, 127) = 7.47, p <0.01). As shown in Figure 8, interactive narrative game groups reported higher identification with Max (M=3.94, SE=0.08) than did the non-interactive narrative video groups (M=3.64, SE=0.08). Therefore, H4a was supported.

H4b. predicted that participants would report stronger identification with the main character when they receive a positive story outcome compared to a negative one. There was evidence of a main effect of outcome valence on identification with Max (F (1, 127) = 12.80, p <0.01). Positive outcome groups reported higher identification with Max (M=3.99, SE=0.08) than did the negative outcome groups (M=3.59, SE=0.07). Therefore, H4b was supported.

Additionally, there was no evidence of an interaction effect between medium of intervention and outcome valence on identification with Max (F (1, 127) = 0.001, p =0.98).

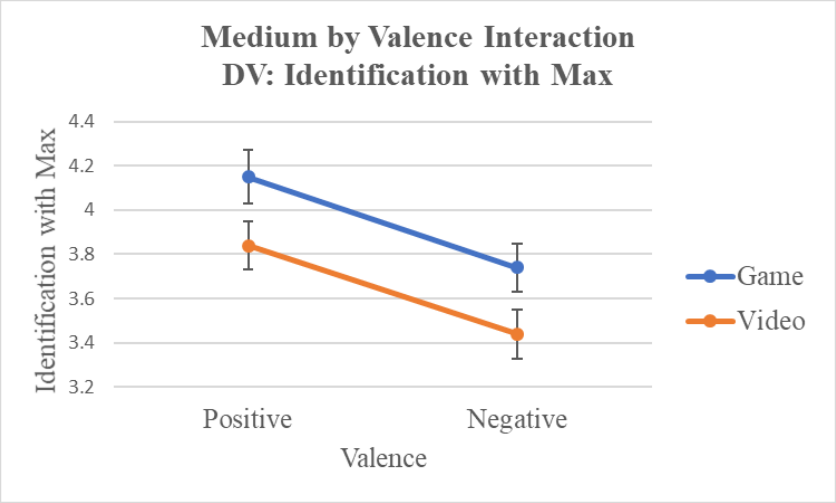

Figure 8. Interaction of medium by valence on identification with Max

Counterfactual thinking. H5a. predicted that participants would generate more counterfactual thoughts related to the bullying event when they viewed or experienced a negative outcome than a positive outcome. H5b. further hypothesized that the effect of outcome valence on counterfactual thoughts would be moderated by the medium of intervention, such that the effect would be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions. In line with predictions, there was evidence of a main effect of outcome valence on counterfactual thinking, F (1, 127) = 321.94, p <0.01. As shown in Figure 9, the negative outcome groups generated more counterfactual thoughts (M=4.56, SE=0.09) than did the positive outcome groups (M=2.10, SE=0.10). Therefore, H5a was supported. Also as expected, there was an interaction between outcome valence and medium of intervention, F (1, 127) = 13.69, p <0.01. As can been seen in Figure 9, the difference in counterfactual thoughts between positive and negative outcome groups in the game conditions was larger than the difference between the two groups in the video conditions. Therefore, H5b was supported. Additionally, there was also a main effect of medium of intervention on

counterfactual thoughts, F (1, 127) = 13.60, p <0.01. This was mainly driven by significantly fewer counterfactual thoughts generated in the game-positive group (M=1.59, SE=0.15) than the video-positive group (M=2.60, SE=0.13) as the two negative groups (game and video) generated the same number of counterfactual thoughts (M=4.56, SE=0.13).

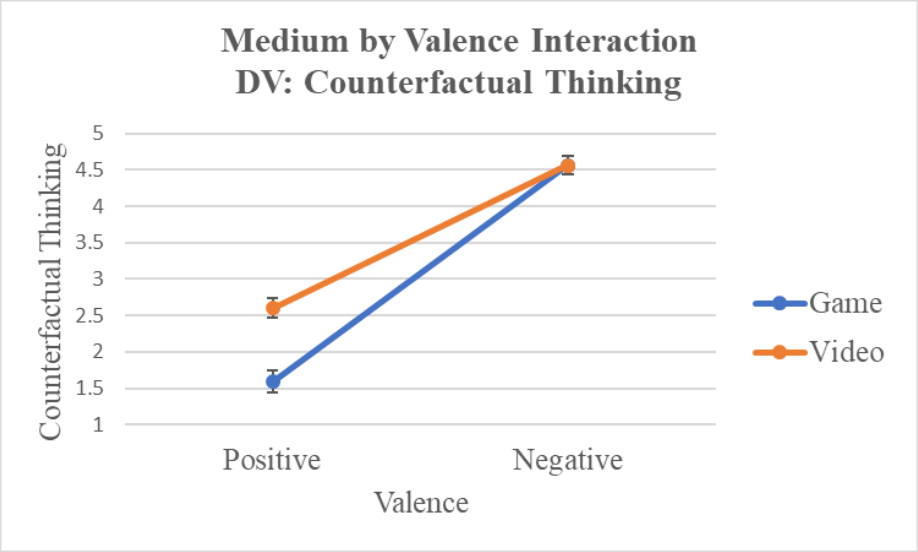

Figure 9. Interaction of medium by valence on counterfactual thinking

Guilt. H6a predicted that participants would report greater feelings of guilt when they viewed or experienced a negative outcome than a positive outcome. H6b. further hypothesized that the effect of outcome valence on guilt would be moderated by the medium of intervention, such that the effect would be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions. In line with predictions, there was evidence of a main effect of outcome valence on guilt, F (1, 127) = 36.62, p <0.01. As shown in Figure 10, the negative outcome groups reported greater guilt (M=3.09, SE=0.14) than the positive outcome groups (M=1.87, SE=0.15). Therefore, H6a was supported. Also as expected, there was an interaction between outcome valence and medium of intervention, F (1, 127) = 22.62, p <0.01.

As can been seen in Figure 10, the difference in guilt between the positive and negative outcome groups in the game conditions was larger than the difference between that of the two groups in the video conditions. Therefore, H6b was also supported. Additionally, there was a main effect of medium of intervention on guilt, F (1, 127) = 21.44, p <0.01. This was mainly driven by significantly greater guilt elicited in the game-negative group (M=4.03, SE=0.20) than in the video-negative group (M=2.14, SE=0.19), as the two positive groups (game and video) did not differ significantly in terms of guilt.

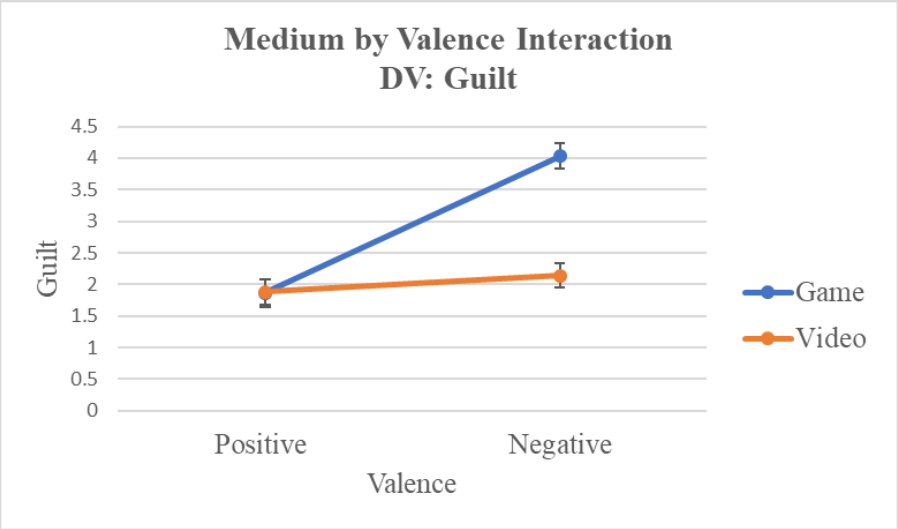

Figure 10. Interaction of medium by valence on guilt

Path analysis. The rest of the hypotheses outlined in Figure 2 explored the mechanisms through which identification, counterfactual thinking, and guilt as the mediators might influence change in behavioral intention to defend victims of bullying. Specifically, for the mediational effects of identification, it was hypothesized that playing an interactive narrative game would increase identification with the main character more so than watching a non-interactive narrative video, and the identification with the main character would be stronger when the main character

caused a positive outcome rather than a negative outcome. The enhanced identification would positively influence positive attitudes and self-efficacy related to victim defending, which would, in turn, cause an increase in behavioral intention to defend bullied victims. For the mediational effects of counterfactual thinking, it was hypothesized that a negative story outcome would cause participants to have more counterfactual thoughts than a positive story outcome would, particularly when they were playing an interactive narrative game compared to watching a non-interactive narrative video. The increased counterfactual thoughts would, in turn, cause an increase in behavioral intention to defend bullied victims. For the mediational effects of guilt, it was hypothesized that a negative story outcome would cause participants to have more feelings of guilt than a positive story outcome would, particularly when they were playing an interactive narrative game compared to watching a non-interactive narrative video. The increased feelings of guilt would, in turn, lead to an increase in behavioral intention to defend bullied victims.

Structural equation modeling (SEM) with the software program Mplus 8.2 was used to test the overall fit of the hypothesized path model and to examine the path coefficients of all variables together in the model. Independent variables were outcome valence, medium of intervention and the product of outcome valence × medium of intervention. To make the path coefficients in the model interpretable, a main effects parameterization was used (Hayes, 2017). Thus, outcome valence was dummy coded as positive outcome = -0.5 and negative outcome = 0.5. Medium of intervention was dummy coded as non-interactive narrative video= -0.5 and interactive narrative game= 0.5. Behavioral intention change from pre-test to post-test was the dependent variable. All control variables including age, gender, previous experience with bullying, prior defender behaviors, and trait empathy were included in the model as covariates.

The control group was excluded from the analysis due to inapplicability (i.e., no outcome). The total sample size was 131.

The overall model-data fit of the hypothesized path model was not obtained, as most overall model fit indices did not reach the recommended cutoff values ($\chi^2_{(17)} = 57.83$, $p < 0.01$, RMSEA = 0.14, SRMR=0.04, CFI=0.87, TLI=0.51), using goodness-of-fit criteria identified by Hu and Bentler (1999). A closer examination of the individual path coefficients after controlling for all the covariates (see Figure 11) was conducted before a new model was respecified.

Consistent with previous findings, outcome valence (H4b; $\beta = -0.30$, $SE = 0.08$, $p < 0.01$) and medium of intervention (H4a; $\beta = 0.24$, $SE = 0.08$, $p < 0.01$) significantly predicted identification with Max in the overall hypothesized model. There was no interaction between outcome valence and medium of intervention on identification ($\beta = -0.04$, $SE = 0.08$, $p = 0.62$). However, identification with Max did not significantly predict Δself-efficacy (H4c; $\beta = 0.06$, $SE = 0.09$, $p = 0.53$), and only marginally predicted Δattitude (RQ2; $\beta = 0.16$, $SE = 0.09$, $p = 0.08$). Therefore, H4c was not supported. Additionally, both Δself-efficacy (H4d; $\beta = 0.38$, $SE = 0.07$, $p < 0.01$) and Δattitude (H4e; $\beta = 0.16$, $SE = 0.08$, $p = 0.03$) significantly predicted Δbehavioral intention. Thus, H4d and H4e were supported. Post-hoc analyses of indirect effects showed that there was no evidence that either outcome valence ($\beta = -0.01$, $SE = 0.01$, $p = 0.54$) or medium of intervention ($\beta = 0.01$, $SE = 0.01$, $p = 0.54$) indirectly influenced Δbehavioral intention via first identification with Max and then Δself-efficacy. There was also no evidence that either outcome valence ($\beta = -0.01$, $SE = 0.01$, $p = 0.20$) or medium of intervention ($\beta = 0.01$, $SE = 0.01$, $p = 0.22$) indirectly influenced Δbehavioral intention via first identification with Max and then Δattitude. Therefore, identification did not seem to play a mediating role in increasing behavioral intention in the overall hypothesized model.

Also consistent with previous findings, outcome valence (H5a; β = 0.83, *SE*= 0.03, p <0.01) and medium of intervention (β = -0.17, *SE*= 0.05, p < 0.01) significantly predicted counterfactual thinking in the overall hypothesized model. Medium of intervention significantly moderated the effect of outcome valence on counterfactual thinking (H5b; β = 0.17, *SE*= 0.05, p <0.01). However, counterfactual was not significantly associated with Δbehavioral intention (H5c; β = -0.06, *SE*= 0.15, p =0.67). H5c was not supported. Post-hoc analyses of conditional indirect effects showed that outcome valence had no significant indirect influences on Δbehavioral intention via counterfactual thinking either in the video conditions (*B* = -0.04, *SE*= 0.10, p = 0.67) or in the game conditions (*B* = -0.07, *SE*= 0.15, p = 0.67). Therefore, counterfactual thinking did not appear to be a persuasive mechanism in increasing behavioral intention in the overall hypothesized model.

As expected, both outcome valence (H6a; β = 0.42, *SE*= 0.07, p <0.01) and medium of intervention (β = 0.33, *SE*= 0.07, p < 0.01) significantly predicted feelings of guilt in the overall hypothesized model. Medium of intervention also significantly moderated the effect of outcome valence on feelings of guilt (H6b; β = 0.35, *SE*= 0.07, p <0.01). Additionally, feelings of guilt were marginally associated with Δbehavioral intention (H6c; β = 0.17, *SE*= 0.09, p =0.06). Thus, H6c had limited support. Post-hoc analyses of conditional indirect effects showed that outcome valence had marginally significant indirect effect on Δbehavioral intention via guilt in the game conditions (*B* = 0.13, *SE*= 0.07, p = 0.07), but had no significant indirect effect on Δbehavioral intention via guilt in the video conditions (*B* = 0.01, *SE*= 0.02, p = 0.49).

Based on these findings, all the insignificant moderated mediation paths at p = 0.10 level were trimmed from the original model. A new model was specified to further examine the role guilt played in increasing behavioral intention. The model included outcome valence as the

independent variable, guilt as the mediator, medium of intervention as the variable that moderates the relationship between outcome valence and guilt, and Δbehavioral intention as the dependent variable. Figure 12 depicts the respecified path model.

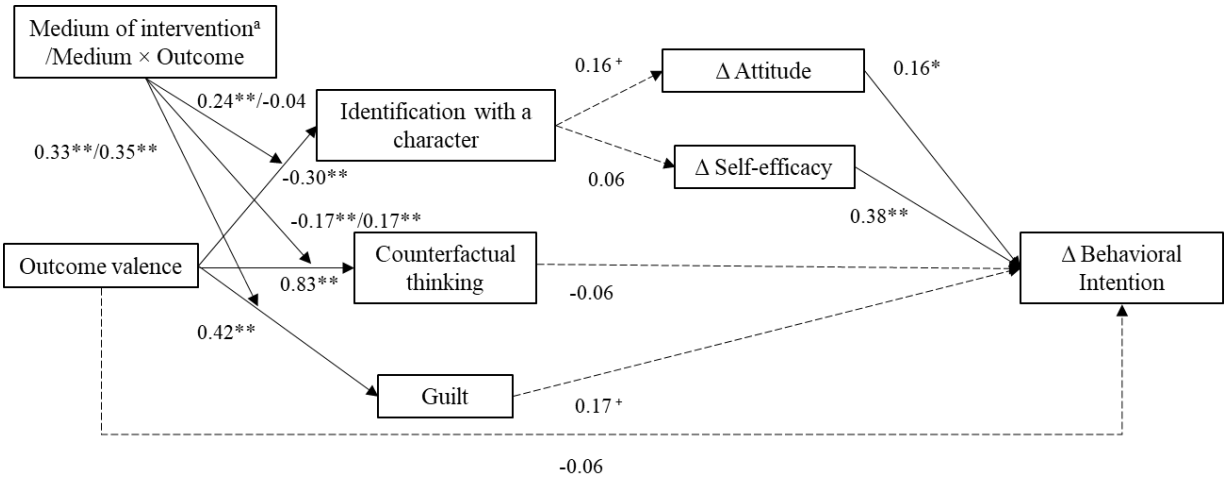

Figure 11. Path analysis results testing the hypothesized path model examining the persuasive mechanisms of identification, counterfactual thinking, and guilt

Note. n=131. All path coefficients were standardized. Solid lines indicate significant paths at the 0.05 level or higher, while dashed lines indicate non-significant paths at the 0.05 level. Control variables included age, gender (1=Male, 2=Female), trait empathy, previous experience with bullying, and prior defender behaviors. Compared to male participants, female participants reported greater identification with Max (β= 0.20, *SE*= 0.08, *p*=0.01). Trait empathy was significantly associated with identification with Max (β= 0.17, *SE*= 0.09, *p*=0.05). [a] Medium of intervention in this model had two levels, including interactive narrative game and non-interactive narrative video. ^{+}p<.10, *p <0.05, **p < .01.

First, the overall model fit indices indicated that the data were a good fit for the model (n=131, $\chi^2_{(2)} = 3.32$, $p = 0.19$, RMSEA= 0.07, SRMR=0.02, CFI=0.98, TLI=0.83). After controlling for the covariates, guilt was significantly associated with Δbehavioral intention in the respecified model (H6c, $\beta = 0.19$, *SE*= 0.09, $p = 0.04$). Therefore, H6c was supported. Post-hoc analyses of conditional indirect effects showed that outcome valence had significant indirect effect on Δbehavioral intention mediated by guilt in the game conditions (*B* = 0.15, *SE*= 0.08, $p = 0.05$), but had no significant indirect effect on Δbehavioral intention mediated by guilt in the

video conditions (B = 0.01, SE= 0.02, p = 0.48). Overall, the model accounted for 5% of the variance in Δbehavioral intention.

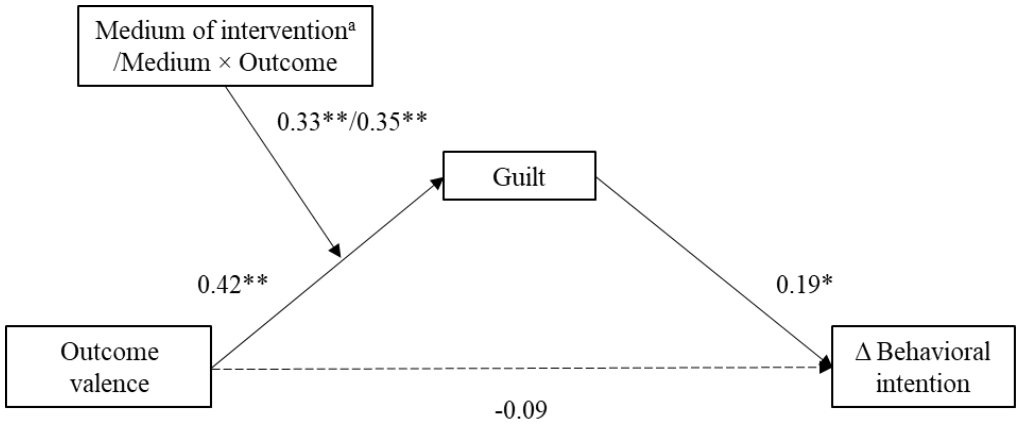

Figure 12. Path analysis results testing the respecified model examining the persuasive mechanisms of guilt

Note. n=131. All path coefficients were standardized. Solid lines indicate significant paths at the 0.05 level or higher, while dashed lines indicate non-significant paths. Control variables included age, gender (1=Male, 2=Female), trait empathy, previous experience with bullying, and prior defender behaviors. [a] Medium of intervention in this model had two levels, including interactive narrative game and non-interactive narrative video. $^{+}p<.10$, $*p<0.05$, $**p<.01$.

Discussion

The goal of the study was to determine the effects of playing an interactive narrative video game that focused on bystander intervention on behavioral intention to defend victims of bullying. The second goal of the study was to understand the potential mechanisms that can explain any such effects.

Playing an interactive narrative game seemed to be most influential on participants' behavioral intentions to defend bullied victims, followed by viewing a non-interactive narrative video. Viewing a non-narrative educational video had no significant effect on behavioral intentions. These results indicate that interactive narrative games can be a useful addition to the

entertainment-education toolbox, and specifically, interactive narrative games may be a more effective format than the traditional instruction-based educational materials for peer-group-bystander-intervention programs at the college level.

