

Online Student Persistence or Attrition: Observations Related to Expectations, Preferences, and Outcomes

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Abstract

This paper compares the perceptions of two groups of students who participated in the first cohort of the WebIT online Master of Science Degree in Instructional Technology at the University of Tennessee at Knoxville over a two-year period. The program completers (n=11) are the students who completed and graduated from the WebIT program. The dropper-respondents (n=5) are those students who dropped out of the WebIT program prior to completion. Both groups volunteered to complete an electronically-administered survey about their WebIT experiences. Each survey contained 46 comparable items. The WebIT students' expectations and preferences for an online program are discussed. Group responses to several questions on a program exit survey illustrate several possible differences between the members of the two groups that may provide insight into a possible relationship between the question topics and the high rate of attrition observed during the first cohort of the WebIT program.

Twenty-five students were recruited for the first cohort (WebIT-1) of the WebIT online M.S. program in Instructional Technology (IT) at the University of Tennessee at Knoxville. During the two-year program, 12 students withdrew and two were removed from the program for academic difficulties. Of these 14 students who did not complete the program, 13 were lost during the first year. Of the original 25 students who began the program, 11 graduated at the end of the program. The overall attrition rate for the WebIT-1 cohort was 56% (Waugh & Searle, 2012).

Other researchers report online program attrition rates that vary widely, typically between 20% and 50% (Carr, 2000; Chyung, Winiecki & Fenner, 1998; Diaz, 2002; Kember, 1989; Moore, Bartkovich, Fetzner & Ison, 2002; O'Brien & Renner, 2002; Patterson, Mallett, & McFadden, 2012; Rovai & Downey, 2010). Rovai & Wighting (2005) report that higher attrition rates (above 40%) are relatively common among online program students. Jordan (2014, 2015) reports typical attrition rates for Massive Open Online Courses (MOOCs) to be in excess of 90%. Because online programs of various types are consistently reporting relatively high student attritions rates, research is needed to examine the potential causes and possible remedies associated with these online learning environments. The current study compares successful and unsuccessful online students in a newly designed online program in an attempt to identify program design variables that might influence their decision to persist in online studies.

During the program, the WebIT-1 cohort group completed several anonymous, electronic surveys to provide feedback to the WebIT curriculum designers, instructors, and IT faculty. The data from these surveys provide information regarding student perceptions of their expectations,

provide actual online program experiences, and offer clues as to why so many students failed to complete the WebIT program.

The purpose of this paper is to share several interpretations of the data provided by the WebIT-1 students (both those who dropped and those who completed the program). While the issues identified may be of more widespread applicability, they also may be somewhat idiosyncratic to the specific sample of individuals who participated in the WebIT-1 cohort. These interpretations are shared in hopes that they may be of value to others involved in the delivery of online programs or those who may be interested in developing new online programs.

Literature Review

As the popularity of online programs continues to expand, some research (Berge & Huang, 2004; Diaz, 2002; Herbert, 2006; Lee, Choi, & Kim, 2012; Maathuis-Smith et al., 2010; Murphy & Stewart, 2017; Patterson & McFadden, 2009; Willging & Johnson, 2004) has shown that attrition rates in online courses and programs are often higher than those for traditional courses and programs. Based on this knowledge, researchers have begun to examine the characteristics of online instruction and online students to better understand the variables that affect student attrition in online courses and programs.

Earlier studies (Bean & Metzner, 1985; Cope & Hannah, 1975; Tinto, 1987) identified a variety of potential causes for student attrition in higher education programs. Yorke and Longden (2004) claim that stress related to the academic program, academic difficulties, heavy workload, weak study skills, and insufficient academic progress are all key factors related to student attrition. The data from these earlier studies of student attrition led to the emergence of theoretical models that seek to explain the relationships between the identified variables and a student's decision to either continue with or withdraw from an academic program.

