DevTech Research Group

Year-End Report

Active Citizenship through Technologies ‘05

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July 2005 marked the launching of the Active Citizenship through Technologies Pre-orientation program and research project at Tufts University. This orientation program was unique in that it was originally conceived as a collaborative effort between the Eliot-Pearson Department of Child Development and Tufts University's University College of Citizenship and Public Services, with technical and creative assistance by the staff at Tufts' Academic Technologies Department. The Principal Investigator, Prof. Marina Bers from the Department of Child Development, headed this project with both an emphasis on research as well as an interest in providing services to the undergraduate student body (particularly for new first-year students).

This report details the planning of the '05 pre-orientation program, its research components, the activities provided to students during and after the program, logistics of ACT '05, as well as preliminary data and insights and future projects.

In sum, ACT '05 was a success in terms of both research results as well as a pre-orientation program option for new, first-year undergraduate students. At the time of writing this report, planning for ACT '06 has already gone underway, providing another evidence for the success of ACT '05.

Program Description

As a four-wave longitudinal study, the Active Citizenship through Technologies Pre-orientation Program (henceforth, A.C.T.) began as a research project to investigate the extent to which Bers' Positive Technological Development (PTD) theoretical framework can be used to design a technology-rich learning environment to develop citizenship and civic engagement in college students on the Tufts campus as well as beyond the campus boundaries.

This study consists of two overarching components: a pre-orientation program and a longitudinal research project. These components are intertwined throughout the study.

The pre-orientation program provides exciting technology-based activities using Bers’ Zora 3D virtual environment software, with a curriculum that is intentionally built to encourage participants to collaboratively create their version of a campus of the future. As a result of this experience, the PTD framework suggests that participants would not only learn new computer skills and content knowledge about civic engagement and citizenship (campus

\[1\] For more information about Bers' Positive Technological Development theoretical framework, please see Bers (2005, 2006), Chau and Bers (2005, 2006a, 2006b), and Chau, Mathur, and Bers (2006)
and beyond), but they would also be motivated and encouraged to take action and contribute to campus life, self development, and general social engagement. Details about the actual activities of the workshop are described in a later section.

The PTD framework is incorporated into A.C.T in two ways. First, the A.C.T. ’05 curriculum was built around the PTD framework. Technologies and curricula were designed to afford all of the constructs conceived as important and relevant PTD constructs for this particular population and this particular program. Some of the major constructs emphasized in the A.C.T. ’05 curriculum included connection, character, competence, and contribution, although other constructs (i.e., caring and confidence) were taken into consideration. Details about these curriculum ideas and activities are described in a later section.

The second way through which the PTD framework is incorporated into A.C.T. is the use of the PTD questionnaire as a research and evaluation measurement. A.C.T. ’05 participants completed multiple waves of the PTD questionnaire (pre, post-, and follow-up) as well as a battery of other measurements throughout the workshop and throughout the semester following A.C.T. ’05. Data obtained via these surveys and questionnaires were used as research data for theses (BA and MA) as well as for refining the ACT curriculum, further developing the PTD framework, and informing other research programs (i.e., ACT ’06, ACT-Adolescents, and VCLC@CHB). Research methodology, data analysis, and preliminary results are described in a later section.
The Pre-Orientation Program

Logistics of A.C.T. ‘05

Personnel

The Pre-Orientation portion of A.C.T. ‘05 took place on August 28th through August 31st, 2005. However, planning and preparation began as early as the end of Spring 2005. A.C.T. ’05 was headed by principal investigator Professor Marina Bers, graduate student Clement Chau acting as project/research coordinator, and Ashima Mathur acting as program coordinator.

Aside from these three main personnel, the program also hired four peer leaders to assist throughout the program, and these peer leaders, all undergraduates representing different class levels, included Rachel Cognata, Taylor Cronin, Caroline Davit, and Stephanie Marvel.

Preparation

Ashima Mathur, acting as program coordinator, was responsible for the majority of the preparation work, with assistance from the principal investigator as well as from the project coordinator. Details about the preparation of the program could be found in Mathur’s senior thesis (2006). The list below only briefly describes several of the major tasks.

