STARTING AN ONLINE MS DEGREE PROGRAM IN INSTRUCTIONAL TECHNOLOGY
Lessons Learned

Michael Waugh, Matthew DeMaria, and Douglas Trovinger
University of Tennessee

This article shares the authors' experiences in developing and implementing an online master of science degree program in instructional technology, the WebIT program, at The University of Tennessee (UT), during 2008-2010. The article focuses on the organization, implementation, and funding of the degree program rather than details of the curriculum design. The overall attrition rate in the first WebIT cohort ($N = 25$) was 56%; 12 students withdrew from the program and 2 students were removed from the program due to academic difficulties. Data and interpretations regarding possible links between program attributes and attrition are discussed.

INTRODUCTION

The purpose of this article is to share the authors' experiences in developing and implementing an online master of science (MS) degree program in instructional technology, the WebIT program, at The University of Tennessee (UT), during 2008-2010. The article will focus on the issues of program organization and implementation rather than the details of the curriculum design. This article was written following the completion of the first cohort cycle of the program, a 2-year period in which a group of students who were recruited during the spring semester of 2008 completed their master's degree work in instructional technology at the end of spring semester in 2010. The first students to matriculate in the WebIT program constituted the WebIT1 cohort.

The College of Education, Health and Human Sciences (CEHHS), the Department of Educational Psychology and Counseling (EPC), and the UT Department of Distance Education and Independent Study (DEIS) provided startup funding for the WebIT program. These funds were required because the EPC department sought to develop a new academic program that would be delivered along with

• **Michael Waugh,** Department of Educational Psychology, 419 Claxton Complex, The University of Tennessee at Knoxville, Knoxville, TN 37996-3452. Telephone: (865) 974-6157. E-mail: waugh@utk.edu

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the existing IT curricula at UT and there were insufficient faculty and instructional resources to address the needs of both the existing resident programs and the new WebIT online program. Startup funding for the WebIT program consisted of approximately $12,000 and the allocation of existing personnel resources, as follows: (a) three graduate teaching associate (GTA) positions, (b) a half-time assignment for one faculty member to coordinate the WebIT development and implementation efforts, (c) a summer workshop ($2,000), (d) personnel support ($5,000), and (e) a server to run the Moodle course management system ($5,000) (Moodle Trust, 1999).

The online curriculum for WebIT was planned as a variation of the existing MS in instructional technology curriculum at The University of Tennessee. The primary difference between the two versions of the curriculum was that the online curriculum would be delivered via a combination of computer-mediated communication (CMC) tools with limited face-to-face contact between students and instructors, whereas the on-campus curriculum is predominantly face-to-face with students and faculty engaging in limited online interaction to augment weekly classroom-based meetings. Existing instructional technology courses were redesigned for delivery using a suite of CMC tools selected by the faculty. The courses taught during WebIT1 used a combination of Internet e-mail, listservs, Moodle (Moodle Trust, 1999), Wimba (Wimba Incorporated, 2009), and specialized websites to constitute the WebIT virtual classroom environment. The WebIT program was designed to be collaborative in nature. Each course was actively led by an instructor, and each WebIT1 student was expected to engage in a combination of individual and socially mediated instructional activities such as those described by Chandler, Levin, and Levin (2002); Kowch and Schwier (1997); Levin, Levin, and Chandler (2001); Levin and Waddoups (2000); Angelino, Williams, and Natvig (2007) and Palloff and Pratt (2007).

Three advanced graduate students in instructional technology were hired as GTAs and served as the primary instructors for the WebIT1 sections of the MS curriculum, but the courses were taught in collaboration with instructional technology faculty. The instructional technology faculty actively mentored the GTAs (who served as apprentice online instructors) and monitored the WebIT courses as part of their ongoing teaching responsibilities. During each semester two GTAs were assigned instructional responsibilities while the third was dedicated to providing technical support to students and instructors. Instructional technology faculty taught on-campus sections of the same MS courses at the same time as WebIT online courses were taught so faculty and GTAs could collaborate on teaching activities and responsibilities.

