
COMPUTERS IN TEACHING

Predicting Success in Online Psychology Courses: Self-Discipline and Motivation

Stefanie B. Waschull
Athens Technical College

This article addresses factors associated with student success in online psychology courses. Prior to beginning an online course, students completed measures of self-discipline and motivation, time commitment, study skills, preference for text-based learning, access to technology, and technology experience. Schrum and Hong (2002) proposed that these student characteristics predict online course success. I used scores on these factors to predict student performance in online introductory psychology and online human growth and development courses. Self-discipline and motivation was the only factor predictive of online psychology course success. My results contradict the model proposed by Schrum and Hong but are consistent with research on the role of motivation in success.

During the past decade, distance education programs have proliferated (Council for Higher Education Accreditation, 1999). Many traditional colleges and universities added distance education offerings to their programs. Furthermore, new, private, for-profit institutions began offering competitive distance education programs.

There is considerable research comparing the effectiveness of distance education and online courses to traditional courses (Beare, 1989; Fox, 1998; McKissack, 1997; Sonner, 1999; Waschull, 2001). The general consensus is that there are no significant differences in effectiveness between distance learning and traditional learning techniques. In an early study, Beare (1989) compared the effectiveness of videotape, audiotape, and telelectures to traditional courses and found no significant differences in student grades. More recently, McKissack (1997) showed that distance education students from a variety of colleges and universities did not differ from traditional students at those institutions on grade point average. Waschull (2001) compared students in online introductory psychology courses with similar students in traditional courses and found that the two groups did not differ in terms of test performance. Furthermore, Fox (1998) surveyed the research on distance education and found no empirical studies that indicated distance education students were deficient in skills compared to traditional students.

However, providing online distance education in an increasingly competitive environment raises important issues. There is a risk that institutions may focus on the mechanics of providing online courses to as many students as possible

without adequate consideration of the pedagogical soundness of online materials or the reality of whether students are equipped to perform successfully in online courses. For example, Bonk and Dennen (1999) pointed out that popular Web-based courseware programs primarily provide administrative tools for faculty to post lectures notes and quizzes, provide Web links, and deliver assignments. Bonk and Dennen concluded these administrative tools do little to support student critical thinking or help students generate knowledge.

In an effort to address such concerns, Schrum and Hong (2002) identified organizational, pedagogical, institutional, and student factors they believed were related to the success of online courses. They provided students with a substantive needs assessment at more than 30 institutions that offered postsecondary online learning opportunities. Based on their analysis, Schrum and Hong identified seven critical factors believed to be related to student success in the online environment: personal traits such as self-discipline, lifestyle factors such as adequate free time to commit to the course, motivation to perform well in the course, strong study skills, a preference for text-based learning, reliable access to technology, and technology experience prior to the course. Schrum and Hong proposed that the seven student characteristics are valid predictors of student success based on an analysis of existing measures and the opinions of instructors. Ratings provided by experienced online instructors indicated that they agreed that access to technology and experience with technology were important for student success. Experienced instructors also agreed that adequate time commitment and preference for text-based learning were important, and most instructors agreed that motivation was an important factor in determining success. Generally, the experienced online instructors did not identify study skills and personal characteristics as important for student success. Despite the low ratings given to study skills and personal characteristics, instructors frequently commented that self-discipline was one of the most important factors for determining student success. Although the opinions of experienced online instructors give useful insight into the importance of these characteristics, I was interested in establishing the reliability of the factors identified by Schrum and Hong and determining whether they were predictive of student success in online psychology courses.

Method

Materials

I developed an online questionnaire designed to measure the seven student characteristics: personal traits, lifestyle factors, motivation, study skills, a preference for text-based learning, access to technology, and technology experience. I developed 23 items to measure these characteristics—3 or 4 items for each factor. I based several of the items on questions developed by Schrum (2003) to help students determine if they were ready to take an online course. Items addressed the degree to which students were able to meet the demands of an online course. For example, I asked students whether they could devote 10 to 20 hr a week to the course, whether they found classroom discussions helpful, and whether they had the required computer technology. Items asked participants to rate the degree to which they agreed or disagreed that the item described them using a scale from 1 (*I agree completely*) to 5 (*I disagree completely*).

