Self-Regulated Learning in Hybrid Agricultural Science Courses

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Introduction

For students to advance and achieve their educational goals in today's changing educational environment, they must be successful in their courses, be it face-to-face, online or a hybrid model. Researchers have found that 13% of all students were taking online courses (Christensen, Horn, Caldera, & Soares, 2011). More than seven million post-secondary students took at least one online course, in the fall of 2012, accounting for 33% of the total enrollment in college courses (Allen & Seaman, 2014), indicating a need for research targeting self-regulated learning in the online environment. Students must have management of their learner autonomy and practice individual responsibility to achieve success in online courses (Andrade & Bunker, 2009; Harrell, 2008). Students who do not practice individual responsibility and are not persistent towards achieving their educational goals run the risk of attrition in an online environment (Hart, 2012).

Theoretical Framework

Students develop self-regulated learning skills and strategies as a function of the triadic interaction between, personal, behavioral, and environmental factors (Bandura, 1997, 2004; Schunk, (2001). Self-regulated learning skills develop as the students' personal and behavioral characteristics change and grow as they interact with their learning environment. As satisfactory progress is made in the learners' behavior, self-efficacy toward their ability to be successful will increase, thus their motivation to learn will increase, as well. Pintrich (2000) noted self-regulated learning is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate and control their behavior. This active process is guided and constrained by their goals and the context of their environment (Pintrich, 2000).

Methods

This study was a descriptive survey that implemented survey research design which sought to describe the level of self-regulated learning of students in an online/in-class hybrid format. It was a census of all secondary students enrolled in online introductory horticulture and animal science dual enrollment courses (N=376) during the fall 2015 semester. Data was collected using a modified version of the Online Self-regulated Learning Questionnaire (OSLQ) (Lan, Bremer, Stevens & Mullen, 2004). The instrument was a 24-item scale with a 5-point Likert-type response format with values ranging from strongly disagree (1) to strongly agree (5). Validity of this instrument has been established by previous studies where it has been used to investigate students' self-regulated learning in online courses through 18 different academic disciplines (Barnard, Lan, To, Patton & Lai, 2009). Previous research of the OSLQ has shown structural stability when comparing results between online and blended courses (Korkmaz & Kaya, 2012). The internal consistency of score obtained for the short form of the OSLQ in this study was $\alpha = .96$. There were six constructs of self-regulation in online learning: environment structuring, goal setting, time management, help seeking, task strategies, and self-evaluation. Data was collected online through a link in the students' Blackboard ™ learning shell, yielding a final response rate of 82.4%. To control for nonresponse error, early and late responders were compared. No significant differences were found.

Findings

In regards to the demographic characteristics of the dual enrollment students, there were more male (59.7%) students than female (40.3%). Hispanic (45.5%) students made up a slight majority of the students, followed by Caucasians (27.8%), Native Americans (23.4%), and other (2%).

Dual enrollment students were found to have the highest level of self-regulated online learning within the construct of environmental structuring. Environmental structuring refers to the students' ability to create a comfortable learning environment for which they can be successful. Students had the lowest level of self-regulated online learning within the construct of task strategies. Task strategies refer to note taking and completing responsibilities prior to engaging course activities and assessments. Table 1 provides means and standard deviations for students across all six self-regulated learning constructs.

Table 1
Overall Self-Regulated Learning Scores by Construct

Construct	*M*	*SD*
Environment Structuring	3.77	0.95
Goal Setting	3.72	0.95
Time Management	3.67	0.92
Self-Evaluation	3.59	0.93
Help Seeking	3.58	1.01
Task Strategies	3.37	1.03

Conclusions, Implications, and Recommendations

Students enrolled in agricultural science dual enrollment courses were of similar demographics when compared to secondary students in New Mexico. It was found that the percentages of Hispanic and Native American students enrolled in agricultural science dual enrollment courses was higher than traditionally found in non-agriculture dual enrollment courses. This could be a result of the student demographics of New Mexico or indicative of the assumption of Kanny (2015) who indicated that regardless of race/ethnicity or socioeconomic status, students are benefitting from dual enrollment courses. Of the self-regulated learning scores, environment structure recorded the highest scores while task strategies received the lowest. These findings are consistent with Utsa (2011) who found students were most adept at creating a positive learning atmosphere, yet struggled to find ways to help themselves learn without educational guidance.

It is suggested to continue to provide dual enrollment courses using the hybrid model with assistance from university faculty and agricultural science teachers to assist students further develop their self-regulated learning skills. Course developers are encouraged to continue to incorporate discussion posts, blogs, and online journals to provide opportunities for students to constantly monitor their progress.

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