Tinto (1975, 1987, 1993) proposed the Student Integration Model (SIM) that sought to explain the attrition of traditional students in a residential higher education setting. Tinto's model focused on factors associated with the educational institution and student experience. Bean and Metzner (1985) proposed the Student Attrition Model (SAM) that built upon Tinto's work, and sought to explain the attrition of students classified as nontraditional, that is, those who do not live on-campus, do not belong to campus-affiliated social groups or organizations, typically have families, and attend part-time. Bean and Metzner's SAM model put additional emphasis on factors external to the learning institution. These two prominent models of student attrition in higher education programs were proposed to describe the interrelationships between the critical variables known to affect student attrition in higher education. Other subsequent studies that addressed online educational environments (Crosling, Heagney, & Thomas, 2009; Diaz, 2002; Dray, Lowenthal, Miskiewicz, Ruiz-Primo, & Marczynski, 2011; Mancini, Cipher, & Ganji, 2018; Njenga & Fourie, 2010; Park & Choi, 2009; Yorke, 1999, 2001) found that, in higher education, although the causes of student attrition are complex, the attrition rates associated with online educational environments typically exceed those found in traditional, face-to-face educational environments.

Few studies to date have attempted to develop theoretical and conceptual models to explain attrition in online programs. Berge and Huang (2004), Beaudoin, Kurtz, and Eden (2009), Cochran, Campbell, Baker, and Leeds (2014), and Rovai (2003) each attempted to build upon earlier research studies and to add variables to the existing models that are unique to the online instructional context. Rovai (2003) proposed the Composite Persistence Model (CPM) based on Tinto's (1975, 1987, 1993) and Bean and Metzner's (1985) models, together with

related results of more recent research (e.g. Cole, 2000). Cole (2000) identified several critical factors that help explain student persistence or attrition in online courses. Specifically, Cole proposed that pre-requisite skills, learning style, and teaching style preferences are critical factors in explaining student persistence or attrition in online courses. Rovai's (2003) CPM model incorporates four distinct components that capture the range of critical variables that influence a student's decision to persist or withdraw from an academic program of study. Each component is comprised of a set of specific characteristics that relate to an individual student's retention or attrition decision. The four components are: (a) student characteristics prior to admission, (b) student skills prior to admission, (c) internal factors that assume importance after admission, and (d) external factors affecting students after admission. Figure 1 illustrates the four major components of Rovai's (2003) CPM model and their relationship to the student persistence decision.

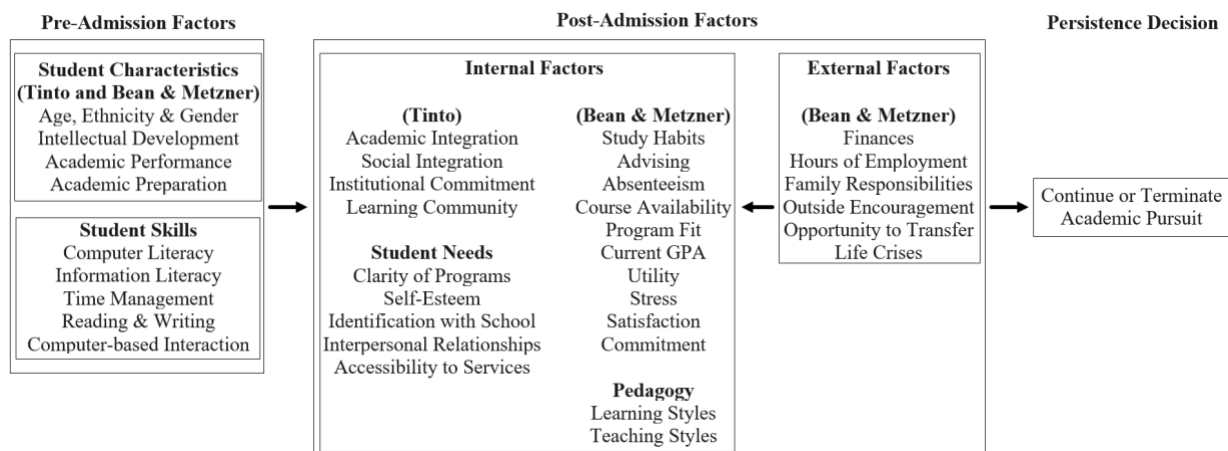


Figure 1. Diagram of the Components of Rovai's Composite Persistence Model (2003).

