Using a 3D Virtual Environment to Foster College-Community Connections

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Abstract
This paper describes a technology-based civic education program. This program utilizes advanced virtual technologies as a way to leverage college students’ interest with computers and the Internet to expose them to activities that could lead to the development of their civic identity and civic skills. Using our 3D virtual environment platform, Zora, we developed the Active Citizenship through Technology pre-orientation program for incoming freshman to experience, in a virtual setting, various aspects of civic activities: research about social issues, discussion and presentation, and critical thinking about their role in community work. Based on the positive youth development framework and constructionism learning principles, A.C.T. gave students a venue to experiment and develop their civic identity. We describe in this paper the curriculum design, the technology, and descriptive statistics and data about the experience of students from two consecutive years of the program.
**Introduction**

Today’s youth are often criticized for their lack of civic participation and for what appears to be a general sense of disengagement with civic and political activities. Recent research (e.g., Faison & Flanagan, 2001; Michelsen, Zaff, & Hair, 2002) has painted a less than optimistic picture of youth’s sense of civic duty in today’s society. New entertainment media such as video games, computers, and the Internet, among many others, have been pointed at as potential sources of youth’s disengagement with civic life (Kraut et al., 1998; Nie, 2001; Putnam, 2000). Such concerns have raised a red flag in both policy and education research. For example, researchers have discussed the importance and urgency for schools to take an active role in fostering civic engagement in adolescent students through rigorous content delivery and encouragement of discussions about civic issues (Torney-Purta, 2002). Indeed, if voting turnout is an indicator, youth’s civic attitudes have declined steadily for the past three decades (Levine & Lopez, 2002). Even the recent surge in youth voting turnout does not measure up to that of thirty years ago (Lopez, Kirby, & Sagoff, 2005).

A potential reason for this decline in voting and other similar types of civic activities (e.g., jury duty) may be a decline in young people’s trust and confidence in institutionalized activities, especially those they regard as remote, opaque, and virtually impossible to control (Hart & Teeter, 1997). Instead, today’s young people are more likely to engage in localized, smaller scale activities, such as volunteering and community work, that are more personal and with consequences they can see for themselves (Galston, 2001). Current research is beginning to consider these types of activities, though different in nature from traditional activities, as valid ways through which today’s young people contribute to society (Andolina et al., 2002; Balsano, 2005; Obradovic & Masten, 2007).
While computers and the Internet have been a primary target for blame for fostering social isolation and civic disengagement, researchers such as Bers (2006, 2007), Earl and Schussman (2007), Montgomery (2007), Reingold (2007), and Walker and Moraitis (2007) are now arguing that researchers and policy makers should look at ways in which we can leverage youth’s interest in technologies to foster various types of civic engagement. These researchers contend that the Internet can be a venue for helping young people develop a sense of volunteerism and activism, new forms of online civic activities such as online petitioning and civic dialogues, as well as a medium through which to promote traditional types of civic activities such as voting. The question, thus, for educators and policy makers remains to be, in what way can we adapt and create novel yet effective curriculum and activities to foster a sense of civic engagement in young people in order to promote civic participation in and out of school?

To begin to address this question, we developed the Active Citizenship through Technology (A.C.T.) program at our university as a pilot program to encourage incoming freshman on campus to experiment and participate in civic activities through the use of new technologies. By participating in planned and guided activities in our 3D virtual environment, Zora (Bers, 2001), students in the A.C.T. program are encouraged to engage in civic discussion, conduct research about civic issues, and develop their skills in voicing their opinions and concerns. This program is part of an ongoing research effort in evaluating the extent to which we can develop technology-based curriculum to foster and promote civic activities in young people. We draw on the literature from multiple disciplines (including education, applied developmental science, instructional technologies, and the field of the learning sciences) and heavily rely on the constant collaboration among researchers from various fields of study (including child development specialists, educators, and computer scientists). We present in this paper the
guiding principles of this program, the A.C.T. curriculum and activities, and preliminary pilot data of this study.

The Zora Virtual World: Guiding Principles and Design

Zora is a 3D virtual environment built on the ActiveWorlds platform to afford a virtual ground for young people to build a community for testing, experimenting, developing, and reinforcing decision-making skills and personal values. Initially designed by Bers as a type of virtual Identity Construction Environment (ICE), Zora was developed based on Papert’s (1980) constructionism to encourage youth users to express personally meaningful stories and experiences by building virtual objects and virtual profiles, in hope to foster positive youth development (Bers, 2006).