When considering the potential mechanisms that could explain those effects, presence seemed to partially mediate the influence of the medium of intervention on behavioral intention. The interactive narrative game was found to evoke the strongest experience of presence compared to the non-interactive narrative video and educational video, which supports the notion that the experience of presence is facilitated by the degree of interactivity and vividness of the media format. The results further showed that presence facilitated by an interactive narrative game both directly and indirectly contributed to the players' increased personal moral norms regarding victim defending behaviors and to stronger empathy towards victims of bullying, partially due to players internally ascribing more personal responsibility for defending behaviors after playing the game. Subsequently, the enhanced empathy and personal moral norms led to greater increase in intentions to defend victims of bullying.

Previous research on video games mainly focused on the positive influence of presence on enjoyment (e.g. Skalski & Whitbred, 2010; Skalski et al., 2011). However, few research studies have examined the positive effects of presence on attitude and behavior change. The current study results suggest that presence should be considered as an important persuasion mechanism in the design of prosocial games. Since presence is a sense of "being there" in the mediated environment, people who experience a high level of presence when playing a video game should perceive the characters, events and activities in the game environment as highly realistic, thus increasing the chance for them to adopt beliefs, perceptions and behaviors that are implied in the game environment.

It is worth noting that presence induced by the video game in the current study had limited influence on raising participants' awareness of consequences of not intervening in bullying situations. Considering that the average of awareness of consequences in the entire sample was very high (M=4.35), it is possible that a ceiling effect for the influence of presence on awareness of consequences might have occurred.

It is also interesting to point out that internal ascription of responsibility not only positively influenced personal moral norms as hypothesized, but also positively influenced empathy toward bullied victims, which was not hypothesized in this study. Thus, the influence of internal ascription of responsibility on empathy found in this study is consistent with Chapman, Zahn-Waxler, Cooperman, & Iannotti's (1987) suggestion that empathy that arises as a result of a sense of responsibility for other people's well-being predicts prosocial behaviors better than empathy that arises as a result of merely feeling the same emotions as other people.

Finally, it is worth noting that the medium of intervention still had stronger direct effect than indirect effects mediated via presence on behavioral intention change. The interactive narrative game might have facilitated other psychological mechanisms that contributed to behavioral intention in addition to presence. Some potential mechanisms will be discussed in the general discussion section.

Results in the current study also suggest that the interactive narrative game may facilitate behavioral intention to defend victims through the elicitation of guilt. As expected, players of the game were found to report more guilt if they had caused a negative outcome to a victim of bullying in the game than those who had caused a positive outcome. The feelings of guilt then led to greater increase in behavioral intention to defend bullied victims. This is an interesting finding, because in reality bystanders who fail to intervene in a bullying situation are most likely

not going to witness the whole range of negative consequences a victim of bullying is experiencing. As a result, they may not feel any guilt, as they may not consider intervening in a bullying situation as a moral issue. The results in the current study suggest that an interactive narrative video game may be an advantageous way to help players virtually understand the causal relationship between bystander intervention and the welfare of a bullied victim, thereby enhancing their moral sensitivity toward those issues in real life.

As expected, the interactive narrative game was found to induce greater identification with the main character, Max, than the non-interactive video did, and participants identified more with Max when she conducted positive deeds than when she conducted negative deeds. However, identification was found to have limited influence on positive attitudes toward victim defending ($p = 0.08$) and did not subsequently lead to greater behavioral intention to defend victims. A potential explanation for the weak association between identification with Max and attitude toward victim defending could be that even those participants who identified stronger with Max might have had difficulty deducing Max's attitude toward defending bullied victims, since Max's attitude toward defending Kate was purposefully made ambiguous in the narrative to encourage players to make their own decisions for Max. Thus, simply identifying with Max might not transfer to more positive attitude toward victim defending in general. Contrary to the prediction, identification also did not lead to greater self-efficacy or subsequently to greater behavioral intention. It is possible that the binary decision options provided in the game (e.g. intervene versus stand by, comfort versus ignore the character) oversimplify the actual steps it takes for a bystander to intervene in a bullying situation, so that players do not get to practice a range of different methods to approach the situation. A future design of such a game should

consider adding more decision options that may be employed in one scenario so that players can practice choosing an effective victim-defending behavior that they are comfortable with.

In line with previous predictions, players generated significantly more counterfactual thoughts in response to a negative story outcome than in response to a positive outcome especially when they played the game. However, counterfactual thoughts did not, in turn, lead to greater behavioral intention. It is possible that those counterfactual thoughts were only specific to the game. In other words, they were thoughts about how one should have played the game differently to avoid the negative outcome. For example, one participant wrote “I wish I picked the right choices to save Kate”, and another wrote “I would have been more observant around the dormitory if I had known I needed to do certain actions or know certain information to make the outcome different”. Because these thoughts are particularly specific to the game, they might not contain any information as to what a person could have done differently to help a victim of bullying in real life, making it harder to transfer to behavioral intention change.

CHAPTER 5

GENERAL DISCUSSION

Bullying and cyberbullying incidents occur frequently on college campuses (Chapell et al, 2004; Macdonald & Roberts-Pittman, 2010; Kowalski et al., 2012), yet most students do not consider bullying to be an issue in college or are reluctant to intervene when witnessing it themselves. As such, the goal of Study 1 was to examine the psychological and personal characteristic factors that predicted college students' behavioral intention to help victims of bullying. Based on the findings of Study 1, Study 2 examined the effects of playing an anti-bullying themed interactive narrative game on increasing college students' behavioral intention to help victims through the potential enhancement of some of the psychological predictors of behavioral intention found in Study 1, while also controlling for the personal factors that were found to influence behavioral intention to help victims in Study 1. Table 5 contains the results for all the hypotheses and research questions in Study 1 and Study 2.

Table 5. Results for all the hypotheses and research questions in the study

Hypothesis	Result
H1a. Attitudes towards defending bullied victims will be positively associated with intention to defend bullied victims.	Not supported
H1b. Descriptive norms perceptions related to defending bullied victims will be positively associated with intention to defend bullied victims.	Not supported
H1c. Injunctive norms perceptions related to defending bullied victims will be positively associated with intention to defend bullied victims.	Supported
H1d. Self-efficacy related to defending bullied victims will be positively associated with intention to defend bullied victims.	Supported
H1e. Personal moral norms related to defending bullied victims will be positively associated with intention to defend bullied victims.	Supported

Table 5 (continued)

RQ1. What is the relationship between age and intention to defend bullied victims among college students?	Significant, positive association
H2a. Female students will report greater intention to defend bullied victims than male students.	Supported
H2b. Trait empathy will be positively associated with intention to defend bullied victims.	Supported
H3a: Participants will experience the greatest presence playing an interactive narrative game, intermediate presence watching a non-interactive narrative video, and the least presence watching an educational video that composed of a PPT slideshow with voice-over.	Supported
H3b. Presence will be positively associated with awareness of consequences.	Not supported
H3c. Presence will be positively associated with internal ascription of responsibility.	Supported
H3d. Awareness of consequences will be positively associated with internal ascription of responsibility.	Supported
H3e. Awareness of consequences will be positively associated with increase in personal moral norm to defend victims from pre-test to post-test.	Not supported
H3f. Internal ascription of responsibility will be positively associated with increase in personal moral norm to defend victims from pre-test to post-test.	Supported
H3g. Increased personal moral norm to defend victims from pre-test to post-test will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Supported
H3h. Presence will be positively associated with empathy towards victims of bullying.	Supported
H3i. Empathy towards victims of bullying will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Supported
H4a. Participants will report stronger identification with the main character after playing an interactive narrative game than after watching a non-interactive video.	Supported
H4b. Participants will report stronger identification with the main character when they receive a positive story outcome compared to a negative one.	Supported
H4c. Identification with the main character will be positively associated with an increase in self-efficacy related to defending victims from pre-test to post-test.	Not supported
H4d. Increased self-efficacy related to defending victims will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Supported

Table 5 (continued)

RQ2. Will playing an interactive narrative game on bystander intervention influence positive attitude change toward victim defending as a result of stronger identification with the main character?	No significant relationship
H4e. An increase in positive attitude toward defending victims from pre-test to post-test will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Supported
H5a. Participants will generate more counterfactuals related to the bullying event when they receive a negative story outcome compared to a positive one.	Supported
H5b. The effect of outcome valence on counterfactual thinking will be moderated by the medium of intervention such that the effect will be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions.	Supported
H5c. Counterfactual thinking will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Not supported
H6a. Participants will feel more guilt when they receive a negative story outcome compared to a positive one.	Supported
H6b. The effect of outcome valence on feeling of guilt will be moderated by the medium of intervention such that the effect will be more pronounced in the interactive narrative game conditions than in the non-interactive narrative video conditions.	Supported
H6c. Feelings of guilt will be positively associated with an increase in behavioral intention to defend victims from pre-test to post-test.	Supported

Results of Study 1 showed that injunctive norms perceptions, self-efficacy, and personal moral norms regarding victim defending behaviors were the most important psychological factors that predicted behavioral intention to help, on top of personal characteristics including age, gender and trait empathy. Although injunctive norms perceptions had the most explanatory power in predicting behavioral intention compared to self-efficacy and personal moral norm, the facilitation of injunctive norms perceptions may require more anti-bullying programs implemented at the community level. On the other hand, it may be relatively easier to enhance

individual students' self-efficacy and personal moral norms related to victim defending using more individual-focused programs.

Study 2 investigated the effects of one such individual-focused program, an anti-bullying themed interactive narrative game. Using an interactive narrative game format to deliver bystander intervention programs among college population is considered a viable choice because of several reasons. First, it is easily replicable. Second, a video game is a more appealing format compared to an educational module. Finally, it is flexible and can fit in college students' schedules without the involvement of parents, college faculty, and staff.

The Study 2 results showed that the anti-bullying interactive narrative game effectively increased college students' intention to defend victims of bullying. Participants showed the most increase in behavioral intention after they played the anti-bullying interactive narrative game, and intermediate increase in behavioral intention after watching the same, but non-interactive narrative video. By contrast, there was no evidence that participants changed their behavioral intentions after watching an educational video lecturing on bystander intervention strategies.

The Study 2 results showed that the most important mechanism that made the interactive narrative more effective was its ability to induce participants' experience of presence in the game scenarios. As participants experienced stronger feelings of presence, they felt that they were physically in the game world, perceived the game world as more natural and realistic, and became more involved in the story and events in the game. All those feelings contributed to them taking on more personal responsibility for defending victims of bullying, harboring more empathetic concern for victims of bullying, and holding a higher moral expectation for themselves to defend victims of bullying, all of which subsequently enhanced behavioral intention to defend victims.

These research findings have practical implications for the design of serious games. Based on the study results, games designed to promote pro-social behaviors should focus on creating simulations that feel as realistic as possible to players. In addition to the feature of interactive narrative, technologies such as virtual reality (Krijn, Emmelkamp, Biemond, de Ligny, Schuemie, & van der Mast, 2004) and naturally-mapped controllers (Skalski et al., 2011) can also help facilitate a sense of "being there". With the help of these technologies, perhaps players of such games can perform a given pro-social behavior themselves in the virtual environment, instead of using a point-and-click method to make decisions for the character and observing the character performing the decision. Physically performing a pro-social act in the virtual environment can not only enhance the experience of presence, but also players' self-efficacy related to a certain prosocial behavior.

It is worth noting that a larger proportion of the influence of medium of intervention on behavioral intention could still not be explained by the persuasive mechanism of presence. Future studies should continue along this line of research and explore other potential mechanisms that may contribute to the effectiveness of interactive narrative games on promoting bystander intervention. One potential mechanism may be flow. Flow is a psychological state that can be characterized as being deeply absorbed in an activity that is intrinsically enjoyable (Csikszentmihalyi, 2014). Previous studies (e.g. Jin, 2011) found that video games can facilitate the sense of flow when players experience a balance of challenge and skill in the game. Research also showed that flow has a positive impact on game-based learning (Hamari, Shernoff, Rowe, Coller, Asbell-Clarke, & Edwards, 2016). Additionally, interactive narrative games may facilitate victim defending behaviors by walking players through the five steps of the decision-making process that are necessary for bystander intervention to occur (Latané and Darley, 1970).

By inserting important decision-making points in each critical bullying situation, the game pauses the story to notify players that this is the moment when they can potentially step up to help the victim. The decision points in the game help reduce the ambiguity surrounding the bullying situation and clearly define it as a critical emergency that warrant an action from the players. Since players must decide as to how to approach the situation before the story can move forward, the game simulates a situation where the responsibility to intervene fall completely on the players. This could cause players to develop even stronger feelings of personal responsibility for mitigating the situation, as results in Study 2 suggested.

The Study 2 results also showed that while playing the interactive narrative game, choosing to not help the victim of bullying (compared to choosing to help the victim) actually led to greater behavioral intentions to defend bullied victims in real life. When players made decisions not to help the victim of bullying in the game and saw the negative outcome that occurred to the victim, they felt more guilt, which subsequently led to stronger intentions to defend victims in the future. This finding suggested that players do not always have to play "good" in a serious game to learn the pro-social behavior promoted. As long as serious game designers ensure that negative consequences will be presented when a player plays "bad" in a serious game, the same negative behavior can be inhibited in the real world.

Finally, while self-efficacy related to victim defending was found to be an important predictor of behavioral intention to defend victims in the survey results in Study 1, the experiment results in Study 2 showed that playing a specific interactive narrative game with an anti-bullying theme did not necessarily enhance self-efficacy related to victim defending. What a future interactive narrative game could do but the current game in the study failed to do is to include actual intervention strategies that have been proven effective as the options presented in

the decision-making points, so that players can enhance self-efficacy related to defending victims by virtually practicing the skills necessary to successfully intervene in bullying situations.

Limitations and Future Directions

Like every research study, there are some limitations to be discussed. The most significant limitation of the current study is that the dependent variable in both studies was behavioral intention to defend victims but not actual victim defending behaviors. As suggested by previous research, although most students are opposed to bullying, their intentions to help do not necessarily transfer to actual helping behavior in reality (Ortega et al., 1999; Hawkins, Pepler, & Criag, 2001). Of course, it is much more difficult to observe participants' actual helping behaviors in a bullying situation during a short experiment session. To address this limitation, future studies could potentially employ a longitudinal design that has multiple measurement points. Researchers could ask participants to report their actual bystander behaviors several times before and after the treatment with some time lag. Then the increase of actual bystander behaviors after the treatment may be attributed to the treatment.

Additionally, like most experimental studies, the study 2 had low external validity while being high in internal validity. In the study, participants were asked to play the game non-stop in the lab. Whereas in a natural setting, people play video games at their own pace, and might stop in the middle of the game to do other activities. Therefore, the effects of the game may dissipate due to those external distractions. Future research should consider testing the effects of the game in a field study in which participants can freely play the game on their own time.

Further, Study 2 used only one specific video game, *Life is Strange*, to investigate the effects of interactive narrative games on behavioral intention to defend victims. The single-

message design implies that the study results may not be applicable to other anti-bullying interactive narrative games if there are any. However, this is a limitation that is relatively hard to eliminate considering that there are very few games like the one studied here.

Finally, the construct of counterfactual thinking in Study 2 was measured using a 2-item, 5-point Likert type scale. Although this measure was found to be reliable (Spearman's rho = 0.70), it did not measure counterfactual thinking in a manner (i.e., open-ended questions) that has been used in previous research (e.g. Gleicher et al., 1995; Tal-Or et al., 2004). Future studies could benefit from the use of open-ended questions to measure participants' counterfactual thoughts and a systematic content analysis of those thoughts.

Conclusion

Bullying is an issue that students of all ages need to deal with, yet few of them are willing to address. Stopping campus bullying requires every member of the college community to step in when they see it. The goal of this dissertation was to explore ways to promote victim defending behaviors among college students from two perspectives; the psychological and personal factors that determine college students' behavioral intentions to help victims, and the effects of playing an anti-bullying interactive narrative game on behavioral intention to help victims. The study results showed that psychological factors like injunctive norms perceptions, self-efficacy, and personal moral norms regarding victim-defending behaviors as well as personal factors including age, gender, and trait empathy can influence a college student's intention to help victims of bullying. Meanwhile, playing an anti-bullying interactive narrative game, *Life is Strange*, successfully increased college students' intention to defend victims of bullying due to its ability to facilitate personal responsibility and personal moral norm for victim defending, and empathy for victims through evoking players' strong sense of presence in the game. Playing the game in a

negative way can also increase intention to help victims later through evoking players' feeling of guilt. The results reveal the promise of using an interactive narrative game as a format to deliver bystander intervention program in college.

APPENDIX A

IRB APPROVED CONSENT FORMS FOR STUDY 1 AND STUDY 2

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 6/4/2018

To: Yijie Wu

Address: 2664
Dept.: COMMUNICATION

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Evaluating the Effects of an Interactive Narrative Game on Intentions to Defend Bullied Victims

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 05/09/2018. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 5/8/2019 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Laura Arpan, Advisor
HSC No. 2018.23828

INFORMED CONSENT STATEMENT

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled Evaluation of Media Content and Its Suitability for Teenagers

This research is being conducted by PhD Student Yijie Wu in the School of Communication at Florida State. I understand that the purpose of the project is to ask college students help to evaluate the suitability of some media entertainment for teenagers. I understand that this study will take place as a form of two parts. In the first part, I will first complete some online questionnaires. This should take no longer than 10 minutes. A week later, I will participate in a lab session of the study. I will either play a proportion of an episodic adventure game on *a Sony* PlayStation 4 (PS4) videogame console or watch a video recording of the same game or watch a movie. After that, I will answer some more questions about my previous media consumption experience and my attitudes, perceptions and beliefs on a computer. The lab session should take no more than an hour and 20 minutes. I understand that my participation in this study is voluntary, and I may decline to participate without penalty at any time. My name will not appear on any of the results, nor will I put any form of identification on the questionnaires I have to fill out. No individual responses will be reported. Only group findings will be reported. The information in the study records will be kept confidential to the extent allowed by law. Data will be stored securely in a locked desk where only the researcher has the key. Data will be destroyed within five years from the time of collection.

I understand there are compensations for participating in this research project. For participating I will receive either (a) credit toward a class requirement or (b) extra credit for my class, the amount of which is determined by the instructor of the course from which I was recruited. I understand that different instructors give different types and amounts of credit for participating in this study. I acknowledge that if I have questions about the exact type or amount of credit that I can receive, then I can postpone and reschedule my participation without penalty. I understand that the researchers will communicate this information to my instructor, in plenty of time to have that credit count toward my class this semester.

I understand that there is minimum level of risks involved in the study. The video game or movie depicts fictional story that is for only educational purpose. If I feel uncomfortable at any time during the experiment, I can stop without being penalized.

I understand that I may contact Ms. Yijie Wu [redacted] or her advisor Professor Laura Arpan [redacted] for answers to questions about this research or my rights. Also, if I have any questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research [humansubjects@fsu.edu] at (850) 644-8633,

I give my consent to participate in the above study. Furthermore, my signature certifies that I am at least 18 years of age. Participant name PRINTED

_____

_____ _____

Participant signature Date

Participant FSUID (e.g., abc09c@fsu.edu) _____

_____

Name of instructor to contact about your participation only for credit reporting purposes

FSU Human Subjects Committee approved on 06/04/2018, void after 05/08/2019. HSC#2018.23828

APPENDIX B

STUDY 1 QUESTIONNAIRE

Now you are going to answer some questions about your thoughts, feelings and personal experiences. This will ONLY take about 15 minutes.

PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING.

Your answers will be kept STRICTLY CONFIDENTIAL and WILL NOT be identified by name.

There are NO RIGHT OR WRONG answers - your TRUE thoughts and opinions are the only responses we want. Please answer the questions AS HONESTLY AS YOU CAN.

Thank you very much! :)

Trait Empathy

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, please rate how well it describes you.

