USING A GENERALIZED CHECKLIST TO IMPROVE STUDENT ASSIGNMENT SUBMISSION TIMES IN AN ONLINE COURSE

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ABSTRACT

Online instruction, like all traditional instructional environments, requires learner self-control and proactive learning to construct knowledge and acquire skills. However, online students often fail to complete some components of their online work each week, damaging their overall academic progress in the course. To assist students in completion of all assigned elements and submission of work on time, three professors at a public southeastern university implemented the use of a generalized assignments checklist to enhance student self-monitoring in their online courses. Data on the submission of assignments was analyzed for relative timeliness. The results of this study showed a statistically significant difference between students receiving a generalized online learning checklist to the control group who did not receive a checklist. The experimental group showed a marked improvement of assignment submission timeliness, improving course satisfaction for students and instructors.

KEYWORDS

checklist, assignments, submission time, strategy, organization

I. INTRODUCTION

Online educational experiences have become common within professional education courses. Given the ongoing associated technology changes, development and implementation of online learning provides a dynamic and fluid environment for pedagogical innovation. As faculty design and adapt the structure of courses for online delivery, they also experiment with pedagogical strategies and tools to achieve instructional and individual goals. One issue that has been noted among some online learning instructors at the college is that many students new to the online education environment fail to submit all assigned work by specified deadlines, and often students are missing elements of their assignments (personal communications, October 13, 2010). That is, while they may have completed the major assignment, another element, such as an online discussion, was not posted. When questioned, students often indicated that they thought that they had done all the assigned elements for the session, but that they must have forgotten or overlooked a portion of the assignments. Such students might be new to online instruction or project based learning, and so they might overlook elements of the online class as they live their lives. Effective online practices of student-centered project-based learning for online courses require a variety of projects to be submitted: the loss of any project component damages the continuity of the students' learning and possible success within a course.

The purpose of this study was to examine the effect on project submission times of providing a generalized checklist of assignments to students enrolled in web-based sections of an educational leadership program. The checklist was designed to serve as a tool to remind students of the different assignment components and to make those explicit to the student. Ideally, this checklist process could, as Gawande put it, offer "the possibility of verification but also instill(s) a kind of discipline of higher performance" [1](2009, p. 36). As such, this paper describes the implementation of an instructional resource and explores the development of faculty members' personal practical knowledge [2] regarding the use of generalized checklists within graduate, online learning environment.

II. THEORETICAL PERSPECTIVE

Asynchronous, Internet-based, online courses have become common learning environments for the delivery of postsecondary education. During the 2007–2008 school year, 20% of undergraduates and 22% of graduate students took online education courses in the U.S. [3]. These web-based learning environments require more learner self-control and proactive learning to construct knowledge and acquire skills. Schunk & Zimmerman mentioned that "an area that lends itself well to self-regulation is distance learning… Self-regulation seems critical due to the high degree of student independence deriving from the instructor's physical absence" [4, p.231-232].

Although there are numerous reasons that students may select online courses, such as convenience or increased access, the learner's educational needs extend beyond the provision of content. The North American Council for Online Learning [5] and Sloan-C [6] has identified elements for effective online-learning courses: including learner-centeredness and constructivist project based learning activities. No matter their reasons why they choose online learning, other issues, such as lack of time and environment management skills [7] or mismatch between learners' interest and course structure [8, 9] have created problems for students in online courses. Researchers have identified self-regulatory strategies as one of the predictors for achievement in online education [10, 11]. Zimmerman defined self-regulation as "the self-generated thoughts, feelings, and actions that are planned and adapted cyclically to the attainment of personal goals" [12, p.14]. Additionally Knowles identified in adult learning principles that adults value economy of effort and use their time effectively [13, 14]. The objective of the generalized checklist was to help protect the student against forgetting assignment elements of a project-based online course, assisting students in planning and using their course time effectively and to complete course work within the allotted time frame.

There are additional supports for the concept of learners' self-regulation as a predictor for their academic achievement [15, 16], that it has a positive effect on learners' motivation [17, 18], and use of learning strategies [17, 19]. Lan conducted an experiment to examine the effects of self-monitoring on students' learning strategies, motivation, knowledge representation, self-judgment ability, and course performance, with students were divided among a self-monitoring group, an instructor-monitoring group, or a control group [17]. Lan's results determined that the self-monitoring group outperformed the other two groups on course tests, employed more self-regulated learning strategies, and created better knowledge representation of the course content [17]. In this paper's study, generalized checklists were directed to students as a self-monitoring tool.

III. METHODOLOGY

The instructors participating in this study used a weekly asynchronously online class and assignment structure that generally paralleled the organization of a traditional classroom course. Students were presented with content to learn which was delivered though a variety of mediums; a course site, textbooks and other assigned readings; collaborative elements for participation, such as discussions, and short term projects to complete, in addition to working on long term projects. Project specific rubrics and checklists which have focused on single projects have been found to help students effectively complete their work, but in an online class usually there are multiple projects to complete for each session, some repeated

across sessions. The generalized checklist was designed to assist the student with the completion of all course elements, not just a single part.

Students were randomly assigned into two groups: the experimental group of students received a generalized checklist of five items on a weekly basis, while the student control group did not. The checklist was general and straightforward in its wording, following the aviation checklist design guidelines for a READ-DO checklist [20], and was intended to serve as a reminder of the various elements usually involved in a project-based online class (see the simplified checklist below). The checklist was emailed weekly from course professors to members of the experimental group approximately four days before the assigned submission time. The control group also received a reminder note concerning session assignment being due, but lacking the checklist elements.

