Participation, Retention, & Student Success at Eastern Washington University

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The purpose of the present proposal is to follow-up findings uncovered during the implementation of a recent redesign of introductory psychology at Eastern Washington University. We believe that these findings have important implications for student engagement, retention, and success. It will be necessary to provide some background for these findings in order to explain their relevance for the proposed project.

Background

The goal of the redesigned psychology course (PSYC 100 R2R) is to improve learning while decreasing the cost of course delivery. Guidelines entitled the Roadmap to Redesign (R2R) developed by the National Center for Academic Transformation (NCAT) were used to guide the redesign effort (Twigg, 2005). Among other innovations, PSYC 100 R2R involves a required on-line study component in which students take mastery quizzes as one method of preparing for regularly scheduled in-class tests (Williams, 2005, 2006). The quiz delivery system, Perception, creates a unique quiz on each attempt by sampling questions from a large test bank to minimize rote memorization of answers to a fixed set of questions. Another important innovation is break-out sections led by peer mentors using clicker technology to lead discussions.

The main objective of the mastery quizzes is to give students a chance to study using a technique that engages them in practicing retrieval of pertinent information from memory (Wineberg, 2006), instead of more passive activities such as highlighting or reading and re-reading the textbook. In addition, because the on-line quiz delivery system provides immediate feedback and coaching about quiz results, students have multiple opportunities to self-assess whether their preparation is adequate. Finally, because the delivery system tracks student activity – e.g., the number of times that a student attempts a mastery quiz as well as how the attempts are distributed in time – these variables can be used as indices of the quantity and quality of a student’s preparation using on-line resources. As an example, if a student’s overall test performance is low and the number of attempted mastery quizzes is also low, we can assume that the quantity of on-line preparation is inadequate. To elaborate further, if a student’s overall test performance is low, and the record shows that the student is taking mastery quizzes in a concentrated block, with little time between quizzes, we assume that the quality of on-line preparation is low, and by inference, that the quantity of off-line preparation is also low.

In general, students enrolled in PSYC 100 R2R report that they like having multiple opportunities to take on-line mastery quizzes, but more importantly, students who take more mastery quizzes are more successful than students who do not. Although we were pleased with this outcome, we were quite surprised by the large number of
students (approaching 20%) who did not participate in the mastery quiz component – i.e., they did not attempt any mastery quizzes or rarely did. Moreover, most of these students did not withdraw from the course, despite their lack of participation, and virtually all of them failed the course by the tenth week. The biggest surprise, however, was that we were able to identify the majority of these non-participating students by the second or third week of the academic term by extracting information about their on-line activity using *Perception*.

We became aware of non-participation during the R2R pilot sections in the Winter and Spring of 2005 and we decided to confront the problem in the fully-implementation R2R sections in Fall of 2005. One interpretation of non-participation at the beginning of the course is that these students underestimate what is required to succeed in the course (Belles, Kiser, & Williams, 2006). This interpretation is not entirely satisfactory because it fails to explain why such students do not begin participating when they see poor results. Perhaps these students also underestimate what will be required to recover as the course progresses. This interpretation is consistent with remarks of many low-performing students who ask their incredulous instructors in the closing weeks of the term what they can do to improve their grades. It is also consistent with what is known about the negative impact on human motivation of delayed consequences. We decided to address the problem by adding a student support process called scaffolding (Puntambekar & Hubscher, 2005).

The purpose of the scaffolding process was twofold. First, we wanted to provide problem-solving resources to support students who wanted to participate, but had some kind of obstacle that limited their access to technology, such as no computer or weak computer skills. Second, we wanted to diminish the delay between non-participation and its natural consequence, poor or failing academic performance. Students were informed at the beginning of the course that on-line mastery quizzes were mandatory and that a chronic failure to participate in on-line quizzes, if not addressed, would lead to the assignment of a failing grade well before the end of the term. The consequences were implemented in several steps.

Step 1. Students who failed to participate during first week were asked to attend a special meeting during a regularly schedule class hour. Students who attended this meeting were given an opportunity to explain the nature of their participation problem and get assistance if necessary, e.g., individual help gaining access to on-line resources.

Step 2: Students who did not participate for a second week received a notice requiring them to consult with their academic advisors or the graduate teaching assistant.

Step 3: Students who did not participate for a third week were informed that they were on academic prohibition in the course and that a failing grade was imminent but could be avoided if they began participating.

Step 4: Students who did not participate for a fourth week were informed that they had failed the course.
The scaffolding process revealed that relatively few students were without access to the technology, though some students were less competent than others in using it. A common report of peer mentors and teaching assistants was that the non-participating students seemed immature and lacking in motivation.