1= Not well at all 2=Slightly well 3=Moderately well 4=Very well 5=Extremely well

1. I often have tender, concerned feelings for people less fortunate than me.

2. I sometimes find it difficult to see things from the “other guy’s” point of view.

3. Sometimes I don’t feel very sorry for other people when they are having problems.

4. I try to look at everybody’s side of a disagreement before I make a decision.

5. When I see someone being taken advantage of, I feel kind of protective towards them.

6. I sometimes try to understand my friends better by imagining how things look from their perspective.

7. Other people's misfortunes do not usually disturb me a great deal.

8. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

9. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

10. I am often quite touched by things that I see happen.

11. I believe that there are two sides to every question and try to look at them both.

12. I would describe myself as a pretty soft-hearted person.

13. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

14. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Previous Experience with Being Bullied and Cyberbullied

Bullying is when a student, or a group of students, intentionally hurts, harms, or humiliates another student repeatedly, either physically or emotionally, to make the student feel bad. It is also bullying when others repeatedly exclude a student. Those bullying often have more social or physical "power," while those targeted have difficulty stopping the behavior.

It's not bullying when two students – of about the same strength – quarrel or fight. Jokes between friends are not bullying if everyone involved thinks it's okay. But it's bullying if a student, or a group of students, repeatedly makes fun of or teases another student in a way he or she doesn't like.

Given this definition of bullying, please answer the following questions.

1= Never 2=Rarely 3=Occasionally 4=Frequently 5=Very frequently

From kindergarten to high school, have you ever _____?

1. seen or known a student being bullied by one or more other students
2. been bullied by one or more other students
3. bullied another student?

Since you've been in college, have you ever _____?

1. seen or known a student being bullied by one or more other students

2. been bullied by one or more other students
3. bullied another student?

Cyberbullying is bullying that takes place over digital devices like cell phones, computers, and tablets. Cyberbullying can occur through text, instant messaging, email, and apps, or online in social media, forums, or gaming platform where people can view, participate in, or share content. Cyberbullying includes sending, posting, or sharing negative, harmful, false, or mean content about someone else. It can include sharing personal or private information, photos or videos about someone else causing embarrassment or humiliation.

Given this definition of cyberbullying, please answer the following questions.

1= Never 2=Rarely 3=Occasionally 4=Frequently 5=Very frequently

From kindergarten to high school, have you ever _____?

1. seen or known a student being cyberbullied by one or more other students?
2. been cyberbullied by one or more other students?
3. cyberbullied another student?

Since you've been in college, have you ever _____?

1. seen or known a student being cyberbullied by one or more other students?
2. been cyberbullied by one or more other students?
3. cyberbullied another student?

Prior Defending Behaviors

In the past, if you saw a student being bullied or cyberbullied by one or more students, how did you used to react when you saw the bullying going on? Please read the following items describing different ways to behave in such situations carefully, and rate how often you behave in each of the ways described below. Your answers will be kept strictly confidential and will not be identified by name.

1= Never 2=Sometimes 3=About half the time 4=Most of the time 5=Always

1. I read negative posts about the victim but did not participate.
2. I came around to watch the bullying.
3. I stayed outside the situation.
4. I didn't take sides with anyone.
5. I left the situation and did nothing.

6. I stood up for the victim during the confrontation.
7. I comforted the victim.
8. I encouraged the victim to ask for help.
9. I reported the bullying to someone who can help.
10. I asked other students to support the victim.
11. I joined in the bullying, when someone else had started it.
12. I assisted the bully/bullies.
13. I helped the bully/bullies.
14. I spread rumors about the victim.
15. I incited the bully/bullies by cheering them on.
16. I laughed when someone else was bullied.

Attitudes towards Victim Defending

Please indicate how you feel about each behavior below by clicking the button closest to the word that best describes your feelings.

When witnessing another student being bullied or cyberbullied, the witness _____.

1=Bad 2 3 4 5=Good

1=Negative 2 3 4 5= Positive

1. standing up for the victim during the confrontation is

2. comforting the victim is

3. reporting the bullying to someone who can help is

4. encouraging the victim to ask for help is

5. asking other students to support the victim is

6. minimizing the spread of rumors about the victim is

Personal Moral Norm for Victim Defending

1. If I witnessed a student being bullied or cyberbullied, I would feel morally obligated to _____.
2. If I witnessed a student being bullied or cyberbullied, I would feel personally responsible to _____.

1=Strongly disagree 2 3 4 5=Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Descriptive Norm for Victim Defending

1. When witnessing another student being bullied/cyberbullied, most FSU students typically_____.

2. When witnessing another student being bullied/cyberbullied, most students like me typically_____.

1= Strongly disagree 2 3 4 5=Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Injunctive Norm for Victim Defending

1. If I witnessed another student being bullied or cyberbullied, my parents expect me to _____.
2. If I witnessed another student being bullied/cyberbullied, my closest friends expect me to _____.

1= Strongly disagree 2 3 4 5=Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Self-Efficacy of Victim Defending

1. If you witnessed a student being bullied or cyberbullied, please rate how certain you are that you can do each of the things described below in such situation.

1= Cannot do at all 2 3 4 5= Highly certain can do

2. If you witnessed a student being bullied or cyberbullied, please rate how confident you are that you have the ability to do each of the things described below in such situation.

1= Not confident at all 2 3 4 5= Highly confident

1. stand up for the victim during the confrontation

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3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Behavioral Intention to Defend Victims

1. In the future, if you witnessed a student being bullied/cyberbullied, how likely would you be to do each of the things described below in such situation?

1=Very unlikely 2 3 4 5=Very likely

2. In the future, if you witnessed a student being bullied/cyberbullied, how willing would you be to do each of the things described below in such situation?

1=Very unwilling 2 3 4 5=Very willing

1. stand up for the victim during the confrontation

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5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Demographic Information

It is helpful to us to know something about the kinds of people who are participating in our studies. Please complete the demographic information below. Again, all of your responses will be kept strictly confidential.

1. With which gender do you most closely identify?

1= Male 2=Female 3=Neither of the above 4=Prefer not to answer

2. What is your sexual orientation?

1 =Heterosexual 2=Gay/lesbian, bisexual and other 3=Prefer not to answer

3. Are you religious?

1=Yes 2=No

4. Which religion do you associate yourself with?

1= Christian 2=Muslim/Islam 3=Buddhist 4=Hindu 5=Atheist 6=Agnostic 7=Non-religious 8=Other

5. What year are you in college?

1=First year 2=Second year 3=Third year 4=Fourth year 5=Fifth year or more

6. How old are you?
7. What is your ethnicity?

1=White/Caucasian 2=Black/African American 3=Hispanic/Latino(a) 4=Asian

5=Native American 6=Pacific Islander 7=Multiracial 8=Prefer not to answer

APPENDIX C

STUDY 2 PRE-TEST QUESTIONNAIRE

Now you are going to answer some questions about your thoughts, feelings and personal experiences. This will ONLY take about 15 minutes.

PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING.

Your answers will be kept STRICTLY CONFIDENTIAL and WILL NOT be identified by name.

There are NO RIGHT OR WRONG answers - your TRUE thoughts and opinions are the only responses we want. Please answer the questions AS HONESTLY AS YOU CAN.

Thank you very much! :)

Trait Empathy

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, please rate how well it describes you.

1= Not well at all 2=Slightly well 3=Moderately well 4=Very well 5=Extremely well

1. I often have tender, concerned feelings for people less fortunate than me.

2. I sometimes find it difficult to see things from the “other guy’s” point of view.

3. Sometimes I don’t feel very sorry for other people when they are having problems.

4. I try to look at everybody’s side of a disagreement before I make a decision.

5. When I see someone being taken advantage of, I feel kind of protective towards them.

6. I sometimes try to understand my friends better by imagining how things look from their perspective.

7. Other people's misfortunes do not usually disturb me a great deal.

8. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

9. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

10. I am often quite touched by things that I see happen.

11. I believe that there are two sides to every question and try to look at them both.

12. I would describe myself as a pretty soft-hearted person.

13. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

14. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Previous Experience with Being Bullied and Cyberbullied

Bullying is when a student, or a group of students, intentionally hurts, harms, or humiliates another student repeatedly, either physically or emotionally, to make the student feel bad. It is also bullying when others repeatedly exclude a student. Those bullying often have more social or physical "power," while those targeted have difficulty stopping the behavior.

It's not bullying when two students – of about the same strength – quarrel or fight. Jokes between friends are not bullying if everyone involved thinks it's okay. But it's bullying if a student, or a group of students, repeatedly makes fun of or teases another student in a way he or she doesn't like.

Given this definition of bullying, please answer the following questions.

1= Never 2=Rarely 3=Occasionally 4=Frequently 5=Very frequently

From kindergarten to high school, have you ever _____?

1. seen or known a student being bullied by one or more other students
2. been bullied by one or more other students
3. bullied another student?

Since you've been in college, have you ever _____?

1. seen or known a student being bullied by one or more other students
2. been bullied by one or more other students
3. bullied another student?

Cyberbullying is bullying that takes place over digital devices like cell phones, computers, and tablets. Cyberbullying can occur through text, instant messaging, email, and apps, or online in social media, forums, or gaming platform where people can view, participate in, or share content. Cyberbullying includes sending, posting, or sharing negative, harmful, false, or mean content about someone else. It can include sharing personal or private information, photos or videos about someone else causing embarrassment or humiliation.

Given this definition of cyberbullying, please answer the following questions.

1= Never 2=Rarely 3=Occasionally 4=Frequently 5=Very frequently

From kindergarten to high school, have you ever _____?

1. seen or known a student being cyberbullied by one or more other students?
2. been cyberbullied by one or more other students?
3. cyberbullied another student?

Since you've been in college, have you ever _____?

1. seen or known a student being cyberbullied by one or more other students?
2. been cyberbullied by one or more other students?
3. cyberbullied another student?

Prior Defending Behaviors

In the past, if you saw a student being bullied or cyberbullied by one or more students, how did you used to react when you saw the bullying going on? Please read the following items describing different ways to behave in such situations carefully, and rate how often you behave in each of the ways described below. Your answers will be kept strictly confidential and will not be identified by name.

1= Never 2=Sometimes 3=About half the time 4=Most of the time 5=Always

1. I read negative posts about the victim but did not participate.
2. I came around to watch the bullying.

3. I stayed outside the situation.
4. I didn't take sides with anyone.
5. I left the situation and did nothing.
6. I stood up for the victim during the confrontation.
7. I comforted the victim.
8. I encouraged the victim to ask for help.
9. I reported the bullying to someone who can help.
10. I asked other students to support the victim.
11. I joined in the bullying, when someone else had started it.
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2. What is your sexual orientation?

1 =Heterosexual 2=Gay/lesbian, bisexual and other 3=Prefer not to answer

3. Are you religious?

1=Yes 2=No

4. Which religion do you associate yourself with?

1= Christian 2=Muslim/Islam 3=Buddhist 4=Hindu 5=Atheist 6=Agnostic 7=Non-religious 8=Other

5. What year are you in college?

1=First year 2=Second year 3=Third year 4=Fourth year 5=Fifth year or more

6. How old are you?
7. What is your ethnicity?

1=White/Caucasian 2=Black/African American 3=Hispanic/Latino(a) 4=Asian

5=Native American 6=Pacific Islander 7=Multiracial 8=Prefer not to answer

APPENDIX D

STUDY 2 INSTRUCTION

Study 2 Instruction (Game-Positive Condition)

Thank you for participating.

First, you are about to play an interactive story game. The game you are about to play consists of four parts of an ongoing story. After playing each part, you will answer some questions about what you just experience. After concluding all the four parts, you will also complete a questionnaire to help us evaluate the game.

We appreciate your effort and help very much!

What is the game about?

The game's protagonist is Maxine Caufield, better known as Max, a shy 18-year old art student. Previously, Max returns to her hometown, Arcadia Bay, to study photography at the prestigious art and science college, Blackwell Academy. The story begins as Max witnesses her childhood best friend, Chloe Price, get shot by Nathan Prescott in one of Blackwell's bathroom. While attempting to stop the murder, Max discovers she can rewind time to change the courses of events. Using her time-rewinding power, Max sets out to uncover the truth behind several mysteries in Blackwell.

Now you are going to play Max. The story you are about to play occurs after Max saving Chloe from being killed by Nathan, and revolves around Max testing her power, finding out about the bullying of Kate Marsh, a friend of Max's, and reuniting with Chloe.

You will be given the opportunity to make choices at certain points in different parts of the story while playing as Max, and each choice will have consequences. There are multiple outcomes of the story depending on the choices you make for Max.

You can use Max's ability to 'rewind time' to change your choice if you are not happy with the previous choice you make at each decision point, but once you move on to the next part of the story, you will not be able to change your choice anymore.

Most importantly, when you reach each decision point, we would like you to always make choices based on what you think would help Kate in that situation.

To help you understand the story line better, please also read through the important character informatio

Study 2 Instruction (Game-Negative Condition)

Thank you for participating.

First, you are about to play an interactive story game. The game you are about to play consists of four parts of an ongoing story. After playing each part, you will answer some questions about what you just experience. After concluding all the four parts, you will also complete a questionnaire to help us evaluate the game.

We appreciate your effort and help very much!

What is the game about?

The game's protagonist is Maxine Caufield, better known as Max, a shy 18-year old art student. Previously, Max returns to her hometown, Arcadia Bay, to study photography at the prestigious art and science college, Blackwell Academy. The story begins as Max witnesses her childhood best friend, Chloe Price, get shot by Nathan Prescott in one of Blackwell's bathroom. While attempting to stop the murder, Max discovers she can rewind time to change the courses of events. Using her time-rewinding power, Max sets out to uncover the truth behind several mysteries in Blackwell.

Now you are going to play Max. The story you are about to play occurs after Max saving Chloe from being killed by Nathan, and revolves around Max testing her power, finding out about the bullying of Kate Marsh, a friend of Max's, and reuniting with Chloe.

You will be given the opportunity to make choices at certain points in different parts of the story while playing as Max, and each choice will have consequences. There are multiple outcomes of the story depending on the choices you make for Max.

You can use Max's ability to 'rewind time' to change your choice if you are not happy with the previous choice you make at each decision point, but once you move on to the next part of the story, you will not be able to change your choice anymore.

Most importantly, when you reach each decision point, we would like you to always make choices based on what you think would hurt Kate in that situation.

To help you understand the story line better, please also read through the important character information.

Study 2 Instruction (Narrative Video Condition)

Thank you for participating.
First, you are about to watch a video playthrough of a story game. The video you are about to watch consists of four parts of an ongoing story in the game. Please watch the video very carefully.
After viewing, you will complete a questionnaire to help us evaluate the video.

We appreciate your effort and help very much!

What is the game about?

The game's protagonist is Maxine Caufield, better known as Max, a shy 18-year old art student. Max returns to her hometown, Arcadia Bay, to study photography at the prestigious art and science college, Blackwell Academy. The story begins as Max witnesses her childhood best friend, Chloe Price, get shot by Nathan Prescott in one of Blackwell's bathroom. While attempting to stop the murder, Max discovers she can rewind time to change the courses of events. Using her time-rewinding power, Max sets out to uncover the truth behind several mysteries in Blackwell.

The story in the video occurs after Max saving Chloe from being killed by Nathan, and revolves around Max testing her power, finding out about the bullying of Kate Marsh, a friend of Max's in Blackwell and reuniting with Chloe.

To help you understand the story line better, please also read through the important character information.

Study 2 Instruction (Educational Video Condition)

Thank you for participating.

First, you are about to watch a video. The video is an educational material that is developed to help FSU students to prevent bullying and cyberbullying on college campus. Please watch the video very carefully.

After viewing, you will complete a questionnaire to help us evaluate the video.

We appreciate your effort and help very much!

APPENDIX E

IMPORTANT CHARACTER INFORMATION

Max Caulfield

Max Caulfield is the protagonist in the story. She is an 18-year-old aspiring photographer and art student at Blackwell Academy. She is geeky, quite introverted and slightly self-conscious. She recently discovers she has the power to rewind time to change the courses of events.

Kate Marsh

Kate Marsh is an 18-year old student at Blackwell Academy and a devout Christian. She has a good relationship with her father. She is friendly, kind-hearted and shy. Max is seemingly good friends with Kate, and notices that she has been extra quiet and introverted the past couple weeks.

Chloe Price

Chloe Price was Max Caulfield's childhood best friend before she moved to Seattle, leaving Chloe in their hometown of Arcadia Bay. They rekindle their friendship during the events of the story. Chloe's father, William Price, passed away right around the time Max moved to Seattle. Chloe has a tense relationship with her now stepfather, David Madsen.

David Madsen

David Madsen was a war veteran and is the security guard at Blackwell Academy. He is married to Chloe's mom Joyce Price, and is Chloe Price's stepfather. He also appears to suffer from PTSD and paranoia after his time in the military.

Nathan Prescott

Nathan Prescott is an 18-year old student at Blackwell Academy and is one of the antagonists in the story. He is associated with selling drugs at Blackwell, and it is consistently implied that he is mentally ill and is in therapy. Nathan is outwardly aggressive, spoiled, rich, and acts in the manner of an archetypal brat.

Victoria Chase

Victoria Chase is an 18-year old student at Blackwell Academy. She is best friends with Nathan Prescott and often has two sidekicks, Taylor and Courtney, by her side. Victoria gossips and seems the stereotypical bitchy queen-bee figure at Blackwell. She picks on Max and other students and is known to be quite dramatic.

APPENDIX F

GAME PLAY INSTRUCTION

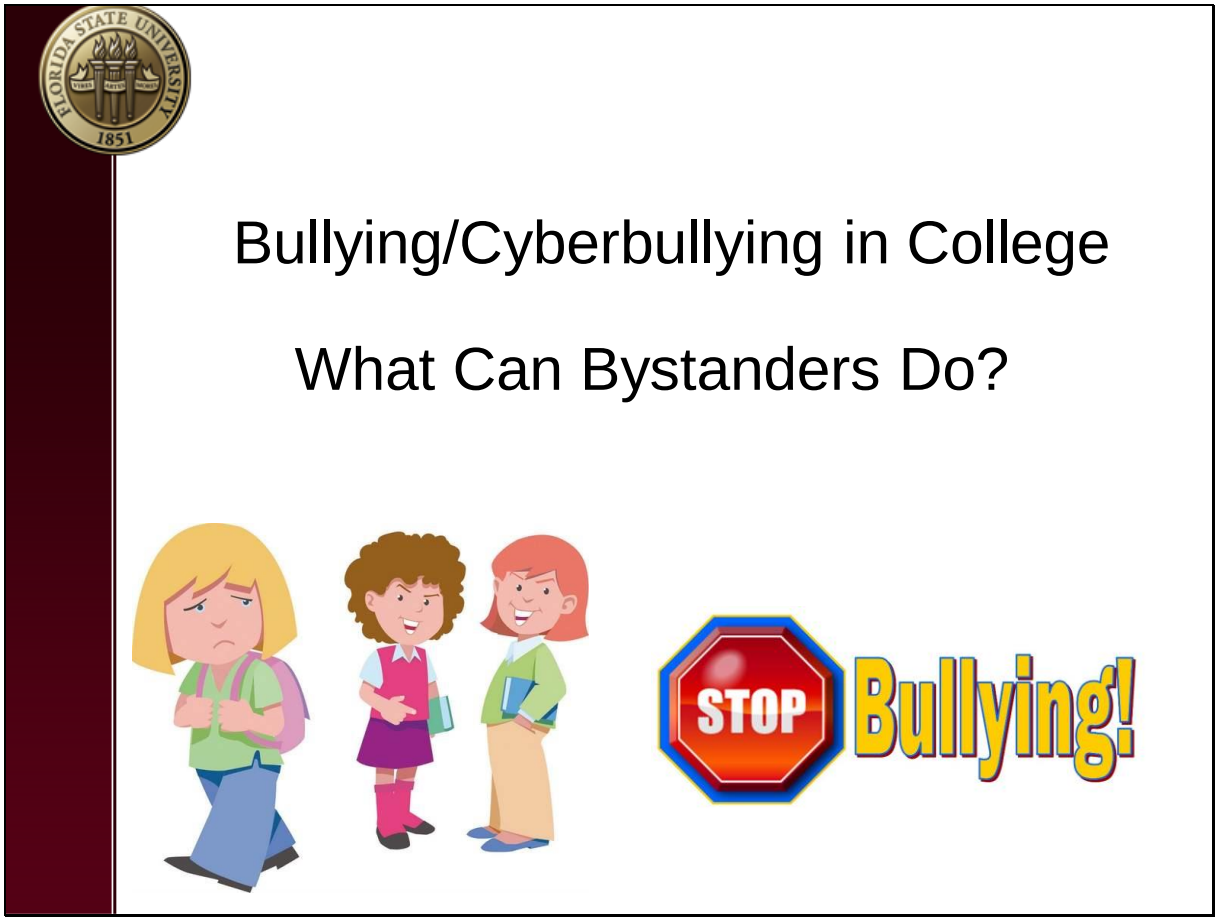
How to play

- Use UP, DOWN, LEFT, RIGHT KEYS on the keyboard to move.
- Hold Shift to move faster
- Use Mouse to move the camera
- Hold Left Mouse Button, drag Mouse and release Left Mouse Button to perform contextual action.
- Press Shift + Control to rewind time.
- Press Tab to open your Journal to see the objective and text messages.
- DO NOT press space to skip the story.

