

Battlestorm Social Impact Game Summary Evaluation Results FINAL Report

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for



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Following are summary results of the Battlestorm Game evaluation. The document is organized as follows:

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I. Evaluating Real-World Games

I.1 Did evaluating an innovative real world game require a unique evaluation approach?

In terms of its basic structure and components, the Battlestorm assessment is not exceptional. The formative evaluation monitored progress with project implementation. The summative evaluation measured success in reaching project goals.¹

Evaluation of both games required particular sensitivity to the following, however.

- *Nature of games:* One of the signal features of games is that their results are *supposed* to be contingent. Games have rules/constraints but, by design, are full of possibility. As a consequence, the evaluation was especially attuned to the potential for divergent reactions to/interactions with the game, reflected in different participant strategies, experiences and outcomes.
- *Intervention itself is experimental:* Implementation of social impact games in “real world” contexts is new. The evaluation closely tracked game implementation, both to confirm that the game was being implemented as planned and to generate information for project improvement. Although this was not anticipated in the original design, the evaluation also produced real-time refinement suggestions. This is more consistent with a developmental evaluation, although Battlestorm had been tested prior to evaluation and was not formally in developmental mode.²
- *Highly adapted to local context:* Both Knight Foundation games - Battlestorm and Macon Money - were carefully designed to respond to local needs and preferences. The evaluation thus closely tracked and sought to distinguish between conditions for game success that were highly contextual and conditions that might be replicated elsewhere.

I.2 Working without an initial Theory of Change (TOC)

In order to identify hypotheses that the evaluation would be designed to test, we relied on Area/Code’s game design documents and on conversations with Kati London³ and Foundation staff. Working without an explicit TOC did not turn out to be a significant impediment. But it was helpful to construct a working draft as the evaluation proceeded. This incremental approach to TOC construction both reflected and advanced our learning about the multiple causal pathways linking game interventions and outcomes (see TOC in Appendix).

¹ Formative evaluation formed part of a wider process evaluation. <http://www.westat.com/pdf/projects/2010ufhb.pdf>

² A developmental evaluation is specifically designed to assess an emerging initiative.

³ Kati London is currently Director of Product for Zynga New York. Previously she was Vice President and Senior Producer of Area/Code.

I.3 Role of Knight Games Advisory Group

In addition to offering valuable feedback on our evaluation design, members of the Knight Games Advisory Group served as thought-partners for the assessment. Knight advisors whom we consulted over the course of the evaluation included:

- James Paul Gee, Mary Lou Fulton Presidential Professor of Literacy Studies at the Mary Lou Fulton College of Education, Arizona State University;
- Beth Kolko, Professor, University of Washington; Faculty Associate, Berkman Center for Internet and Society;
- Tracy Fullerton, Associate Professor, USC; Director, Electronic Arts Lab;
- Ben Stokes, PhD candidate, USC; former Program Officer in Digital and Media Learning, MacArthur Foundation.

While the evaluation was in progress, Professor Gee alerted us to opportunities to assess additional game effects. Upon his recommendation, we contacted Stanford University School of Education Professor Daniel Schwartz who offered advice in connection with our assessment of *Battlestorm as preparation for future learning*. James Gee also referred us to Debra Lieberman, Director of Health Games Research at the University of California, Santa Barbara, who offered perspective on the role of games in risk prevention.

Absent a corpus of “real world” social impact game analysis that could serve as a resource, access to thought partners who are themselves leading innovators was invaluable.

2. Adapting the Evaluation Plan

Our Evaluation Plan described game objectives in this way:

By creating a community game that promotes the importance of hurricane preparedness through activities focused on youth as leaders, [the Battlestorm] game aims to:

- *Instill good hurricane preparation habits in the next generation;*
- *Empower youth to act safely and to take responsibility for themselves and others during dangerous storms and their aftermath; and*
- *Influence the behavior of parents and the larger community.*

Our evaluation promised in turn to document:

- *Participation and involvement of youth and other community members in the game;*
- *Changes in attitudes to hurricane preparedness among parents and youth, as well as knowledge acquired about good preparation habits that can be attributed to the game;*
- *Changes in behavior related to hurricane-preparedness among parents and youth that can be attributed to the game; and*
- *The degree to which the game affects the work of the community partners and becomes embedded in their ongoing programs.*

Proposed research methods included:

- a) *A pre- and post-game survey to players with a control group*
- b) *Post-game focus groups with players*
- c) *A post-game survey to players' parents/adult care-givers*
- d) *Participant observation of game practices and the final tournament*
- e) *Exit survey to tournament audience members*
- f) *Baseline and follow up interviews with BGCGC staff and other community partners (American Red Cross of South Mississippi, United Way of South Mississippi, Harrison County Emergency Management Agency)*

As well as:

- g) *Material review, including review and analysis of the results of Area/Code's monitoring of game participation and outcomes.*
- h) *Web-based research, including Battlestorm website analysis.*
- i) *Interviews and dialogue with Area/Code staff and Knight advisors*

In addition to these evaluation activities, we added the following components:

- Based on our conversations with BGCGC staff about the number of parents engaged through the game and their availability, we decided to add a baseline survey to parents in order to be able to match pre- and post-game responses;
- As we learned more about the potential of the game to prompt conversations within families about the traumatic events of Hurricane Katrina, we added a post-game focus group with parents to explore this dimension further;
- Upon the suggestion of James Gee, and with advice from Daniel Schwartz and Debra Lieberman, we designed a process to test the game's effect on youth as "preparation for future learning."

These and other smaller adaptations are emblematic of a process of on-going refinement in our evaluation of both Knight Foundation games (Battlestorm and Macon Money). Given their experimental nature, we sought to identify and explore a range of processes and outcomes as these emerged.

3. Evaluation Results: Findings Relevant to Youth

Engaging youth in efforts to keep Gulf communities safe in case of natural disasters, including dangerous hurricanes, is a priority of all of the regional organizations that served as community partners for the game. The Boys and Girls Clubs of the Gulf Coast (BGCGC) frame this as part of their continuing commitment to youth development in vulnerable communities. The Harrison County Emergency Management Agency and the American Red Cross deliver informational programs in schools and other venues to educate children of all ages about hurricane preparation. The United Way of Southern Mississippi supports these efforts and promotes community awareness about hurricanes and hurricane prep more broadly.

Although designed to address some of the same goals, the Battlestorm game aimed to engage young people in entirely new ways, providing unique pathways for hurricane prep learning and action. Following are key findings of the evaluation focused on youth. Sources include:

- member tracking data provided by the BGCGC;
- interviews with BGCGC lead staff and instructors;
- one-on-one interviews with Battlestorm players;
- a focus group interview with Battlestorm players;
- results of a survey administered pre- and post-game to players and to a control group (see Evaluation Findings Vol. I for a description of survey methodology);
- results of an assessment of the game as “preparation for future learning.”

3.1 Who played the game

Although the game targeted 13-14 year olds, children within a wider age range practiced the game, including younger children ages 9-12.⁴ Player participation also varied. According to member tracking data provided by the BGCGC, the average number of practice sessions per player was 3.43 over the period from March 10 to May 21, 2011 (see below Table 1).