Terenzini (1982) criticizes the early theoretical models that seek to explain student attrition in higher education due to their reliance on correlational data. According to Terenzini, the establishment of causal links among the variables involved in these theoretical models to explain student attrition is beyond the capabilities of those research studies. Thus, the interpretations about the potential predictive effects of the identified variables on student attrition or retention are highly speculative. Despite the fact that common patterns have emerged across studies that indicate that some of these variables are strongly associated with an individual student's decision either to persist or withdraw, the student's decision is most likely the result of a complex interaction of factors at the individual level. Attrition in an online program is a complex issue related to multiple individual and institutional variables and their contextual interactions. Although it may not be possible to eliminate student attrition in the online context (or in any instructional context) because there are too many individualistic components of the decision to be controlled external to the individual, Rovai's CPM model (2003) provides a valuable framework for guiding institutional decisions regarding program characteristics that might negatively interact with other key student attribute variables.

Method

This study was conducted as part of a larger case study to better understand the experiences of the WebIT-1 students to guide the continuing development and revision of an online M. S. in IT program at University of Tennessee at Knoxville. The overall characteristics of case study methodology are discussed by Stake (1995) and Yin (2003).

Study Participants and Curriculum Context

Twenty-five students were recruited to the WebIT-1 cohort. Twenty-one students matriculated beginning in the first semester. Of these 21 students, 16 were teachers and the remaining five worked in other occupations. During the first year of the program, eight students dropped out and one student was removed for academic difficulties. During the second year of the program, one additional student was lost due to academic difficulties. Of the 10 WebIT-1 students who began but did not complete the program, six were K-12 teachers and four worked in other occupations. Of the 11 WebIT-1 students who completed the program, 10 were teachers and one worked in a technical support field in higher education. Additional characteristics of this group are discussed in findings reported by Waugh and Searle (2014).

The WebIT curriculum consisted of 11 semester length (three credit) courses. The first course was delivered in the summer semester of 2008. Subsequently, two courses were taught during each semester for five consecutive semesters. The WebIT curriculum consisted of courses that addressed the following topics: using the Internet for Teaching and Learning; Web 2.0 tools; Multimedia Development; Instructional Design; Fundamentals of Digital Network Design; Maintenance of Computer-Mediated Communication Environments; Online Collaborative Learning; Teachers, Schools, and Society; and Education Research Fundamentals. The WebIT curriculum is described in greater detail by Waugh, DeMaria, and Trovinger (2011). WebIT program design attributes and characteristics are discussed in further detail in Waugh and Su (2015).

Data Sources

A total of 14 students were lost from the WebIT-1 cohort of the program, 13 during the first year and one additional student during the fall semester of the second year. This group of 14 students who did not complete the program will be referred to as the droppers. Five of the 10 droppers who matriculated in the WebIT program volunteered to complete an anonymous, electronically administered program completion survey. This group of five students is referred to as the dropper-respondents group. Eleven students completed the WebIT curriculum and volunteered to complete an anonymous, electronically administered program exit survey. This group of 11 students is referred to as the completers group.

Assessments and Measures

The following questions guided the analysis of this case study: (a) With regard to their experiences and participation in the WebIT program, how do the perceptions of those students who completed the WebIT program compare with those who failed to complete the program? and (b) Does this comparison offer any insight regarding possible ways to reduce future attrition?

A team of faculty researchers with backgrounds in the field of IT developed the two surveys that were used to gather the student data discussed in this paper. These faculty were all experienced researchers and collectively possessed experience in both quantitative and qualitative research methodologies. In addition, these faculty, all experienced online instructors,

served as the mentors for the graduate teaching associates who served as the primary instructors in the WebIT program.

