**The Effect of *BREAKAWAY* Gameplay on Bullying Victimization Self-Efficacy
among Youth in El Salvador**

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**Abstract**

Bullying can cause life-long physical and psychological damage yet it is often considered a rather acceptable form of violence. *BREAKAWAY* is a soccer-themed online role-playing game that aims to engage and educate youth around the world about bullying through role modeling and observational learning. This study examined the effect of *BREAKAWAY* gameplay on bullying victimization self-efficacy among 112 youth in El Salvador between the age of 6 and 19. A field experiment was implemented to compare self-efficacy measures among participants in a control group with two treatment groups: those who played *BREAKAWAY* and those who not only played BREAKAWAY but also participated in facilitated group discussions. Although self-efficacy of participants in the gameplay only condition was higher than that of participants in the control condition, the results were not statistically significant. However, when gameplay was combined with facilitated group discussions, participants’ self-efficacy were significantly better. In addition, male participants in both game only and game plus discussion groups demonstrated a greater increase in self-efficacy. Implications and limitations of this study were further discussed.

Keywords: bullying, self-efficacy, serious games, *BREAKAWAY*

**The Effect of *BREAKAWAY* Gameplay on Bullying Victimization Self-Efficacy
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Bullying is the most common form of violence among school-aged children around the world (Andreou, 2000). It presents a serious public health, safety, and educational challenge in contemporary societies (Cohn & Canter, 2003). School bullying behavior is a salient risk factor for criminality in adulthood for male bullies (Ttofi, Farrington, Lösel, & Loeber, 2011; Sourander et al., 2011) and significantly associated with substance abuse, suicide, and other psychosocial maladjustment for victims (Klomek, Sourander, & Gould, 2010; Reijntjes, Kamphuisb, Prinziea, & Telch, 2010; Tharp-Taylor, Haviland, & D'Amico, 2009). Therefore, early interventions are critical among youth (Batsche & Knoff, 1994). While school-based interventions have been a major force of addressing bullying, their effectiveness vary depending on the readiness of the teacher and other environmental factors (Vreeman & Carroll, 2007). Community-based interventions, on the other hand, received relatively less research attention and demand more evidence-based research.

Digital games can be an effective tool to educate and promote positive attitudes and healthy behaviors, especially for youth (Peng, Lee & Heeter, 2010; Wang & Singhal, 2014). Developed by Champlain College Emergent Media Center (EMC) and sponsored by United Nations Population Fund (UNFPA) and Vermont-based international non-profit organization Population Media Center, *BREAKAWAY* is a soccer-themed online role-playing game that aims to engage and educate youth around the world about the issue of gender-based violence and different forms of bullying (i.e., verbal, physical, and psychological). Positive and negative characters were purposefully designed as role models with their dialogues reflecting real world bullying situations related to gender-based discrimination and social isolation. Individual players start off by role-playing at a soccer tryout and are tasked to navigate through various challenging scenarios in the 13 game episodes; their decisions to agree with a bully or defend a victim will eventually determine the final result of the soccer tournament in the game. The game design leverages the power of role modeling and observational learning from Bandura’s social cognitive theory (1977a; 1986) and enables young players to vicariously learn from the consequences of their own choices. Since 2010, *BREAKAWAY* has been played by youth in over 140 countries.

This study reports the effect of *BREAKAWAY* gameplay on bullying victimization self- efficacy among participants of youth camps held in El Salvador in December 2014. We begin with a brief literature review on bullying and gaps in bullying prevention, importance of self-efficacy among youth, and the potential of using educational games for social change. We then argue that just playing *BREAKAWAY* or playing *BREAKAWAY* along with facilitated group discussions can help boost camp participants’ self-efficacy of dealing with bullying. After describing the experimental design, implementation, and results, we offer our interpretations and reflections on lessons learned and directions for future research.