Participants and Procedure

Participants were either enrolled in one of two sections of online introductory psychology or in one section of online human growth and development. During the first week of the academic quarter students completed the questionnaire online. I sent a follow-up e-mail to those students who did not complete the questionnaire within 24 hr. Participation was voluntary. I asked 86 students to participate; 57 (66%) completed the questionnaire. Participants ranged in age from 18 to 46; 88% were White, 12% were African American, and 75% were women.

Results

Participation and Attrition

The frequency of withdrawals was not different for students who completed the questionnaire when compared to students enrolled in the three online sections, $\chi^2(1, N = 57) = .001, p > .05$. Furthermore, the distribution of race and sex was similar for the students enrolled in the online courses with those who completed the questionnaire: race, $\chi^2(1, N = 57) = .004, p > .05$; sex, $\chi^2(1, N = 57) = .17, p > .05$. The mean age of those who completed the questionnaire ($M = 24.01, SD = 7.41$) was not significantly different than the mean age of students enrolled in the online courses ($M = 24.18, SD = 7.23$), $t(57) = .02, p > .05$.

Reliability

I summed items reflecting each of the seven characteristics to form subscales and conducted a reliability analysis. I eliminated nine items from subscales and from the overall measure because the coefficient alpha was higher without the item.

There were a total of six subscales: (a) self-discipline/motivation (SD/MOT)—“I usually meet all my deadlines,” “I am able to exercise self-discipline,” and “I am highly motivated to do well in my online course,” coefficient $\alpha = .49$; (b) adequate time commitment (TIME)—“I can devote 10 to 20 hr a week to my online course,” “The extra demands of my education place a strain on my relationships at home or at work,” coefficient $\alpha = .47$; (c) study skills (SS)—“I feel I can learn well on my own,” “Sometimes I think I know the material but then I don’t do well on the test,” coefficient $\alpha = .58$; (d) preference for text-based learning (TEXT PREF)—“I have good reading comprehension,” “I need to hear something repeated before I remember it well,” “I often need to ask an instructor to repeat directions or explain some aspect of an assignment,” coefficient $\alpha = .54$; (e) access to technology (TEC ACC)—“I have access to a computer that can access the Internet almost all the time in my home,” “I can access e-mail almost anytime in my home,” coefficient $\alpha = .91$; (f) technology experience (TEC EX)—“I can download new software programs for my computer,” “Learning new technology is not my idea of fun,” coefficient $\alpha = .44$. Note that I combined the subscales of self-discipline and motivation. The coefficient alpha for the motivation subscale was .24 and the coefficient alpha for self-discipline was .33. One item from the motivation subscale combined with the two items on the self-discipline subscale produced a coefficient alpha of .49. This combination was appropriate because self-discipline and motivation were the only two personality factors on the measure.

Online Course Performance

The four measures of online course performance were test score average, assignment average, final exam score, and final course average. Tests consisted of about 50 multiple-choice questions and two or three essays, assignments were two- to three-page papers about topics covered in the course, and the final exam was a cumulative test with 60 to 70 multiple-choice items. I did not include the lowest test score and the lowest assignment score in the final average. To determine the final course average, I weighted the test and assignment grades by .8 and final exam grade by .2.

Table 1 shows that, of the six subscales, only self-discipline/motivation was significantly correlated with test score average, $r(55) = .44, p < .001$; assignment score average, $r(55) = .29, p < .05$; final exam score, $r(55) = .36, p < .01$; and final course average, $r(55) = .43, p < .001$. Three of the measures were nonoverlapping measures of student performance (test score average, assignment average, final exam score), whereas final course average was an aggregate of the other measures and was included to serve as an overall indicator of students’ performance. Not surprisingly, participants’ scores on the measures were correlated.