If you get stuck in one place for too long (more than 5 minutes), please let the researcher know!

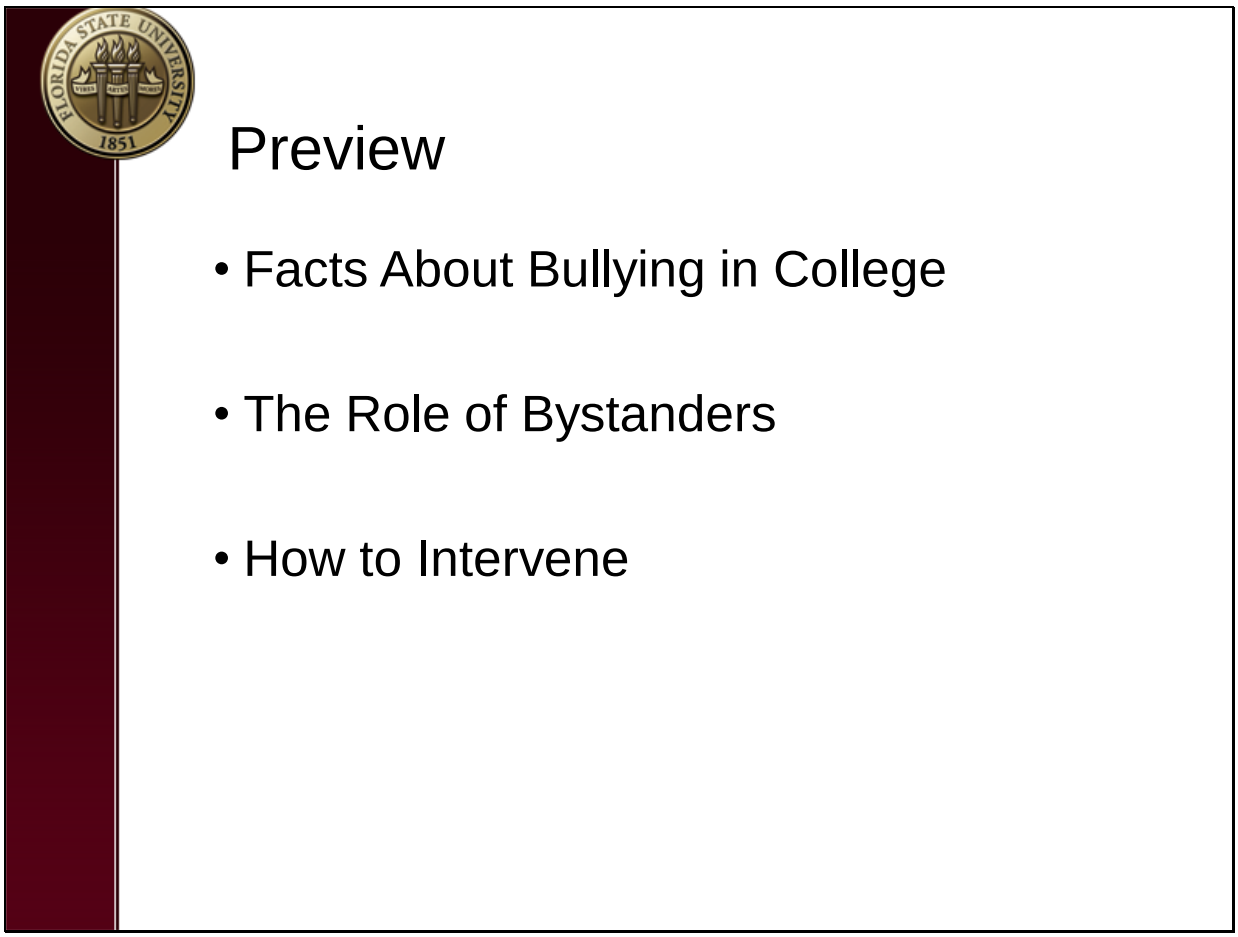
APPENDIX G

EDUCATIONAL VIDEO POWERPOINT SLIDE

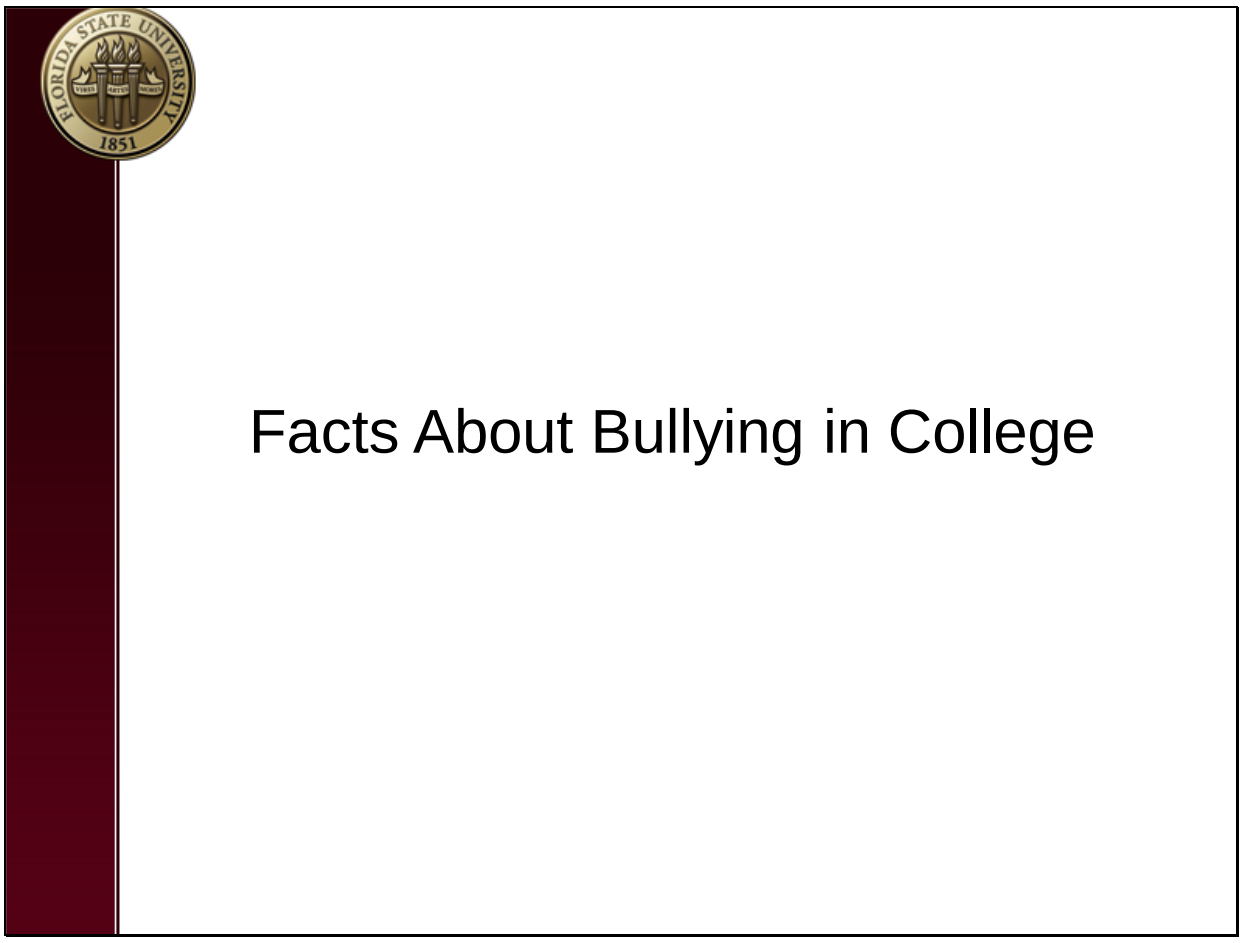


Welcome to the college bullying prevention and intervention training module.

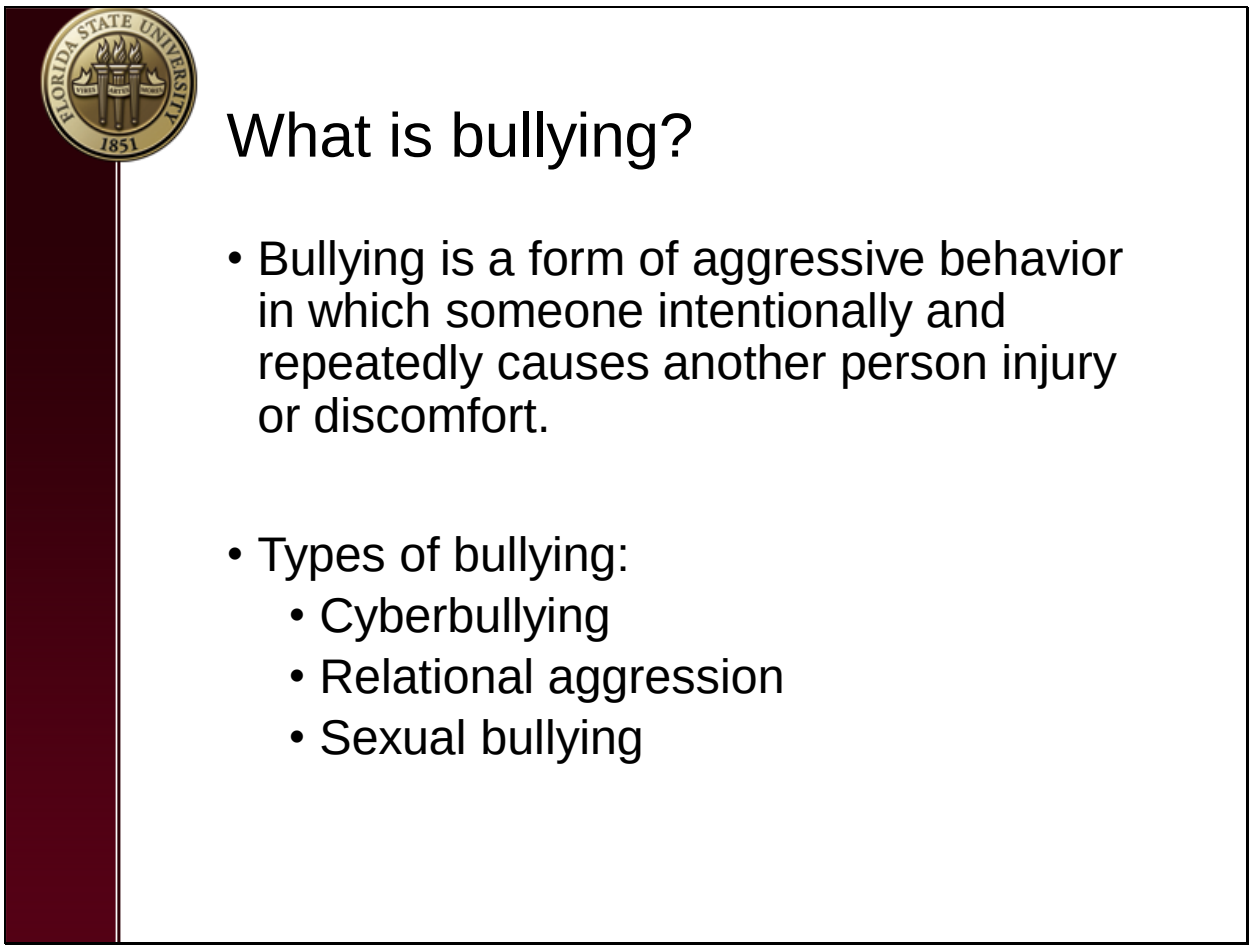
In this training module, you are going to learn about the issues of bullying and cyberbullying that are prevalent on college campuses, and the role you can play as a member of the FSU community in creating a safe and healthy campus environment.



First, we will go through some of the facts about bullying in college.
What is bullying, and what does bullying look like on college campuses.
Then, we will discuss the powerful role bystanders can play in bullying situations, and how different bystander behaviors can either contribute to the problem or the solution of campus bullying.
Finally, we will provide a few concrete strategies you can use to intervene in bullying situations by applying them to different scenarios.
The ultimate goal of this training session is to help you be better equipped to prevent and stop bullying on campus in a safe and effective way.



Facts about Bullying in College



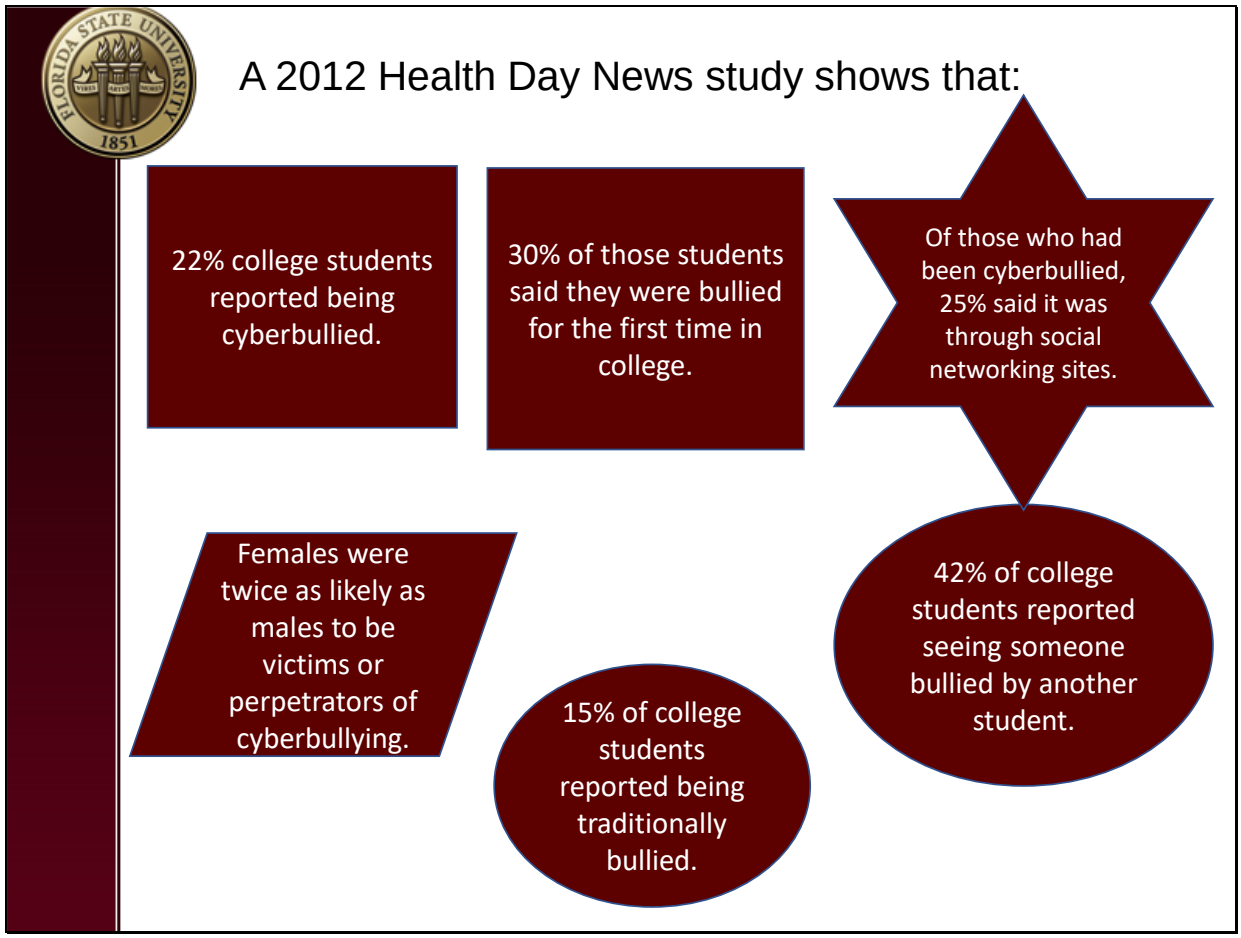
So, what is bullying?
The American Psychological Association defines bullying as a form of aggressive behavior in which someone intentionally and repeatedly causes another person injury or discomfort.
Bullying can take different forms. Some types of bullying that typically happen to college students are:
Cyberbullying. Cyberbullying occurs when bullies use the Internet, a smartphone, or other technology to harass, threaten, embarrass, or target another person.
Relational aggression. Relational aggression is a type of social manipulation where bullies try to hurt their peers or sabotage their social standing. Relational bullies often ostracize others from a group, spread rumors, manipulate situations, and break confidences
Sexual bullying. Sexual bullying consists of repeated, harmful, and humiliating actions that target a person sexually, including sexual name-calling, crude comments, vulgar gestures, uninvited touching, sexual propositioning, and spreading sexual materials that involve the target.

Bullying is often thought of an issue that happens in K-12, and that once kids just make it through the high school years, they will be free to start fresh at college.

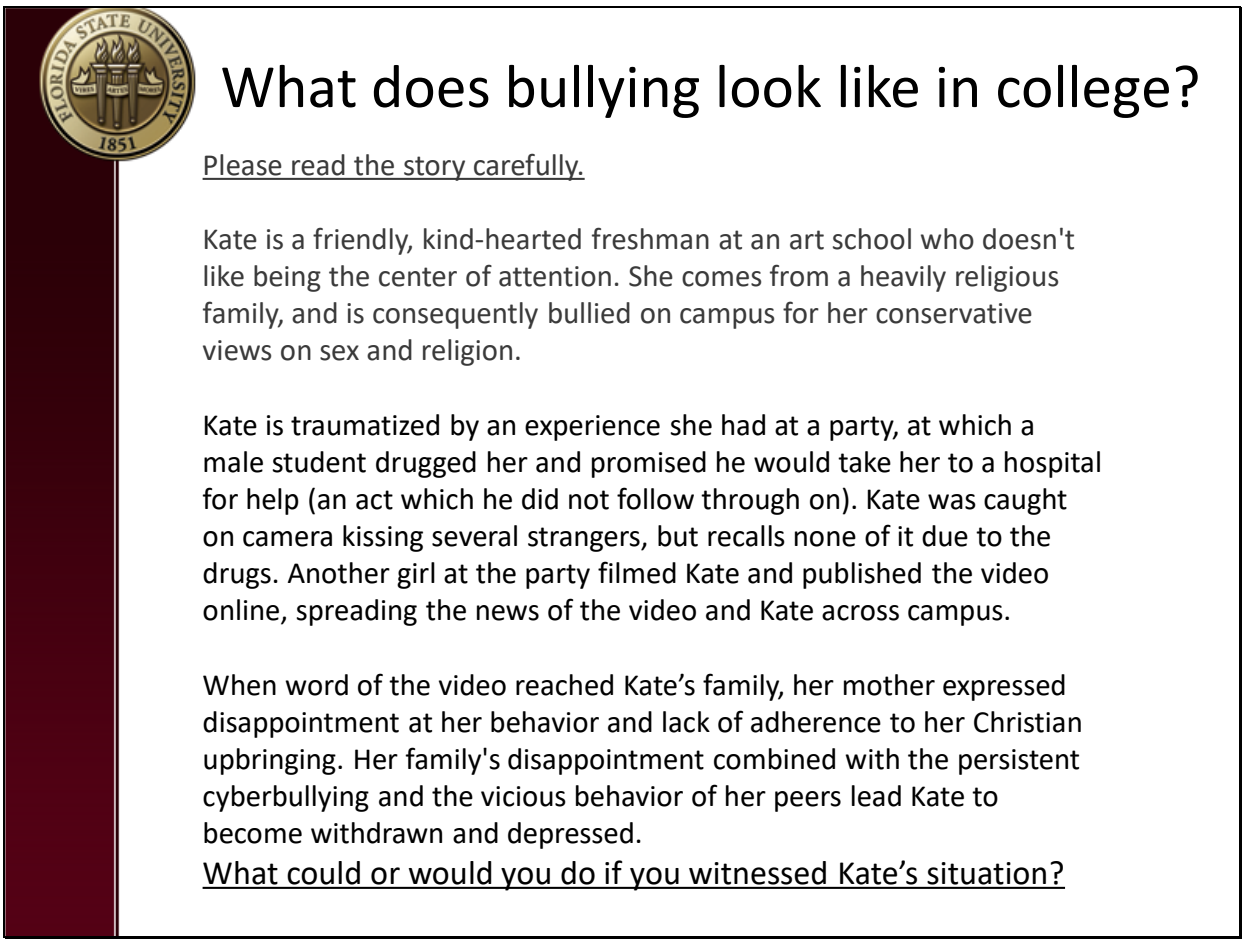
However, that is a painful misconception. Growing research indicates that bullying may never completely go away, as bullies are growing up and infiltrating college campuses. In fact, if bullies are not taught to take responsibility for their actions or are not disciplined for bullying others, they will bring these tendencies with them to college and repeat their behaviors. Therefore, bullying is an issue that people of all ages must be prepared to handle.