**Literature Review**

**Bullying and Gaps in Bullying Prevention**

 As “normal” as some people may consider it, bullying is in fact defined as a form of intentional and reoccurring violence, which can be verbal, physical, or psychological, due to power imbalance (Mishna, 2012). A cross-national study indicated a range of 9% to 54% of school-aged students across 25 countries, including 30% of grade students in the United States, were involved in bullying either as bullies or victims (Nansel, Craig, Overpeck, Saluja, & Ruan, 2004). About 8 to 20% of children are victimizes on a weekly basis (Ortega & Lera, 2000).

 Bullying can lead to lifelong and unsalvageable consequences. According to a study of students across the state of Minnesota, 29% of victims of frequent bullying reported suicidal thoughts or attempts (Borowsky, Taliaferro, & McMorris, 2013). Being victimized is also associated with depression, mental health issues, and stress-related physical symptoms (Boland, 1995; Due et al., 2005; Roland, 2002; Solberg, 2003; Undheim & Sund, 2010). Students have experienced bullying are more likely to struggle with academic performance and have higher dropout rates (Clarke & Kiselica, 1997; Cornell, Gregory, Huang, & Fan, 2013).

 School-based programs are currently the major prevention approach; they usually focus on raising awareness and teaching students basic skills to recognize and handle bullying situations (Tutty et al., 2005). Despite its wide adoption, studies have shown mixed results regarding the effectiveness of school-based prevention programs (see Swearer, Espelage, Vaillancourt, & Hymel, 2010 for a comprehensive review). Specifically, Vreeman and Carroll (2007) pointed out that the effectiveness of such interventions is often subject to the specific school environment, and factors like class size and teacher training can also significantly influence the outcome.

 In addition to school-based interventions, Holt, Raczynski, Frey, and Hymel (2013) emphasized the importance of community involvement where positive role models in the community could assert strong influence on youth and more in-depth research is needed to understand the mechanism, collaboration with schools, and best practice of community-based prevention. *BREAKAWAY* was delivered as a community-based intervention. We engaged local personnels (e.g., youth group leaders in local church, and scout leaders) who were influential among the participants as trained facilitators in one of the experiment conditions. Although our study did not examine the mechanism or collaboration of a community-based program, we were able to explore the possible benefit and effectiveness of engaging community role models as part of the intervention in comparison to intervention without them.

**Importance of Self-efficacy for Youth**

Bandura (1977b) defined self-efficacy as individual’s confidence regarding personal capability of performing a specific task. He argued that self-efficacy dictates individual’s coping efforts and endurance when facing obstacles while performing the task. Individuals develop their self-efficacy through mastery experiences, social modeling, and evaluative feedback of others (Bandura, 1977c).

Self-efficacy plays an important role in youth development. For example, academic and athletic self-efficacy is positively correlated with school and athletic performance and is a predictor of future career options (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Holden, Moncher, Schinke, & Barker, 1990; Zimmerman, 1990; Weiss, Wiese, & Klint, 1989). Adolescents with self-efficacy in resisting peer pressure are associated with lower antisocial behavior (Caprara, Scabini, Barbaranelli, Pastorelli, Regalia, & Bandura, 1998). Self-efficacy is also beneficial for youth when coping with stressful life-changing situations accompanied by negative emotions (Jerusalem & Mittag, 1995).

Bullying is a multifaceted issue that is influenced by individual performance, emotional state, and social environment (Tutty et al., 2005). Self-efficacy can potentially bring changes in various aspects in youths’ lives. Therefore, it is important to examine self-efficacy as a stepping-stone for bullying intervention.

**Educational Games for Social Change**

 With a specific purpose such as education, skill training, raising awareness, and changing attitude or behavior, educational games are designed to not only entertain but also educate the players (Ritterfeld, Cody & Vorderer, 2009). It can be an effective approach to tackle bullying for the following reasons. First, school-based programs are often constrained by environmental factors. Adopting educational games can help eliminating such differences, thus benefit every participants. Second, they may also be used as a community-based intervention with the presence of positive role models embedded in the storyline. Third, educational games allow players to master skills by interacting with the bully in a virtual space and vicariously experience different behavioral consequences without having to go through detrimental effects in the real world, providing a safe environment to develop self-efficacy in dealing with bullying. Lastly, educational games are interactive and offer players instant feedback so they can learn from the consequences of their own decisions.