Discussion

Based on the first-order correlations, six of the seven factors proposed by Schrum and Hong (2002) did not appear to be correlated with course performance. Only self-discipline/moti-

Table 1. Intercorrelations Between Student Characteristics and Performance

Item	1	2	3	4	5	6	7	8	9	10
1. Test average	—	.63*	.55**	.83**	.44**	.06	-.05	-.16	-.03	.10
2. Assignment average	—	—	.25	.55**	.29*	-.05	-.14	-.27	-.12	.14
3. Final exam	—	—	—	.77**	.36**	-.08	.03	-.01	.01	.19
4. Final average	—	—	—	—	.43**	.01	-.08	-.10	.04	.15
5. SD/MOT	—	—	—	—	—	.06	.06	.20	.14	.36**
6. TEC EX	—	—	—	—	—	—	-.27*	.16	.10	.03
7. TEC ACC	—	—	—	—	—	—	—	.09	-.07	.21
8. TEXT PREF	—	—	—	—	—	—	—	—	.32*	.24
9. SS	—	—	—	—	—	—	—	—	—	.03
10. TIME	—	—	—	—	—	—	—	—	—	—

Note. SD/MOT = self-discipline/motivation; TEC EX = technology expertise; TEC ACC = access to technology; TEXT PREF = preference for text-based learning; SS = study skills; TIME = adequate time commitment.

* $p < .05$. ** $p < .01$.

vation significantly correlated with test score average, assignment average, final exam score, and final course average.

These results raise several important issues. First, because the efficacy of the measure for predicting success in online psychology courses was the subject of exploration, I retained subscales with low alphas in these exploratory analyses. My findings are preliminary until confirmed using measures with greater reliability. If the measures had greater reliability, factors other than self-discipline/motivation might also predict online course success. Second, it is interesting to note that factors such as access to technology and technology experience did not relate to online course performance but self-discipline did. These findings are not consistent with Schrum and Hong's (2002) claim that technology experience and access are important for online course success. On the other hand, these results are not surprising in light of the widely accepted contention that motivation plays an important role in student success (Dweck, 1986; Elliot & Dweck, 1988). These results raise questions about whether the factors predicting online course success are any different than factors that predict success in regular psychology courses. Indeed, the possibility that factors predicting success in online courses are not different than factors predicting success in traditional courses is consistent with the finding that student performance in distance education courses is not significantly different than in traditional courses (Beare, 1989; Fox, 1998; McKissack, 1997; Sonner, 1999; Waschull, 2001). I intend to address the comparable role of self-discipline/motivation in online and traditional courses in further research.

References

Beare, P. L. (1989). The comparative effectiveness of videotape, audiotape, and telecture in delivering continuing teacher edu-

cation. *The American Journal of Distance Education*, 3(2), 57-66.

Bonk, C. J., & Dennen, V. (1999). Learner issues with WWW-based systems. *International Journal of Educational Telecommunications*, 5, 401-417.

Council for Higher Education Accreditation. (1999). Distance learning in higher education. *CHEA Update*, 2. Retrieved January 5, 2005, from <http://www.chea.org/Commentary/distance-learning/distance-learning-2.cfm>

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41, 1040-1048.

Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5-12.

Fox, J. (1998). Distance education: Is it good enough? *The University Concourse*, 3(4), 3-5.

McKissack, C. E. (1997). A comparative study of grade point average (GPA) between the students in the traditional classroom setting and the distance learning classroom setting in selected colleges and universities. *Dissertation Abstracts International*, 58(8), 3039A. (UMI No. ABA98-06343)

Schrum, L. (2003). *Student online readiness tool*. Retrieved July 14, 2004, from <http://www.alt.usg.edu/sort/>

Schrum, L., & Hong, S. (2002). Dimensions and strategies for online success: Voices from experienced educators. *Journal of Asynchronous Learning Networks*, 6(1), 57-67.

Sonner, B. (1999). Success in the capstone business course—Assessing the effectiveness of distance learning. *Journal of Education for Business*, 74, 243-248.

Waschull, S. B. (2001). The online delivery of psychology courses: Attrition, performance, and evaluation. *Teaching of Psychology*, 28, 143-146.

Note

Send correspondence to Stefanie B. Waschull, Athens Technical College, 800 Highway 29 North, Athens, GA 30601; e-mail: swaschull@athenstech.edu.

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