Preliminary analyses performed while the Fall 2005 courses were in progress indicated that the scaffolding process worked. The proportion of non-participating students was dramatically lower than it had been during the pilot sections before the introduction of scaffolding. We found these preliminary results to be quite encouraging, but subsequent detailed analyses after the courses ended revealed that the initial findings were somewhat misleading.

Two trends emerged. First, many of the non-participating students withdrew from the course. Whether this outcome is considered to be a success or a failure depends on one’s point of view. Most of the non-participating students in the preceding pilot courses did not withdraw in time to avoid failing the course. Therefore, the increased tendency for students to withdraw as a consequence of implementing the scaffolding process can be considered a partial success in that it indicates that scaffolding got their attention and that they avoided imminent “failure” by taking “competent” action. What is unclear, however, is whether dropping demanding courses might become a habit for these students.

The second trend was of even greater concern. Many of the non-participating students reformed – that is, they began taking the on-line quizzes. The bad news is that virtually all of them still failed the course! That is, in spite of the fact that many non-participating students began taking on-line mastery quizzes when scaffolding was implemented, it wasn’t enough to save them because their overall performance levels on tests did not increase enough to avoid failure. In sum, although the scaffolding process changed student behavior, neither withdrawing nor “reforming” was enough to create student success. Our conclusion is that more powerful intervention is required.

Our suspicion is that the reformed non-participants ultimately failed because their participation was perfunctory. We are familiar with university athletes whose coaches require them to attend all classes, sit in the front row, and get notes initialed by the instructor in order to establish that they are complying with the coach’s expectations. Some of these individuals perform satisfactorily, but one gets the impression that others go through the motions in order to stay on the team, but do not fully engage in the learning process. It’s our strong impression that the reformed non-participants behaved like this. That is, we believe that they logged on every week to take one or more mastery quizzes, thereby avoiding failure in the short run, but the effort was perfunctory, with a minimal investment of time and energy preparing for the quiz. A variation that was apparent with some low-performing students, was taking multiple quizzes in quick succession, possibly in hopes that chance factors would result in a better score on some quizzes than on others, sort of like playing poker by waiting for a really good hand. We saw this pattern even among students who succeeded in the course. We are now
undertaking analyses to determine whether, in fact, this trend was a persistent pattern for reformed non-participating students. We refer to this pattern has perfunctory participation.

**Objectives**

The present proposal has four specific objectives.

**Objective 1:** The first specific objective is to determine whether non-participation in R2R introductory psychology courses is predictive of subsequent non-retention at EWU. Moreover, if non-participation is, in fact, predictive of non-retention, the implication is that we might be able to determine which students are most at risk for non-retention by the second or third week of PSYCH 100 R2R. Since over 1000 students a year enroll in introductory psychology, most of whom are freshmen and sophomores, early intervention aimed at supporting students might succeed in increasing the rate of retention and overall success of students at Eastern Washington University.

**Objective 2:** A closely related question is whether non-participation in R2R courses is predictive of poor academic performance in other courses. If it is, then eventual failure or withdrawal from the university is highly likely. A pattern of poor performance or withdrawal from other courses would confirm the generality of the non-participation problem, which, if endemic, should result in non-retention at some point. An advantage of this type of information is that it is available sooner than retention data (which takes about a year or two to develop).

**Objective 3:** A third specific objective is gather survey data and demographic data from existing records in order to determine whether there are systematic differences between participating and non-participating students and whether such differences, if manifest, provide clues that could be used to facilitate successful intervention.

**Objective 4:** A fourth specific objective is to assess whether a more robust intervention than the scaffolding we used earlier might lead to more substantive changes in the behavior in non-participating students, including the possibility that such changes might have an impact on retention and performance in other courses. This was not one of the original objectives of this proposal, but an opportunity to initiate a more robust intervention has materialized as the result of discussions with the Director of the First Year Experience, Anamaria Martinez, in the Division of Student Affairs. Some additional background for this objective is necessary.

We now know that non-participating students are resistant to change. Whether this resistance is due to learned helplessness, insufficient motivation, or some other limitation is not clear. What is clear, however, is that strong measures must be implemented in order to get these students to accommodate what is required for success in an academic environment. We believe that these students want to succeed, much as
smokers want to stop smoking, dieters want to lose weight, and alcoholics want to stop drinking, but getting there is hard. Some people with such problems succeed and others do not, but successful programs designed to help them invariably involve strong social support such as that provided by Alcoholic Anonymous, Weight Watchers, and personal trainers. We believe that such support requires strong motivational leadership and frequent contact, not just occasional visits with an advisor, teaching assistant, or peer mentor. We also believe that such programs should focus on the development of skills and be programmatic so that students can gauge their own progress. It is this kind of support that is being offered to us by Student Affairs. We have an informal agreement that they will commit to funding to provide support for about 50 students (non-participants) for one quarter. We will identify the students and refer them for support, and Student Affairs will provide the support personnel and other needed resources.