> *Here is a checklist for this week to help you organize this session's work and submit it on Monday. Print out the attached checklist, and keep it around. Don't just read though the list: instead, interact with it. Try going through the Assignments folder and writing the activities into the ACTION STEPS section for yourself better to track your own assignments. When you have completed a section, check it off to help you keep track of your work in the online class. You can add more sections to be completed if you need to. Review your assignments in Blackboard or from the syllabus to find more detail concerning your required work.*
>
> 1) *Read this week's reading materials.*
> 2) *Review this week's online content materials.*
> 3) *Participate in this week's collaborative elements (discussion/blogs/wikis/etc).*
> 4) *Complete this week's assignments to submit.*
> 5) *Review progress on your long-term projects.*

IV. DATA SOURCES

In order to assess the timeliness of student submissions during the study, instructors tracked the submission times of student work and compared those to the assigned submission times. These data were collected across four asynchronously delivered courses at a medium-sized comprehensive state university located in the southeast of the United States, with an experimental student population (n) of 56 graduate education students over the course of an entire semester. To simplify the data collection, date comparisons were used, so all submission values were by day counts. Student work turned in early was logged as positive; on-time work was logged as zero, and work submitted after assigned deadlines were recorded as negative. For example, a student turning in work on Friday when the project was due by the following Monday had a recorded score of +3, for three days early. Another student turning in the same assignment on the following Thursday had a recorded score of –3, for three days late. Before analyzing the data, outliers of submissions more than one week on either side of the due date were removed in consideration of the fact that the checklist in a given week could have no impact on those submission times.

V. RESULTS

As most online learning courses are delivered asynchronously, it is important to develop instructional tools to better support students. Not only did the use of the generalized checklist in this study significantly influence assignment submission timeliness, it also impacted faculty members' workload. Mean scores for the students in each group were calculated by averaging recorded scores from all tracked assignments within the courses. A descriptive analysis of results to examine students' submission patterns that might have been influenced by the checklist noted a mean ($\bar{x}$) that was almost twice as large for the experimental compared to the control (see Table 1).

Experimental		*Control*	
Mean	1.593521127	Mean	0.743209302
Standard Error	0.371623347	Standard Error	0.357687187
Median	1	Median	1
Mode	0	Mode	1
Standard Deviation	5.423664195	Standard Deviation	5.244723688
Sample Variance	29.4161333	Sample Variance	27.50712657
Kurtosis	12.19216484	Kurtosis	6.110010658
Skewness	-2.476335856	Skewness	-1.674543784
Range	44	Range	41
Minimum	-34	Minimum	-29
Maximum	10	Maximum	12
Sum	339.42	Sum	159.79
Count	213	Count	215

Table 1. Descriptive statistics from one instructor's two courses

Next, an independent samples t-test was conducted to evaluate the hypothesis that students who received reminder emails submitted assignments in a more timely fashion than students who did not. This t-test analysis assumed unequal variances between the student average submission scores for the two groups (see Table 2). The results across all courses showed a statistically significant difference according to t-test analysis with a p value equal to 0.039. The results of t-test for this study indicated a statistically significant difference in the timely submission of assignments in these online courses, based on the distribution of the generalized checklist to the students between experimental and control groups.

t-Test: Independent sample
Assuming unequal variances

	Experimental	*Control*
Mean	1.683294798	1.088799
Variance	13.61654679	15.51507
Observations	346	358
Hypothesized Mean Difference	0	
df	701	
t Statistic	2.067360311	
p (T<=t) one-tail	0.019533338	
t Critical one-tail	1.647030228	
p (T<=t) two-tail	0.039066677	
t Critical two-tail	1.96335382	

Table 2: Results from *t*-Test analysis of all courses

VI. SIGNIFICANCE

This study contributed to identifying effective strategies for designing online courses in several ways. First as can be seen in the descriptive statistics and the descriptive summary among the instructors: students who received checklists turned in their work two to five times earlier that those who did not (see Table 3), making it an effective tool to assist students in their work. This effect was noted even when all students (control and experimental groups) received reminder notes for work completion. Next, this aspect, the reduction of delay, was meaningful to the instructors as it as the end result, it served to reduce the additional workload associated with late work. As an example, for one instructor students who

received the checklists were on average about one day late in their submissions, while members of the control group without the checklists were on average five days late. By the end of five days, the instructor had moved on to other topics, and the constant return to previous sessions' materials added to the instructor's workload.

Instructor	n	$\bar{x}_{control}$	$\bar{x}_{experimental}$
#1	30	+0.74 days	+1.59 days
#2	15	-5 days	-1 days
#3	11	+0.47 days	+1.61 days

Table 3: Mean results of submission times among instructors.

Glouberman and Zimmerman provided a distinction among different kinds of problems: simple, complicated, and complex [21]. Simple problems have a few basic steps; complicated problems have reductive characteristics and can be broken down into a series of simple problems; and complex problems have emergent characteristics that may change with each situation. For an online project based course, an assignment such as a discussion or journal review could be considered a simple problem, but often during each online learning session students have more than one such project on which they should work: they need to read from a text, review online materials, participate in discussions, write reviews, complete simulations, analyze their results, and perhaps even more. In this kind of online learning environment, each session becomes a complicated problem for the student, a large problem that can be broken down into smaller problems. The generalized checklist reminders appeared to serve as a structure to break down that problem into manageable tasks.

Additional research is needed to validate the generalized assignment checklist, such as use by different age groups and degree programs. This study focused on graduate novice online learners, it would be important to see the results from online novice college and high school students. Future research should also investigate the use generalized checklists as action triggers. An action trigger is a plan to initiate an event, such as the time and place a student will complete an upcoming project. Action triggers have been found to be effective in motivating student action. One study found that the use of an action trigger resulted in 75% of students completing a project on time, compared to 33% among students who did not receive the action trigger [22]. It may be possible to adapt the generalized checklist into such an area.

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