Table 1: Battlestorm Sessions (March-May 2011)

Club	Total Sessions	Total Players	Avg. Sessions per Player
All Clubs	63	493	3.43

Source: BGCGC Member Tracking System (MTS)

BGCGC member tracking data above describes all youth who practiced the game, including youth who practiced once or twice and then dropped out early in the season and others who joined late. Evaluation research focused on a narrower group of youth. Our surveys and interviews were restricted to players who were still practicing in May, and who attended 2 practices or more.

Demographic differences between BGCGC listed players and our evaluation sample are summarized in Table 2 below. The most significant disparity is in the proportion of boys and girls in the two groups. This is consistent with a higher rate of attrition among girls. In our sample, a larger proportion of girls filled out a pre-game survey but did not respond to a follow-up survey distributed later in the season (cf. below *What players liked most about the game*).

⁴Battlestorm was introduced as part of an established after-school program at the BGCs called *Triple Play*. *Triple Play* is a health and wellness program developed by the BGCs of America in collaboration with the U.S. Department of Health and Human Services. It includes sports and fitness activities for members ages 6-18.

Table 2: Demographic characteristics of survey respondents and all BGC GC players

	Survey Respondents		All BGC GC Players Source: BGC GC MTS	
	N	%	n	%
Gender				
Male	38	69 %	246	50%
Female	17	31	247	50
Race/Ethnicity				
Caucasian	8	15 %	110	22%
Black/African-American	35	66	338	69
Hispanic/Latino(a)	2	4	11	2
Other	8	15	34	7
Age				
Mean	13.0		12.1	
SD	1.2		2.6	

3.2 What players liked most about the game

In early conversations with Area Code and the Knight Foundation, BGC GC staff confirmed that there were two main conditions for success in implementing the game through the Clubs: the game had to fit into existing after-school programming and players had to like it. According to Greg Gipson, Director of Programs, “If you tie it back to sports, the kids will be more up to playing this...if [the game’s] not fun, then it’s not going to work.”

Our survey of players confirms that a large majority of Battlestorm youth enjoyed playing the game⁵. And, in keeping with Mr. Gipson’s prediction, what players enjoyed most was active court play: running, scoring, competition and team work. Here is a sample of players’ responses to the follow up question: “If you did enjoy the game, what did you like most about it?”

- We got to run around
- Running with balls to other end
- Running and hitting others with the balls
- The physical part
- Running and having fun like dodgeball
- The competition, and the friendly intensity of the game
- Throwing the balls to my team members and blocking the hurricane
- Working as a team
- The team worked together to score
- Running and making points

⁵ Seventy-five percent of players who responded to our post-game survey reported that they liked playing the game “a lot.”

Survey results also show that over 60% of players liked the fact that the game was new and had never been played before.⁶ Focus group participants confirmed that the game’s novelty added to the “fun factor.” Learning a new game was fun in itself and, since there was no established “playbook”, youth had an opportunity to invent their own plays.

... it gave us a chance to kind of show our creative side. Because..., in basketball and football and all that, most of the plays are already set up and they were made hundreds of years ago when the game was first invented. It’s kind of like school. You tell us what to do and then we do it.... In Battlestorm, our [BGC instructor], she didn’t have any plays set up because she was just learning about the game just like us. So we gave her ideas, she gave us ideas... basically we ran it, we as the players ran the team. So I think that’s a way we succeeded a lot because it wasn’t a ...dictatorship. It was more of a democracy where everybody counts and everyone’s words fits in. You get a say in whatever we do.

Maurice Williams, Battlestorm player and focus group participant

On some teams, one or two players became the team’s lead strategists. On most teams, there were preferred “runners” and “throwers.” Players reported that there was a role for everyone.

What I liked about it is how we made strategies and how we had fun with it too... Our [usual] strategy was distractions. We had the people that were... slow on the right... while the fast people were on the left. And the slow people would distract the defensive players so the fast people would go and score.

Galen Smith III, Battlestorm player and focus group participant

Sadie Davis, Director of the BGC GC East Biloxi Unit, observed that physical games tend to be more attractive to boys while girls in the 13-14 year-old range at her Club often chose other types of after-school activities.⁷ In our matched survey sample, a larger proportion of boys reported that they liked the Battlestorm game “a lot” (79%) compared to girls (64%), although gender differences in the distribution of all responses to the question “How much did you enjoy the game?” (a lot, a little, I didn’t enjoy the game) were not statistically significant.⁸

3.3 Contextualizing the game for youth

When BGC youth first started practicing the game, instructors focused on introducing basic rules and moves. The aim was to ensure that players understood the fundamentals of the game before layering in elements that were connected to the hurricane theme (storm categories, storm surges, “powers” corresponding to items in a hurricane preparation kit). Early in April, according to Area/Code staff reports, most Clubs were just beginning to fold in hurricane elements and none had tried the power tokens. Clubs were encouraged by visiting Area/Code staff and by the Battlestorm Project Director to begin using the tokens in weekly practices.

⁶ Responding to a question about “things you might like about the Battlestorm game,” 63% of players selected: the game is something new. No one had played it before.

⁷ Sadie Davis, Director of the Biloxi Unit.

⁸ Alpha-level of 0.05 set for all statistical tests of significance.

One Club Director also reported at this time that getting youth to see the “big picture” was a concern, since hurricane season was coming and families ought to be getting prepared. The need to help youth make the association was confirmed in interviews conducted by the evaluation in mid-April. BGC instructors reported that many teams were starting to use the tokens but that most players did not see a connection between the tools they were deploying on the court and the real world of hurricanes and hurricane prep. Upon the suggestion of the evaluation team, the BGCGC Director of Programs and Club Directors considered ways to help youth contextualize their experience. Ultimately, instructors in the Clubs implemented short debriefs to help players bridge their in-game and out-of-game experiences.

3.4 Youth Outcomes

3.4.1 Youth interest in hurricanes and hurricane preparation

One possible consequence of the game was that players’ excitement about Battlestorm play would “spill over,” boosting youth interest in the topic of hurricanes and hurricane prep.

Results of our comparison of baseline and follow-up responses to the survey question: “Are you interested in learning more about hurricanes or hurricane prep?” (very interested, interested, a little interested, not very interested, not at all interested) showed no statistically significant change in the overall distribution of responses, however. At both baseline and follow-up, just under 50% of all respondents (intervention and control) reported that they were either “very interested” or “interested” in learning more. Between 30% and 40% of respondents (intervention and control) reported that they were either “not very interested” or “not at all interested.” A comparison of results for our matched-sample of Battlestorm players (control group excluded) also showed no statistically significant differences between baseline and follow up.

We also compared the *quality* of questions that youth asked about hurricanes and hurricane preparation before and after they played the game. Here we found that players’ questions post-game were, on the whole, more sophisticated and detailed than the same player’s questions at baseline, and more sophisticated and detailed than the questions listed by members of the control group pre- and post-game. This may indicate that youth who played the game spent more time thinking about the topic of hurricanes or hurricane prep and/or took the question more seriously after their experience in the game.