Sample Preparation Tasks for A.C.T. ‘05

- Designing Curriculum and Planning Activities
- Creating Logos, Websites, and T-Shirts
- Hiring and Training Peer Leaders
- Reserving Rooms and Events
- Budgeting
- Ordering Food and Supplies
Participants

A brochure (see Appendix A) was sent to all incoming first-year students as part of the general Tufts University welcoming package in June. Other than advertising materials (e.g., sample schedule, description of program), the brochure detailed several important items including costs ($200 per student), application process, and the A.C.T. '05 website (http://ase.tufts.edu/devtech/act/).

Interested participants were asked to complete an online pre-application form (see Appendix). The intention of this pre-application form was for the program staff to assess the number of participants who might eventually enroll so that the staff could prepare accordingly. Thirty-six (36) students completed the online pre-application between June 2nd and July 5th, 2005.

Of the 36 students who completed a pre-application, 18 completed a second round of application process (see Appendix A), which required a second application form and a $200 program fee. Need-based scholarships were available and 2 participants received the program fee waiver.

These 18 participants were roughly matched and divided into two groups [Zora :: Web Design] based on gender and previous computer experience. Each group consisted of 9 participants.

Descriptive statistics of these participants are included in the Appendix.
Events of A.C.T. ’05

Registration

Registration and move-ins began on August 7th, 2005, a day before the three-day long A.C.T. ’05 pre-orientation program. Except for a few participants who had special arrangements, most of the participants arrived between 12pm and 4pm. Participants who arrived later than 4pm were instructed to obtain their keys through the police department with the assistance of one of the peer leaders.

At registration, participants received their program T-shirt, a packet of questionnaires with instructions to complete them at the night-time activity period, and other materials to help them move-in (including maps and directions to nearby stores).

Curriculum and Activities

Participants were divided into two groups. Program staff took extra care to ensure that these participants were separated throughout the whole program. For example, participant grouping was arranged so that no participants who share the same dorm were from two different groups to eliminate research subject contamination. Other precautions such as places for dining-out and locations for nighttime activities were taken to ensure that participants did not have any opportunities to communicate about the program.

Although the two groups were separated and used different computer technologies for research purposes [Zora :: Web Design], the two groups completed a similar curriculum and a similar set of activities. Variations between the two groups were mainly location, time, and technology.

For detailed descriptions of the curriculum, its design and objectives, and the activities throughout the three-day program, please refer to Mathur (2006). Described below is a briefly summary of the types of activities and learning encounters designed for A.C.T. ’05 participants.

<table>
<thead>
<tr>
<th>Table 2. (Activities in Italics are Technology-related Activities)</th>
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<tbody>
<tr>
<td>Aug. 27</td>
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<tr>
<td>➢ Registration</td>
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<td>➢ Opening Activities</td>
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<td>Aug. 28</td>
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<td>➢ Group Pictures</td>
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<td>➢ Scavenger Hunt</td>
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<tr>
<td>➢ Navigating: Technology Introduction</td>
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<td>➢ Early Planning of Campus of the Future</td>
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Final Products

Both groups of participants completed their Campus of the Future designs and created a video documentation about their designs. The Zora group’s video was a descriptive documentation of their campus whereas the Web Design group created a college advertisement video about their campus. Both of these videos are available at the A.C.T. ’05 archive on the “ACT 2005” CD in the file cabinet at the lab and on the CD included with this document.

Chat and activities logs from both groups are included in Appendix B and the web site created by the web group is located at http://ase.tufts.edu/devtech/act/futurecampus/ with supplementary materials at http://ase.tufts.edu/devtech/futurecampus/announcement.htm.
The Research Project

Methodology: A Four-Year Longitudinal Study

Overall Research Design

A.C.T. ’05 was initially conceived as a four-year longitudinal study to investigate Tufts students’ technological development (as defined by PTD) and its relationship to civic engagement and campus participation. The intent of the research design was to follow a cohort of first-year students, both students who have participated in the A.C.T. Pre-orientation program and students who have not, throughout their four years at Tufts University beginning in ’05. Other than initial data collection during Tufts’ orientation period, participants would be recruited to return for follow-up data collection, at intervals of about once per semester. In addition to typical longitudinal data collections, A.C.T. Pre-orientation participants completed an additional data collection immediately after the orientation program ended as a post/exit evaluation. Including baseline (initial) data collection and later follow-up waves, a potential total of nine to ten waves of data were collected on each participant.

