Student Retention in Online and Traditional Course Settings: Motivation and Interaction between Setting and Gender
[Abstract]

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As part of a comparative study of student engagement and achievement in online and traditional course settings, an analysis was conducted of factors mediating late-semester student retention in online and traditional courses. Data were collected from a sample of 182 college students; of these, 86 were enrolled in online sections of a remedial mathematics course, and 96 were enrolled in traditional sections of the same course. Variables examined included (in part) course setting, gender, achievement goals, computer self-efficacy, and self-efficacy for self-regulation.

Some students in every section dropped the course before mid-semester and received a grade of 'W' indicating their withdrawal. Those students were not included in the sample of 182 participants because they were not available to participate fully in the study, much of which was conducted after mid-term.

However, those students who stayed in the class past the semester midpoint and then chose not to finish the course or take the final exam were given a grade of F, adversely affecting their academic record. Of the 182 participants who remained in the course past mid-semester, 18 chose not to finish. Tests and midterm exams were given, scored, and returned to students before the semester midpoint, giving students an opportunity to withdraw before the mid-semester deadline without receiving an F in the class. Thus, a 10% attrition rate after mid-semester seems high.

Therefore, all variables in the study were compared between those participants who completed the course and those who chose not to finish after mid-semester. Students who chose not to finish had significantly higher performance avoid goals ($M = 2.94$) than did their classmates who finished the course ($M = 2.42$). Further, students who did not finish had significantly lower self-efficacy for self-regulation ($M = 3.57$) than did those who finished ($M = 4.24$).

Course setting and gender were also examined. Students who chose not to finish were evenly divided between the traditional and online settings. Although twice as many women (12) elected not to finish as did men (6), the total number of women participating (139) was over three times that of men (43). Nevertheless, a chi-square test did not reveal a significant association between gender and the decision to finish.

However, further examination of the data revealed a potential imbalance when the participants who elected not to finish were examined by both setting and gender simultaneously. Chi-square tests for independence of gender and decision to finish were conducted for students in each setting. Results suggest that gender and the decision to finish were not independent in the traditional setting. Among traditional students, the proportion of men (20%) who elected not to finish was significantly higher ($p < .01$) than the proportion of women who did so (4%). By contrast, although the proportion of men (5.5%) who elected not to finish the online course was notably lower than the corresponding proportion of online women (13%), the chi-square test did not achieve significance for this distribution.

Additional chi-square tests for independence of setting and decision to finish were conducted for students of each gender. The results suggest that setting and the decision to finish were not independent among female participants. In other words, the proportion of online female students (13%) who elected not to finish was significantly higher ($p < .05$) than the proportion of traditional female students who did so (4%). Both sets of results suggest that the interaction of setting and gender may be a factor in students' decisions about whether to finish the class.

Prior research paired with these findings indicated that self-efficacy, performance avoid goals, and the interaction of setting with gender were likely to be significant predictors of students' decisions to finish the course. A multiple regression was not appropriate to assess these variables as predictors because the outcome (the student's decision) was binary–either to finish or not to finish. Therefore, a binary logistic regression analysis was performed to estimate the effect of these factors on the odds of a student deciding to finish the course.

The interaction of setting with gender significantly affected the odds that a student would finish the course ($\beta = .75$). As expected, a student's odds of finishing were increased for traditional female students over those of traditional male or online female students. Higher self-efficacy for self-regulation also significantly increased the odds that a student would finish the course ($\beta = .36$). None of the other variables reached predictive significance. The logistic regression model was significant, with a chi-square likelihood ratio of 16.70 ($p < .05$). Because the outcome of logistic regression analysis is binary, the R_L^2 statistic of .17 for the model cannot be interpreted as a proportion of variance explained by the model. However, the ratio may be taken as a measure of predictive value analogous to the R^2 statistic used for multiple regression. The gamma statistic suggests that the model decreases prediction error by 61% over that of random prediction.

More research is warranted to ascertain the nature of the interaction between course setting and gender. Meanwhile, the researcher's related qualitative findings suggest that women respond more positively to an online environment in which some form of personal contact and guidance is prevalent; this guidance may be in the form of online videos featuring a human instructor or occasional conversations or personal meetings with the instructor. These findings may help to explain female students' inclination to drop online courses at a higher rate than traditional courses if these components of personal contact are not present in the online course.

Finally, self-efficacy for self-regulation overshadowed computer self-efficacy as a predictor of student persistence and of student engagement with online courseware; this finding reveals much about the nature of participating in online courses. Students' belief in their own self-discipline will carry them farther in online course settings than will their belief in their computer skills.