3.4.2 Youth anxiety about hurricanes

According to a recent study conducted by the National Center for Disaster Preparedness, more than half of all children affected by Hurricane Katrina continue to experience serious psychological and emotional problems.⁹ Battlestorm was not primarily designed as a palliative but had potentially beneficial effects for adolescents who were young children at the time of the storm. Dr Deborah Nastasi, a Biloxi-based school psychologist who consulted to Area/Code and the Knight Foundation, suggested that Battlestorm play could serve as an emotional release for youth who were traumatized during the storm and its aftermath. More than half of the parents of Battlestorm players who responded to our survey

⁹ See, for example, results of research published in 2010 by the National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University: <http://www.dmphp.org/cgi/rapidpdf/dmp.2010.7v1>

confirmed that their family was directly affected by Hurricane Katrina. Of these, nearly one in five reported that their children, including those playing the Battlestorm game, continue to experience symptoms caused by the storm.

The evaluation explored the game’s psychological impact through survey and other research focused on players. Here we found that results were mixed.

- Over 40% of Battlestorm players reported that they were *more* afraid or anxious about hurricanes after playing the game. Although not anticipated in the game’s design, these results are consistent with a heightened awareness about the threat of hurricanes that playing the game may have prompted.
- Nearly a third of players (30%) reported that they were *less* afraid or anxious about hurricanes after playing the game. One player in our focus group reported that he was less nervous about hurricanes because, on the court, “...hurricanes are easy.” It is certainly possible that battling an opposing team styled as the “storm” caused some players to feel a sense of catharsis or release.¹⁰ If so, Battlestorm play could serve as an innovative addition to therapeutic interventions for youth suffering from Post-Traumatic Stress Disorder (PTSD) or other symptoms caused by Katrina.

Our best evidence of the cathartic effects of the Battlestorm game comes from our research on *talk within families*. In some families, conversations about hurricanes and hurricane prep prompted by the game led parents and children to process their experiences of Hurricane Katrina in a unique and beneficial way.

3.4.3 Youth self-efficacy

Another potential effect of the game was to boost youth self-efficacy. Our survey research explored five dimensions of youth self-efficacy that were potentially relevant to the game.¹¹ In the case of self-reported *ability to cooperate with peers*, ratings for youth who played the Battlestorm game increased between baseline and follow-up while ratings in the control group decreased.¹² This suggests that Battlestorm game play had a positive impact on players’ sense of self-efficacy in this limited but important area.

3.4.4 Youth knowledge about hurricanes and hurricane preparedness

When we asked Battlestorm players about the purpose of the game, BGC youth emphasized family and community awareness rather than their own learning about hurricanes and hurricane prep. This is entirely in line with the game’s design: although it includes elements that provide opportunities for

¹⁰ The evaluation was not designed to fully investigate the psychological effects of game play on individual players.

¹¹ Confidence in ability to 1) handle a challenge, 2) cooperate with peers, 3) persist in completing a task, 4) be a good leader, 5) make a difference in own community. See Results of Pre- and Post-game Survey to Players with Control Group: Volume I.

¹² Battlestorm players’ agreement with the statement: “I am good at cooperating with my peers (e.g., friends, team members).” increased, while ratings in the control group decreased. Differences between the player and control group on changes in this outcome were statistically significant. Differences between the player and control group on changes in other outcomes related to self-efficacy were not statistically significant. See Results of Pre- and Post-game Survey to Players with Control Group: Volume I.

players to learn about hurricanes and hurricane prep, the game was not principally intended as an instructional tool.

Our assessment of the game’s impact on players’ knowledge acquisition did yield some interesting results, however.

Survey research confirmed that players learned little about hurricane characteristics or behavior from either the Battlestorm website or the court game which included some relevant cues.¹³ Individual player scores in answering a series of true/false statements about hurricanes did not change significantly pre- and post-game. Nor did scores vary significantly between players and members of control group at baseline and follow up.¹⁴

The evaluation did surface evidence of player learning about appropriate items for a hurricane prep kit, however. An analysis of the responses of matched players at baseline and follow-up showed a small but significant increase in the number of hurricane prep kit items that players were able to identify post-game.¹⁵ While the number of items and gains were modest, the result is notable since this element was integral to the game’s design and directly related to strategic game play. Hurricane prep kit items were deployed by players both as symbolic “power tokens” on the court and as real life articles that players assembled with their families to boost home team advantage. This is important evidence that “real life” social impact games built around strategy gaming can produce measurable learning outcomes.

3.4.5 Battlestorm as preparation for future learning

The Battlestorm game was not primarily designed to foster content knowledge acquisition, but it did aim to engage players’ attention. One possible outcome was that changes in players’ disposition toward hurricane-related content would produce better learning outcomes in future. In order to gauge the efficacy of the game as *preparation for future learning*, evaluators collaborated with the BGCGC and with two of the Knight Foundation’s community partners to produce a further intervention and assessment.

Following the final Battlestorm tournament in August 2011, lead staff from the regional offices of Save the Children and the American Red Cross delivered a short age-appropriate hurricane curriculum to BGCGC youth, including Battlestorm players and youth who had not participated in the game.¹⁶ Upon the advice of the evaluation, the workshop included information about effective hurricane preparation

13 For example, a “storm surge” in the game described a situation where the opponent/storm gained extra powers. Related information was provided on the Battlestorm website which included links to the Harrison County Emergency Management Agency.

14 Most respondents, including players and the members of the control group, already had a firm base of knowledge about hurricanes. Over 60% of surveyed youth identified all true/false statements correctly, including statements relating to important hurricane knowledge proposed to the evaluation by Rupert Lacy, Director of the Harrison County Emergency Management Agency.

15 At the baseline, Battlestorm players identified, on average, 2.7 of the hurricane prep kit items listed on the Battlestorm website. At the follow up, they identified, on average, 3.3 items. At the baseline, Battlestorm players identified, on average, 0.8 of the hurricane prep kit items included as Power Tokens in the Battlestorm game. At the follow up, they identified, on average, 1.1 items. Matched-pair differences between baseline and follow up were statistically significant ($p < 0.05$). On all other variables related to youth knowledge about good prep habits, no significant differences were detected. See Results of Pre- and Post-game Survey to Players with Control Group: Volume 1.

16 Workshop was designed and delivered by Alessandra Jerolloman, Domestic Emergencies Unit, Save the Children, Greater New Orleans and Lorena Diaz, Community Resilience Coordinator, American Red Cross South MS Chapter.

strategies that built on references embedded in the Battlestorm court game. One hypothesis was that players would out-score non-players in learning about topics that had a semantic connection to the game.

A simple assessment was conducted in connection with the workshop that included a survey administered to Battlestorm players and to the control group immediately before the workshop and immediately after. In order to test initiative and self-efficacy as well as knowledge, the post-workshop survey presented a scenario: BGCGC youth were asked to provide advice to the members of a Gulf Coast family who have just heard that a major hurricane is heading their way¹⁷.

