



Zora Camp4All: A Virtual Community to Augment Pediatric Camping

Kathryn A. Cantrell, M.A., C.C.L.S. and Marina U. Bers, Ph.D.
Developmental Technologies Research Group at Tufts University

Abstract

This pilot study explores the implementation of a 3-D virtual community as a tool for pediatric camping facilities. The tool, Zora Camp4All, was introduced to 40 adolescent campers with cancer, blood disorders, and their siblings while attending Camp For All in Burton, Texas. Accessed weekly by the participants, the virtual world included a psychosocial e-curriculum aimed at sustaining hopefulness and social connectedness within the sample. Results indicate that the virtual world might contribute to sustaining connectedness and increasing positive technological development within the campers.

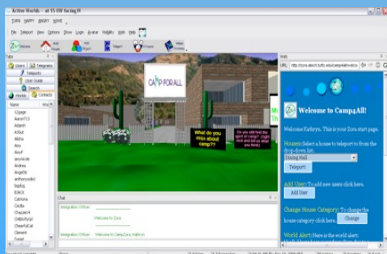
Introduction

Pediatric camping has a positive impact on adolescents with serious illnesses; in fact, camp increases hopeful attitudes by decreasing levels of anxiety related to illness (Briery & Rabian, 1999; Turuk et al., 2006). Yet, the hopefulness derived from the experience may dissipate when the camper returns to the chronic stress of their illness (Hinds, 1988). Since May 2009, in collaboration with Camp For All (CFA), a camp for children with serious illnesses, a 3D virtual environment resembling CFA was created for campers to maintain friendships from camp and explore concepts such as hope and connectedness.

The Intervention

Zora Camp4All is a 3-D multi-user, virtual environment that is password protected. The virtual world was designed to resemble the physical camp and includes a chat box to talk to friends and tools for constructing personal cabins. After the campers returned home from CFA they met online once a week to discuss issues of hopefulness and social connectedness. The e-curriculum, informed by Herth's (2001) Hope Intervention Program was designed by child life specialists and lasted 6 weeks.

Figure 1: Zora Camp4All with virtual camp and chat box



Questions

This pilot study's goals were to discover if Zora Camp4All could: (1) sustain the campers' hopefulness after their week of camp, (2) sustain the campers' feeling of connectedness after their week of camp, and (3) promote the campers' positive technological development (PTD).

Methods

The technology, Zora Camp4All, was introduced to 40 adolescents with cancer (N=16), blood disorders (N=6) and their siblings (N=18) during their week at Camp For All in June 2009. After the week's completion, they accessed this virtual camp through home or hospital computers. Quantitative data was collected before camp, after camp and after the 6-week Zora Camp4All program. Hind's Hopefulness Scale for Adolescents (HSA) was used to measure campers' hopefulness, Lee's Social Connectedness Scale- Revised (SCS-R) was used to measure campers' sense of connectedness, and Bers' Positive Technological Development Questionnaire (PTD-Q) was used to measure campers' attitudes toward technology. Qualitative data including semi-structured interviews was also collected to assess the feasibility of incorporating technology into recreation.

Table 1: Diagnosis distribution at Camp For All (N=40)

Category	Diagnosis	N (%)
Oncology (N=16)	Stomach cancer	1 (2.5%)
	ALL	7 (17.5%)
	Testicular cancer	1 (2.5%)
	Langerhans cell histiocytosis	1 (2.5%)
	Osteosarcoma	1 (2.5%)
	Brain tumor	2 (5%)
	Liver tumor	1 (2.5%)
Hematology (N=6)	Hodgkin's lymphoma	1 (2.5%)
	Burkitt's lymphoma	1 (2.5%)
	Hemophilia	2 (5%)
Sibling (N=18)	Sickle cell disease	4 (10%)
	No diagnosis	16 (40%)
	Asthma	2 (5%)

Participation

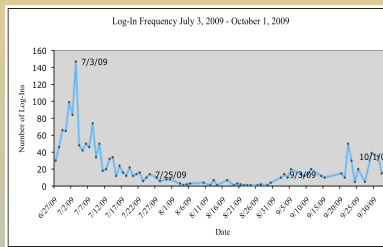
Overall, the virtual community of Zora Camp4All created over 2240 objects and 1788 lines of chat. Of the 40 participants, all 40 logged on at least once.

Figure 2: Aerial view of Zora Camp4All after participation



The average number of log-ins per participant was 6. As noted in Figure 3, log-in frequency was at its peak right after camp's completion and decreased as the 6 weeks passed.

Figure 3: Log-in distribution across 6-week curriculum



Ten of the 40 participants completed all 6 weeks of the e-curriculum. This group of 10 was named the "curriculum cohort" and acted as a natural comparison group during data analysis.

Results

The results from this study suggest that Zora Camp4All may contribute to sustaining social connectedness and PTD. The mean PTD increase (M=2.13, SD=4.55, N=40) demonstrates significance (t=-2.95, p<.005) and the mean social connectedness increase (M=1.08, SD=2.27, N=40) is also significant (t=-2.99, p<.005).

Table 2: PTD changes after Zora Camp4All use

Sample	Mean Δ	+/-SD	t-test	P value	95% CI
All Campers (N=40)	2.13	4.55	-2.95	.005	.67-2.13
Non-Curriculum Cohort (N=30)	2.43	5.13	-2.59	.01	-.52-4.35
Curriculum Cohort (N=10)	1.2	1.93	-1.96	.08	-1.18-2.58

Table 3: Social Connectedness changes after Zora Camp4All use

Sample	Mean Δ	+/-SD	t-test	P value	95% CI
All Campers (N=40)	1.08	2.27	-2.99	<.005	-.35-1.80
Non-Curriculum Cohort (N=30)	1.23	2.54	-2.66	.01	-.28-2.18
Curriculum Cohort (N=10)	.6	1.07	-1.77	.11	-.17-1.37

Increase in hopefulness did not demonstrate statistical significance. Additionally, aspects of the program that contributed to sustainability remain to be determined.

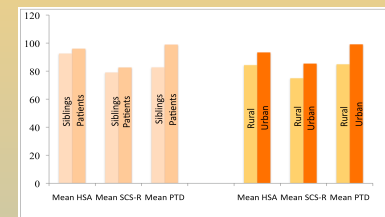
Table 4: Hopefulness changes after Zora Camp4All use

Sample	Mean Δ	+/-SD	t-test	P value	95% CI
All Campers (N=40)	.7	5.31	-.60	.55	-1.67-3.07
Non-Curriculum Cohort (N=30)	.53	7.03	-.47	2.05	-1.72-2.77
Curriculum Cohort (N=10)	.7	4.98	-.45	.67	-2.85-4.25

Clinical Considerations

Siblings and campers from urban communities scored significantly lower in each of the three areas. These findings have implications for the development of hope-based interventions; future curricula need to be catered to the factors that influence the populations' chronic stressors.

Figure 4: Baseline scores across demographics



Conclusion

Contrary to previous research, campers did not experience a strong drop in hopefulness or social connectedness after returning home (Hinds, 1988). It is unclear if Zora Camp4All contributed to this sustainability. More research, with a larger N, should be completed to determine correlations. If it is determined to contribute to a sustained camp community, technology could be a resource for maintaining positive attitudes gained through pediatric camp.

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