

Virtual Checklists: Enhancing Personal Progress Monitoring

Dr. Emma Wood

Idaho State University
Pocatello, Idaho, USA
woodemma@isu.edu

Dr. Dotty Sammons

Idaho State University
Pocatello, Idaho, USA
sammdott@isu.edu

Dr. Peter Denner

Idaho State University
Pocatello, Idaho, USA
dennpete@isu.edu

Abstract

Progress monitoring in the context of online education is essential to persistence and success in an online course.

The purpose of this research was to evaluate the efficacy of an online self-monitoring tool embedded in online courses at the undergraduate level. Data were gathered in a survey course specific to undergraduate students' use of a virtual checklist feature. As students of all levels of preparation enroll in online university courses, academically underprepared students often underperform when compared to their academically prepared counterparts. The research questions looked at a possible correlation between the use of Completion Tracking and academic achievement, Completion Tracking and persistence, and the correlation between self-directed learning and student preparedness. A statistically significant correlation was found.

This session will present results, implications, and suggestions specific to UDL checkpoint 6.4.

NOTE: These proceedings draw heavily on the author's dissertation

Keywords

Progress Monitoring, Checklists, Action & Expression

INTRODUCTION

Completion Tracking is a checklist tool, embedded in the Moodle Learning Management System, which allows students to monitor their progress in a course. Personal progress monitoring is supported by the Universal Design for Learning framework ("CAST timeline: One mission, many innovations, 1984-2010," n.d.) and Self-Directed Learning theory (Song & Hill, 2007). Both framework and theory have independent, successful learners at their center. In the university setting, students who are not ready for the independent learning (self-directed learning) required by postsecondary course work, may be accepted and enrolled in such courses. These students are "underprepared" for the rigors of college, in part, because they lack self-direction and personal progress monitoring skills. This study investigated the relationship of a personal progress monitoring tool, Completion Tracking, with performance and persistence of undergraduates in a general education class, as well as the correlation of self-reported "underpreparedness" with measures of self-directedness.

BACKGROUND

The literature suggests that while online instruction may be as effective as face-to-face instruction (Means et al., 2010), there is a certain population of students who have struggled

with both persistence and performance in online courses, namely, underprepared students (Dabbagh, 2007; Hanover Research, 2013). Characteristics of underprepared students include those who have required remedial work (Jaggars & Xu, 2011), have a disability (Hanover Research, 2013), or are English learners (Barbatis, 2010). Self-directed learning skills such as personal progress monitoring are positively associated with persistence and performance (Hart, 2012; Morris et al., 2005). Evidence was presented where disproportionate gains were made between lower and higher performing groups (Haak et al., 2011) when provided increased structure and prompts to monitor one's own progress. Course design also plays a critical role in the perceptions of a successful online experience (Song et al., 2004). Checklists are one type of instructional strategy, embedded in the design of the course, that provide a structure and visual prompting of progress, yet the literature does not address the efficacy of this tool.

Finally, with regard to intrinsic student factors, a student persevering to the end of a course (Xu & Jaggars, 2013) is a measure of persistence. Passing grades indicate academic success (Dille & Mezack, 1991).

METHODOLOGY

This study was designed to answer the following questions:

1. Is there a significant relationship between the percentage of *Completion Tracking* usage and total percentage of points achieved by undergraduate students in a freshman anthropology course after controlling for the following factors: remediation self-report, English as a primary language self-report, disability self-report, self-directedness, and course delivery?
2. Is there a significant relationship between the percentage of *Completion Tracking* usage and persistence in the course, measured by taking the scheduled final exam, or the date of last login, by undergraduate students in a freshman anthropology course after controlling for the following factors: remediation self-report, English as a primary language self-report, disability self-report, self-directedness, and course delivery?
3. Is there an association between preparedness, as indicated by a self-report of remediation, and self-directedness, as measured by the PRO-SDLS?

Procedures

Two asynchronous online sections of ANTH 1100 (Introduction to Anthropology) and one face-to-face section were recruited to participate in this study. The sections used identical instructional materials, although the online section had minimal instructor involvement. The face-to-face course received live lectures, but all course materials were available in the same structure as the online courses through Moodle.

The target population for this study was higher education undergraduate students. The ANTH 1100 course for this study was delivered over a 16-week semester. Weekly lectures (narrated PowerPoint slideshow), organized by topic, were posted which students downloaded and viewed. Other course activities included weekly chapter quizzes, midterm, final exam, and supplementary web-based resources. Each activity element of the course had a corresponding checkbox.

Instrumentation & Data Collection

For this study, the dependent variables were final course point total and persistence rate. SDL levels and participant demographics were identified through the use of two instruments, the Personal Responsibility Orientation to Self-Directed Learning Survey (PRO-SDLS; Stockdale, 2003) and a researcher-designed three-factor questionnaire.

Three sections of ANTH 1100 were recruited for the study (two face-to-face and one online). The PRO-SDLS and three-factor questionnaire were offered after the withdrawal deadline. The checklist tool, *Completion Tracking*, was made available for all students. Students were only alerted to the tool once at the beginning of the semester, thus the use of the tool was personal initiative.

Survey data, the gradebook, and *Completion Tracking* logs were exported from Moodle into Excel at the end of the term. Institutional Research provided demographic information to the researcher. Data were then compiled by the researcher and aggregated based on student usernames, which was then replaced with an ID code.

RESULTS

ANTH 1100 undergraduate students ($N = 152$) participated in this study. They each answered questions related to their self-directedness and also disclosed whether they took a remedial course, had a disability, or were English learners.