Ultimately, the assessment provided only limited evidence that playing the Battlestorm game served as preparation for future learning. Battlestorm players and members of the control group demonstrated similar knowledge about hurricane prep strategies before and after the workshop.¹⁸ The one exception was the strategy: “finding a safe place” or “shelter.” Since this strategy was a point of discussion in the workshop and had a relevant semantic analogy in the game, Battlestorm may have greater promise as preparation for future learning than our restricted assessment was able to confirm.¹⁹

3.4.6 Youth as catalysts of hurricane preparedness behavior

One of the objectives of the game was to make hurricane preparation a shared social experience rather than an isolated individual experience. Battlestorm players had a unique role to play in this as instigators and promoters of hurricane prep within families and communities.

In order to document relevant changes in youth behavior, the evaluation focused initially on player communication since independent research has shown that simply talking about emergency preparedness can prompt better preparedness behaviors. Entertainment-education campaigns like the Great Southern California ShakeOut are deliberately designed to spark conversations for this reason.²⁰ The same principle underlies the use of soap operas to trigger prevention behaviors among populations vulnerable to HIV/AIDS in Latin America and Africa.²¹ In each case, drama and novelty prompt people to share information socially, creating new impetus and avenues for behavior change.

Notably, in the case of Battlestorm, we found that participation in the game significantly increased players’ inclination to talk to family and friends about topics related to hurricanes.

Our survey results show that, between the baseline and follow up, a greater share of Battlestorm

17 Our original design included the scenario on the pre-workshop instrument, but circumstances in the field prevented the administration of this component.

18 For example, there were no statistically significant changes between pre- and post-workshop in the number of hurricane prep items identified by the Battlestorm players, nor by the non-player group (i.e., within group changes). Comparison of changes between these two groups of youth also were not statistically significant (i.e., between group changes).

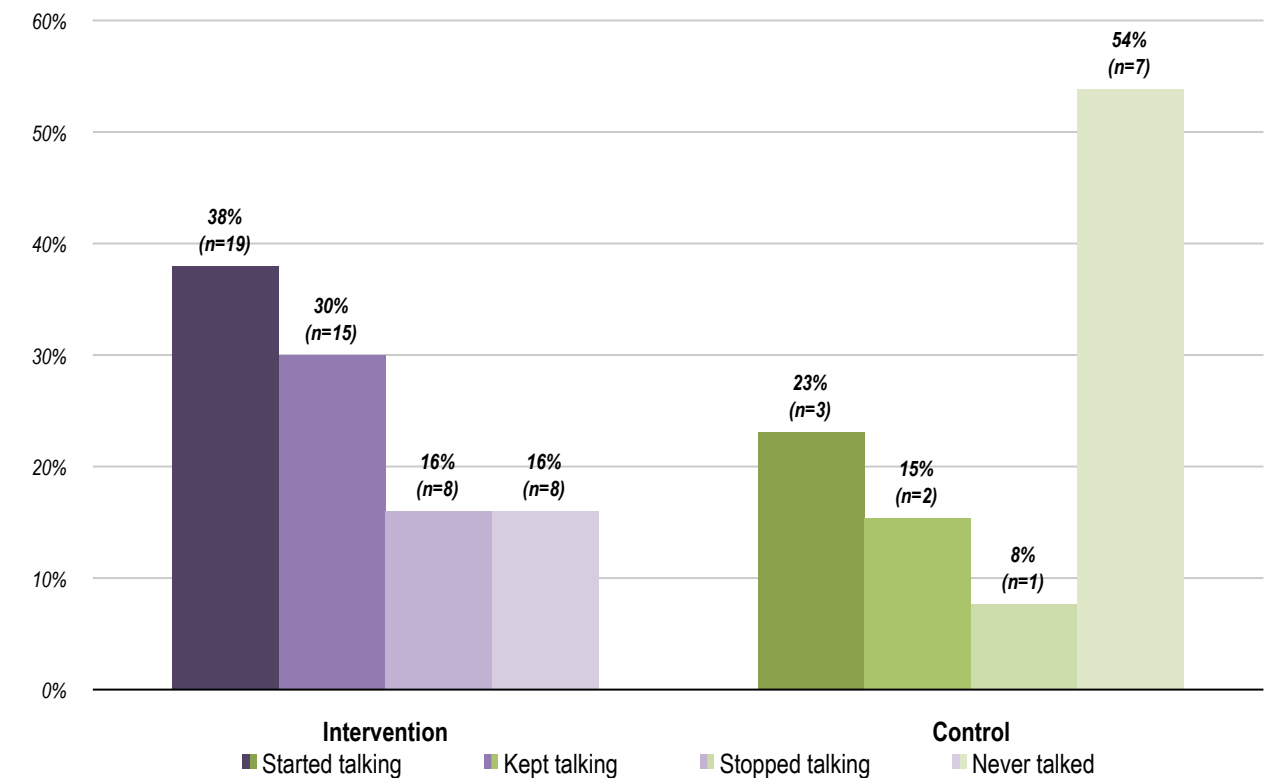
19 A significantly greater share of Battlestorm players identified needing shelter on their post-workshop survey (22%) than on their pre-workshop survey (0%). Changes within the control group were not statistically significant.

20 For a summary of the Great Southern California ShakeOut evaluation <http://www.shakeout.org/>
http://usc.academia.edu/johannablakley/Papers/624249/An_Evaluation_of_the_First_Southern_California_ShakeOut.

21 See Kennedy, M. G., O’Leary, A., Beck, V., Pollard, W. E., & Simpson, P. (2004). “Increases in calls to the CDC National STD and AIDS Hotline following AIDS-related episodes in a soap opera.” *Journal of Communication*, 54, 2, 287-301.
<http://www.learcenter.org/pdf/BBHotline.pdf>

players started or continued talking with their parents about how to be prepared for a hurricane (68%) than youth in the control group (38%).²²

Figure 1. Talked to Parents About How to Be Prepared for a Hurricane (Baseline-to-Follow Up Change)



* Differences between intervention and control group statistically significant (p<0.05).

Players were also more inclined to talk to friends about hurricane-related subjects. Our matched-sample player comparison revealed the following statistically significant changes:

- At the baseline, 23 percent of Battlestorm players had spoken with a friend about hurricanes in general during the previous month; at the follow up, 64 percent of Battlestorm players had done so.
- At the baseline, 23 percent of Battlestorm players had spoken with a friend about how to be prepared for a hurricane during the previous month; at the follow up, 44 percent of Battlestorm players had done so.

²² These results are based on youth self-reported behavior. Youth behavior as reported by parents tracked these results closely. At the baseline, 24 percent of parents of Battlestorm players indicated their child had introduced or started a conversation with them about hurricanes or hurricane prep; at the follow up, 71 percent of parents indicated their Battlestorm player had done so. See Evaluation Findings Vol. 2: Results of Pre- and Post-game Survey to Parents of Battlestorm Players.

- At the baseline, 10 percent of Battlestorm players had spoken with a friend about what goes into a hurricane prep kit during the previous month; at the follow up, 40 percent of Battlestorm players had done so.

Talk initiated by players took different forms and led to different outcomes. Following are examples provided by parents of Battlestorm players. They describe youth-initiated conversations within families, where hurricane prep starts.