CHARACTERISTICS OF THE WEBIT1 PROGRAM

Program Design

A Cohort Model

A cohort program model is often described in the literature (Levin et al., 2001; Levin & Waddoups, 2000) as being beneficial because it promotes close-knit working relationships among students in online programs. This characteristic is thought to be important because these relationships constitute a kind of learning community that can provide a dynamic and supportive social structure for individual learners (Chyung, Winiecki, & Fenner, 1998; Obrien, 2002; Rovai & Wighting, 2005; Wegerif, 1998). Individuals who participate in distance education programs that do not promote such relationships can experience a sense of social isolation that Carr (2000) characterizes as being "lost in cyberspace." Rovai and Downey (2010) contend that "Students in distance learning programs may be more likely to experience isolation and alienation from the institution because of their physical separation

from the school and its services and from other students" (p. 145).

The WebIT faculty selected a cohort program model for the WebIT program as opposed to an open-enrollment program model because the cohort model is group-based and facilitates the development of intra-group, supportive, working relationships among the members of the cohort. Such a structure seems to offer better opportunities for supporting students' academic engagement and reducing the sense of personal isolation reported by some online students (Chandler et al., 2002; Chyung et al., 1998; Palloff & Pratt, 2007).

Two-Year Duration

During the spring of 2008, immediately prior to initiating WebIT, the IT faculty conducted a needs analysis (via online survey) to determine the level of interest among potential students for an online MS degree program in instructional technology offered by UT. The targeted population was K-12 teachers from across the state of Tennessee. A group of 122 self-selected respondents completed the survey. These respondents represented 25 of the 98 counties in Tennessee (25%) and half of them (50%) lived more than 100 miles from Knoxville, while nearly one third of them (30%) resided more than 200 miles from Knoxville.

Ninety respondents (74%) in this sample indicated that they would prefer to complete an online MS program in less than 2 years. Seventy-one respondents (58%) indicated that they would prefer having the option of taking longer than 2 years. When asked if they would be willing to take two courses per semester for 2 years, 52 respondents (42%) said that they would be willing to work at that pace to complete an online MS program in instructional technology.

Based on these needs assessment data and the typical program completion pattern of the resident MS students at UT, the WebIT program was designed as a 2-year program of study. Students began the WebIT program by taking one course in the initial Summer semester and then completed two semester-long courses in each of the five subsequent semesters of the program.

Curriculum Details

WebIT1 was conducted over a 2-year period, beginning in the Summer of 2008. The WebIT1 curriculum consisted of 11 semester-length courses (33 graduate credit hours). The curriculum consisted of courses in publishing web-based instructional materials, using Web 2.0 tools, applying instructional design theories and principles, developing multimedia instructional materials, engaging in collaborative learning activities, examining ethical issues and problems associated with technology and society and cyberlearning, and interpreting and applying educational research and assessment principles (Waugh, DeMaria, & Trovinger, 2010).

Distance Education Program Funding Model at UT

The funding model for distance education programs at UT is a unique process that is separate and distinct from the two other funding models (annual fiscal-year and summer school) that operate on the UT campus. The distance education funding model is more entrepreneurial than either of the other two funding models because it is based upon a mechanism that directly links the tuition revenue generated by student enrollments to the academic department that delivers the distance education instructional program.

Academic departments at UT that choose to offer distance education programs receive compensation for the effort that is based upon the number of students served, the number of hours delivered, and a dollar multiplier directly related to the amount of tuition paid for each credit hour by each stu-

dent. The academic department delivering the distance education program does not receive the entire amount of tuition paid by the student, but it does receive a significant proportion of the tuition paid by each student. This proportion (approximately 76% of the campus base tuition rate was returned to the WebIT program) was stable during the WebIT1 cohort but has since been decreased and is subject to further reduction. The funds generated by student tuition payments in an academic year are paid out to the academic department at the beginning of the next academic year (i.e., 1 year in arrears). Each fall semester, the campus pays a lump sum to the academic department that represents the total revenue that was generated by the distance education program(s) during the previous academic year.

WebIT1 Student Completion Data

The WebIT program admissions committee admitted 25 students to the WebIT1 cohort. Eleven students completed the WebIT program at the end of spring semester, 2010. Table 1 summarizes the student attrition data for the WebIT1 cohort. The data in Table 1 were summarized from student e-mail communications and survey responses. Three findings from these data are obvious: (a) four students (29% of those who dropped) were lost before the academic portion of the WebIT program began, (b) only one student was lost from the program during the second year, and (c) the reasons provided by students for dropping the program conform to two broad categories which are often mentioned in the literature as personal and institutional variables (Kember, 1989; Moore, Bartkovich, Fetzner & Ison, 2002; Rovai & Wighting, 2010; Tinto, 1993). The attrition data also generally conform to those shared by Chyung et al. (1998). The students described in her study dropped early in the academic program and for reasons similar to those shared by the students who dropped out of the WebIT program.