What's more, research indicates that cyberbullying is increasing at the college level. And much of the cyberbullying that college kids experience revolves around relationship issues. For example, many times cyberbullying encompasses gossip and rumors, slut shaming and sexual bullying. Often mean girls will engage in this behavior as a way to climb to the social ladder or to intimidate other girls. They also may use cyberbullying to stake their claim on boys they are interested in. Meanwhile, boys may use cyberbullying to get revenge after being dumped. In fact, if students engage in sexting this puts them at greater risk for cyberbullying or slut shaming when a relationship ends.

Unlike bullying in middle school and high school, many college students must face bullying without the support of family and friends nearby. They are living on campus miles from home. Escaping the bullying climate can be more challenging in college especially if the bully is a roommate or a dorm mate. Without the support of family and the added stress of living alone for the first time, the impact of bullying can worsen. Research indicates that college students can feel even more alone and isolated especially if they are underclassmen at the university. Every college student needs a circle of support, but bullied college students are in even greater need of support.



To understand the scope of bullying/cyberbullying on college campus, let's take a look at some of the research findings from a recent study.
When it comes to bullying in college, 22% of college students reported being cyberbullied.
30% of those students said they were bullied for the first time in college.
Of those who had been cyberbullied, 25% said it was through social networking sites.
Female students were twice as likely as male students to be victims or perpetrators of cyberbullying.
15% of college students reported being traditionally bullied.
42% college students reported seeing someone bullied by another student.



So, what does a typical bullying event look like in college? Here's a story of a college freshman Kate's experience of bullying.

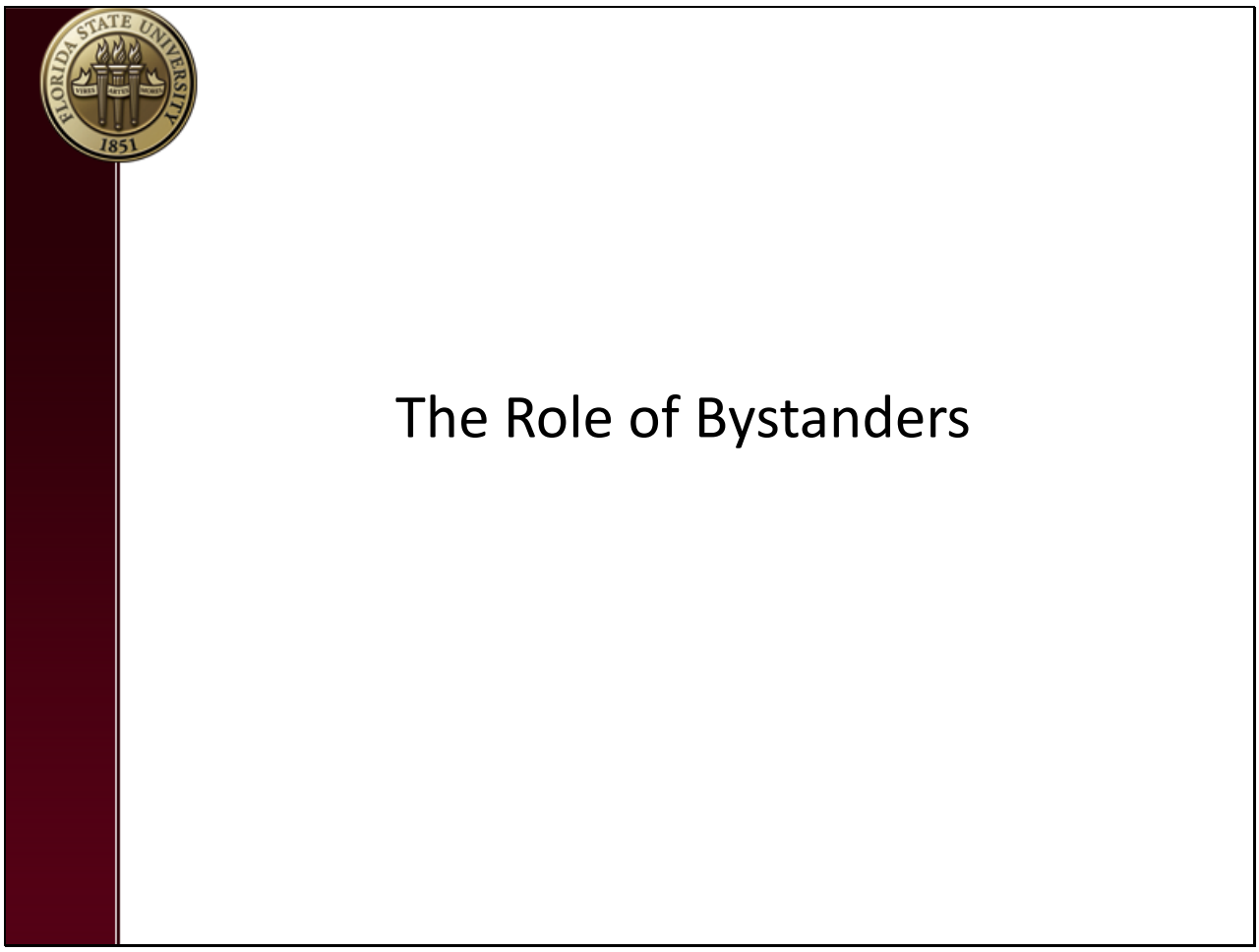
Kate is a friendly, kind-hearted freshman at an art school who doesn't like being the center of attention. She comes from a heavily religious family and is consequently bullied on campus for her conservative views on sex and religion.

Kate is traumatized by an experience she had at a party, at which a male student drugged her and promised he would take her to a hospital for help (an act which he did not follow through on). Kate was caught on camera kissing several strangers but recalls none of it due to the drugs. Another girl at the party filmed Kate and published the video online, spreading the news of the video and Kate across campus.

When word of the video reached Kate's family, her mother expressed disappointment at her behavior and lack of adherence to her Christian upbringing. Her family's disappointment combined with the persistent cyberbullying and the vicious behavior of her peers lead Kate to become withdrawn and depressed.

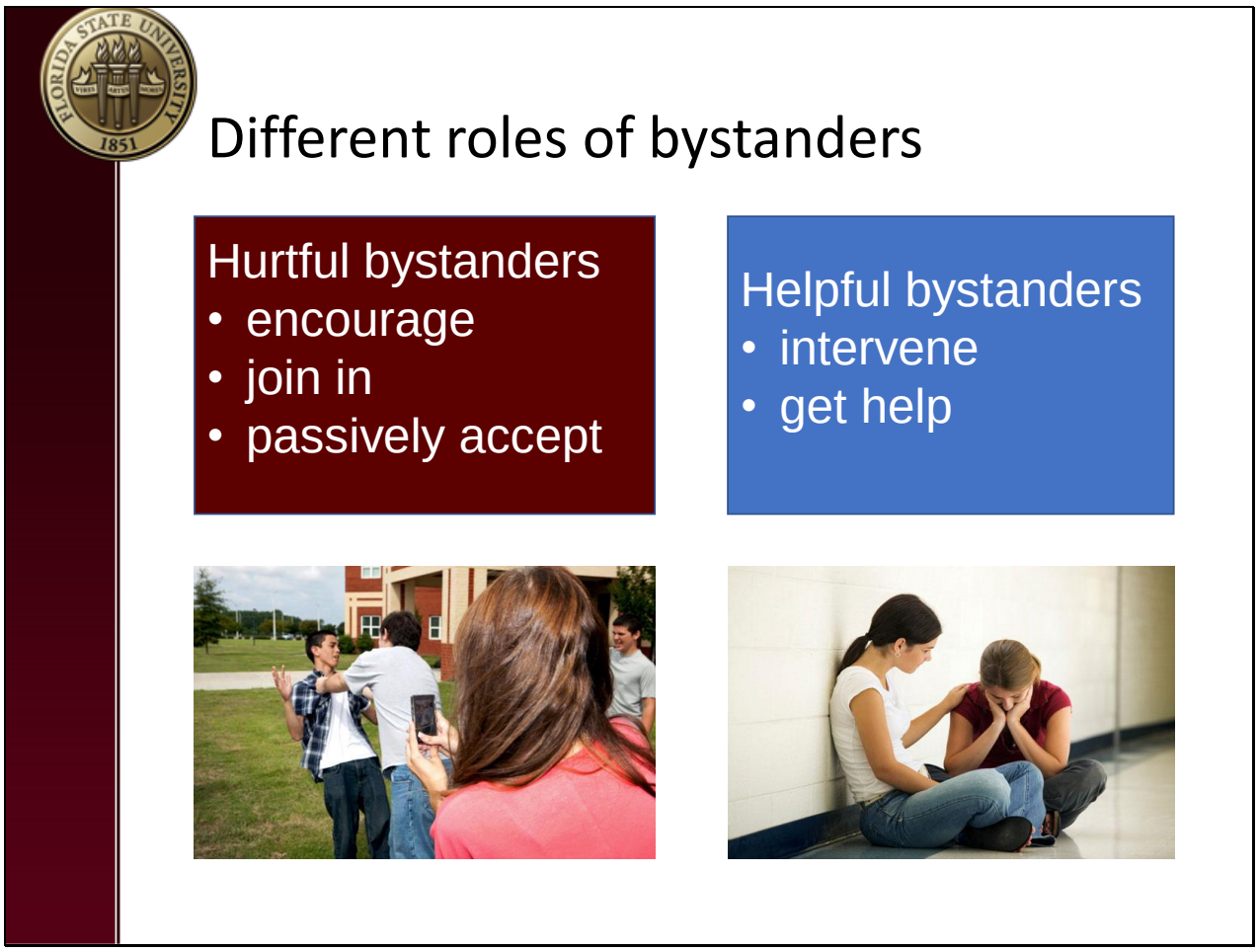
Suppose you were Kate's classmate, and you had witnessed or heard of Kate being mistreated by other people on several occasions, what would you do as a bystander?

Slide 8

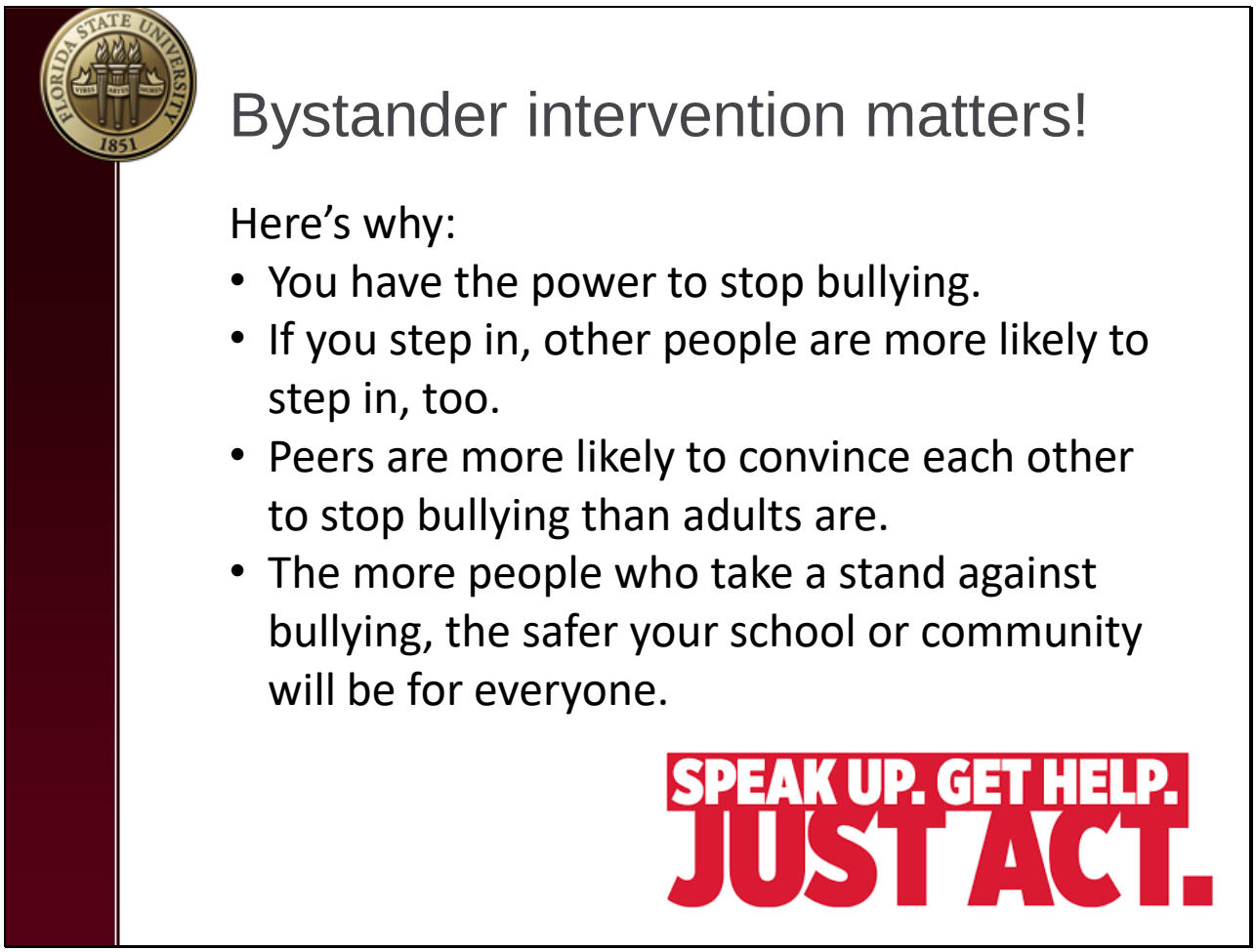


The Role of Bystanders

Whether you see a friend being attacked by mean comments online, a housemate who seems sad and withdrawn, or students spreading rumors about another student in dorm, as a member of the FSU community you have a role to play in creating a safe AND healthy campus environment. In fact, bystanders have the power to play a key role in preventing or stopping campus bullying.



Different Roles of Bystanders
Before we discuss some safe and effective ways you can do to stop bullying. Let us take a look at several roles bystanders can play in bullying situations. Depending on how they respond to the bullying situation that they witnessed, they can either contribute to the problem *or* the solution. Bystanders rarely play completely neutral roles, although they may think they do.
Bystanders can be part of the problem by being hurtful bystanders.
Hurtful bystanders may…
encourage the bullying by laughing, cheering, or making comments that further stimulate the bullies.
or join in the bullying once it has begun,
or in most cases, passively accept bullying by watching and doing nothing. Often without realizing it, these bystanders also contribute to the problem. By doing nothing they send a message to the bullies that their behavior is acceptable.
On the other hand, bystanders can be part of the solution by being helpful bystanders.
Helpful bystanders may..
either directly intervene, by discouraging the bully, defending the victim, or redirecting the situation away from bullying.
or get help, by rallying support from peers to stand up against bullying or by reporting the bullying to adults.



Bystander intervention matters!

We all have a role to play in erasing bullying and protecting the rights of ourselves and others. Bystander intervention especially matters in preventing or stopping bullying.

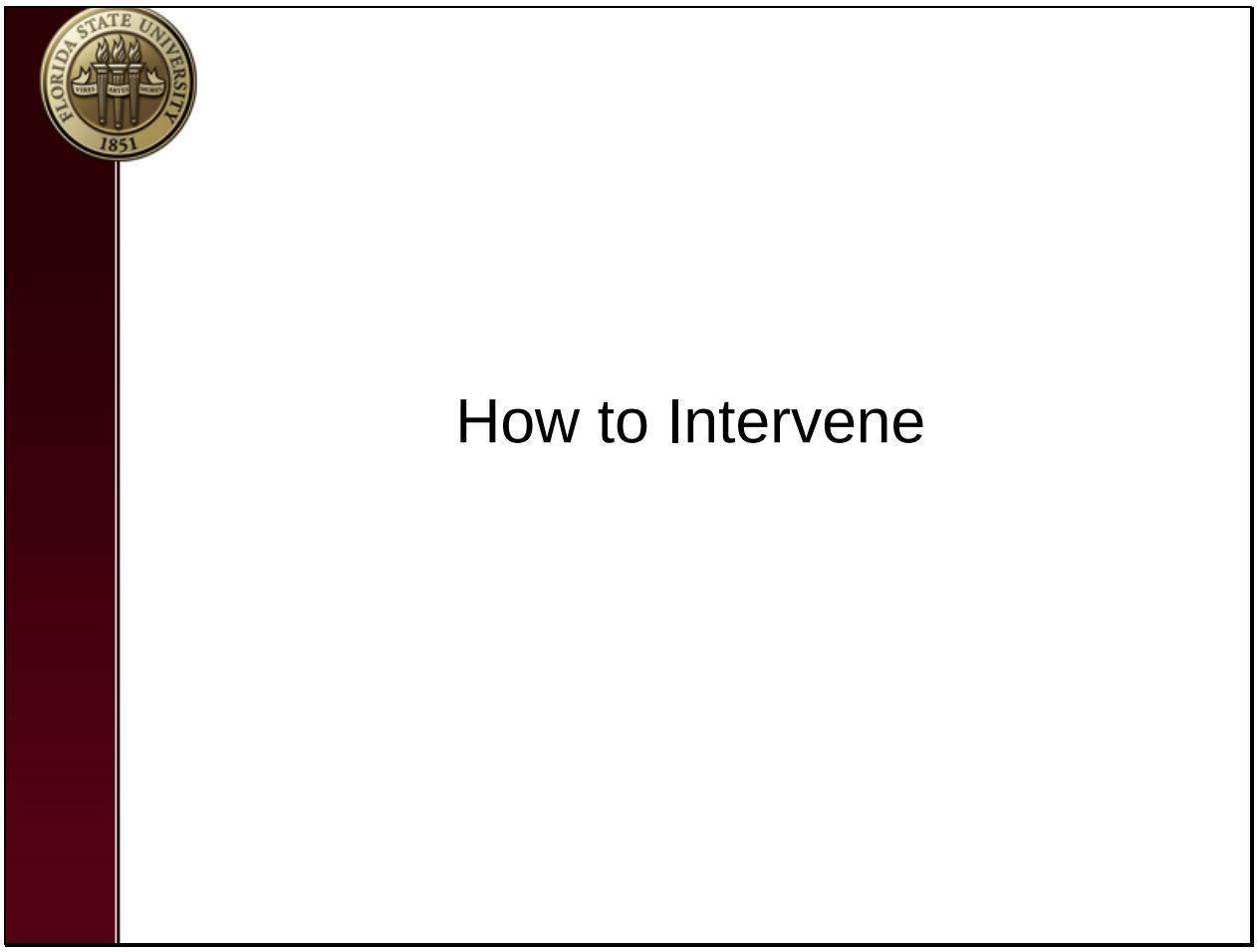
There are many different reasons for this. Here's why.