- On the way home from after-school, a girl from the East Biloxi Unit told her father that she was playing a game about hurricanes called “Battlestorm.” This reminded her father that the family’s flood insurance needed to be updated.
- A 12 year-old boy from the Hancock Unit told his parents that they should gather up items that would keep the family safe in a hurricane and listed three articles he knew from the game.
- A boy from the East Biloxi Unit asked his grandmother if she had items at home for a hurricane prep kit and could she take a picture of the kit and send it to the Battlestorm website to boost his team’s power in the final Battlestorm tournament. The grandmother assembled the items and took a picture of them but neither the boy nor his grandmother was able to upload the photo to the site.
- A girl from the Forest Heights Unit told her mother that the final Battlestorm tournament was coming up and that she needed to have her picture taken at the Club so that her instructor could upload the photo to the Battlestorm site. After the photo shoot, the girl and her mother returned home with an assembly of hurricane prep items provided by the Club.²³
- A boy who was severely traumatized by his experience during Hurricane Katrina told his mother about the Battlestorm game and its theme. For the first time, the family began to talk about the devastating effects of the 2005 storm. This player later took a leadership role in explaining some of the details of hurricane prep to his younger siblings.

Not all of these results were anticipated in Battlestorm’s initial design, but they do demonstrate a pivotal role for youth as initiators of talk about hurricanes and hurricane prep. The significance of conversations prompted by the game cannot be overestimated. Our research shows that, once the impetus to communicate is established, and messages are processed in a social context, many positive outcomes are possible.

²³ As part of its support for Battlestorm, the United Way provided supplies for 800 hurricane preparedness kits. These supplies were distributed to BGC GC families at the Clubs and to audience members at the final Battlestorm tournament (The Big Event).

3.4.7 Youth perceptions of safety in a hurricane

Based on parents’ testimony, it is likely that conversations within families and hurricane preparation that ensued contributed to youth feelings of safety.

Our survey research confirmed that Battlestorm players feel safer in a hurricane as a result of their experience in the game. At the follow up, Battlestorm players felt safer about a powerful hurricane strike than they did at the baseline, while the control group's feelings of safety decreased.

Table 3.
Feelings of Safety About a Hurricane Strike, Baseline and Follow Up

	Baseline		Follow Up	
	Mean	SD	Mean	SD
Intervention group	2.0	0.9	1.8	0.8
Control group	1.7	1.0	2.1	0.8

Note: Level of safety used the following scale: (1) very safe, (2) a little safe, (3) not too safe, (4) not at all safe, and (5) don't know. Youth who responded "don't know" were removed from average calculations.

3.4.8 Influence of demographic factors on youth outcomes

There is no evidence in our data that demographic factors affected youth outcomes except as follows (all differences statistically significant):

- Older youth scored higher than younger youth on some desired outcomes including talking to their friends about hurricanes and general knowledge about hurricanes;
- Between the baseline and follow up surveys, male youth identified, on average, 0.4 more items on the Power Token list and female youth identified, on average, 0.3 fewer items;
- A greater share of African-American youth (50%) and youth respondents of other races/ethnicities (55%) started or continued talking with their parents about *what goes into a hurricane prep kit* than White youth (40%) and Hispanic/Latino(a) youth (0%).

4. Evaluation Results: Findings Relevant to Players’ Families

With youth as vectors, the Battlestorm game aimed to produce changes in hurricane-preparedness knowledge, attitudes and behavior within families. Battlestorm also offered opportunities for hurricane-related learning from other sources including the Battlestorm website, the final tournament and information sessions organized for families by the BGC GC in connection with the game.

Following are key findings of the evaluation focused on the families of players. Sources include:

- interviews with BGC GC lead staff;
- a focus group interview with the parents of players;
- results of a survey administered pre- and post-game to the parents of players.²⁴

4.1 Impact of the game on families traumatized by Hurricane Katrina

Results of our focus group interview with the parents of players suggest that the psychological effects of Hurricane Katrina persist among adults as well as children affected by the storm. Parents' testimony is that conversations about hurricanes triggered by the Battlestorm game were cathartic: they allowed family members to process traumatic experiences related to Hurricane Katrina that had been repressed or not adequately addressed in the many years since the storm.

Results of our survey research confirmed these focus group findings. Seventy-five percent of parents of Battlestorm players who responded to our post-game survey (n=58) said that games like Battlestorm can help children who experience emotional or psychological problems related to hurricanes. Nineteen percent of parents of Battlestorm players said that playing the Battlestorm Game improved their own child's symptoms of stress or anxiety.

4.2 Family communication about hurricanes and hurricane prep

Consistent with the survey responses of players, results of our matched-sample parent comparison showed that more parents discussed hurricane prep with their children after the game:

- At the baseline, 18 percent of parents of Battlestorm players had spoken with their child(ren) about *how to be prepared for a hurricane* during the previous month; at the follow up, 65 percent of parents of Battlestorm players had done so.
- At the baseline, 24 percent of parents of Battlestorm players had spoken with their child(ren) about *what goes into a hurricane prep kit* during the previous month; at the follow up, 65 percent of parents of Battlestorm players had done so.
- At the baseline, 18 percent of parents of Battlestorm players had spoken with their child(ren) about *a family communication plan* during the previous month; at the follow up, 65 percent of parents of Battlestorm players had done so.
- At the baseline, 24 percent of parents of Battlestorm players had spoken with their child(ren) about *a family evacuation plan* during the previous month; at the follow up, 59 percent of parents of Battlestorm players had done so.

²⁴ Results reported here are based on a comparison of 17 matched pre- and post-game parent responses. Given our quasi-experimental research design, these results provide the best evidence of the effects of the game, since they describe the status of the same individual respondent pre- and post-game. Our comparison of the average responses of all parents surveyed (34 baseline, 58 follow up) provided a less robust measure of change but demonstrated similar patterns. See Evaluation Findings Vol. 2: Results of Pre- and Post-game Survey to Parents of Battlestorm Players.

4.3 Parent learning about hurricanes and hurricane prep

Results of our matched-sample parent comparison showed a change in parents' self-reported learning about hurricanes and hurricane prep. Twice as many parents reported that they learned something new about hurricanes during the previous 6 months at the follow up (88%), than at baseline (44%).

- Notably, one third of parents (33%) reported that they learned something new from their child who played the game.
- One in four (25%) reported that they learned something new from watching the Battlestorm game, including the Big Event.

Only a minority of parents (38%) reported visiting the Battlestorm website and accessing information from that source.