Positive Youth Development, as a theoretical framework conceived by Lerner (Lerner et al., 2005), refers to the various cognitive, personal, social, emotional, and civic aspects of adolescence that promote health psychosocial development. This theoretical framework focuses on developing and enhancing young people’s psychological assets rather than finding ways to diminish risk factors. Researchers such as Lerner et al. (2005) describe these assets as the six “Cs” of Positive Youth Development: Competence (cognitive abilities and behavioral skills for being health), Connection (positive bonds with people and institutions), Character (integrity and moral centeredness), Confidence (positive self-regard and a sense of self-efficacy), Caring (human values, empathy, and a sense of social justice), and Contribution (an orientation to contribute to civil society). They assert that while all of these assets, or “Cs,” are interrelated, healthy development in the first five “Cs” propels young people to engage in activities that are contributive to society and their self development.
Zora is designed with these principles in mind. As a constructionist activity environment to promote positive youth development, Zora provides a community of young users an initial blank world, in which users can populate with interactive objects (e.g., objects that can hold “conversations”), write personal and object profiles that express values, likes and dislikes, and personal experiences and stories. While “playing” with the various features of Zora building tools, young users learn basic computer programming principles as well as gain a sense of technological efficacy. In addition, theme houses and rooms give grounds to develop social connections with others who share similar interests (see Figure 1). Message boards and friends list are some common features of Zora that foster relationship building and showing of care and connection. Furthermore, a community values dictionary prompts users to share with the community values and definitions that are personally meaningful as well as important to the community. The dictionary also reinforces discussions among community members about contrasting points of view for similar value entries or definitions (Bers & Chau, 2006).

Figure 1. Screenshot from the Zora virtual environment
As a goal, Zora offers youth users a space to interact and develop their sense of civic and social identity, moral, and attitudes, and thus leading to evocative peer interaction that foster meaningful and socially (group) contributive actions. Aside from this overarching goal, the online virtual environment is intended to be used with an educational curriculum specifically designed to utilize the virtual environment to promote particular learning objectives. For example, previous research with young adolescents incorporated Zora into a workshop about city and community building by prompting students to design Zora virtual components around the theme of city/urban development, such as a City Hall or electing a mayor (Bers & Chau, 2006). Similarly, a previous study with college students used Zora to help students familiarize with campus areas and activities, service opportunities, and university administration and rules by prompting students to build a simulation of a campus in Zora and conduct real-life research about the campus and about university histories (Chau, Mathur, & Bers, 2006).

**The Active Citizenship through Technology Pre-Orientation**

The Active Citizenship through Technology (A.C.T.) pre-orientation is a multi-year program designed as a pre-orientation program for new students on campus. Each year, participating new students (typically freshman) arrive on campus earlier than the typical move-in day to attend this three-day program to learn about the campus and about the Zora application. The goals of the program are twofold. First, the curriculum and activities are designed to afford opportunities for students to learn about the campus, surrounding community, and the relationship among campus leaders, students, and community members. Participants visit various administrative and academic departments and key staff on campus, and using the Zora virtual environment and information gathered from their visits around campus participants create a
virtual *Campus of the Future* that demonstrates what they find most important to create their campus and the surrounding neighborhoods. Furthermore, using object profiles, case and bulletin board discussion, and graphic tools, participants express their ideal perception of campus-community issues. Beyond individual learning and research, students are also required to share with others their ideas in the form of virtual exhibits and engage in conversations with others about each other’s exhibits. The A.C.T. activities on Zora encourage students to choose and work on the issues that are most personally meaningful to them and then share with others. Furthermore, students are encouraged to engage in discussions about the issues their peers present in virtual exhibits. Through this process, students gain ownership for their own work.

Second, to foster a sense of active campus involvement, each year participants host an open house in the middle of the semester following the pre-orientation program and invite campus faculty, staff, and students to learn about the *Campus of the Future* that they create and to learn about their ideas for building a stronger community within the campus and building relationships between campus and surrounding neighborhoods. This open house demonstrates participants’ work in Zora as well as the ideas that are generated by engaging in activities and discussions in the virtual environment.