The WebIT Online Program Attrition Survey (PAS) was administered during Fall 2009 to the dropper group. The WebIT Online Program Completion Survey (PCS) was patterned after the PAS to contain identical items for comparison. The PCS was administered to the completers at the end of the program. Each survey contained 46 comparable items. Most of the comparable items were identical in wording but some were minimally altered to ensure proper grammatical format. This paper will discuss the data provided in response to 10 items that were common to both surveys.

The two surveys were designed to address specific items of interest to the research team. The members of the research team reviewed and revised the survey items prior to finalizing the instruments. Based on this review, the final instruments were judged to possess face validity. With regard to reliability, each survey instrument contained several items of a similar nature and these items were used to assess consistency in student response patterns, thus enabling a simple estimate of reliability, or internal consistency. Though these estimates of validity and reliability are not robust, they do serve as some assurance that the characteristics of the instruments were sufficient to address the purposes of this case study.

Results

The WebIT student feedback provided WebIT planners with information to guide ongoing program development efforts at University of Tennessee at Knoxville. While the dataset is limited, this fact does not negate the potential for broader applicability of the findings. However, the interpretations of the findings from this case study and their potential applicability to other instructional settings should be determined only after careful consideration of the contextual variables associated with these other instructional settings.

Student Expectations of the WebIT Experience

Reasons for choosing WebIT. Both the dropper-respondents and the completers were asked to rank order a list of possible reasons for why they chose the WebIT program. The choices were (a) academic program is offered in online/electronic format, (b) value of the academic program in meeting employment goals, (c) flexibility of academic program in fitting my schedule, (d) time duration of academic program: two years, fixed pace, (e) academic rigor of program, (f) cost to complete the academic program, and (g) availability of financial aid support. A simple majority of students in both groups (6 out of 11 completers, 3 out of 5 dropper-respondents) awarded their top rank to choice (a), the online format of the program, but other choices were also top ranked. For the completers, the other two top ranked choices were (b) and (c), each receiving three and two responses, respectively. For the dropper-respondent group, the other choice that was top ranked was (c), receiving two responses. The online format of the WebIT program was the top reason why students elected to matriculate in the program. Based on the minority responses, some students saw the WebIT program as being more flexible or better fitting their schedules (completers ranked third overall, dropper-respondent group ranked second overall) and some students saw the WebIT program helping them meet employment goals (completers group ranked second overall, dropper-respondent group ranked fourth overall). Respondents seem to have chosen the WebIT program because it was offered in a format that

was appealing to them given that all were employed full time (of which 15 were teachers). From the outset, they saw the online format of the WebIT program as being more flexible and permitting them to meet employment-related goals.

Life priorities. Both groups were asked to rank items in a list to identify which were priorities for them as they participated in the WebIT program. Both groups identified the same three items, in the same order (based on average rankings), as their top ranked priorities: (a) family, (b) work, (c) WebIT. Nine of the 11 completers and four of the five dropper-respondents specified family as their top life priority. Two completers specified work as their top life priority, and one dropper-respondent specified church as their top life priority. None of these students identified the WebIT program as their top priority, however, in terms of average rankings, the WebIT program was identified as the third most important priority for both groups.

In terms of average rankings, the survey respondents ranked family above all other life-priorities, with graduate study in third place. It appears that students saw the WebIT program as a way to pursue a graduate degree by utilizing whatever free time they could allocate to the effort while continuing to work full-time and remaining fully engaged in family responsibilities and their normal, everyday lives.

Perception of workload. Often, online programs are advertised as being more convenient for students to complete (Christensen & Eyring, 2011; Li & Irby, 2008). One consequence of this might be that students might conflate this idea of convenience in accessing graduate study with the degree of difficulty associated with completing the required work.