Although educational games have been applied in various areas, only a handful of empirical reviews of game studies have addressed the issue of bullying. For example, Sapouna and colleagues (2010) conducted a large-scale controlled trail with 1,129 participants to evaluate *FearNot!*, a computer-based video game aiming to foster problem-solving skills when facing bullying situations. Players are asked to witness bullying episodes and give suggestions on how the virtual victim could escape victimization. By receiving instant feedback on their suggestions, players could practice their skills and develop better solutions to prevent them from being bullied. The study found a significant decrease in bullying victimization a week after the gameplay (Sapouna et al., 2010). In particular, participants who had more interactions with the game characters and were willing to experiment with different coping strategies had a much lower rate of victimization. The evaluation of *FearNot!* provides promising empirical evidence for using educational games as part of the bullying prevention effort. Therefore, we hypothesized:

 H1a: Self-efficacy for dealing with bullying will increase significantly after playing *BREAKAWAY*.

 H1b: Self-efficacy for regulating negative emotions will increase significantly after playing *BREAKAWAY*.

 Another example of tackling bullying through educational games is *Quest for the Golden Rule*. It is also a role-playing video game designed for raising awareness of social justice, bullying prevention, and social skill training for students in grades 2-5. Rubin-Vaughan, Pepler, Brown, and Craig’s (2011) evaluation found modest improvements in knowledge of bullying as well as strategies for dealing with bullying. Materials such as teacher’s guide, target curriculum, follow-up activities, and discussion guide were also provided to the students in addition to the game, which is deemed momentous of the learning process (King, 1992). In particular, studies suggested that discussions may facilitate students’ ability of reasoning (Barnes & Todd, 1977; Minstrell & Stimpson, 1995), consider other people’s opinion (Brown & Palinscar, 1989), and, most relevant to the current study, conceptual change (Posner, Strike, Hewson & Gertzog, 1982). Similarly, bullying prevention programs may benefit from collaborative learning and group discussion with trained facilitators approaches in that individuals would be able to learn knowledge about bullying and bullying prevention as well as develop respective attitude toward one another. Unfortunately, there were no separate investigations conducted by Rubin-Vaughan and colleagues to test if combining gameplay with extra learning activities and group discussions would have yielded a stronger effect. Therefore, in an attempt to empirically test this assumption, we hypothesized:

H2a: Self-efficacy for dealing with bullying will increase more when gameplay of *BREAKAWAY* is combined with facilitated discussions than gameplay only.

H2b: Self-efficacy for regulating of negative emotions will increase more when gameplay of *BREAKAWAY* is combined with facilitated discussions than gameplay only.

**Method**

**Participants**

 This study used the experimental design of a pre- and post-test with a control group. Participants in the two treatment groups (hereafter “gameplay only/GO” and “gameplay + facilitated discussions/GD”) were recruited from the *BREAKAWAY* youth camp held in Sonsonate, El Salvador, in December 2014. Participants in the control group were youth with similar socio-demographic characteristics but did not attend the *BREAKAWAY* youth camp. A total of 115 youth completed the questions and tasks on a custom playbook. However, three participants in the treatment groups only attended the first day of the four-day camp and were then excluded from the final analysis. Therefore, our final sample included 112 participants between the age of 6 and 19 (*M* = 11.85, *SD* = 2.88); there were no significant difference in the age of the participants across conditions (see Table 1).