TABLE 1
WebIT1 Cohort Student Attrition Data

Student Number	*Term Dropped*	*Reason*
1	Preworkshop	None given
2	Preworkshop	None given
3	Pre-enrollment	Program emphasis mismatch
4	Pre-enrollment	Inability to secure financial aid
5	Summer 08 (1)	Busy personal schedule
6	Fall 08 (2)	Program emphasis mismatch
7	Fall 08 (2)	Personal health problems
8	Fall 08 (2)	Pace of work; personal issues
9	Spring 09 (3)	Time management problems; personal issues
10	Spring 09 (3)	Loss of financial aid support; family responsibilities
11	Spring 09 (3)	Family responsibilities
12	Spring 09 (3)	Pace of work; family responsibilities
13	Spring 09 (3)	Admission revoked for poor academic performance; pace of work; family responsibilities
14	Fall 09 (5)	Admission revoked for poor academic performance

Note: Numbers in parenthesis indicate the semester (1-6) during which students were lost from the WebIT program.

LESSONS LEARNED

Potential Benefits of the WebIT Program

The WebIT program offers great potential for both the instructional technology faculty and students at UT. In brief, for faculty, these benefits include the following: (a) reaching students beyond the physical campus environment, (b) constructing a research laboratory for exploring characteristics of online instruction, (c) providing apprenticeships in online teaching and learning for senior doctoral students, and (d) generating funds to support the instructional technology programs at UT.

The biggest benefit to the WebIT1 students, aside from being able to complete graduate work without physically attending classes, seems to have been associated with the cohort model. Based upon both faculty and student perceptions, the cohort structure of the WebIT1 curriculum was highly valued by WebIT1 students. What we know based on student feedback is that the successful WebIT1 students reported a strong preference for the cohort organization and this program structure seems to help address the unique needs of distance learners (Rovai & Downey, 2010; Rovai & Wighting, 2005).

Problems Encountered During the WebIT1 Cohort

Two significant problems were identified during the implementation of the first cycle of the WebIT program. The first problem is that of student attrition. The second is the nature of the funding model for the WebIT program.

Student Attrition

The WebIT1 cohort experienced an attrition rate of 56% (40% during the completion of academic coursework). This is similar to attrition rates reported by others working with online programs in recent years (Bowser, 1992; Chyung et al., 1998; Diaz, 2002; Kember, 1989; Moore et al., 2002; O'Brien, 2002; Rovai & Downey, 2005; Rovai & Wighting, 2010) but obviously not what was desired. One possible interpretation of the high rate of attrition is that the WebIT program is simply too rigorous. Though this is theoretically possible, because the WebIT1 curriculum was based upon the resident MS curriculum, this seems implausible. A second possible interpretation is that the prematriculation workload expectations of the WebIT students were inconsistent with the reality of what was required to be successful in the WebIT program. A third possible interpretation is that the structure of the WebIT program was not sufficiently supportive or conducive to the development of a community of learners, (i.e., the WebIT program did not succeed in promoting student engagement and developing a sense of community among all participants). Undoubtedly, there are other possible explanations for why WebIT1 student attrition was so high, but given the experiences of others in this regard, it is highly likely that the high rate of attrition experienced during the first cohort of the WebIT program is directly related to some combination of these three critical factors.

Additionally, several program-specific characteristics also likely influenced student persistence in completing the WebIT program. The program sequence for WebIT1 was a rigid, 2-year timeline that required students to participate in a specific sequence of courses offered at a fixed pace (two courses per semester) over a specific period of time (2 years). The data in Table 1 support the position that many of the students who did not persist were unable to allocate the time and effort required to keep up with the pace of work.

