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EFFECTS OF COURSE DELIVERY MODE ON STUDENTS SELF-REGULATION SKILLS

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ABSTRACT: With the development of internet and Learning Management Systems, owing to their flexibility in delivery and instant access features, more and more instructors have started to blend or flip their courses by using online learning technologies like videos, online homework, and e-exams. In online learning applications, learners are encouraged to acquire and build their knowledge through interaction with a wide range of resources. For students to gain experience, it is important that they get hands-on practice as well as use time effectively during class periods in courses like Computer Programming. Students equipped with self-regulation skills perform better in choosing learning methods appropriate for their learning pace, completing learning tasks, and achieving learning objectives. Furthermore, students with good self-regulation skills can improve their learning both in blended and flipped courses. Building on this point, this study aims to investigate differences between students' self-regulation skills in a blended and a flipped course. Based on online self-regulatory perspective, five properties were chosen to be notably considerable for blended and flipped courses: perceived self-efficacy, perceived anxiety, interactivity in the online learning environment, perceived satisfaction, and perceived usefulness. The participants were 192 sophomore students enrolling at Computer Programming Course in a vocational college during fall semester of 2015-2016 Academic Year. Data were collected via an online questionnaire. Independent samples t-test was conducted to examine differences in self-regulation skills of students in flipped and blended courses. Flipped course participants reported significantly higher levels of perceived anxiety with online learning environments while blended course participants reported significantly higher levels of perceived satisfaction, perceived usefulness and self-regulation. In this sense, it is assumed that flexible environment of flipped classrooms lead to higher anxiety levels and urges students to seek more instructor guidance.

Key words: Flipped learning, blended learning, self-regulation

INTRODUCTION

The advancements in technology extend the boundaries of teaching and learning activities, diminish time and space limitations of traditional classrooms and create new course delivery modes like blended and flipped classrooms. Blended learning is described as a hybrid education program in which traditional and online educational methods (Owston, York & Murtha, 2013) are used and appropriate technology is utilized to administrate teaching (Osguthorpe & Graham, 2003). Blended learning offers many advantages to all members in an educational system like empowering efficient use of classroom space, enhancing adaptability of faculty members in their instructional processes, promoting active learning, increasing student satisfaction and giving responsibility to students on their own learning compared to solely face-to-face or web based classes (Vaughan, 2007). In a blended learning environment, course content is accessed any place via the Web and students can study at their own pace which plays critical role on level of learner satisfaction and achievement (Cigdem,2015).

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One of the implementations of blended learning is flipped classroom. Although the term flipped classroom undergoes intense study, researchers and educators have different opinions about flipped learning environments. One of the most widely used descriptions of flipped class is that learning activities are done outside of class and assignments and applications are completed in class during instruction time (Bergmann & Sams, 2012). This approach combines face to face and web based learning modalities of teaching and learning.

In a flipped mode of instruction, students study the topic by themselves before the course meetings, especially using video lectures or presentations provided by the teacher. During lesson hour, students work through assignments or activities like quizzes, worksheets, reflective writing exercises in groups with peers and the instructor. Flipped classrooms make space for hands-on work and students apply the knowledge they gained before the class by solving problems and completing practical work. The teacher assists students whenever they need, rather than giving lectures to whole class.

As online learning environments such as blended and flipped classrooms become more user-centered, connected and ubiquitous, students are inevitably required to manage their own learning activities, which mean to become self-regulated (Artino, 2007). Despite opportunities provided by online learning modes of instruction like flipped and blended classrooms, there is limited research addressing factors affecting self-regulation behaviors of students in these learning contexts. The goal of the study was to answer the following research question: "Is there any significant difference in self-regulation skills of vocational college students enrolling in a flipped and a blended course?"

METHODS

In current study, SRL variables of a conceptual model developed by Liaw and Huang (2013) is used to identify factors affecting self-regulation behaviors of students in a Computer Programming Course offered in both blended and flipped mode. According to Liaw and Huang (2013), learner self-regulation, as a dependent factor, could be predicted by independent factors comprising perceived self-efficacy (PSE), perceived anxiety (PA), and interactivity in online learning environment (IOL), perceived satisfaction (PS), and perceived usefulness (PU).

Convenient sampling method was used in the study. The sample chosen for the study comprised 192 vocational college students from Electronic and Communication Technologies Department enrolling at a Computer Programming Course during the first semester of the 2015-2016 academic year, 103 of whom formed the blended learning group and 89 the flipped learning group. The study was conducted in Computer Programming Course, a must course in Electronics and Communication Technologies Department, in which lecturer provided lecture notes, presentations, code samples, and instructional videos related to "variables, if-else statements and loops" over the intranet on MOODLE.

In the blended mode, students were introduced to topic of the week. After the lecture, students created C# projects in computer labs. At the end of each session, a short summary of the topic and feedback related to common errors were provided to students. In flipped mode, the lecturer tried to activate student responsibility for learning, by asking them to "discover" or "construct" necessary information on their own. Before course meetings, students studied the lecture notes of the week and watched the related videos. During the class hours, students created C# projects and provided feedback if necessary.

Independent sample t-test was used to detect whether there were any differences on the basis of course delivery mode related to online self-regulation skills of students. The significance level was set at .05 in all analyses.

RESULTS and FINDINGS

Mean values, standard deviations and Cronbach's Alpha of the Online Learning Self-Regulation (OLRS) subscales are presented in Table 1.

Table 1. Descriptive Results of OLRS Subscales

Subscales	N	Items	X	sd	Cronbach's Alpha
PSE	192	4	4,13	,059	0.834
PA	192	4	1,73	,062	0.873
IOL	192	6	3,71	,060	0.835
PS	192	5	3,49	,059	0.818
PU	192	6	3,85	,061	0.933
LSR	192	5	3,74	,066	0.910

Table 2 presents the t-test results applied to all sub-scales. As can be seen, vocational college students' level of online self-regulation skills showed significant differences based on course delivery mode in PA, PS, PU and LSR sub-scales.

Table 2. t-test Results of OLRS Regarding Course Delivery Mode

Subscales	Course Delivery Mode	N	X	sd	t	p
PSE	Blended	103	4,22	,717	1.901	.059
	Flipped	89	4,00	,932		
PA	Blended	103	1,60	,741	-2.369	.019
	Flipped	89	1,90	,998		
IOL	Blended	103	3,79	,779	1.639	.103
	Flipped	89	3,59	,891		
PS	Blended	103	3,62	,816	2.451	.015
	Flipped	89	3,33	,806		
PU	Blended	103	3,99	,841	2.613	.010
	Flipped	89	3,67	,828		
LSR	Blended	103	3,88	,834	2.621	.009
	Flipped	89	3,54	,989		

CONCLUSION

Flipped course participants reported significantly higher levels of PA with online learning environments while blended course participants reported significantly higher levels of PS, PU and LSR. This could partly be adhered to students' first impact with a flipped class and their lack self-study skills. Having had the traditional education through their school years, the students are not used to the idea of teacher as a facilitator; he or she must explain while students listen. The results about blended learning's significant impact on PS, PU and LSR could be explained by the fact that the instructor presented the subject and guided the students on their studies during class hours.

RECOMMENDATIONS

In this sense, it is assumed that flexible environment of flipped classrooms lead to higher anxiety levels and urges students to seek more instructor guidance. Hence, it is important that students should be informed about the teaching method in the first place and they should be granted more responsibility on classroom work.

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