**Stimuli**

 Given the time restriction of camp, five episodes were selected as stimuli for this study. Episode 1 sets up the story and introduces both the positive role model (i.e., Zak) and negative role model (i.e., Tal). In Episode 2, Tal starts to show discriminative attitude toward girls as well as psychological bullying behavior (e.g., starting rumors). The story continues with Episode 3 in which Tal shows more disrespectful behavior to the game player’s sister Hanna (e.g., being rude). The player is prompt to make a decision whether to side with Tal or stand up for Hanna. After that, Zak confronts Tal by telling him that it is not right to pick on girls. Right around then another female character, Raina, appears. She turns out to be a skillful soccer player and not afraid of confronting Tal. In Episode 4, the fact that the coach announces that Raina is joining the team makes Tal and some other teammates furious and they give her a hard time. However, Raina still fearlessly demonstrates her soccer talents. Samuel Eto’o, an internationally renowned professional soccer play, shows up as the ambassador for good sportsmanship. Tal continuously tries to bully Raina verbally and psychologically. In episode 10, as Raina moved away with her family at the end of episode, Hanna becomes the number one bullying target for Tal. After another verbal bullying incident, Hanna confides to the player that other people start to conform to Tal’s behavior. She informs the player about her plan to stand up to Tal’s bullying and ask for the player’s help. Finally, Hanna confronts Tal in the next scene. Tal is infuriated with Hanna’s action and becomes more volatile. At the end of the episode, player is left with questions: Will Tal really stop bullying Hanna? Who will be Tal’s next target?

**Procedure**

 The current study was a field experiment with pre- and post-test and a control group. With the assistance of the local camp staff, all participants completed youth assent and parental consent forms and were randomly assigned to the aforementioned two treatment groups. Definition of bullying was provided both orally and in a written description prior to completing the pretest before any gameplay. After the pretest, participants in the GO group started playing the *BREAKAWAY* game for 45 minutes and 5 minutes to complete the playbook activities for the corresponding episode, followed by 40 minutes of group activities which did not reflect or reinforce participants the core value of the game. The same schedule was repeated for the following three days. The GD group had the same daily schedule except that during the group activity time, trained facilitators led group discussions on issues directly related bullying and gender-based violence. At the end of the 4-day camp, participants in both groups completed the same set of activity sheets with the questions randomized in a different order. Participants in the control group completed the same questions without any *BREAKAWAY* gameplay.

**Measurement**

 Two self-efficacy scales were included in the playbook activity sheet: Bullying Victimization Self-efficacy Scale (BVSES, Kim, Varjas, Meyers & Henrich, 2010) and Self-Efficacy Scale for Children (SESC, Gambin & Święcicka, 2012), both were on a 5-point scale (1 = *not sure*, 5 = *very sure*), modified to tailor the study participants, and translated from English to Spanish. The original BVSES (Cronbach's alpha = .93) contains two 8-item subscales, which measures participants’ perceived ability of dealing with bullying situations and obtaining social support from adults. Out of the 16 items, nine were selected for the purpose of this study. The original SESC has 26 items (Cronbach's alpha = .86). As mentioned above, prior research revealed correlation between bullying victimization and negative emotion. Therefore, we were interested in self-efficacy for regulating negative emotions among youth. Therefore, the four most relevant items were used in this study.

 An exploratory factor with principal components extraction method with Veramax rotation was performed on BVSES and SESC independently. The results suggested the items did no load as well as the original scales and were then used as uni-dimensional variables in the analysis. Reliability tests also indicated that Cronbach’s alpha could be improved by removing certain items. The final BVSES measurement contained 8 items (Cronbach's alpha = .54) with questions such as “How sure are you to tell other people (friends, family, teacher, etc.) that you are being bullied.” The final SESC measurement contained 3 items (Cronbach's alpha = .67) with questions such as “How sure are you to cope when you are angry and sad.”

**Results**

 Average scores from pretest and posttest were tallied for both scales. One-way analysis of variance (ANOVA) suggested that there was no difference in participants’ age at pretest across all three groups, *F*(2, 104) = 1.86, *p* = .16). In addition, no difference was found in SESC at pretest between the three groups, *F*(2, 86) = 1.32, *p* = .27. However, there was a significant difference in BVSES at pretest, *F*(2,81) = 6.37, *p* = .003. The mean score of GD was 3.38 (SD = .81), which was significantly lower than GO (*M* = 3.72, *SD* = .48) and control group (*M* = 4.02, *SD* = .49). Prior exposure to the camp and game did not result in any significant differences for both BVSES (*F*(2,62) = 1.40, *p* = .25) and SESC (*F*(2,65) = .44, *p* = .65) at pretest across the conditions.