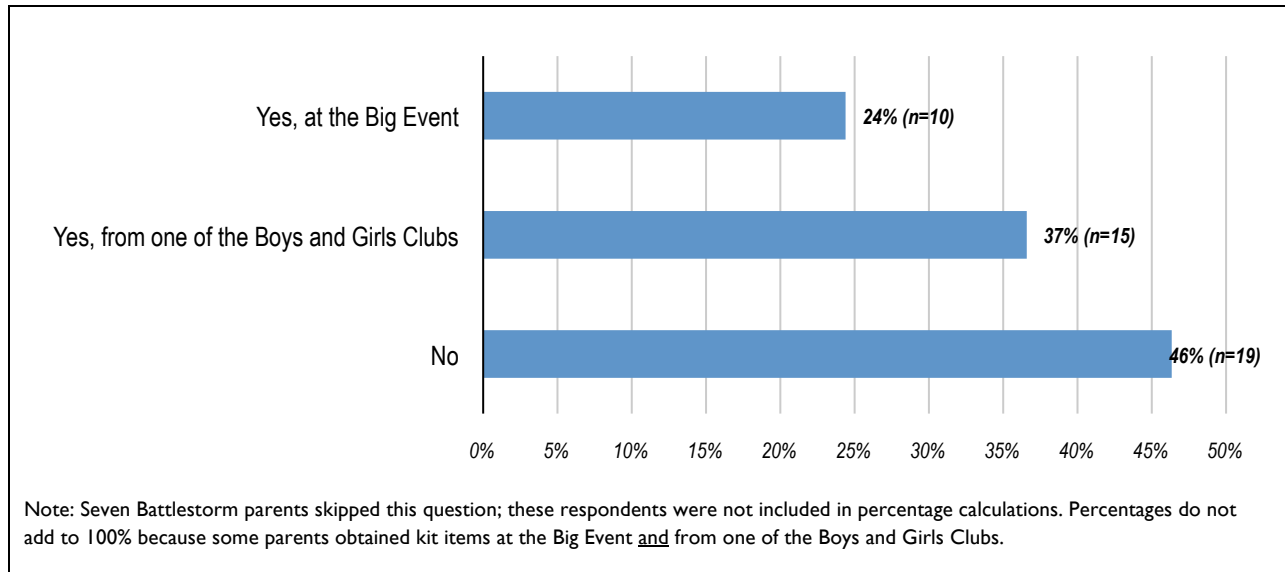
4.4 Hurricane preparedness behaviors within families

Results of our matched-sample parent comparison show that parents of Battlestorm players had a greater number of recommended items in a hurricane prep kit after the game. At the baseline, parents of Battlestorm players had, on average, 13.4 of 22 important items to have in case of a hurricane emergency. At the follow up, parents had, on average, 16.5 important items.²⁵

More than one in three families of Battlestorm players obtained hurricane kit items from a Battlestorm-related source (see figure 2 below).

²⁵ Important items are those listed on the website of the Mississippi Emergency Management Agency.

Figure 2. Share of Battlestorm Parents Who Obtained Kit Item(s) from a Battlestorm Game-Related Source (Follow Up, n=41)



5. Evaluation Results: Findings Relevant to the Larger Community

Battlestorm is designed to spill over the edges of the court, into the entire Gulf Coast community, and beyond. During the build up to the Big Event, traditional and social media will spread the word about this unusual and exciting experience that's taking place on the Gulf Coast. The players themselves act as evangelists as they reach into the community and recruit the help they'll need to stand up to "The Hurricane"; the more people they can get to document their hurricane preparation kits, the better their team's chances will be against the menacing threat.

Battlestorm Game Design Document, March 2011

Ten weeks after the beginning of training, the Battlestorm game culminated in a final tournament in which BGC GC Club teams competed against a glamorous opponent styled as the "world champions" of Battlestorm. In the original design, members of *The Hurricane* were college students, recruited and trained by Area/Code to play in the tournament. When a college team proved too difficult to recruit, Navy Seabees from a local military base were substituted. The tournament took place in a local high school gym equipped by Area/Code with a powerful light and sound system and a large screen "jumbotron." A local sports announcer provided a running commentary of the game. The program with Battlestorm logo and design elements included an explanation of game rules and a list of recommended items for a hurricane prep kit.

The tournament was an exciting finish to the Battlestorm season, but it was also integral to a game mechanic that aimed to put hurricane prep kits into the homes of Gulf Coast community members.

Key to this outcome was the “submit your kit” mechanism: by assembling prep kits, photographing them, and then uploading the photos to the game’s website, community members could “power up” their favorite teams, boosting their competitiveness against *The Hurricane* at the Big Event.

Our assessment of the Big Event, including this mechanic, and its impact on members of the larger community is based on:

- Post-game interview with Kati London
- Post-game interview with Misty Maaya, Battlestorm Project Director
- Post-game interviews with BGCGC lead staff
- Post-game interview with Sue Suter and Aletha Burge, United Way of South Mississippi
- Participant observation of the Big Event (May 21, 2011)
- Review of Battlestorm materials distributed at the Big Event
- Responses to an exit survey distributed to Big Event audience members
- Responses to our post-game survey administered to BGCGC parents
- Focus group interview with Battlestorm players
- Focus group interview with parents of Battlestorm players

5.1 Some positive outcomes of the Big Event

One of the most important outcomes of the tournament, according to the BGCGC Director of Programs, was that BGCGC youth who participated felt special and valorized. Our focus group with players confirmed that the Big Event was the highlight of their Battlestorm experience. Players especially liked the video replays on the big screen and the media coverage both before and after the Event that showcased their Club teams.

Sixty-seven audience members responded to our Big Event audience exit survey. Among the results:

- 99% of respondents had fun at the Big Event;
- 76% of respondents learned something new about hurricane prep at the Big Event;
- 93% of respondents said that attending the Big Event increased their motivation to be prepared for a hurricane;
- 81% of respondents collected items for a hurricane prep kit at the Big Event. These items were supplied by the United Way as part of their support for the Battlestorm game.

5.2 Challenges with the “Submit Your Kit” mechanism

Although photos were uploaded to the Battlestorm website that allowed teams to power up before the Big Event, no community members assembled kits at home, photographed them and uploaded them, as anticipated in the game’s design.

Photographs of community members that were uploaded were the result of an adaptation devised by the BGCGC Clubs. When it became apparent that players and families were not uploading photos on their own, the Clubs stepped in to assist the process. With little time to spare before the Big Event, BGCGC staff at each Club took photographs of players with a single hurricane prep kit that had been

assembled on site. Staff then uploaded these photographs to the Battlestorm website to boost their team’s “powers.”

During the same period that the photos were being taken and uploaded at the Clubs, materials for hurricane prep kits made available by the United Way were distributed by the Clubs to BGCGC

families. In all, materials for 800 prep kits were distributed either at the Clubs or at the Big Event. This means that hurricane-prep kit items were in fact obtained by community members as a result of the game, although not in the manner anticipated.

Our post-game interviews surfaced several hypotheses about the failure of the Submit Your Kit mechanism. Based on information that Area/Code received from the field, Kati London concluded that BGCGC did not promote this element of the game adequately with instructors and families.²⁶ BGCGC lead staff confirmed that they knew about the mechanism and provided the appropriate information to players and families but had limited capacity to follow up. Since only 44% of youth and 38% of parents we surveyed visited the Battlestorm website over the period of the project, this source of information likely also had limited impact.

Greg Gipson, BGCGC Director of Programs, speculated that the digital divide played a role since some BGCGC families have limited access to computers and the internet. In response to a question about digital access in our post-game survey, however, 64% of BGCGC youth reported that they had a cell-phone with digital access and 80% reported that they had access to a computer. This suggests that only a minority of families did not have the means to submit a photograph.

