

DECISION SCIENCES INSTITUTETeaching project management online versus face-to-face
(Full Paper Submission)

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ABSTRACT

This study surveys students in online and face-to-face classes of undergraduate project management. Evaluations on learning effectiveness are conducted after students completed the classes. Our results show that a well-designed online class could outperform a face-to-face class of project management, which is a typical subject in business school curriculum. Our findings suggest some common concerns of the effectiveness of online course, such as lack of collaboration among students, interaction with the instructor, may not exist with a carefully designed online class.

KEYWORDS: Project management, Online education, Higher education, Learning effectiveness

INTRODUCTION

The nature of a project management course's content and structure pose an increasing challenge for project management educators and students. Acquisition of the project management tools, practices, and support factors required for effective teamwork necessitates extensive education (Felder and Elhadj, 2004). The lack of a comprehensive and effectual project management education becomes evident in the professional workplace. Mir and Pinnington (2014) reported that despite the advancement in project management processes, tools, and techniques, project success in the workplace has not significantly improved.

Project management courses are designed to introduce project management methodologies to ensure the completion of a coherent project. From a student's perspective, the complex nature of project management processes, tools, and techniques presents a different type of knowledge and skill set. Many students feel immersed with unfamiliar

terminologies, unknown concepts, new software, and project documentation requirements. Project management education is multidimensional. It is often overwhelming for students to deal with all the followings together: a theoretical discussion of each knowledge area, the overlapping process groups, the inclusion of soft skills, and practical application within a team structure. Students often become inundated by the various aspects of the subject, relegate themselves to passive engagement, and overlook the importance of adopting marketable, transferable skills that could improve their comprehensive understanding of project management.

In addition to the aforementioned challenges of learning and teaching project management, how to retain the same learning effectiveness of an online project management class adds the challenges to the faculty who delivery project management class online. Our study surveys students in online and face-to-face classes of undergraduate project management in a large public university. Evaluations of learning effectiveness are conducted after students completed the classes. Our results show that a well-designed online class could outperform a face-to-face class of project management, which is a typical subject in business school curriculum. Our findings suggest some common concerns of the effectiveness of online course, such as lack of collaboration among students, interaction with the instructor etc., may not exist if they can be carefully addressed during the design phase of an online class.

LITERATURE REVIEW

Hyvrari (2006) examined the critical factors and the failures in project management. The success factors include clear objectives, commitment to the end user, adequate resources, ability to coordinate, effective leadership, commitment and flexibility with resources, support from the upper management, clear job description, structuring by project, technological and economic environment. Besteiro, de Souza Pinto, and Novaski (2015) conducted an exploratory empirical research on project managers from 28 companies in order to classify critical success factors into 4 driver groups. They proposed 57 variables altogether with 18 for managerial liabilities group, 19 for critical success factors group, 13 for monitoring and control group, and 7 for lessons learned.

Using evaluative and developmental measures at the individual and team levels, Kemery and Stickney (2014) assessed a multifaceted, multilevel approach for acquiring and assessing teamwork knowledge, skills, and abilities in an undergraduate business course. Teamwork knowledge, individual teamwork behavior, and collaborative peer rating were the three assessments administered. On the teamwork knowledge test, which included questions which referenced designing solutions to a problem as a team and collaborative decision-making, slightly more than three quarters of the achieved a passing score. Differences were found between the day and night sections of the course, possibly due to age and work experience. Larson & Drexler (2010) implemented service-learning projects in a project management course to introduce project management concepts and to determine success factors. Fund-raising projects served as the background for the acquisition of both the hard and soft skill aspects within a project management environment. Emphasis was placed upon learning the project management framework; specifically, the importance of the work breakdown structure, planning, scheduling, and controlling projects. Engagement in a real-world project provided an experience in using the project management concepts, techniques, and decision-making tools available to project managers in a professional workplace. In addition, the project objectives included a focus on social capital needed to manage project stakeholders.

Dutcher, Epps, and Cleaveland (2015) compare students' learning experiences in online and face-to-face business law classes. They study what specific characteristics of students that

may affect their satisfaction. We adopt the same survey instrument (see appendix) to examine the teaching effectiveness for online and face-to-face project management students.

DATA COLLECTION AND ANALYSIS

We surveyed fifty-eight (58) students in a face-to-face project management class and thirty-four (34) students in an online class. Two classes are taught by the same instructor and adopted the same teaching materials. A 7-point Likert scale survey is used to measure the student's feedback regarding each item in the survey. The mean of learning effectiveness for each survey item are listed in Table 1. We also performed a t-test to investigate the learning effectiveness differences between the online and face-to-face classes. The corresponding t-value and p-value can be found in the last two columns of Table 1.

Item		Mean		<i>t</i> -test	
		F2F class	Online class	<i>t</i> -value	<i>p</i> -value
1	I am satisfied with the amount of project management concepts I have learned in this course.	5.48	6.15	-3.7047	0.00038
2	I believe the course format (online or face to face) positively affected my ability to learn project management concepts.	5.5	6.12	-2.4554	0.016135
3	The number of students in this section positively affected my ability to learn project management concepts in this course.	4.97	4.88	0.2534	0.800786
4	The class meeting time positively affected my ability to learn project management concepts in the course.	5.36	5.32	0.1236	0.902071
5	Class discussion in this course positively affected my ability to learn project management concepts in this course.	5.19	5.76	-1.9746	0.051893
6	Interaction with my classmates during the semester positively affected my ability to learn project management concepts in this course.	5.09	4.85	0.6978	0.487461
7	I am satisfied with the skills of applying project management in my major/career I learned in this course.	5.48	6.32	-4.1489	7.62E-05
8	I believe the course format (online or face to face) positively affected my ability to learn applying project management in my major/career.	5.43	6.18	-3.1301	0.002379
9	The number of students in this section positively affected my ability to learn applying project management in my major/career.	5.03	4.85	0.5778	0.565694
10	The class meeting time positively affected my ability to learn applying project management in my major/career.	5.2	5.26	-0.2417	0.809869
11	Class discussion in this course positively affected my ability to learn applying project management in my major/career.	5.2	5.68	-1.7071	0.092106
12	Interaction with my classmates during the semester positively affected my ability to learn applying project management in my major/career.	5.3	5.29	0.0297	0.976407

One of the concerns of online class is the interaction and collaboration among students. Items 3, 4, 6, 9, 10, and 12 have shown that there is no significant difference between the face-to-face and online classes regarding student interaction and collaboration. Furthermore, items 1 and 2 indicate a higher level of students' satisfaction of the online class. From the instructor's observation, online students are more self-motivated in general. Therefore, the students in online class are more willing to study and aware of the potential inconvenience that may occur. With the availability of all communication means and devices, the interactions among online students are not an issue at all. The advantages of face-to-face class in terms of the opportunity of interaction is trivial nowadays. Items 5 and 11 represent this trend. As to items 7 and 8, it is beyond the scope of the classroom (including online learning environment) for students to apply the knowledge learned in class to business practices. In summary, the online project management class outperforms the face-to-face class in some of measurements and performs similarly (no significant difference) in the rest of the measurements. Overall, we conclude that a well-designed online class could outperform a face-to-face class of project management.

CONCLUSION

We explore the differences regarding students' learning satisfaction between online and face-to-face project management classes. The results show that the online class outperform the face-to-face class in terms of some measurements and performs similarly on the rest of the metrics. The face-to-face class has no advantage over the online class in any aspect. Although our results are derived from one specific course, the take-away of this study is that a well-designed online class could overcome all concerns of the online learning format and could actually outperform the traditional teaching approach.

REFERENCES

Available upon request.