 A 2 (repeated measure: pretest, posttest)×3 (condition: game only, game plus discussion, control) mixed analysis of variance (ANOVA) was conducted to examine BVSES, with repeated measure a within-subjects factor and condition a between subjects factor. The results indicated a significant main effect across all three conditions, *F*(2, 67) = 4.66, *p* = .013, ηp2 = .12. To be specific, GD had significantly lower score (*M* = 3.52, *SD* = .56) than GO (*M* = 3.75, *SD* = .46) and control group (*M* = 4.02, *SD* = .49). Main effect for repeated measure was not statistically significant, *F*(1, 67) = .38, *p* = .051, ηp2 = .06, yet still suggested an increasing trend from pretest (*M* = 3.69, *SD* = .63) to posttest (*M* = 3.83, *SD* = .64). Although no interaction effect was found, *F*(2, 75) = 2.53, *p* = .09, ηp2 = .07, on average BVSES for GD increased from 3.33 (*SD* = .79) to 3.72 (*SD* = .49) whereas GO increased from 3.72 (*SD* = .47) to 3.77 (*SD* = .65) (see Figure 1).

 Regarding to the SESC, a 2 (repeated measure: pretest, posttest)×3 (condition: game only, game plus discussion, control) mixed ANOVA was conducted, with repeated measure a within-subjects factor and condition a between subjects factor. The analysis revealed no main effect in SESC for different conditions, *F*(2, 72) = 1.64, *p* = .20, ηp2 = .04. There was a significant main effect from pretest to posttest, *F*(1, 72) = 7.77, *p* = .007, ηp2 = .10. The interaction effect was significant, *F*(2, 72) = 5.34, *p* = .007, ηp2 = .13. GO had a higher score (*M* = 3.57, *SD* = .98) than GD (*M* = 3.07, *SD* = .83) at pretest. However, GD increased its mean score from 3.07 to 3.75 (*SD* = .68) after the intervention, compares to GO increased from 3.57 to 3.64 (*SD* = .87) (see Figure 2).

**Post-hoc Analysis**

 Post-hoc analysis was conducted to further examine the differences between gender groups from pretest to post across the three conditions. To examine BVSES data, a 2 (repeated measure: pretest, posttest)× 2 (sex: male, female)×3 (condition: game only, game plus discussion, control) mixed ANOVA was conducted, with repeated measure a within-subjects factor, as well as sex and condition between subjects factors. There was no significant main effect for pre and posttest, *F*(1, 64) = 1.52, *p* = .22, ηp2 = .02, for three conditions, *F*(2, 64) = 2.52, *p* = .09, ηp2 = .07, and for sex, *F*(1, 64) = 3.18, *p* = .08, ηp2 = .05. No significant interaction effect for repeated measure × condition, *F*(2, 64) = .47, *p* = .63, ηp2 = .01, for repeated sex × condition, *F*(2, 64) = 2.62, *p* = .08, ηp2 = .08, and for repeated measure × sex × condition, *F*(2, 64) = 2.98, *p* = .058, ηp2 = .09. However, significant interaction effect for repeated measure × sex was observed, *F*(1, 64) = 10.14, *p* = .002, ηp2 = .14. In particular, male participants’ BVSES mean score increased from 3.49 (*SD* = .69) at pretest to 3.84 (*SD* = .55) whereas female participants’ mean score, in fact, decreased from 3.92 (*SD* = .45) at pretest to 3.81 (*SD* = .61).