To examine this issue, both groups of students were asked to share how their initial expectations of the work required in WebIT compared to their actual experiences during WebIT. All five members of the dropper-respondent group and seven of the 11 completers (75% of total respondents) responded that the work required to successfully complete the WebIT curriculum exceeded their initial expectation of the amount of work that would be required in the WebIT program. This finding may be a result of poor communication between WebIT personnel and potential students during recruitment. Alternatively, the finding may reflect a deep misunderstanding held by students about the challenges associated with graduate education. Or, it is possible that regardless of how such information is conveyed to potential online students, their motivation to complete a graduate program is so strong that they are willing to seek out an alternative delivery option regardless of their perception of the likely difficulty of the task. These students joined WebIT with the anticipation that the program's content and delivery format would make it possible for them to complete a graduate degree without disengaging from their current life obligations and relocating to a physical campus.

Based on our limited sample, a large proportion of students who desire to complete an online program of study might underestimate the likely amount of work that is required to complete an online graduate program. If this is true, then online program planners should make every possible effort to communicate a clear picture of the amount of effort that will likely be required of students to successfully complete an online program. Success in this communication effort might help reduce student attrition.

Perception of time required to participate in WebIT. A related survey question asked respondents about how their initial expectation of the amount of time they would need to spend to successfully complete WebIT work compared to their actual experiences in WebIT. Again, all

five of the dropper-respondents indicated that the time they were required to spend engaged in academic work during WebIT exceeded their initial expectations. Ten completers reported that the time required exceeded their initial expectations and one of the completers reported that the time required was less than they initially expected. In response to this question, 94% of the survey responders underestimated the likely amount of time required to successfully complete the WebIT curriculum. The results from this question reinforce those from the previous question as amount of work required and the amount of time required to complete work are related factors. Again, this finding underscores the need to clearly communicate to potential online students about how participation in an online graduate program of study will likely impact their lives. If students understand that in order to be successful in an online graduate program, they will be required to spend a significant amount of time and effort engaged in academic pursuits, this may enable them to make a more informed decision regarding how such a course of action might affect their life priorities.

Time allocated to WebIT work. How much time per week did the WebIT-1 students allocate to completing WebIT work? Most completers (7 out of 11) reported having spent more than 15 hours per week on WebIT work. Two completers reported having spent in excess of 25 hours per week. The remaining four completers reported having spent between 11 and 15 hours per week. The majority of the dropper-respondents (3 out of 5) reported having spent between 11-15 hours per week, while the remaining two dropper-respondents reported having spent less than 10 hours per week. Overall, the completers reported that they spent more time in completing the WebIT work than the dropper-respondents. Over half of the completers reported spending more time per week on WebIT work than all members of the dropper-respondent group. Two completers reported spending 10 hours more per week than the three members of the dropper-respondent group who reported spending the largest amount of time by members of that group (11-15 hours per week).

As mentioned above, 75% of the survey respondents reported that the actual amount of work required to successfully complete the requirements of the WebIT online curriculum exceeded their initial expectations of what would be required of them. Estimates of how much actual work was required range from less than 10 hours per week (two dropper-respondents) to more than 25 hours per week (two completers). The members of both groups also reported that WebIT was their third most important priority behind family and work. Because of this, not surprisingly, most of the survey respondents (81%) reported that the most significant challenge they faced during their participation in the WebIT program was personal time management (completers, 9 out of 11; dropper-respondents, 4 out of 5). Students were committed to family and work responsibilities, but in order to find enough time to complete the WebIT work, the students had to take time from those two critical responsibilities. Several student comments illustrated their struggle with this issue:

DROPPER-respondent 1: While enrolled in this course, I feel like my job and my students suffered ... much more than I was prepared to accept. It required a lot more time than I had expected, quite possibly because I was not as prepared as I thought for the challenging classes.

Dropper-respondent 2: I feel that the work load [*sic*] was at times heavy for full time [*sic*] working professionals. I am very devoted to my job and feel that I could not do my best work in the program and at my job. They were both suffering.

(Not to mention my family.) [*sic*] In the end, I had to make a decision. My plate was just too full.