The parameters and scope of this support are being worked out by R2R staff in the Department of Psychology and the Director of the First Year Experience. Academic Support Services and the PLUS program will be brought in as needed as the details of the plan as the details are fleshed out this summer. These details will not be available before the deadline for this proposal, but it will involve both social and academic support for the non-participating students, as recommended by Braxton (2006).

*Note:* Objective 4 is included as part of this proposal, but does not require the commitment of additional funds from the Strategic Planning Pool for this specific proposal.

**Assumptions**

An important assumption of this proposal is that there are multiple causes of non-retention, e.g., lack of academic success, stressed economic resources, family or job-related circumstances such as relocation to another geographic area, shifting personal priorities and responsibilities such as marriage, failure to engage with the university’s culture, and so on (Braxton, 2006).

The present proposal has a narrower focus, and that focus is on students who fail to participate in academic activities such as attending class, completing assignments, taking tests, and responding to instructor inquires or expressed concerns in these areas. Although the scope of the project is limited in this regard, the motivation of non-participating students, or lack thereof, is an important dimension of this proposal; and therefore, the project team will attempt to gather information about pertinent factors affecting student motivation and performance, and in that sense, may also address some of the broader non-academic causes of non-retention.

Another assumption of this proposal is that non-participating students have serious motivational problems that are not easily addressed by superficial interventions such as advice, warnings, or penalties. If they are to succeed, non-participating students must accommodate to the realities of the academic environment and will require...
concentrated support across a broad spectrum of their daily lives in order to make the required adjustments.

Methods

This research will be conducted by extracting data from student records. Bill Williams and Jen Ciolli are the RTR course instructor and graduate teaching assistant, respectively, and so have access to student performance in the R2R course. The data analysis team (Williams & Ciolli) will submit lists of students classified in various ways using R2R performance criteria and in turn receive raw data and/or statistics on variables of interest (but not information about individual students). The records access team (Martin) will extract the requested information using computer programs and other resources in order to provide anonymous data that can then be used by the data analysis team. We will use R2R data back to year 2005 and look forward as far as Spring 2007.

As Director of Institutional Research, Demography, and Assessment, Theresa Martin has access to information in student records as well as extensive experience extracting information of the type needed for this project. All principle investigators for this study (Williams, Martin, & Ciolli) will be governed by rules and policies established by FERPA.

The input variables for Objectives 1, 2, & 3 will be lists of students who belong to the following categories: These are students…

(1) who exhibit low attendance (assessed with clicker technology);

(2) who fail to complete seminar writing assignments;

(3) who fail to participate in seminar discussions;

(4) who get consistently low grades on in-class tests;

(5) who withdraw from the course;

(6) who fail the course.

(7) who consistently do not participate in mastery quiz activity;

(8) who consistently do participate in mastery quiz activity (reference group);

(9) who participate by taking mastery quizzes, but do so in a perfunctory manner (several subcategories listed below). These are for students…

(a) who consistently take mastery quizzes the night before the deadline;
who consistently take mastery quizzes in rapid succession without intervening time for review and reflection

who evidence little improvement from one mastery quiz to another.

In addition, in support of Objective 4, students who are designated non-participants and agree to join the program sponsored by First Year Experience. Two categories are for students who…

(10) stay with the program,

(11) drop the program.

The data to be extracted from student records will be anonymous. A non-exhaustive list of important variables will include: grades, withdrawals; academic probation, incompletes, and quarters of non-attendance. Anonymous demographic data and other pertinent information that might serve as alternative predictors or clues critical to providing better student support will also be extracted. Such variables might include information concerning transfer status, gender, age, and cultural diversity.

Anonymous survey data collected by Teaching Assistants and Mentors will also be included as variables of interest. These might involve administering objective or open-ended self-assessments to students.

A variety of statistics pertinent to the stated objectives will be determined. These will include means, standard deviations, correlations, and various parametric or non-parametric inferential tests. A number of specialized tests, e.g., discriminate analysis may also be performed.

**Outcome Expectations**

**Objective 1:** We expect to ascertain whether students that we identify as non-participants in PSYC 100 R2R are at greater risk for non-retention than students classified in other ways, e.g., students who do participate or students who engage in perfunctory participation, and so on. Of course, if non-participation is predictive of non-retention, then we would also want to know the projected rate of attrition for the high risk students. This would permit the university to estimate the cost of targeting these individuals for purposes of engaging them with a robust support program.