Our interpretation of the high attrition rate experienced during WebIT1 is that the WebIT program was challenging and required students to adopt a pace of work that was beyond what a significant fraction of them could manage, given their significant personal, family, and work-related responsibilities. Advertising media in the United States are rampant with messages aimed at potential online students who, for whatever reason, cannot disengage

from their work or personal situation and physically attend an institution of higher learning. These messages seek to convince potential students of the convenience of online degree programs. Many online programs are extolled as being "anytime and anywhere," but proponents fail to accurately portray the many challenges involved for students seeking to use new media, new tools and new social conventions (all of which require significant time to learn) in order to master a new content while at the same time remaining fully engaged in their everyday lives.

The Distance Education Funding Model at UT

The second significant problem that the WebIT program encountered during the first cohort cycle is related to some of the characteristics of the UT distance education funding model. While these specific funding model characteristics may be idiosyncratic to UT, other institutions with similar funding models might benefit from the description of the problems encountered by the WebIT project.

Three main problems emerged for the WebIT program in connection with the distance education funding model. The first problem is that the EPC Department was required to provide resources to fund the first year of the WebIT program because no tuition-return funds were provided until the beginning of the following academic year. The second problem is that since summer school is funded separately at UT, the WebIT1 summer school courses had no source of funding. The third problem is the requirement that all tuition-return funds paid to the academic department at the start of the academic year be expended during that academic year.

Of these problems, the third is the most problematic for running a small-scale distance education program like WebIT at UT. Failure to resolve the third problem, coupled with inconsistent student enrollment, would likely trigger a recurrence of all three problems in each successive cohort cycle. The requirement to spend all tuition-return funds in the same academic year in which they are provided to the department means that a program like WebIT, which is smaller in scale and more likely to be adversely affected by enrollment fluctuations, cannot adequately manage funds from year to year, to ensure program continuity.

The amount of tuition-return generated in the first year of WebIT1 and provided to the EPC Department to run WebIT1 in the second year was approximately double what was minimally required to run the WebIT1 program during the second academic year. However, the loss of students during the first year meant that the funding generated through the enrollments of the remaining students during the second year would be insufficient to fund the first year of the second WebIT cohort.

Without a funding model that would permit the WebIT program to bank funds in times when the tuition return exceeds expenditures and use those funds to address program requirements in times of need, the EPC Department would continually be placed in the position of having to find a source of funds beyond the WebIT tuition-return to initiate and sustain new WebIT cohorts. Likewise, the EPC Department would reap the fiscal reward of absorbing all of the excess tuition-return during those years in which such excess might occur. The latter outcome would not be problematic for the EPC Department, but the oscillation between feast and famine is problematic and counter-productive to the concept that entrepreneurial distance education programs such as WebIT should operate on a self-sustaining basis. Further, the UT distance education funding model does not allow for the most logical and timely application of funds generated by the WebIT program to be allocated to the solution of program problems, such as long-term planning.

As previously described, both high student attrition and selected characteristics of the UT distance education funding model, create problems regarding the ongoing fiscal solvency of the WebIT program. Using the UT distance

education funding model, high attrition during the first year of a 2-year cohort can create a funding problem for the first year of the subsequent cohort and would require that the academic department continually find ways to fund (at least partially) the first year of subsequent 2-year cohorts. Other than changing the UT distance education funding model to permit some mechanism for the carry-over of funds from one academic year to the next, four other possible solutions to this funding problem seem plausible, but all have drawbacks and require careful deliberation before adoption. In order to generate more funds during the first year of the program so that the fiscal solvency of the program is not jeopardized through high student attrition, the WebIT program might: (a) admit more students to the cohort, (b) start cohort groups every year instead of every 2 years, and (c) charge students more to matriculate in the WebIT program. The fourth solution strategy would be to invest heavily in providing additional student support in an attempt to minimize attrition. However, it is not clear what action(s), if any, on the part of the WebIT program might be capable of addressing the fundamental difficulties faced by distance education students who are either reluctant or unable to reduce their nonacademic commitments in order to allocate sufficient time to an academic program. Certainly, distance education programs should provide as much student support as possible, but it is not clear that such efforts on the part of the program can ameliorate significant time management issues on the part of the student.

At present, the WebIT initiative at UT is under review to determine whether or not it will be possible to deliver the program in a manner that is both educationally and fiscally sound. The WebIT1 students provided a wealth of information to inform these deliberations and the members of the instructional technology faculty are analyzing these data to determine the feasibility of continuing the WebIT initiative.

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