Completer 1: My weekends were spent mostly on course assignments, did not go out much or spend enough time with family [*sic*].

Student Preferences for Attributes of the WebIT Program

The responses of the WebIT students to the design of the WebIT curriculum provide data to illustrate that students have different preferences for some online program characteristics. These differences may help to partially explain the high attrition rate experienced during WebIT-1. However, high attrition is not simply explained by noting varied student preferences. Most likely, the attrition rate experienced in WebIT-1 was influenced by a combination of factors: such as (a) the degree to which student career goal matches with program content, (b) student financial circumstances, (c) student preferences for program organizational characteristics, (d) student skills and experience in IT, (e) student facility with electronic communication tools, (f) student learning style and preferences, (g) student motivation, (h) student ability to manage personal time, (i) student family obligations, and (j) student work obligations. These issues were cited in responses from both the completers and dropper-respondents and parallel the factors included in Rovai's (2003) CPM model.

The paragraphs that follow report and discuss student responses to several survey questions regarding aspects of the organizational structure of the WebIT program. The two groups of survey respondents differ in many of their responses to these questions. These differences may provide insights regarding how to recruit and retain more potential online program participants.

Preferred degree of instructor control over work pattern. Both groups were asked to rank a set of choices that reflected their preferences for work pattern (individual effort versus group effort) combined with the degree of instructor control. Specifically, they were asked to rank order several alternatives in terms of how they valued each instructional strategy. Each choice combined two aspects from the following categories: (a) working independently, working as members of a small workgroup, or working as members of a class cohort; and (b) completing work on a schedule determined by the instructor, or negotiated with the instructor. The specific question to which the members of the group responded was, "Online programs often utilize a mix of teaching strategies to help students succeed in learning the content material. Please rank the following teaching strategies used in WebIT to indicate how you valued them."

Table 1 summarizes the differences between the completers and dropper-respondent groups in terms of the single choice that each respondent identified as their top-ranked choice, that is, the instructional strategy that each individual valued above all others. The data in Table 1 show that the two groups of students tended to value the instructional strategies somewhat differently. Nearly half of the completers valued most highly that the program allowed them to work independently (5 out of 11) and to complete work on a schedule determined by the Instructor (7 out of 11; their rankings cluster in the top half of Table 1); whereas nearly half of the dropper-respondents valued most highly that the program allowed them to work independently (2 out of 5) and in a manner that would allow them to complete work on a schedule negotiated with the Instructor (3 out of 5). The rankings of the dropper-respondent group spread more but tend to cluster in the bottom half of Table 1.

One interpretation of the data described in the previous paragraph is that the WebIT program was at least partially successful in being flexible enough to address the needs of all the students, but it appears that some students want or need a program that is very flexible whereas others are happier with a greater degree of programmatically imposed structure. In the context of the WebIT-1 group, a much larger proportion of the completers expressed a preference for a more structured program organization, whereas a slightly larger proportion of the dropper-respondents expressed a preference for more flexibility. It is possible that this specific student characteristic—preference or need for program flexibility—is important in terms of attrition or retention but such an interpretation is merely suggested by these data. It seems likely that this is an important variable in determining student retention, but such a determination will have to await the results of further studies.

Table 1.

*Comparison between completers and dropper-respondents
on Preferences for Degree of Instructor Control over Work Pattern*

Survey Question Response Choice	C Top Ranks	D Top Ranks
Students work independently and complete work on a schedule determined by the instructor.	5	0
Students work as members of a small workgroup and complete work on a schedule determined by the instructor.	1	1
Students work as members of a class cohort and complete work on a schedule determined by the instructor.	1	0
Instructors specify the exact tasks for students to complete.	1	1
Students determine specific tasks to meet instructor criteria.	1	0
Students work independently and complete work on a schedule negotiated with the instructor.	1	2
Students work as members of a small workgroup and complete work on a schedule negotiated with the instructor.	1	0
Students work as members of a class cohort and complete work on a schedule negotiated with the instructor.	0	1
Total	11	5