Parents in our focus group suggested that limited time was a factor since many BGCGC parents, like themselves, work long hours.

Finally, responses to our parent survey suggest that insufficient information was an important determinant. Most respondents in our sample reported that they didn’t upload a photo because they “didn’t know about it” or they “didn’t know how.”

5.3 Turn out at the Big Event

Although up to 600 community members were expected, less than 200 people attended the Big Event on May 21st, 2011. According to the Battlestorm local project director, factors contributing to this low turn-out included competing community events. United Way staff who attended the Big Event noted that there was no public transportation available and that a lack of signage made the venue difficult to find. Our research suggests that promotion by the BGCGC Clubs played a larger role in turning out the audience member who did attend than promotion through mass media. Only 14% of audience members reported that they heard about the Big Event from public media. Nearly two thirds (65 %) reported that they heard about it from the BGCGC.

²⁶ Kati London also acknowledged that the Submit Your Kit mechanism was “...perhaps not the best [game] mechanic” in the circumstances.

6. Role of Community Partners

Our assessment of the contribution of community partners is based on perspectives shared in one-on-one interviews with Kati London and with lead staff in partner organizations as follows.

- For the Boys and Girls Clubs of the Gulf Coast: Greg Gipson, BGCGC Director of Programs and Sadie Davis, Director of the East Biloxi Unit;
- For the United Way of South Mississippi: Sue Suter, Chief Executive Officer, and Aletha Burge, Director of Community Initiatives;
- For the American Red Cross of South Mississippi: Josh Joachim, State Chief Operations Officer;
- For the Harrison County Emergency Preparedness Agency (Harrison County EMA): Rupert Lacy, Emergency Management Director.

6.1 Initial consultation with partners

All partners appreciated the collaborative spirit with which the Knight Foundation and Area/Code approached the project.

- Consultation with first responders during the development phase ensured that Battlestorm fit with existing regional hurricane-preparedness initiatives. An innovative project designed to engage local youth was especially attractive. The priority of the Harrison County EMA is to promote community preparedness, beginning with children at a young age. A preparedness curriculum developed by the American Red Cross was being implemented regionally, but the program targeted younger children.²⁷ First responders hoped that Battlestorm would fill a gap in existing programming and that an innovative game-based approach might engage community attention in ways that conventional interventions did not.
- According to BGCGC lead staff, Battlestorm was a “no brainer” since it addressed an issue of abiding concern to Gulf Coast families and was easily integrated into an existing BGCGC program. The BGCGC also anticipated that hosting an innovative game funded by a prestigious national foundation would attract public attention to all its good work in support of vulnerable children and families in the region. Finally, Directors of the five Clubs hoped that the game would qualify nationally as a BGC Program of Excellence and that the Battlestorm evaluation would provide data to support this application.

6.2 Consultation during development phase

In addition to seeking initial feedback on game concept, Area/Code met with lead staff from all partner organizations to solicit advice about details of the Battlestorm game.

²⁷ The innovative intervention known as the Pillow Case project:

<http://www.redcross.org/portal/site/en/menuitem.1a019a978f421296e81ec89e43181aa0/?vgnnextoid=be965028ed223310VgnVCMI0000089f0870aRCRD>

- In one of these meetings, the American Red Cross suggested that safe zones on the court should be called “shelters.” As noted earlier, this is the one item in the Battlestorm semiotic prep kit that stood out in our assessment of the game as *preparation for future learning*.
- Based on their knowledge of the target group, BGCGC staff recommended that the court game be fun and easy to learn in order to immediately engage players’ interest. The BGCGC also wanted competition to occur in a balanced way so that youth in all Clubs felt like winners. According to the BGCGC Director of Programs, these initial consultations with Area/Code ultimately resulted in a court game that was exciting and attractive to BGCGC youth and in line with the BGCGC mission and organizational ethos.

6.3 BGCGC role in game implementation

Supported by Area/Code’s local project director, the BGCGC was responsible for introducing and implementing the game inside all of the five BGCGC Clubs. Our interviews with BGCGC staff, as well as our observation of practices and staff meetings, confirm that staff buy-in for the game was high.

- ***Initial learning curve successfully negotiated***

Although the game was implemented as part of an existing after-school program, everything else about it was new. Instructors were learning the game at the same time as players. Directors had to focus initially on recruiting players, confirming teams and providing basic information about the game to parents.

Our research shows that these initial efforts were largely successful. By early May, teams were established, players in all Clubs understood how to play the game and, based on our focus group interviews, parents and players knew that the game would culminate in a final tournament at a local high school and that BGCGC teams would compete against a special high-profile opponent.

- ***Communication disconnect***

Game implementation leading up to the Big Event was less successful for reasons cited earlier. Our assessment is that staff in the Clubs did not begin with a complete understanding of the final steps of the game (photographing of prep kits assembled at home, uploading of photos to the Battlestorm website to boost team competitiveness) and so did not communicate these steps to players and to parents early enough or clearly enough.

- ***Differences in outcomes between Clubs***

The evaluation did not extend to a close examination of different Club practices connected with the game.²⁸ Our analysis of youth outcomes surfaced some significant differences, however. Players from the East Biloxi and Hancock County Units scored higher on several key outcome variables. We hypothesize that active support for the game by Directors and instructors in these two Clubs played a part in this.

²⁸ Tracking forms designed by the evaluation and Area/Code for Battlestorm instructors did not yield useful results.

6.4 BGCGC role in Battlestorm evaluation

The BGCGC played a critical role in supporting this evaluation. This included collaborating with evaluators and with Save the Children and the American Red Cross to implement an assessment of the game as *preparation for future learning*.

6.5 Other partner contributions to game implementation

The United Way provided materials for 800 hurricane prep kits in support of the game. These were distributed to Gulf Coast families at the BGCGC Clubs and at the Big Event.

The American Red Cross conducted hurricane prep information sessions for parents at every Club during the period of game implementation.²⁹

6.6 Community partner perspectives on Battlestorm game repetition/replication

All partners favor game repetition/replication. The American Red Cross and Harrison County EMA believe that the Battlestorm game can contribute not only to hurricane-preparedness in southern Mississippi, but to disaster-preparedness in Mississippi more broadly. Devastating tornadoes in the north and flooding of the Mississippi river were a recent reminder of extreme weather trends in the region. For this reason, Harrison County EMA director Rupert Lacy proposed that the Battlestorm game be adapted to focus on “all-hazard” preparedness.

All partners, including the BGCGC, recommended that the game be implemented through the Mississippi school system in order to expose a greater number of youth and families to the intervention. The BGCGC Director of Programs noted that their Clubs “...only have kids in their hands for 3-4 hours a day” and that schools have the capacity to do much more. Sue Suter of the United Way suggested that classroom teachers might be in a better position to monitor students’ efforts to assemble prep kits with their families. She also noted that schools would have greater capacity to organize a well-attended final tournament by promoting the event to students and parents.