 A 2 (repeated measure: pretest, posttest) × 2 (sex: male, female) × 3 (condition: game only, game plus discussion, control) mixed ANOVA was conducted for SESC, with repeated measure a within-subjects factor, as well as sex and condition between subjects factors. Results indicated neither the main effect for sex, *F*(1, 69) = .17, *p* = .68, ηp2 = .003, nor the interaction effect for sex × condition was detected, *F*(2, 69) = 1.50, *p* = .23, ηp2 = .04. There was no significant interaction effect for repeated measure × sex × condition, *F*(2, 69) = 2.03, *p* = .14, ηp2 = .06. The only small significant interaction effect is the sex difference from pretest to posttest, *F*(1, 69) = 4.76, *p* = .033, ηp2 = .06. Male participants had greater improvement in SESC from pretest (*M* = 3.26, *SD* = 1.12) to posttest (*M* = 3.75, *SD* = .92) compare to female participants’ pretest score (*M* = 3.40, *SD* = 1.00) and posttest (*M* = 3.30, *SD* = 1.02).

 In addition, we conducted paired-sample *t*-tests to examine each item in the activity sheet. For the game only group, one items was found to have significant differences between pre and post-test. The average score for self-efficacy regarding talking to other adults about feelings about bullying significantly increased from 3.38 (*SD* = 1.43) to 4.24 (*SD* = 1.03), *t*(41) = -3.47, *p* = .001.

 In the game plus discussion group, however, five out of thirteen items significantly increased after the intervention. The average score for self-efficacy in other adults about feelings about bullying was 2.91 (*SD* = 1.73) in the pre-test and 4.09 (*SD* = 1.44) in the post-test, *t*(22) =
-2.32, *p* = .03. Self-efficacy in talking to a bully improved from 2.30 (*SD* = 1.33) to 3.13 (*SD* = 1.71), *t*(22) = -2.70, *p* = .013. Self-efficacy in telling a bully not wanting to fight increased from 3.30 (*SD* = 1.66) to 4.30 (*SD* = 1.11), *t*(22) = -3.86, *p* = .001. Self-efficacy in calming down when scared significantly grew from 3.48 (*SD* = 1.08) to 4.20 (*SD* = 1.04), *t*(20) = -2.77,
*p* = .012. Last but not least, self-efficacy in calming down when distressed was also significantly improved from 3.19 (*SD* = 1.40) to 4.19 (*SD* = 1.17), *t*(20) = -2.38, *p* = .027.

**Discussion**

**Major Findings**

This study sought to quantitatively evaluate the effect of an educational game *BREAKAWAY* on self-efficacy for dealing with bullying among youth in El Salvador. Our first hypothesis (H1a) was not supported, as there were no significant changes in BVSES from pretest to post-test in the GO group. On the other hand, GD group had lower pretest score but caught up with the GO group at posttest. A significant main effect for different conditions was observed, which was due to a lower mean score from the GD group compares to the other two conditions. The second hypothesis (H1b) was not supported by the finding given the improvement of the SESC scores was not significant for GO group.

 Regarding to H2a, the GD group did show a noticeable advancement in BVSES compares to the minor improvement in the GO group. However, change in SESC from pretest to posttest in GD group was greater than in GO group, which supports our last hypothesis (H2b). Similar to the BVSES pattern, GD group had a much lower pretest score than GO group and had higher posttest score after the intervention.

 From observing the general trend from both variables, both groups advanced their posttest score for self-efficacy in facing bullying situation and regulating negative emotions. GD group had lower self-efficacy in dealing with bullying as well as regulating negative emotions initially, but showed relatively substantial increase for both cases after gameplay and discussion. GO group, on the other hand, had better pretest score than GD group but minor improvement at posttest. While the present study identified a group of individuals that might subject to the impact of *BREAKAWAY*, it remains unclear in terms of what factors might attribute to the uniqueness of the two groups and result in different responses to the intervention. Although we cannot draw the conclusion based on our findings that playing *BREAKAWAY* increases self-efficacy in dealing with bullying, the results still suggest a promising trend of *BREAKAWAY*.