Note. C = completers; D = dropper-respondents

Preferred work pattern. In a related question that isolated the concept of preferred work pattern, both groups of students were asked to identify their preference in terms of work pattern. In response to the question,

As a student in an online program of study, I would prefer to work: (a) independently on some instructional projects and collaboratively on some instructional projects, (b) independently when completing instructional projects and tasks, or (c) as a member of a collaborative group when completing instructional projects and tasks,

the two groups responded somewhat differently. The completers group strongly favored a mixed model: 8 out of 11 chose choice (a), 2 out of 11 chose choice (b), and 1 out of 11 chose choice (c). The dropper-respondents selected choices differently: 3 out of 5 chose choice (b), 1 out of 5 chose choice (c), and 1 out of 5 chose choice (a). The completers seemed to favor a mixed approach in terms of work pattern with a preference for some individual and some collaborative activities; whereas a simple majority of the dropper-respondents seem to favor working individually over engaging in collaborative activities. One possible interpretation for this apparent difference is that engaging in collaborative work is more difficult and time consuming than doing work alone and those online students who are unable to allocate the necessary time to fully engage in collaborative learning efforts do not appreciate the value that such a learning strategy can offer.

Program organization. In response to the question, “as a student in an online program of study, I would prefer a program organization structure that would: (a) provide a logical sequence and pace for me to complete the program in a specified period of time, or (b) allow me to complete the program at my own pace”, the two groups again responded somewhat differently. The completers were unanimous in selecting choice (a); whereas the dropper-respondents were split with a simple majority (3 out of 5) preferring choice (b). The likely interpretation for this response by the dropper-respondents is that the members of this group would prefer more flexibility in determining their pace of work in completing the online instructional program. The completers appear to prefer a program that provides a specific work pace that leads to completion of the program in a set period of time.

Preferred pacing. Both groups were asked specifically about the semester course load they would prefer. Specifically, the students were asked, “If the WebIT program could offer you the choice, how many online classes would you prefer to complete each semester?” The choices offered were: one, two, three, or four courses per semester; or “variable, depending upon job and personal responsibilities.” The completers were nearly unanimous (9 out of 11) in selecting two courses per semester, the pace required in WebIT. The other two completers elected the variable option. The dropper-respondents were more mixed in their responses with one wanting to complete a single course per semester, two wishing to complete two courses per semester, and two electing the variable option. The diversity of responses from the dropper respondent group reinforces the interpretation that this group would prefer an online program structure that is more flexible in permitting them to complete work when and as they can rather than requiring them to adhere to a more focused structure that might require a pace or type of engagement that would prove difficult for them.

Personal learning style. Each survey respondent was asked whether the overall structure of the WebIT program suited their personal learning style. No attempt was made to define the concept of “learning style.” Rather, the question was meant to provide the respondents with an opportunity to indicate whether the structure and organization of the WebIT program met their needs and expectations. The completers were unanimous in reporting the affirmative; the structure of the WebIT program seemed to suit them. The dropper-respondents were split with a simple majority (3 out of 5) responding in the affirmative. One of the dropper-respondents who indicated that the WebIT design did not match their personal learning style provided the following elaborative comment:

Overall, I believe in the philosophy that it should be up to the student to determine the best way to learn the material. I do not think, however, that this philosophy is suitable for an online curriculum. The lack of face to face [*sic*] contact was very difficult for me and I relied heavily on my cohort for support. Many times, we were all on different pages. While this was good in some ways (because the experience spectrum was very broad), I struggled a lot. I may be too old school, but there were times when I just wanted to be told what to do and how to do it. I do learn by doing, but sometimes require (sadly) a little extra guidance.

Limitations

The findings presented and discussed in this paper are based upon a small sample of online program participants (n=16). All survey responses were voluntary and anonymous; however, it is impossible to ascertain the accuracy and truthfulness of individual responses, which is assumed. Additionally, it is impossible to determine whether or not the survey respondents' views and perspectives accurately reflect those of the larger population of individuals who might wish to pursue an online M.S. degree in IT (or any field). Despite these limitations, several tentative conclusions can be drawn from this particular case context. However, any generalization of these conclusions to novel contexts should be made with caution.

