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PRE AND POST CLASS CASE DISCUSSION: ENGAGING BUSINESS STUDENTS IN LEARNING MANAGEMENT INFORMATION SYSTEMS

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ABSTRACT

Case study method has been commonly employed as one of the most effective teaching tools in various business disciplines. It has the benefits of positioning students in a realistic business scenario and practicing students' critical thinking skills. The current study explores several ways of implementing case study teaching method in the context of engaging business students in the Principle of Management Information Systems course offered at an undergraduate level. Based on our observations and feedbacks from students, we came up with a new case study teaching method with two opportunities to engage – Pre and Post Class Meetings. We implemented our proposed teaching method in the target course and empirically investigated students' perception of its effectiveness, as well as the objective learning outcomes. The results show that the new approach did effectively motivate business students to study relevant concepts in MIS and explore more novel ideas.

Keywords: Case Study Teaching Method, Pre-Class Case Study Assignment, Post-Class Case Study Assignment, Information Systems, and Engaging Business Students

INTRODUCTION

Ways to increase student engagement in the classroom have been an important topic in higher education. Among the alternative methods to better student engagement, case study has long been recognized as one of the most effective methods because it can provide a more realistic setting for students to analyze, evaluate, or propose potential solutions. It also offers the opportunity for students to explore alternative explanations and put forward their own reasoning. In this study, we explored several strategies of implementing case study teaching method in the Principle of Management Information Systems (MIS) course offered at a state university in Southern United States. A new case study method with Pre and Post class meetings is proposed and empirically examined for its effectiveness. Results indicate that students did perceive the new case study approach to be effective in motivating their learning of MIS. More importantly, they achieved higher outcomes in the course.

This study contributes to the extant body of literature by proposing and empirically validating a novel case study teaching method with double opportunities to engage – Pre and Post class cases. The practical implications of the proposed approach include better preparing students for the class, engaging students with the material, and improving their learning outcomes.

LITERATURE REVIEW

Case study method has been extensively utilized as a pedagogical method in many disciplines [9]. In general, case study method in teaching describes a genuine business situation and thus is an effective way to bring real experience into the classroom [14]. Case method helps to bridge the gap between teaching and reality/practice [7].

Use of Case Study Method in Teaching Information Systems

Case study as a teaching tool is a widely adopted method of instruction in Information Systems (IS) education [7, 11]. The advantages of case study method include: allowing students to develop high-order reasoning skills, bringing real-world examples into classroom, facilitating knowledge transfer, and bringing organizational impacts, social values, and ethical issues to the forefront [7].

With the advance of web and multimedia technology, IS educators seek to embed new technologies into case study method for teaching. For example, Johnson and Stubbs [13] explored the prospect of interactive web-based case studies to facilitate individualized realistic learning experiences that scale for many students. Further, the differences in teacher roles between in online and face-to-face environment were examined from cognitive and social aspects

[11]. In the online setting, teachers had less control on the "choreography" of case discussion, although higher levels of cognitive processes were observed [11]. Echoing such findings, hybrid approach was preferred over monotone alternatives, combining traditional lecture method with multimedia case studies approach as the hybrid approach was found to be more effective especially in teaching introductory information technology courses [17].

Prior studies have attempted to develop effective pedagogical cases specifically for IS field (e.g. a set of cases designed as a required capstone course for organizational and end-user information systems [3]) and theoretically grounded instruments to evaluate the effectiveness of case approach in IS education [8]. Studies indicate that IS students are mostly satisfied with the case study approach [8].

A variety of types of cases is available: long vs. short or mini-case [16]. In principle, cases used in case study method do not necessarily need to be large and complex. Shorter cases or mini-cases offer opportunity to challenge students to focus on given problems and stimulate classroom discussions [5]. Students can read, analyze, and discuss a mini-case within a single class meeting or mini-cases can be used for homework assignments [5]. Case study method is particularly suitable for management-oriented information systems courses [16], and being applied to support teaching and learning in the domain of information security [9].