Participants

The research design included four separate samples of first-year students, two experimental groups – a Zora group (participants who created their campus of the future in Zora) and a Web Design control group (participants who created their campus of the future as a web site), and two control group – a Other Pre-O control group (participants who participated in other orientation programs such as F.I.T. and WILD) and a No Pre-O control group (participants who did not participate in any orientation program).

Control group participants were recruited via residential advisors at first-year student dorms and via peer leaders at other pre-orientation programs. Residential advisors and peer leaders were given a packet of information and questionnaires to distribute to their participants. Completed questionnaires were then returned to the PI's mailbox. A total of 68 non-A.C.T. ’05 students completed the questionnaire. However, one participant only completed half of the questionnaire and his data were removed from the data set. The total sample size (N) of the research study in 2005 was 85.

The combination of these four groups provided data to longitudinally examine individual technological development growth trajectories, to use cross-sectional methods and analyses to compare and contrast technology-related variables among students with different experiences (A.C.T. vs. no-A.C.T.), as well as to investigate the impact of different technologies (Zora vs. web design). A general schematic describing these various research components is included in Figure 1.

As described in Figure 1 below, the longitudinal research design plans to compare individuals from different groups in a cross-sectional manner at various time points throughout the four years (between subjects), as well as to examine individual growth in positive technological development in a longitudinal manner throughout the four years (within subject). For data collection timeline, please see Chapter 3.
Several instruments have been adapted, devised, and/or borrowed to provide both qualitative and quantitative data for analysis, for both cross-sectional and longitudinal comparisons. Because of the nature of experimental groupings, not all participants responded to all of the instruments or data collection methods. Included below is a list of all instruments for A.C.T. ’05. A copy of these instruments is included in the Appendix C.

**Quantitative Data Collection (Appendix C)**

- *Positive Technological Development* questionnaire (Bers, 2005)
- *Self-Perception Profile for College Students* (Neeman & Harter, 1986)*
- *Positive Youth Development* supplemental questionnaire (Lerner et al., 2005)*
- *Myself and Technology* survey (Bers)
- *Math, Science, & Technology* questionnaire (Bers)
- *Civic Activities On- and Off-line* survey (Chau & Bers, adapted from UCCPS)
- *Demographics*

*Noted instruments were used during ACT ’05 but not in subsequent waves (see later chapter)*
Qualitative Data Collection (Appendix B)

- Zora and Web Chat Logs
- Zora Campus of the Future (content analysis)
- Website of Campus of the Future (content analysis)
- Campus of the Future Videos
- Student Program Exit Survey
- Interview Feedback from Peer Leaders

Preliminary Results

Preliminary quantitative results have been described in two sources, Clement Chau’s Master’s thesis (2006) and in DevTech Research Group’s (2006) Research Report Series, 1(1) and 2(1). Research Report Series 1(1) and 2(1) can be found in the Appendix. Several key preliminary findings are included below.

Online Civic Engagement: Key Summaries (Appendix C)

(From Research Report Series, 1(1))

Activities that participants like to do online:

- Giving honest opinions
- Reading opinion columns/editorials
- Read and write online profiles for social purposes (e.g., Facebook, Myspace)
- Rarely read and write online blogs for civic/political/pro-social reasons

Positive Technological Development: Treatment Comparison

(From Research Report Series, 2(1))

Comparison of baseline and year-1 PTD responses indicated that, after one year:

- Non-ACT participants (Other Pre-O) had a significant decrease in their technological confidence
- Zora participants had a significant decrease in technological character
- Although not significant, there is a trend that Zora participants increased technological caring