The data collected for student demographics included course section, gender, academic class, nationality, primary language, remediation, and presence of a disability. Table 1 displays the count and percentage of the sample population.

Research Question One

A two-block hierarchical linear regression analysis was used to predict the effect of *Completion Tracking* on total points after controlling for specific learner characteristics. Block one was statistically significant, $F(4, 147) = 3.520$, $p = .009$, $R^2 = .087$, Adjusted $R^2 = .063$. When percentage of

Completion Tracking (CT) was added in block two, the prediction model was no longer significant, $F(5, 146) = 3.211$, $p = .171$, $R^2 = .099$, Adjusted $R^2 = .068$. *Completion Tracking* was not a statistically significant predictor of total points after controlling for remediation, disability, language, and course delivery. Based on the final multiple regression equation the variable that contributed most to predicting total points was disability ($t = -2.954$, $p = .004$).

Research Question Two

Persistence was the focus of question two. However, there was an overall completion rate of 96%. Only six students did not persist. Of those, five were from the online course and were English learners, required remediation ($n = 3$), and had a disability ($n = 3$). The other non-persister from the face-to-face course required remediation.

Table 1. Categorical information for the sample of 152 students included in the data analysis

Category	Count	(%)
Online	48	32
Face-to-Face	104	68
Male	77	50
Female	75	50
Freshman	83	55
Sophomore	44	29
Junior	14	9
Senior	11	7
International	100	66
Domestic	52	34
English is Not First Language	18	12
English is First Language	134	88
Required Remediation	120	79
Required No Remediation	32	21
Disability Present	31	20
Disability Not Present	121	80

Research Question Three

A Chi-square test determined the association between remediation and SDL categories of high, medium, and low SDL. The result was not statistically significant $\chi^2(2, N = 152) = 4.642$, $p = .098$. Cramer's $\phi = .10$ indicates a weak relationship which is to say, remediation is not related to a student's SDL category. When dropping the medium category and only comparing the extremes, there is a significant difference between those who are underprepared and have low SDL and those prepared with high SDL $\chi^2(1, N = 152) = 4.6467$, $p = .03$, $\alpha = .05$.

Post hoc Analyses

Several post hoc analyses found additional associations. Those with a self-reported high SDL level are less likely to have a disability ($\chi^2(2, N = 152) = 10.227, p = .006$). The relationship between SDL category and course format ($\chi^2(2, N = 152) = 10.227, p = .006$) found those with lower SDL were more likely to enroll in face-to-face courses, but high SDL responders would enroll equally in face-to-face or online courses. A chi-square test indicated a statistically significant relationship between national status and CT usage, $\chi^2(2, N = 152) = 37.349, p < .001$. *Completion Tracking* and course format had a statistically significant result ($\chi^2(2, N = 152) = 20.526, p < .001$), as well as *Completion Tracking* and gender ($\chi^2(1, N = 152) = 17.685, p < .001$). Cramer's $\phi = .34$ indicated a medium-sized relationship.

ACKNOWLEDGMENTS

I express my gratitude to my children and my doctoral committee in supporting me in this journey. And to my dear Rob – I love and miss you more every day.

REFERENCES

- CAST timeline: One mission, many innovations, 1984-2010. Available at: <http://www.cast.org/about/timeline/index.html>. [Accessed May 6, 2013].
- Barbatis, P. (2010). Underprepared, ethnically diverse community college students: Factors contributing to persistence. *Journal of Developmental Education, 33*(3), 16.
- Dabbagh, N. (2007). The online learner: Characteristics and pedagogical implications. *Contemporary Issues in Technology and Teacher Education, 7*(3), 217–226.
- Dille, B. & Mezack, M. (1991). Identifying predictors of high risk among community college telecourse students. *American Journal of Distance Education, 5*(1), 24–35.
- Haak, D. C., HilleRisLambers, J., Pitre, E. & Freeman, S. (2011). Increased structure and active learning reduce the achievement gap in introductory biology. *Science, 332*(6034), 1213–1216.
- Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning, 11*(1), 19–42. Retrieved from <http://www.ncolr.org/jiol>
- Hanover Research. (2013). Promoting the success of underprepared students in online education. 1750 H Street NW, 2nd Floor, Washington, DC 20006.
- Jaggars, S. S. (2011). Online learning: Does it help low-income and underprepared students? Community College Research Center, Teachers College, Columbia University.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. *US Department of Education*.
- Morris, L. V., Finnegan, C. & Wu, S.-S. (2005). Tracking student behavior, persistence, and achievement in online courses. *The Internet and Higher Education, 8*(3), 221–231.
- Song, L. & Hill, J. R. (2007). A conceptual model for understanding self-directed learning in online environments. *Journal of Interactive Online Learning, 6*(1), 27–42.
- Song, L., Singleton, E. S., Hill, J. R., and Koh, M-H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education, 7*(1), pp.59–70.
- Schneider, M. (1995). *Guidelines for bias-free writing*, (Doctoral Dissertation). Indiana University, Bloomington, IN.
- Stockdale, S.L., (2003). *Development of an instrument to measure self-directedness* (Doctoral Dissertation). University of Tennessee. Retrieved from http://trace.tennessee.edu/cgi/viewcontent.cgi?article=3026&context=utk_graddiss
- Xu, D. & Jaggars, S.S., 2013. Adaptability to online learning: Differences across types of students and academic subject areas. Community College Research Center, Teachers College, Columbia University.
- Wood, E. (2017) Turn on *Completion Tracking*: The effects of a personal progress monitoring tool on academic achievement and persistence in an online learning environment (Doctoral Dissertation). Idaho State University.