First and foremost, you have the power to stop bullying. Research shows that bystanders can effectively stop bullying within 10 seconds of an intervention. What's more a bystander has the power to stop events before they happen, while they are happening or after they happen, that is a bystander can prevent the potential outcome as well as deal with an outcome of bullying.

Second, if you step in, other people are more likely to step in, too. Most young people disapprove of bullying — they're just waiting for someone to take the first step to stopping it.

In addition, peers are more likely to convince each other to stop bullying than adults are. By being willing to step up and say something, you can help to eliminate that discomfort and create a campus culture where helping others is the norm.

The more people who take a stand against bullying, the safer your school or community will be for everyone.



We know that being the one who stands up first is never easy. One of the best ways to overcome the concerns and fears that keep you silent is to have strategies on hand for intervening. That way, you don't have to think as much about what to do, whether to do it, and when to do it, and so on. You'll simply be prepared to act when you need to.
In the following section, we will provide a few concrete strategies you can use to intervene in bullying situations by applying them to different scenarios, so that you can be better equipped to prevent and stop bullying on campus in a safe and effective way.

What can I do if I see bullying?

I. Stand up for the victim during a bullying situation
II. Do not spread offensive rumors, messages, photos or videos
III. Encourage the victim to ask for help
IV. Support the victim

There is no one size fits all approach to be a helpful bystander. For helpful bystanders to take safe and effective action, here are some suggestions:

- Stand up for the victim during a bullying situation
- Do not spread offensive rumors, messages, photos or videos
- Encourage the victim to ask for help
- Support the victim

We will discuss each of these strategies in detail by applying them to different scenarios in Kate's bullying situations.

Stand up for the victim during a bullying situation

Stand up for the victim during a bullying situation.
While it isn't easy, you can speak up during the bullying by asking the person who is bullying to stop.
When confronting someone behaving aggressively, think to do so in the form of a question. Ask bullies to explain and justify their ongoing behavior with questions like "why do you keep ragging on him?" or "look at her—haven't you said enough?"
A request sidesteps a direct challenge, and is much less threatening than a denouncement, yet sends the same message.

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Suppose you saw that Kate was being harassed by a campus security guard because he thought she was part of the “bad kids” group that was involved in illicit drug use as a result of seeing her viral video. Kate looked nervous and afraid, but couldn’t get away from him.

I. Stand up for the victim during a bullying situation

Would you……

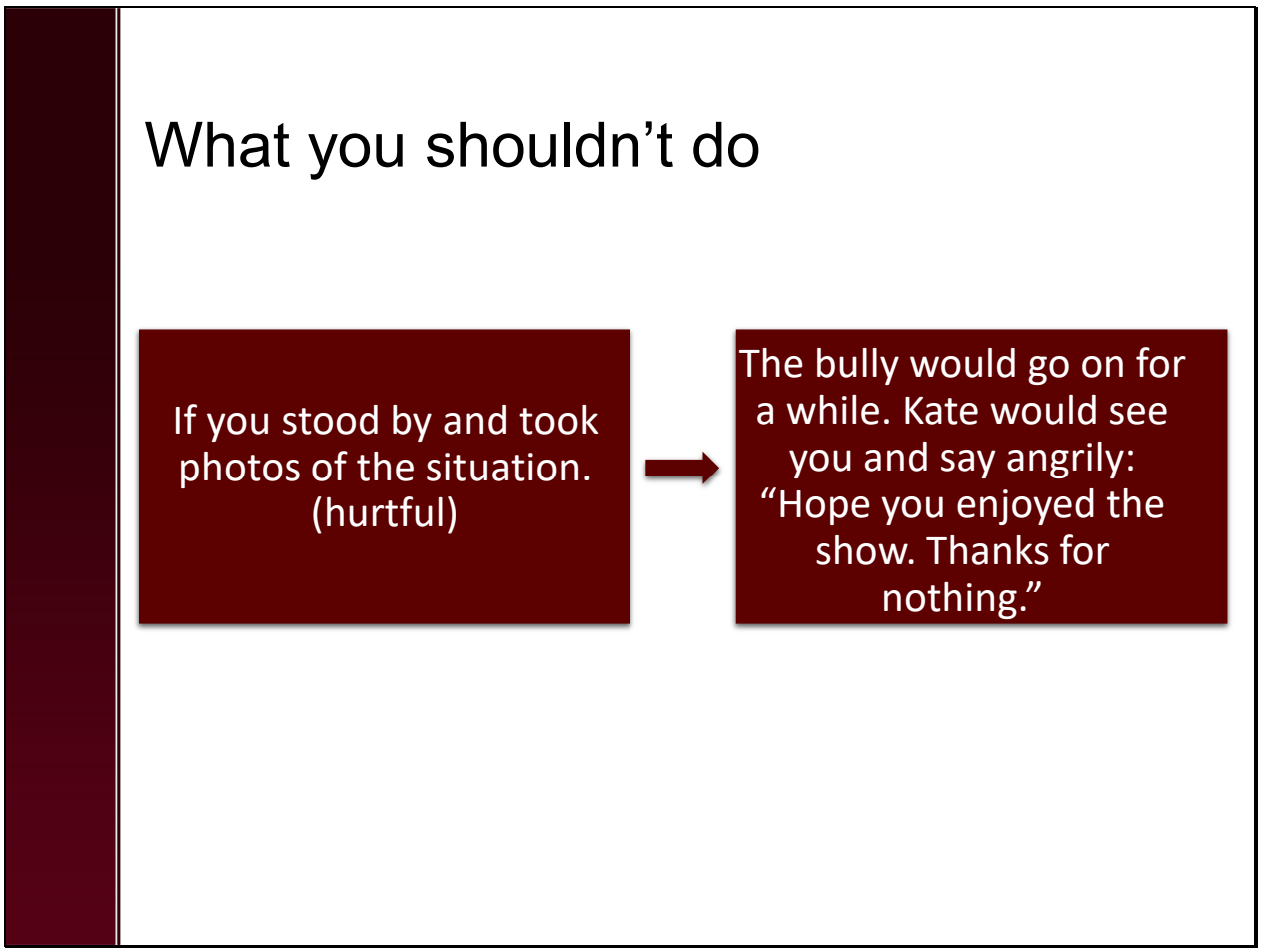
- watch and take photos?

or

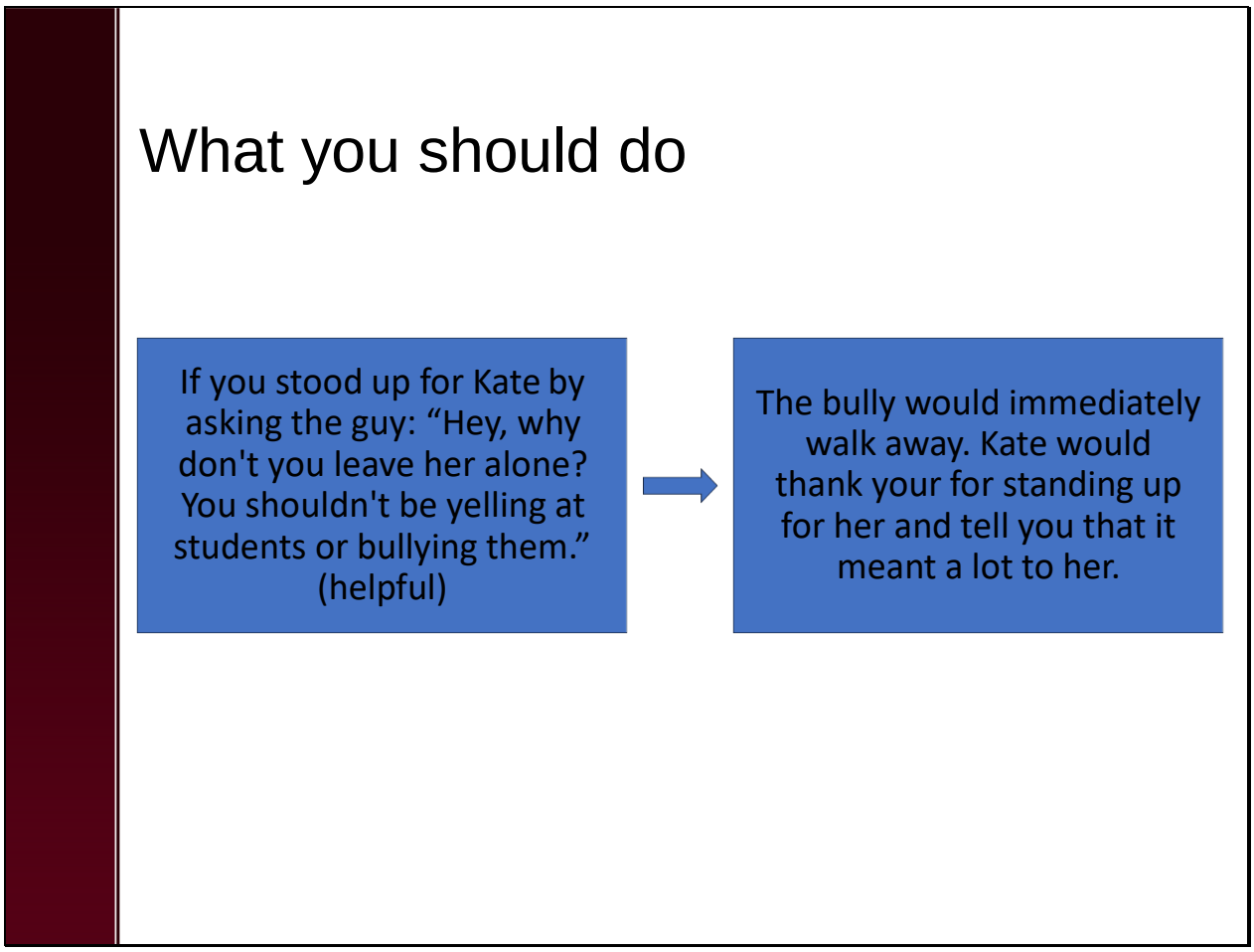
- stand up for Kate during the confrontation?

For example, suppose you saw that Kate was being harassed by a campus security guard because he thought she was part of the “bad kids” group that was involved in illicit drug use as a result of seeing her viral video. Kate looked nervous and afraid but couldn’t get away from him.
Would you……

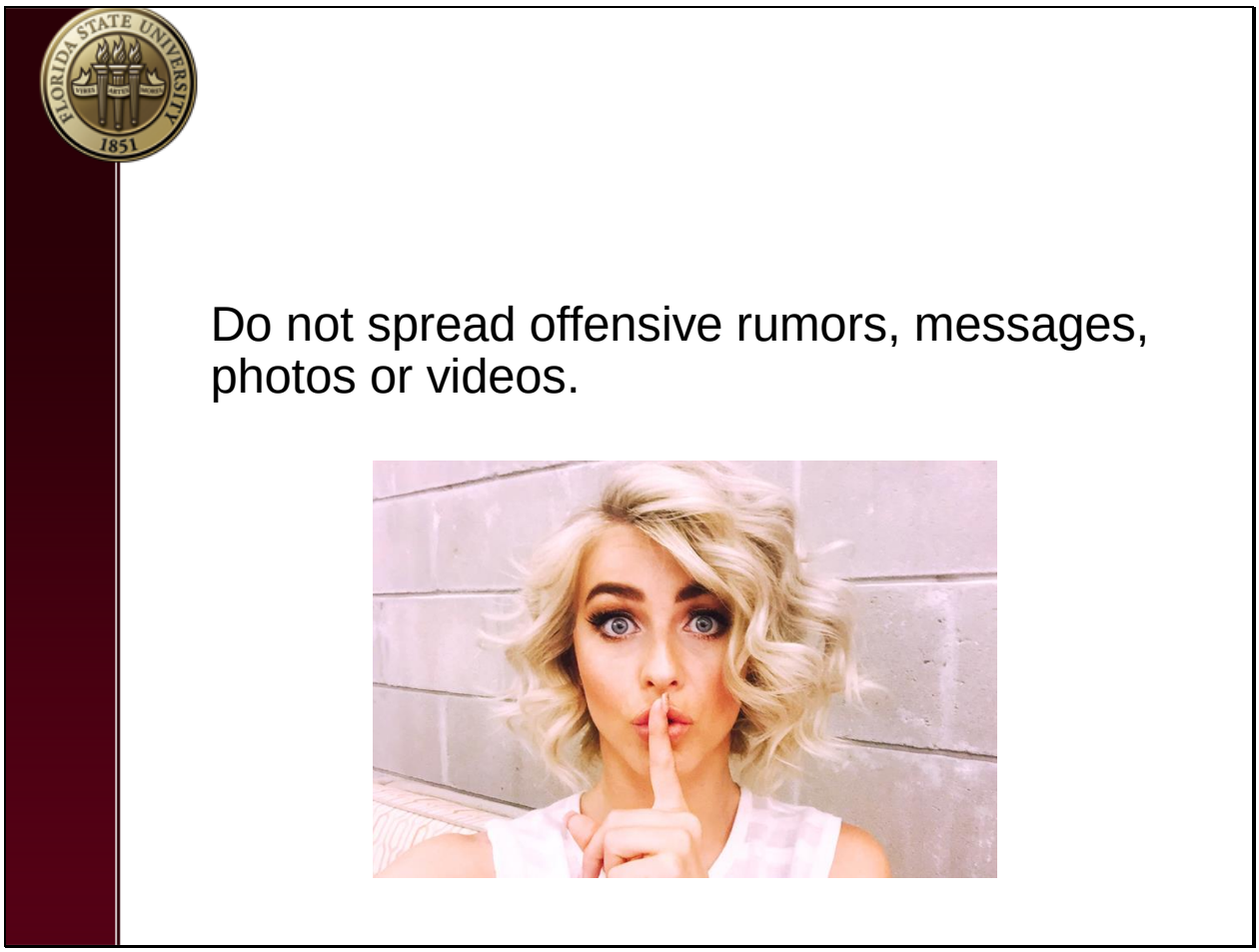
- watch and take photos?
  or
- stand up for Kate during the confrontation?



If you chose to stand by and take photos, that would be a hurtful bystander behavior.
The bully would go on for a while. Kate would see you and say angrily to you "Hope you enjoyed the show, thanks for nothing."
By watching while doing nothing to stop the bully, you might be giving the bully the "okay" to carry on with his behavior and causing the victim feeling even more humiliated and isolated.



Whereas, if you stood up for Kate by simply asking the guy “Hey, why don't you leave her alone? You shouldn't be yelling at students or bullying them.” that would be a helpful bystander behavior.
The bully would be discouraged and immediately walk away. Kate would thank you for standing up for her and tell you that it meant a lot to her.



Do not spread offensive rumors, messages, photos or videos.
When we're in the presence of friends who are "talking trash about someone" or spreading rumors, don't say nothing or add another negative comment about the victim. It does not necessarily involve telling someone that he or she is wrong or directly challenging the person who made the comments.
You can counter a negative comment with a positive comment in order to *balance* put-downs.
Questioning a rumor is also a great way to stop it in its tracks. When someone passes along a rumor, ask them how they know whether or not it's true.
Also, do not forward any text messages, photos or videos that will be upsetting to the victim. Do your small part in minimizing its social significance, and its life-span, by refusing to pay it undue attention. Think of the small comfort it might offer a victim to be able to think not 'everybody' stopped to witness his or her public humiliation or are chatting about it on social media.

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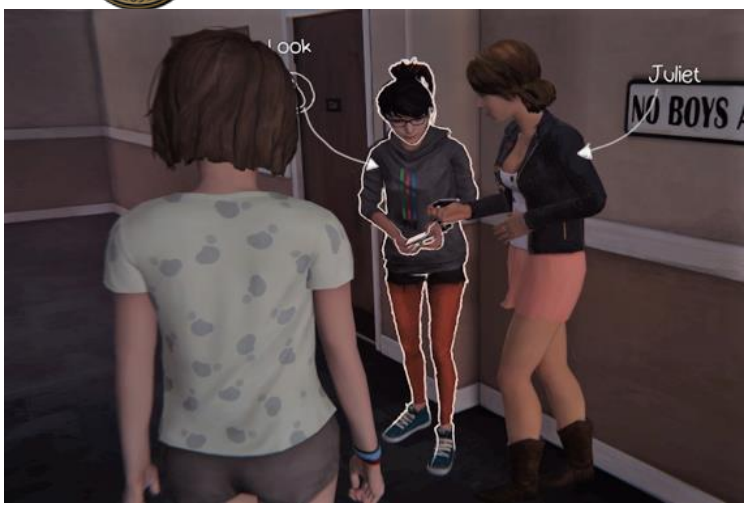


II. Do not spread offensive rumors, messages, photos or videos

Suppose two girls were gossiping and watching Kate's viral video on their cell phones in the dorm. You happened to pass by. The girls invited you to watch the video with them.

Would you……

- say nothing and simply pass by?

or

- encourage them not to share the video anymore?

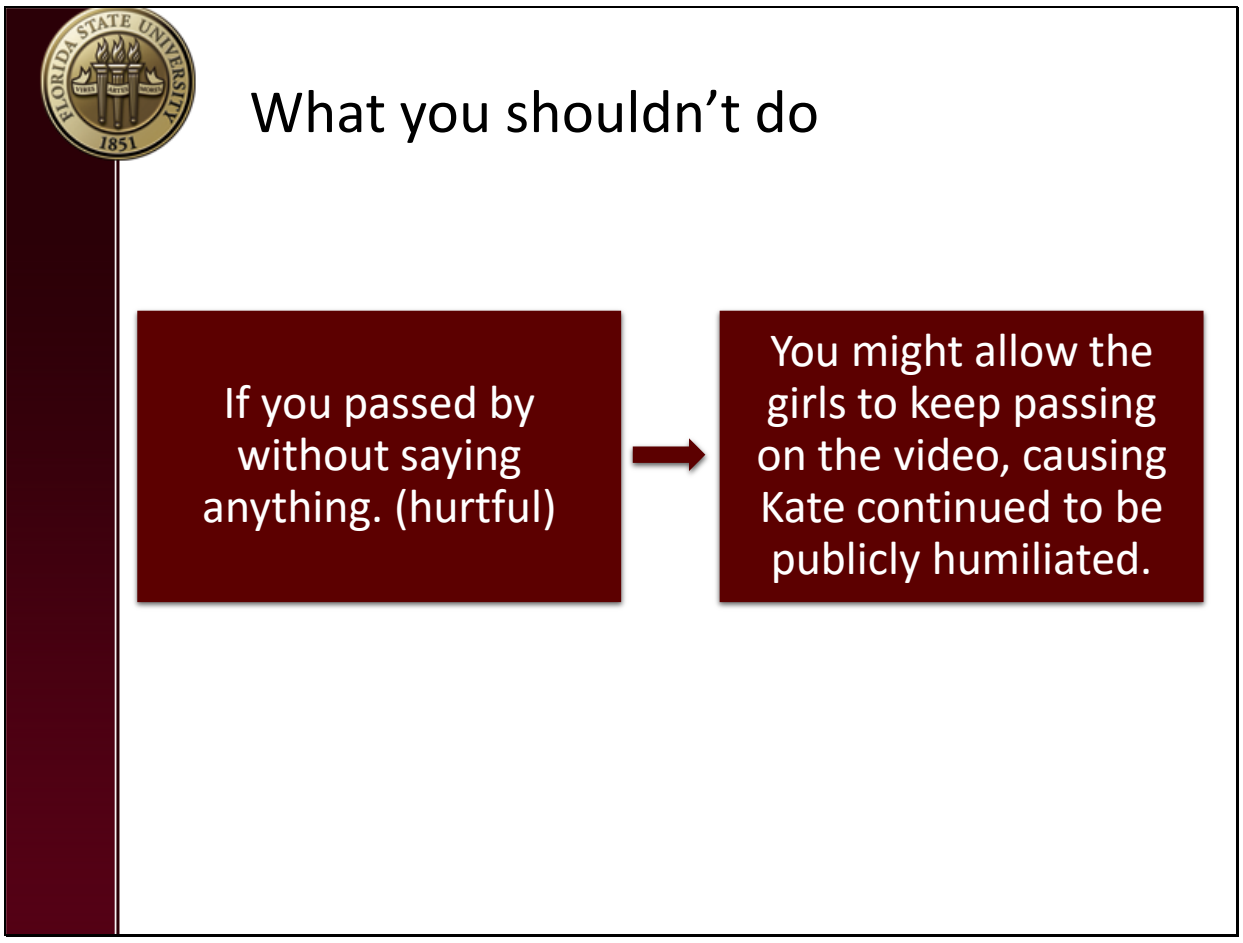
For example, suppose two girls were gossiping and watching Kate's viral video on their cell phones in the dorm. You happened to pass by. The girls invited you to watch the video with them.