To date, two cohorts of students have participated in this three-day A.C.T. pre-orientation program. The first consisting of eighteen students (3 females; on average 18 years of age) and the second of twenty-one students (4 females; on average 18 years of age), with several participants in the first cohort who volunteered to return to the second year cohort as peer leaders. For brevity, we will summarize data and experiences from both cohorts in this paper.
Data Collection and Results

Data about participant activities and feedback are collected via multiple means. First, the Zora environment readily provides a log of all online activities that happens throughout the program. Log files from the program are read and coded by coordinators or teachers of the workshop and by an outside coder, who takes no part in the actual teaching and activities of the Zora workshop, for cross-validation. The Zora log-parser provides easy access to some descriptive statistics of user chat conversations. For both cohorts, participants tend to chat more during the first day of the program with a decline into day 2 and yet further decline into day 3 (see Figure 2). This is due to the fact that participants tend to converse about non-curriculum issues during the first day and then turn to focus on curriculum activities and dialogues during the second two days. Figure 3 presents an example dialogue from the third day of cohort 1: the dialogue reflects participants’ particular interested in the admission policy of their Campus of the Future (see Figure 3).

![Chat Frequency during A.C.T.](image)

*Figure 2. Participant Chat Frequency during A.C.T.*
A: Anyone have strong feelings about the admission process?
B: I think that peer review will be a better way at processing people. Maybe on a sub-personal level
C: To what degree?
D: What do you mean by peer review?
A: Would peer review take the place of an essay?
B: Like interviews
E: More like having admitted students read applications and give their feedback; the common applications with a supplemental essay

Figure 3. Sample conversation from the Zora log, Cohort 1.

Besides looking at chat dialogues, objects, object profiles, house profiles, personal biographies, and values dictionary entries are coded by coordinators and the external coder as sources of information about participant activities. Categories are generated based on these objects and profiles. For example, in a previous program, cohort 1 participants built civic-minded virtual houses such as the Hall of Free Speech as part of their Campus of the Future and populated the room with objects representing ideas about free speech (see Figure 4).

Figure 4. Sample screenshot of a Zora virtual room built by users.
Objects within each hall have profile stories or a values entry attached to each object profile to express participants’ ideas. For example, in one of the free speech objects in the Hall of Free Speech, a participant wrote, “I nominate free speech forums because through free speech people are able to work out their differences and then come to an agreement or happy medium.”

Other theme houses, objects, and discussion include child care issues for working people, educational opportunities for members of the surrounding communities, comprehensive and state-wide exams for grade school students, and the positive impact of athletics and arts programs on local communities and youth. The Zora log parser provides summative, descriptive information about object creations. Figure 5 summarizes the various types of objects that participants in cohort 2 used to create their virtual exhibit.

![Figure 5. Summative data about objects created by cohort 2.](image)

The A.C.T. program also includes exit focus group interviews and surveys to collect overall feedback about the program as well as suggestions for improvement of individual
sessions and activities. In the most recent iteration of our program (cohort 2), for example, participants found the program to be useful in helping them learn about the campus environment (mean rating = 3.44 on a 5-point Likert-like scale, $SD = 0.51$) and about civic life in general as college students (mean rating = 3.11, $SD = 0.58$). While participants may not find immediate changes in their attitudes and civic behaviors, many students have responded that they have learned a great deal, not in regard to civic knowledge, but about how to conduct civic dialogue and research about civic issues. As one of the participants in cohort 1 said, “I did not really learn much about civic engagement…well…actually if I wanted to become a senator, then A.C.T. would have been very useful.”

Finally, participants also return once a year after they participate in the A.C.T. program for follow-up survey data collection. To assess the carry-over effect of the program on participants’ active involvement on campus and in the surrounding community, a questionnaire has been devised to survey the types of activities that participants engage in the community, and the extent to which these participations reflect their experience in the A.C.T. program. Data from a randomized control group (i.e., a randomized group of other students on campus of the same cohort) are collected each year as comparisons. Since cohort 1 is now only in their second year of college, no longitudinal carry-over data can be discussed in this paper, but they will be analyzed as they become available.

Conclusions

The Active Citizenship through Technology program demonstrates one implementation of the Zora 3D virtual community environment in the context of new college students as a tool for civic education and promotion. Designed conscientiously as an educational ICE virtual
environment, the Zora program and the A.C.T. curriculum promote civic learning and foster student-campus-community relations in college students. Virtual environments such as Zora have the potential to impact youth’s civic and academic lives. Given the right tool and the right curriculum, teachers and practitioners can turn the computer, once thought of as a solitarily tool, into a computer-supported learning environment that promote positive learning and development in youth.

References