**Objective 2:** We expect to determine the extent to which students that we identify as non-participants in PSYC 100 R2R perform poorly in other courses during their study at EWU – retrospectively, concurrently, and subsequently. High concordance across courses both within and between academic terms will be interpreted as evidence of chronic problems that are expected to lead to non-retention at some point.
William C. Williams, Professor, Department of Psychology

**Objective 3:** This objective is speculative. We cannot be sure in advance whether analyses performed with demographic data from student records will provide useful insights about student participation, retention, or success, but we should not overlook the possibility, and researching this objective will add little to the cost of the project.

**Objective 4:** We expect to determine whether a robust collaborative intervention led by the First Year Experience team will be effective in modifying the behavior and performance of non-participating students, especially if the change leads to success not only in PSYCH 100 R2R, but also in other course taken concurrently or subsequently. The best outcome would be for academic success and retention rates for the targeted non-participating students to increases as a result of the intervention. Of particular interest would be the proportion of students who succeed as a consequence of the intervention. The cost of implementing the program and the success rate could be used to perform a cost-benefit analysis of implementing a robust support program.

**Reporting**

The outcomes of this research may assist the university in early detection of students who are less likely to be retained by the university. The project might also provide important information about the cost and effectiveness of an intervention under the auspices of the First Year Experience.

The outcomes of this project will reported to the EWU Strategic Planning Council, the Enrollment Management Team, Student Affairs, the Academic Support Center, and the Teaching and Learning Center, among other legitimate university forums.

Permission will be sought to report important findings beyond the university community.

**Time Line**

**Summer 2006.** This time would be used for planning and preparation in collaboration with Theresa Martin, Jen Ciolli, Anamaria Martinez, and other. Sample lists of student numbers based on R2R courses in prior terms would be provided to Theresa so that she could begin testing the capabilities of the SIS and Banner for this project. Consultations among Jen, Anamaria, Bill, and other support personnel would be directed toward outlining an effective support program for non-participating students. Preparations for implementing changes to the Fall 2006 implementation of PSYC 100 R2R would be made.

**Fall 2006.** New peer mentors would be trained and the Fall 2006 PSYC 100 R2R will get underway with Jen serving as the combined Teaching/Research Assistant. We believe that the dual role for Jen is necessary. As the Graduate Teaching Assistant she will be in a position to have access to all of the student performance data and as Graduate Research Assistant she will have control over the acquisition and organization of the data required for the research project. She has two years of experience with the project in a
variety of roles: Peer Mentor, Graduate Teaching Assistant, and Research Assistant under Bill’s supervision.

Bill’s role during this period will be to teach the R2R course as part of his regularly assigned duties and to organize the statistical analyses of the data from prior PSYC 100 R2R sections. These data will already be available, except for forward-pending outcomes. Fall 2006 data will be in-collection and not fully available until Winter 2007. The statistical analyses performed during this term will be limited to Objectives 1, 2, and 3.

Winter 2007. A new section of PSYC 100 R2R will begin and the organization of the Fall 2006 outcomes, including preliminary intervention outcomes, will begin. Jen will continue as the Teaching/Research Assistant with duties similar to that during Fall 2006. She will continue to provide input lists, Theresa will continue extracting data from student records, and Bill will continue the statistical analyses for the extracted data. Anamarie’s role may be mute during Winter 2007 because funding for the intervention phase of the project is expected to be spent by the end of Fall 2006. Note that the analyses pertinent to Objective 4 (short-range intervention outcomes) begin during this term.

Spring 2007. Bill and Jen do not teach PSYC 100 during the Spring term, so both will be available to finish the statistical analysis and begin the writing process. The last two weeks in June will be used to extract recent changes in retention and performance outcomes posted in Spring transcript updates at the close of the quarter.

**Budget**

Theresa Martin, Anamarie Martinez, and Bill Williams will donate their time or engage with the project in fulfillment of their regularly assigned duties. The principle cost to the project is funding Jen Ciolli’s time as a part-time Graduate Assistant. She will receive a tuition waiver (or equivalent in funds) for three academic terms and a wage of $12 an hour for 20 hours a week for approximately 40 weeks (September 1 through June 30).

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References

Belles, C., Kiser, L., & Williams, W. C. (2006). *What if students do not even try? Addressing the problem of non-participating students*. A paper presented at the CASTL Colloquium on The Scholarship of Teaching and Learning, Madison, WI.