Discussion and Conclusions

The final section of this paper summarizes the WebIT-1 students' expectations and preferences for an online program. The dropper-respondents and the completers differ in several meaningful ways that might help explain the high rate of attrition seen during the WebIT-1 cohort.

Expectations and Preferences

In terms of pre-program expectations, the dropper-respondents unanimously reported underestimating the amount of time and effort that would be required to successfully complete the program. While the majority of completers also reported underestimating the time and effort that would be required (indicating that it is not simply the pre-program misconception that is critical to the retention decision), the key difference between these two groups may be found in their estimates of time spent each week engaged in completing program requirements. All the dropper-respondents reported spending less than 15 hours per week on WebIT work, while most of the completers reported spending more than 15 hours per week on WebIT work. Almost all (15 out of 16) of the survey respondents underestimated the amount of time that would be needed

to be successful in the WebIT program, but those who completed the program reported having spent more time engaged in program work.

The critical difference between those survey respondents who completed the program and those who did not complete the program appears to be related to the individual's willingness and/or ability to allocate sufficient time to completing program requirements. Most likely, it is not the absolute amount of time itself that is critical, but rather the ability to allocate the time necessary (managing it effectively across the several critical life priorities) to be successful. Nearly all of the survey respondents indicated that the WebIT program was their third life priority behind family and work. This is to be expected. However, when it comes to finding time to devote to academic pursuits, it is likely that such time can only be found by shifting the proportional allocations among life priorities, and it is highly likely that those students who were most successful in doing this were more likely to complete the WebIT program.

Several other differences between the two groups can be seen in their preferences for work pattern, program organization, and pace. The dropper-respondents seem to prefer working alone to complete their academic work. They seem to prefer flexible schedules and timelines, and negotiating requirements with instructors as opposed to being required to follow strict procedures and rigid timelines. Further, they seem to prefer being able to determine the pace at which they complete the academic program, rather than being required to work at a pre-determined pace toward a specific end-point in time. The completers seem to prefer a mix of independent and group work that is guided by deadlines and structure that is determined by the instructor. They also seem to prefer a program structure that provides a set pace and fixed end-point in time.

The preferences described above may or may not be critical in a student's decision to matriculate, continue, or withdraw from an online program. However, it seems clear that such programmatic characteristics can potentially constrain potential online students who intend to try to remain fully engaged in their pre-existing life priorities while completing advanced graduate studies. It would also be difficult to design an instructional program that is simultaneously both structured and flexible, exclusively individualized and collaborative, and employed a combination of both an open enrollment model and a cohort model. No particular programmatic structure is likely to fully meet the individual needs of all learners.

Recommendations Regarding Attrition

Assuming that the differences between the completers and dropper-respondents found in this study are real differences and not artifacts associated with this particular case instance, there are several ways in which these might be addressed to reduce or minimize attrition. First, recruiting materials should communicate to potential students a realistic appraisal of the time and effort that will likely be required of students for them to be successful in the online program. Second, regardless of how the online academic program is structured (open-enrollment, cohort model, or individualized study model), some online students are likely to have time management difficulties. Programs should seek ways to accommodate such difficulties to provide a degree of individualized flexibility as needed. Third, instructors should be encouraged to be as flexible as possible to help students overcome time management difficulties during the completion of a class. Fourth, online students often do not have access to the same human support infrastructure as resident students. Programs should attempt to overcome this shortcoming by providing a responsive human being to act in a contact, advisor, or support role. Not only would this likely lessen the burden on the online instructors, it could help to ensure that the nature of the support

service is of consistently high quality for all students. Timely interactions, especially of a problem-solving nature, are often critical to an online student's success and can help alleviate difficulties that might lead to a student's decision to withdraw from an academic program.

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