Would you……

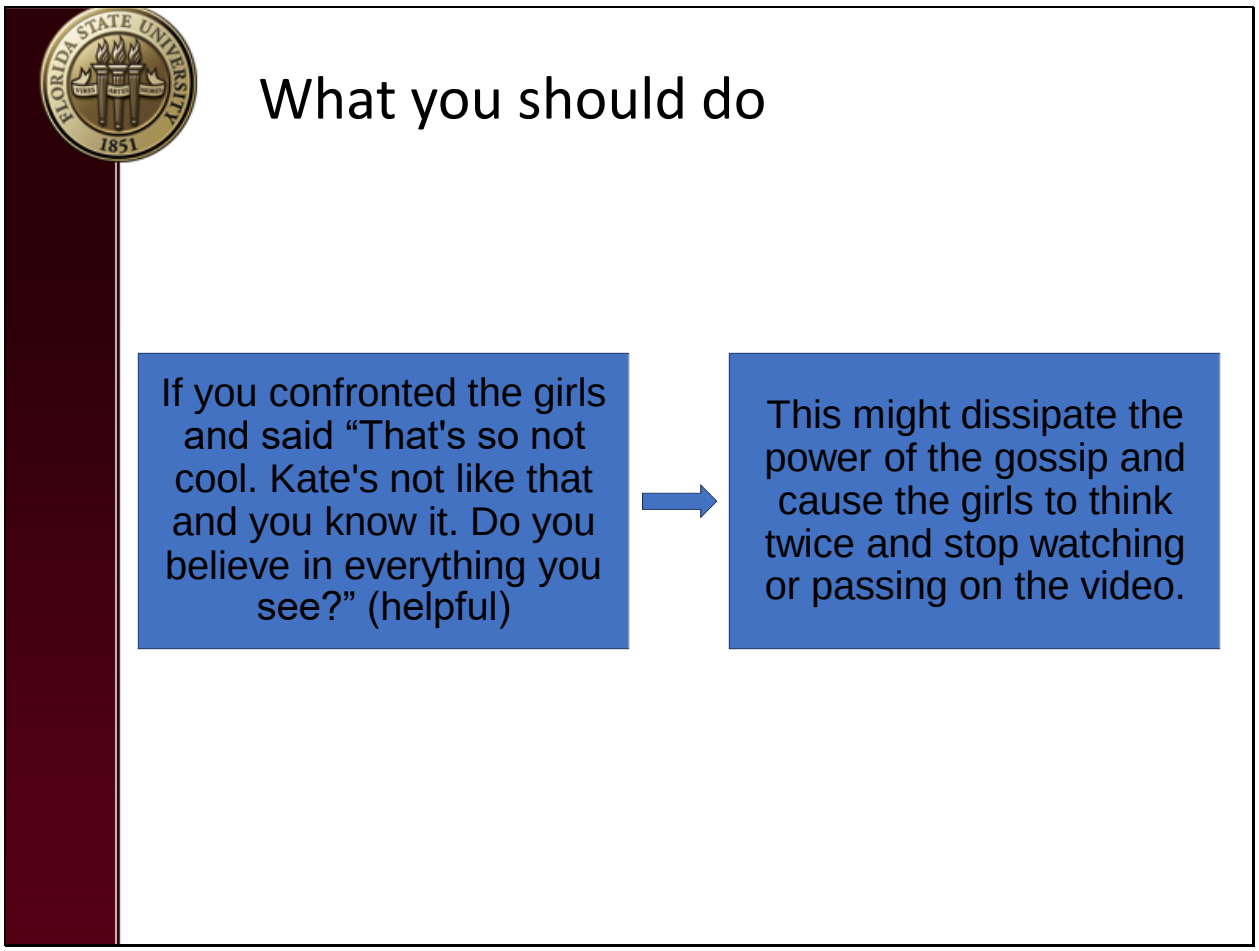
- say nothing and simply pass by?

or

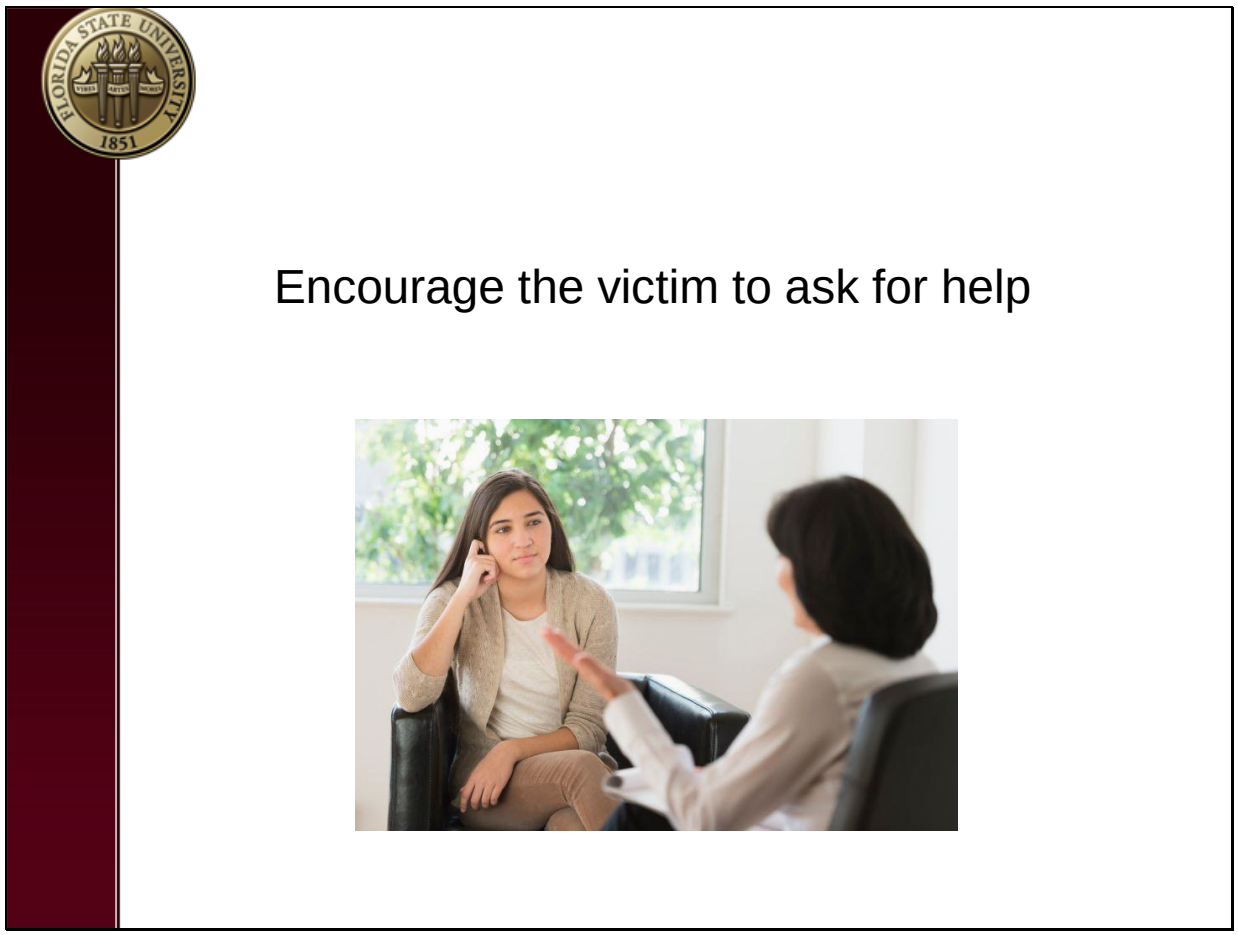
- encourage them not to share the video anymore?



If you chose to pass by without saying anything, that would be a hurtful bystander behavior. By saying nothing to stop the girls spreading Kate's video, you might allow the girls to keep passing on the untrue rumors and video about Kate, causing Kate continued to be publicly humiliated.



Whereas if you chose to confront the girls and question what they were doing by saying something like “That’s so not cool. Kate’s not like that and you know it. Do you believe in everything you see?” that would be a helpful bystander behavior.
This might dissipate the power of the gossip and cause the girls to think twice and stop watching or passing on the video.



Encourage the victim to ask for help

Being bullied can be embarrassing, so it can be hard to tell someone else about the situation. It is always best to communicate with an adult whom the victim trusts to help deal with situations that are beyond his or her own comfort zone.

If you witness someone being bullied, tell them that you really think they should tell someone in authority or someone they trust, like a professor, a counsellor, or a resident assistant; If the bullying is serious, especially when it involves physical or sexual harm or damage to property, encourage them to report it to the police; if the bullying occurs on social network sites, encourage them to report it to the social network sites. Support them to ask for help by either going with them to a place they can get help or provide them with information about where to go for help.

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Suppose you went to Kate's room asking her how she's doing after the viral video. Kate told you that she thought she might have been drugged by a male student but she had no proof. She asked you whether she should go to the police for help with her situation.

III. Encourage the victim to ask for help

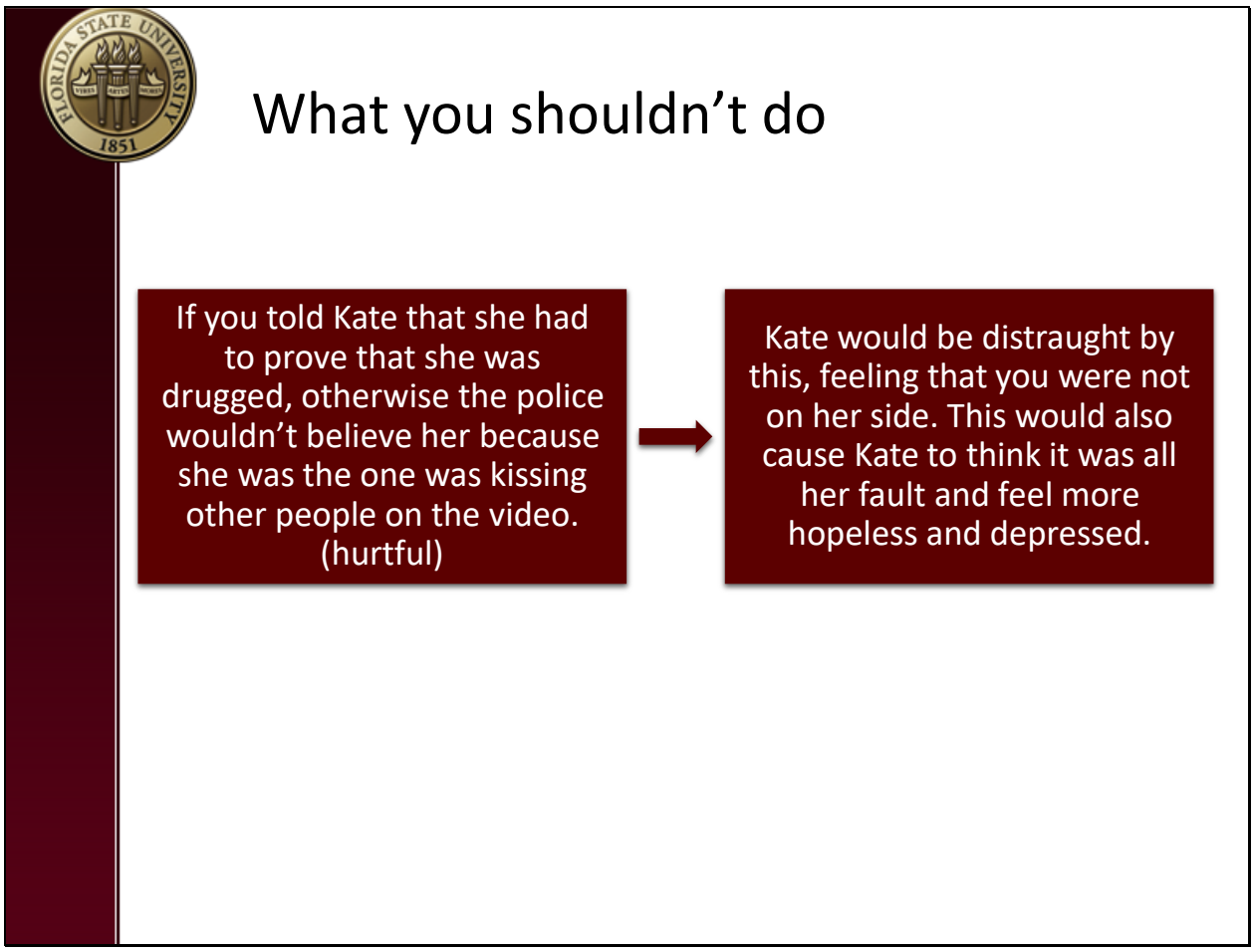
Would you……
- tell her to look for proof first?

or
- encourage her to go to the police?

For example, suppose you went to Kate's room asking her how she's doing after the viral video. Kate told you that she thought she might have been drugged by a male student but she had no proof. She asked you whether she should go to the police for help with her situation.

Would you……
- tell her to look for proof first?

or
- encourage her to go to the police?



If you told Kate that she had to prove that she was drugged, otherwise the police wouldn't believe her because she was the one who was kissing other people on the video, that would be a hurtful bystander behavior.
Kate would be distraught by this, feeling that you were not on her side. This would also cause Kate to think it was all her fault and feel more hopeless and depressed.

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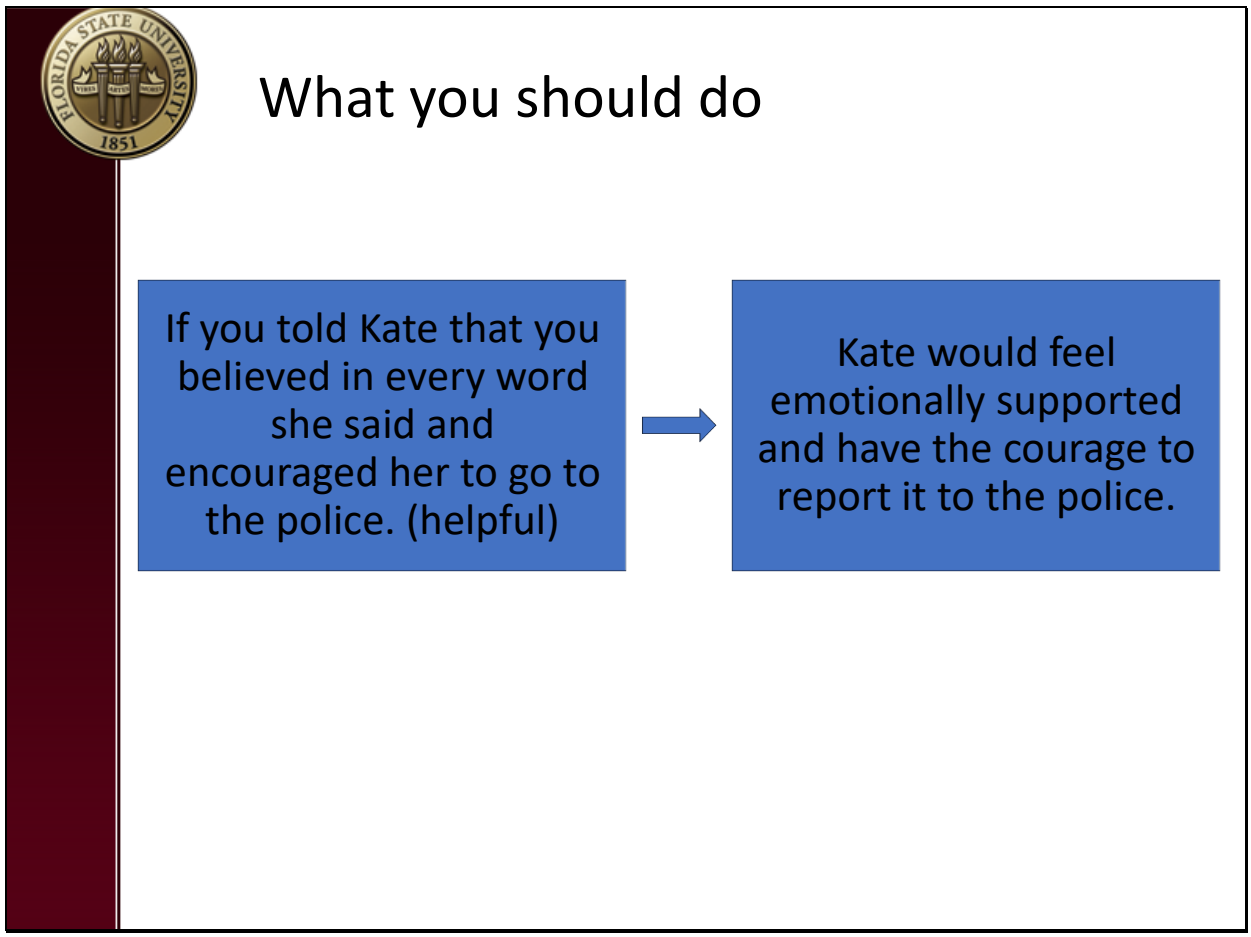

On the other hand, if you told Kate that you believed in every word she said and encouraged her to go to the police, this would be a helpful bystander behavior.
By showing her that you believed in her and this was not her fault, Kate would feel emotionally supported and have the courage to report it to the police.

Support the victim

Support the victim.
When bullied victims have been mistreated, they are put into an unhealthy and unstable emotional state. When left alone, the hurt they feel can become more painful and affect their self-concept and self-esteem. Showing support can help them bounce back more quickly. It also helps them understand that they are not alone, which helps prevent the further loss of self-esteem.
After the bullying situation, make sure the person who is experiencing the bullying is OK by asking them how they're doing or reminding them that it's not their fault. This will let them know that someone cares about them.
Offering supportive comments or gestures can make a big difference and have a significant effect on the person who needs to hear something supportive or validating.
Exhibiting empathy is also a large part of the power of showing support.
If you are not with them, call them and encourage them to call whenever they feel like needing emotional support.

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III. Support the victim

Suppose you were about to go hang out with your best friend. Suddenly, your phone rang. It was Kate. Your best friend told you to ignore the phone because you two were having fun now.

Would you……
- ignore the phone call?