United Way staff who attended the Big Event felt that the final tournament was a lost opportunity. Their view is that game organizers failed to explain why the game was important and what the tournament was about. According to Sue Suter, media coverage was adequate but the game needed a local “champion.” She recommends that local first responders - Josh Joachim of the American Red Cross and Rupert Lacy of the Harrison County EMA - take a more visible role in explaining and promoting the game, if it is repeated.

In their post-game interview, United Way staff also observed that the game’s written materials “...didn’t adequately convey the theory of change.” According to Aletha Burge, “...it’s an innovative idea and approach [but] we’re not in the part of the country known for innovation.” If the game were to be played again, she recommends that better marketing materials be developed to clearly explain the game’s purpose and many “layers.”

²⁹ The evaluation controlled for the impact of these sessions on parent knowledge by asking parents to report on learning that was attributable to their experience with the game.

6.7 Game’s impact on partner practice going forward

Both first responders continue to be interested in innovative preparedness initiatives that target youth. The hurricane preparedness curriculum developed by the American Red Cross and Save the Children in connection with the evaluation was later delivered by the Red Cross to BGCGC members who did not attend the July workshop.

Save the Children is currently considering a Battlestorm-like court game to be introduced as part of summer programming they support, since the game combines physical fitness and preparedness elements.

At the BGCGC, Battlestorm continues to be popular with Club members but, as of this writing, no plans are in place to repeat the game.

The United Way remains interested in supporting new iterations of the game in Mississippi.

7. Reflections and Recommendations

Most times we get approached with something that we need to learn, something that we need to know about, it’s in a boring fashion or manner. And it’s not really interesting us, so therefore we don’t really care too much about it. But the way Battlestorm was introduced to us is something that we want to do because we find it fun and interesting. So therefore we listen and find out. It catches our attention. So therefore once it has our attention, it doesn’t only give us interesting things, but it gives us necessary facts that we need to know.

Maurice Williams, Battlestorm player and focus group participant

7.1 Battlestorm Key Successes

- Battlestorm successfully engaged youth in an exciting new game that gave impetus to positive conversations about hurricanes and hurricane preparedness within families;
- Players learned something new about appropriate hurricane prep, as a consequence of the game;
- One third of parents surveyed for this assessment reported that they learned something new about hurricanes and hurricane prep from their child who played the game;
- The game had a demonstrable impact on BGCGC families’ self-reported level of hurricane preparedness;
- Battlestorm participants feel safer in a hurricane as a result of their experience in the game;

- A large majority of the parents of Battlestorm players believe that games like Battlestorm can help children who experience emotional or psychological problems related to hurricanes;
- Materials for 800 hurricane prep kits were distributed to Gulf Coast families through the game.

7.2 Top Challenges

- The Submit Your Kit mechanism was not implemented as designed. Without a mechanism for confirming prep-kit assembly or other preparedness behavior within BGC GC families, our assessment could not confirm family preparedness outcomes.

7.3 Repetition/replication of the game

- In addition to the support of community partners, there is strong support among BGC GC players and families for the game: 82% of youth and 95% parents in our survey said that the Battlestorm game should continue to be played.

Further, all respondents to our Big Event exit survey believe that the game is a good way to raise both community awareness and youth awareness about the importance of hurricane preparedness (100%, n=67).

- Our assessment is that all the basic elements of the Battlestorm game can be successfully repeated in Mississippi, or replicated in other similar communities, so long as:
 - *The court game remains novel and exciting to players.* Players must have impetus to talk about their game-related experience in order to serve as vectors for family preparedness. In the context of the BGC GC, we recommend that a unique cohort be selected every season the game is played.
 - *Outreach for the game and the final tournament starts early and is implemented through multiple channels (parent information sessions, community meetings, public media) to engage players' families as well as other community members.*

It is entirely possible that the “Submit Your Kit” mechanism would be successful upon repetition/replication of the game. In addition to general outreach, this might require face-to-face or video description of the photo-upload process and of the impact of “power-ups” on home team competitiveness in the final tournament;

- sponsors or partners are identified to host and promote the game and support the online component. Materials required for the court game itself (balls, baskets, etc) are relatively inexpensive.

- Given community partner interest in repeating some version of the game, there is an opportunity for the Foundation to gather partners for a post-game meeting to discuss possible funders/sponsors.
- Our research shows that the Battlestorm game was well-suited to its target group. The game should be played preferentially by 13-14 year-olds.

7.4 Potential modifications to the game

- ***Hurricane or All-hazard***

The game must attach to a topic or scenario that excites the interest of youth and engages their imagination. This argues for a specific type of threat (hurricane, tornado, flood) rather than a generic all-hazard theme. One solution is to develop multiple versions of the game focused on different hazards. This might increase youth participation overall and enhance community interest. Desired preparedness behaviors folded into the game mechanic could be very similar.

- ***Implementation through schools***

Now that Battlestorm has a proven record of success engaging youth and prompting preparedness-related behaviors within families, it may be easier to approach the Mississippi schools with a proposal. Some partners believe that this process could be facilitated with help of the Director of the BGCGC who is himself a former Assistant Superintendent of Schools.

We also note that the game introduces a fun, physical activity to youth in a state with one of the highest rates of childhood obesity in the nation. Integrating the game as an alternative to conventional sports activities in public schools might serve to increase the total number of youth in the state who are exposed to regular physical activity.

- ***A community approach to the Submit Your Kit mechanism***

One of the most important features of the game is its focus on social rather than individual engagement around hurricane preparedness. One way to enhance this dimension is to add a step to the Submit Your Kit mechanism. In this version of the game, players would have a list of hurricane prep items and select one item to bring to their Club for a team photo. The photo with all the collected items would be showcased at the Club and posted on the Club's website as well as the game's website. This interim activity might be easier to negotiate for families and could serve as a first step in home-based prep kit assembly.

According to Rupert Lacy, such an addition would add to the “concreteness” of the experience for families who may be less comfortable integrating off-line and online components of the game.

- **Promoting hurricane prep awareness at the final tournament**

The Big Event has the potential to promote community awareness of the game and its purpose. Partnership with another event might create a greater incentive for families to attend. One example is health fairs that offer a day of recreation featuring food, free give-a-ways, health screenings, games, prizes, information booths and a variety of entertainment, such as magician & pony rides.

- **A discussion guide for instructors**

Contextualization of the game helped players bridge their in-game and out-of-game experiences. We recommend that a discussion guide be created to help instructors facilitate these conversations.

7.5 Battlestorm as one of many linked interventions to promote hurricane preparedness

Our evaluation research suggests that the game is a unique and powerful intervention that can spark preparedness-related behaviors but must be integrated with other efforts to produce the outcomes for families and communities that all community partners seek. The workshop that Save the Children and the American Red Cross designed and delivered for BGCGC youth is an example.

7.6 Knight Foundation Oversight

Unlike Macon Money, Battlestorm did not have a senior foundation staff member on site to facilitate relationships and address obstacles with local partners as these arose. Kati London observed that, had Battlestorm had a “Beverly Blake” to advocate for the game, some of the challenges associated with planning and implementing a smooth and successful finish might have been avoided. Future funders of “real world” social impact games should consider this in supporting these experimental interventions.

APPENDIX 1: Theory of Change Battlestorm Game