 Based on the results from post-hoc analysis, gender differences were observed in both the game only group and game plus discussion group. Our results revealed that boys from both groups showed increasing trend in BVSES, whereas girls’ mean BVSES score decreased from pretest to posttest. On the other hand, although both genders showed improvements in SESC, boys appear to have a greater increment than girls. Since *BREAKAWAY* is designed to target male population aged 8 to 15, it is encouraging that boys demonstrated a greater improvement in bullying victimization self-efficacy than girls. However, it is also alarming to learn the decrease of girls’ score. Given the augmentation of gender-based violence (World Health Organization, 2013; UNiTE, 2014), early intervention is critical.

 Last but not least, our post-hoc analysis reveals that participants in the game plus discussion group feel more confident to talk to a bully, tell a bully they do not want to fight, and cope with fear and stress. Participants in both groups indicated they feel more efficacious about talking to other adults about their feelings toward bullying after the intervention. As stated before, bullying victims often having difficult disclosing their bullying experience and solicit support. Our findings may suggest the possibility of *BREAKAWAY* with discussion group serving as a means to facilitate conversations between bullying victims and teachers or parents. Moreover, as Bandura (1977a) suggested, self-efficacy in a specific area could be fostered and generalized to other aspects in person’s life. Similarly, participants in the discussion group who believed that they were capable to express themselves when facing bullies, may be followed-up by parents and teachers and further cultivate their self-efficacy.

**Limitation and Future Direction**

 It is worth noting that there were two campers in the GO group and 17 campers in the GD group who participated in the 2013 *BREAKAWAY* camp and had prior exposure to the game. Based on our findings, prior exposure did not have an impact on the result. However, it is not to infer the correlation between repeated exposure to interventions and program impact. Future research may consider examining the effectiveness of repeated exposure.

 Although self-efficacy has been a widely researched concept, few scales have been developed to specifically measure bullying victimization self-efficacy. The current study adapted Kim and colleagues’ scale (2010). To the authors’ knowledge, the present study is the first attempt to translate this scale into Spanish. Given that there is no proper Spanish translation for the word “bully” that could fully convey the meaning, the researchers and camp staff made great effort to explain the phenomenon to the participants. Despite their efforts, there still might be something lost in translation. Consider the lack of school-based bullying research in Latin American countries (Jones, Moore, Villar-Marquez, & Broadbent, 2008), it is important to devote effort in developing measurements related to bullying prevention.

 Furthermore, the current study reflects bullying victimization self-efficacy from an underprivileged country with high crime rate. Because of time and other restrictions, the research team was not able to gather more details such as participants’ socio-economic status, family situation, and exposure to violence. Future research could further investigate how these factors mediate or moderate the effect of serious games on bullying victimization self-efficacy.

 Given various uncontrolled variables (e.g., participants attendance, episode played by the camper, sample sizes and gender composition for each condition, etc.), it is difficult to draw a comprehensive and generalizable conclusion based on the data we obtained. We plan to further examine the effect of *BREAKAWAY* on bullying victimization self-efficacy through experiments in a more controlled environment.

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Tabel 1. *Descriptive Statistics of Analytical Sample.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Analytical sample** | **Game only group** | **Game plus discussion** **group** | **Control** **group** |
| ***N***  | 112 | 56 | 35 | 21 |
| ***Age*** |  |
|  Range | 6-19 | 6-19 | 8-16 | 6-16 |
|  *Median*  | 12 | 12.50 | 12.50 | 11 |
|  *Mode* | 10 | 10 | 14 | 9 |
|  *M* | 11.85 | 12.22 | 11.91 | 10.81 |
|  *SD* | 2.88 | 3.18 | 2.44 | 2.50 |
| ***Sex***  |  |
|  Boys | 56 | 24 | 22 | 10 |
|  Girls | 51 | 32 | 10 | 11 |
|  Unknown | 6 | 2 | 4 | 0 |



*Figure 1.* Plot comparing bullying victimization self-efficacy across three conditions (game only, game plus discussion, control).



*Figure 2.* Plot comparing SESC across three conditions (game only, game plus discussion, control).