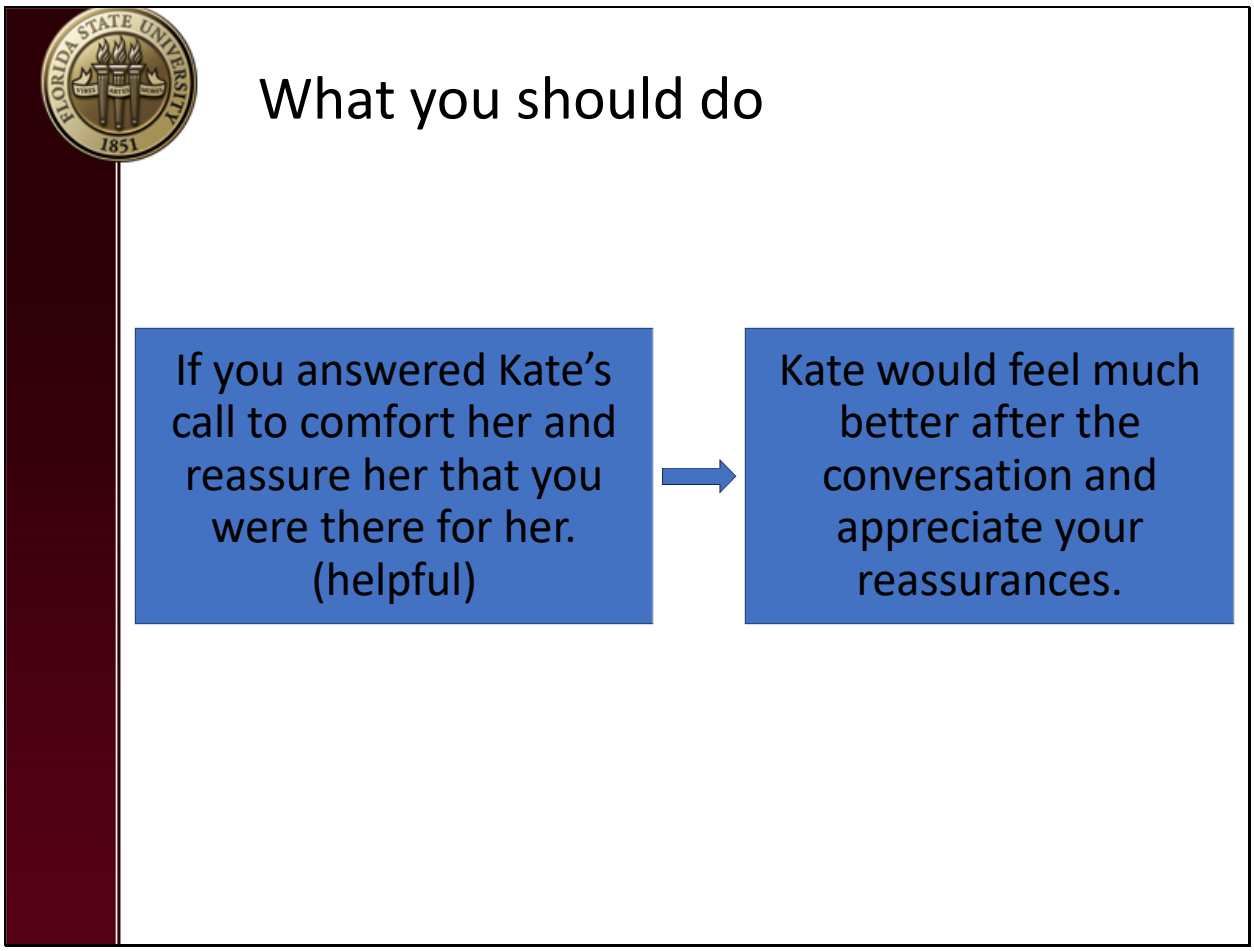
or
- answer it despite being busy and your best friend telling you not to answer?

For example, suppose you were about to go hang out with your best friend. Suddenly, your phone rang. It was Kate. Your best friend told you to ignore the phone because you two were having fun now.

Would you……
- ignore the phone call

or
- answer it despite being busy and your best friend telling you not to answer?

If you ignored Kate's call, thinking that she could wait to talk to you later in class, that would be a hurtful bystander behavior.
After the traumatic experience, Kate had been withdrawn and depressed. She desperately needed a friend to emotionally support her at her lowest point. However, by ignoring her phone call, you might send a message to Kate that you didn't care just like everyone else, sending her deeper into isolation and depression.



However, if you answered Kate's call to comfort her and reassure her that you were there for her, this would be a helpful bystander behavior.
Simply listening to Kate made a huge difference to how Kate was feeling. Kate would feel much better after the conversation and appreciate your reassurances.

BE A HELPFUL BYSTANDER!

"The time is always right to do what is right."
Martin Luther King, Jr.

Everyone has responsibility when it comes to stopping campus bullying. Be a helpful bystander. Be kind to each other. Step up. Speak up. Just act when you see something is not right. As Martin Luther King Jr said, "the time is always right to do what is right" Don't wait around until you regret not doing what you think is right.
And Know that, like all things, intervention gets easier with practice.
Thanks for participating in our bystander intervention training. We hope you have learned a lot and will apply those techniques to real life situations.

APPENDIX H

STUDY 2 POST-TEST QUESTIONNAIRE

Study 2 Post-test Questionnaire (Narrative Game and Video Version)

You have completed the first stage of the lab session.

Now in the second stage, you will answer some questions to help evaluate the game/video you just played/watched.

It is VERY IMPORTANT that you READ EACH ITEM CAREFULLY.

Please remember, there are NO RIGHT OR WRONG answers. We are simply interested in YOUR TRUE thoughts and feelings.

Again, your responses will be KEPT STRICTLY CONFIDENTIAL, and WILL NOT be linked to your personal identity.

We thank you for providing us important knowledge to increase our understanding of the subject matter.

Manipulation Check

1. Have you played the game before?

1=Yes 2=No

Below are pictures of characters in the story you just encountered in the video game. Please match each picture with its character's name.

2. Who is she?

1=Kate 2=Max

3. Who is she?

1=Kate 2=Max

4. What were the decision-making instructions given to you before you start playing the video game? **(For game version only)**

1= Make decisions freely based on what you would do in the situation.

2= Always make decisions based on what you think would help Kate.

3= Always make decisions based on what you think would hurt Kate.

5. To what extent do you feel you were able to follow the instructions given to you? **(For game version only)**

1= Not at all 2 3 4 5=Very much

6. In the scene you just experienced, Max witnessed Kate being harassed by David Madsen, a security guard on campus. Max needed to make a decision to either intervene in the situation or take a photo. What final decision did Max make in the game?

1= Intervene 2=Take a photo

7. In the scene you just experienced, Max had a conversation with Kate about her viral video when returning a book to Kate's room. Kate suggested that she might have been drugged by Nathan Prescott the night the video was filmed. Kate asked Max whether she should go to the police for help with her situation. What final decision did Max make in the game?

1= Tell Kate to go to the police 2=Tell Kate to look for proof

8. In the scene you just experienced, Chloe asked Max to come with her to one of her secret lairs. Just before leaving the diner, Max got a phone call from Kate. What final decision did Max make in the game?

1= Answer Kate's call 2=Ignore Kate's call

9. Was Max able to stop Kate from jumping of the roof in the end?

1= Yes 2=No 3= I don't remember

10. In the space below, please take a minute or two to list all of the thoughts and feelings you had while you were experiencing the story in the video game/watching the story in the video. Don't worry about spelling or grammar. Just write down all the thoughts and feelings you can recall. These thoughts and feelings may be positive, negative, or neutral toward the story. Please do not spend more than 3-4 minutes on this section.

_____

_____

Presence

The following questions ask about your thoughts and feelings during your experience of playing the video game/watching the video. Some questions refer to the "CONTENT" of the video game/video. By this we mean the story, characters, scenes or events, or whatever you could see, hear, or sense happening within the game/video. The game/video and its content are different from the "REAL WORLD": the world you live in from day-to-day. Please do not spend too much time on any one question. Your first response is usually the best.

Please rate how much you agree or disagree with each of the following statements during your experience of playing the video game/watching the video.

1= Strongly disagree 2 3 4 5= Strongly agree

1. I felt myself being "drawn in".
2. I felt involved in the game/video.
3. I lost track of time.
4. I felt I could interact with the game/video.
5. The game/video seemed natural.
6. I felt that the characters and objects could almost touch me.
7. I enjoyed myself.
8. I felt I was visiting the places in the game/video.
9. The content seemed believable to me.
10. I felt I wasn't just watching something.
11. I had the sensation that I moved in response to parts of the game/video.
12. I felt that the game/video was part of the real world.
13. My experience was intense.
14. I paid more attention to the game/video than I did to my own thoughts (e.g., personal preoccupation, daydream etc.).
15. I had a sense of being in the scenes displayed.
16. I felt that I could move objects in the game/video.
17. The scenes depicted could really occur in the real world.
18. I could almost smell different features of the game/video.
19. I had the sensation that the characters were aware of me.

20. I had a strong sense of sounds coming from different directions within the game/video.
21. I felt surrounded by the game/video.
22. I had a strong sense that the characters and objects were solid.
23. I felt I could have reached out and touched things in the game/video.
24. I sensed that the temperature changed to match the scenes in the game/video.
25. I responded emotionally.
26. I felt that all my senses were stimulated at the same time.
27. The content appealed to me.
28. I felt able to change the course of events in the game/video.
29. I felt as though I was in the same space as the characters and objects.
30. I had the sensation that parts of the game/video (e.g. characters or objects) were responding to me.
31. It felt realist to move things in the game/video.
32. I felt as though I was participating in the game/video.

Identification with Max

Please rate how much you agree or disagree with the following statements regarding Max/Kate during your experience of playing the video game.

1= Strongly disagree 2 3 4 5= Strongly agree

1. While playing the game, I felt as if I was part of the action.
2. While playing the game, I forgot myself and was fully absorbed.
3. I was able to understand the events in the game in a manner similar to that in which Max understood them.
4. I think I have a good understanding of Max.
5. I tend to understand the reasons why Max does what she does.
6. While playing the game, I could feel Max's emotions.
7. While playing the game, I felt I could really get inside Max's head.
8. At key moments in the game, I felt I knew exactly what Max was going through.
9. While playing the game, I wanted Max to succeed in achieving her goals.

Discrete Emotions

While playing the game, to what degree you felt the following emotions? And why you felt this way?

1= None of this feeling 2 3 4 5= A lot of this feeling

1. guilty, ashamed
2. angry, annoyed, irritated
3. sad, dismal, dreary
4. afraid, fearful, scared

Counterfactual Thinking

1. To what extent did you wish the story could have had a different outcome?

1= Not at all 2 3 4 5= Very much

1.1 If 2-5 was chosen, please write down how you wished the story's outcome could have been different and why.

_____

1.2 If 1 was chosen, please write down your opinions on the current outcome of the story.

_____

2 To what extent did you wish you could have made different decisions in the story?

1= Not at all 2 3 4 5= Very much

2.1 If 2-5 was chosen, please write down what different decisions you wished you could have made and why.

_____

2.2 If 1 was chosen, please write down why you made those decisions.

_____

Because sometimes people's ability to enjoy a game/ video is influenced by their own attitudes and beliefs, now you will be asked some questions about your attitudes and beliefs towards topics related to the content of the game/video.

PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING.

Please remember, there are NO RIGHT OR WRONG answers. We are simply interested in YOUR TRUE thoughts and feelings.

Again, your responses will be KEPT STRICTLY CONFIDENTIAL, and WILL NOT be linked to your personal identity.

Empathy towards Victims of Bullying

Please rate to what extent do you agree or disagree with the following statements.

1= Strongly disagree 2 3 4 5= Strongly agree

1. Students who are bullied feel sad about it.
2. It is unpleasant when another student is being bullied.
3. I'm upset when another student is being bullied.
4. A student who is subjected to bullying suffers terribly.
5. Bullying harms the victim for a very long time.
6. I feel sorry for the students getting bullied.

Self-Efficacy of Victim Defending

1. If you witnessed a student being bullied or cyberbullied, please rate how certain you are that you can do each of the things described below in such situation.

1= Cannot do at all 2 3 4 5= Highly certain can do

2. If you witnessed a student being bullied or cyberbullied, please rate how confident you are that you have the ability to do each of the things described below in such situation.

1= Not confident at all 2 3 4 5= Highly confident

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Attitudes towards Victim Defending

Please indicate how you feel about each behavior below by clicking the button closest to the word that best describes your feelings.

When witnessing another student being bullied or cyberbullied, the witness _____.

1=Bad 2 3 4 5=Good

1=Negative 2 3 4 5= Positive

1. standing up for the victim during the confrontation is

2. comforting the victim is

3. reporting the bullying to someone who can help is

4. encouraging the victim to ask for help is

5. asking other students to support the victim is

6. minimizing the spread of rumors about the victim is

Awareness of Consequences

1. I believe FAILING TO _____ causes serious negative consequences for bullying victims.
2. When witnesses of bullying FAIL TO _____, it is bad for the victims' wellbeing.

1= Strongly disagree 2 3 4 5= Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Ascription of Responsibility

1. I believe that I can make a huge difference in changing the outcome of a bullying incident if I _____.
2. I believe that I can make bullying victims feel better if I _____.

1= Strongly disagree 2 3 4 5= Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Personal Moral Norm for Victim Defending

1. If I witnessed a student being bullied or cyberbullied, I would feel morally obligated to _____.

2. If I witnessed a student being bullied or cyberbullied, I would feel personally responsible to _____.

1=Strongly disagree 2 3 4 5=Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Behavioral Intention to Defend Victims

1. In the future, if you witnessed a student being bullied/cyberbullied, how likely would you be to do each of the things described below in such situation?

1=Very unlikely 2 3 4 5=Very likely

2. In the future, if you witnessed a student being bullied/cyberbullied, how willing would you be to do each of the things described below in such situation?

1=Very unwilling 2 3 4 5=Very willing

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Manipulation Check

1. Before the study today, how much had you thought about the issue of bullying/cyberbullying on college campus?

1=Not at all 2 3 4 5=Very much

2. Before the study today, how much had you thought about the issue of bystander intervention in bullying situations on college campus?

1=Not at all 2 3 4 5=Very much

3. What do you think is the purpose of the study?

_____

4. Did you hear anything from others about this study before you participated?

1= Yes 2= No

4.1 If so, what did you hear?

_____

Study 2 Post-test Questionnaire (Educational Video Version)

You have completed the first stage of the lab session.

Now in the second stage, you will answer some questions to help evaluate the game/video you just played/watched.

It is VERY IMPORTANT that you READ EACH ITEM CAREFULLY.

Please remember, there are NO RIGHT OR WRONG answers. We are simply interested in YOUR TRUE thoughts and feelings.

Again, your responses will be KEPT STRICTLY CONFIDENTIAL, and WILL NOT be linked to your personal identity.

We thank you for providing us important knowledge to increase our understanding of the subject matter.

Manipulation Check

1. In the space below, please take a minute or two to list all of the thoughts and feelings you had while you were watching the educational material in the video. Don't worry about spelling or grammar. Just write down all the thoughts and feelings you can recall. These thoughts and feelings may be positive, negative, or neutral toward the educational material. Please do not spend more than 3-4 minutes on this section.

_____

_____

Presence

The following questions ask about your thoughts and feelings during your experience of watching the video. Some questions refer to the "CONTENT" of the video. By this we mean the story, characters, scenes or events, or whatever you could see, hear, or sense happening within the video. The video and its content are different from the "REAL WORLD": the world you live

in from day-to-day. Please do not spend too much time on any one question. Your first response is usually the best.

Please rate how much you agree or disagree with each of the following statements during your experience of watching the video.

1= Strongly disagree 2 3 4 5= Strongly agree

1. I felt myself being "drawn in".
2. I felt involved in the video.
3. I lost track of time.
4. I felt I could interact with the video.
5. The video seemed natural.
6. I felt that the characters and objects could almost touch me.
7. I enjoyed myself.
8. I felt I was visiting the places in the video.
9. The content seemed believable to me.
10. I felt I wasn't just watching something.
11. I had the sensation that I moved in response to parts of the video.
12. I felt that the video was part of the real world.
13. My experience was intense.
14. I paid more attention to the video than I did to my own thoughts (e.g., personal preoccupation, daydream etc.).
15. I had a sense of being in the scenes displayed.
16. I felt that I could move objects in the video.
17. The scenes depicted could really occur in the real world.
18. I could almost smell different features of the video.
19. I had the sensation that the characters were aware of me.
20. I had a strong sense of sounds coming from different directions within the video.
21. I felt surrounded by the video.
22. I had a strong sense that the characters and objects were solid.
23. I felt I could have reached out and touched things in the video.
24. I sensed that the temperature changed to match the scenes in the video.

25. I responded emotionally.
26. I felt that all my senses were stimulated at the same time.
27. The content appealed to me.
28. I felt able to change the course of events in the video.
29. I felt as though I was in the same space as the characters and objects.
30. I had the sensation that parts of the video (e.g. characters or objects) were responding to me.
31. It felt realist to move things in the video.
32. I felt as though I was participating in the video.

Because sometimes people's ability to enjoy a game/ video is influenced by their own attitudes and beliefs, now you will be asked some questions about your attitudes and beliefs towards topics related to the content of the game/video.
PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING.
Please remember, there are NO RIGHT OR WRONG answers. We are simply interested in YOUR TRUE thoughts and feelings.

Again, your responses will be KEPT STRICTLY CONFIDENTIAL, and WILL NOT be linked to your personal identity.

Empathy towards Victims of Bullying

Please rate to what extent do you agree or disagree with the following statements.

1= Strongly disagree 2 3 4 5= Strongly agree

7. Students who are bullied feel sad about it.
8. It is unpleasant when another student is being bullied.
9. I'm upset when another student is being bullied.
10. A student who is subjected to bullying suffers terribly.
11. Bullying harms the victim for a very long time.
12. I feel sorry for the students getting bullied.

Self-Efficacy of Victim Defending

1. If you witnessed a student being bullied or cyberbullied, please rate how certain you are that you can do each of the things described below in such situation.

1= Cannot do at all 2 3 4 5= Highly certain can do

2. If you witnessed a student being bullied or cyberbullied, please rate how confident you are that you have the ability to do each of the things described below in such situation.

1= Not confident at all 2 3 4 5= Highly confident

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Attitudes towards Victim Defending

Please indicate how you feel about each behavior below by clicking the button closest to the word that best describes your feelings.

When witnessing another student being bullied or cyberbullied, the witness _____.

1=Bad 2 3 4 5=Good

1=Negative 2 3 4 5= Positive

1. standing up for the victim during the confrontation is

2. comforting the victim is

3. reporting the bullying to someone who can help is

4. encouraging the victim to ask for help is

5. asking other students to support the victim is

6. minimizing the spread of rumors about the victim is

Awareness of Consequences

1. I believe FAILING TO _____ causes serious negative consequences for bullying victims.
2. When witnesses of bullying FAIL TO _____, it is bad for the victims' wellbeing.

1= Strongly disagree 2 3 4 5= Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Ascription of Responsibility

1. I believe that I can make a huge difference in changing the outcome of a bullying incident if I _____.
2. I believe that I can make bullying victims feel better if I _____.

1= Strongly disagree 2 3 4 5= Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Personal Moral Norm for Victim Defending

1. If I witnessed a student being bullied or cyberbullied, I would feel morally obligated to _____.
2. If I witnessed a student being bullied or cyberbullied, I would feel personally responsible to _____.

1=Strongly disagree 2 3 4 5=Strongly agree

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Behavioral Intention to Defend Victims

1. In the future, if you witnessed a student being bullied/cyberbullied, how likely would you be to do each of the things described below in such situation?

1=Very unlikely 2 3 4 5=Very likely

2. In the future, if you witnessed a student being bullied/cyberbullied, how willing would you be to do each of the things described below in such situation?

1=Very unwilling 2 3 4 5=Very willing

1. stand up for the victim during the confrontation

2. comfort the victim

3. report the bullying to someone who can help

4. encourage the victim to ask for help

5. ask other students to support the victim

6. minimize the spread of rumors about the victim

Manipulation Check

1. Before the study today, how much had you thought about the issue of bullying/cyberbullying on college campus?

   1=Not at all 2 3 4 5=Very much

2. Before the study today, how much had you thought about the issue of bystander intervention in bullying situations on college campus?

   1=Not at all 2 3 4 5=Very much

3. What do you think is the purpose of the study?

   _____

4. Did you hear anything from others about this study before you participated?

   1= Yes 2= No

4.1 If so, what did you hear?

   _____

APPENDIX I

STUDY 2 DEBRIEFING

You have completed the study. The true purpose of our study is to investigate the influence of playing a pro-social game with an anti-bullying theme on college students' intention to defend bullied victims. If you wish to withhold use of the data we just gathered from you, you can let me know now.

Thank you for your participation!

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BIOGRAPHICAL SKETCH

Yijie Wu received her doctoral degree in Communication at Florida State University, USA, in 2019. Her main interests are in the general field of human-computer interaction, where she specifically examines the usability and adoption of emerging media technologies, such as mobile phone applications and video games, and their potential effects for the users. She is particularly fascinated by the research topic of using computer as a persuasive technology that investigates how emerging technologies can be leveraged to promote social well-being and social good. Prior to her time at Florida State University, Yijie was a research associate at the Institute of Communication Research at Indiana University Bloomington, where she conducted experimental research to investigate media users' real-time information processing of mediated content using psychophysiological measurements. Yijie received her master's degree in Telecommunications from Indiana University Bloomington, USA in 2015, her bachelor's degree in Journalism from East China University of Political Science and Law, Shanghai, China, in 2012, and her bachelor's degree in English from Shanghai International Studies University, Shanghai, China, in 2012.