Use of Case Study Method in Accounting Education

Besides IS discipline, case study method has also been applied in other business domains- most notably, accounting. The case study enables accounting students to apply theories learned to practical business issues [6]. As in IS education, a set of sound cases grounded on a real-world situation is must-have in order to learn ways to meaningfully apply the learned accounting theories [6]. Case study approach has been often endorsed as a method for affording realistic learning scenarios and for preparing accounting students for the real-world challenges [18].

Empirically-researched case studies can contribute to real accounting practice reform and support developments in accounting education, especially when accounting research, education, and practice are aligned [4]. An empirical study demonstrated that relevant work experience does not affect students' perceptions of the usefulness of the case study method in an advanced management accounting course [1]. Therefore, accounting teachers should not customize the usage of case studies to take account of students' previous relevant work experience [1]. Another study on accounting teacher's experiences revealed three different types – controller, facilitator, and partner [10]. Among these three types, only the partners employ the case study method explicitly to foster deeper learning and personal development [10].

Use of Case Study Method in Business and Management Education

Case method is particularly useful in teaching business, management, and business ethics, where students are expected to take the role of the decision maker [14]. Case study method is now employed universally and ubiquitously in management education [12]. The focus of case study is not only on the analysis of the content of management strategy, but also on the fundamental strategy-making processes [12]. It is suggested that case instructors should act as ideas/perspectives brokers, bring in examples and ideas from other disciplines, and create a fun learning environment [12].

Pre-Class Meeting Assignments

It is a well-recognized fact that many college students attend classes totally unprepared, although they are constantly reminded of relevant assignments and tasks for upcoming class meetings [2]. Lack of pre-class preparation, especially by those struggling students, leads to challenging instructional situations [2]. An empirical research found that pre-class preparation (e.g. reading the assigned textbook chapters, or answering the pre-class meeting questions beforehand) significantly improves the quality of class discussion and student experiences [2]. The same holds true for case study method. It is evident that pre-class preparation (in the form of reading cases and studying the relevant background materials) is one of core prerequisites for successful implementation of case study method [7].

PROPOSED PRE AND POST CLASS CASE DISCUSSION TEACHING METHOD

The proposed teaching method is the result of several rounds of experiments adopting "Just in Time Teaching Paradigm" [2]. "Just in Time Teaching" method uses pre-class assignments to get students prepared and enable instructors to modify course contents based on students' answers to pre-class assignments. It is an applicable paradigm to address issues related to case study method. Instructor participants implementing these successive experiments have been teaching the Principle of Management Information Systems (MIS) course every semester since spring 2012. It is a junior level undergraduate course required for all business majors. In order to help students to develop abstract and critical thinking skills in the target course, we leaded students on 12 in-depth real-world mini-case studies. Adopted are cases from a textbook titled "Experiencing MIS" [15] for these 12 mini-case studies. The case study assignments are also expected to provide opportunities for students to apply learned IS theories and knowledge to practical business problems in a realistic setting.

Our initial attempt adopted the conventional approach, assigning cases and relevant analyzing questions as homework. Students are asked to complete the assignments and submit their analysis in the following session. After the submitted materials were graded and handed back, instructors discussed the graded case study material with students during the class meeting. Upon careful observation of students' behavior, two issues were noted during the process. First, significant number of students did not pay necessary attention to the in-class discussion of the assigned cases, or missed the particular class completely. Since they already earned credit for the case being discussed, students have less motivation to learn from the discussion. Second, we noticed that many students lack the necessary knowledge and skills to independently analyze the cases. Submitted answers and analysis were superficial and short of insight. Those students may not benefit much from the assigned case study if they are completely left alone for independent work.

The next round of experimental approach was formulated and emerged to address these issues. At the initial stage, instructors' perspectives on the cases are briefly discussed during a class meeting before the cases are assigned to students. The detailed requirements and information including deadline for the case study assignment are announced only after the initial class discussion. Survey results indicate that students favor their instructor to discuss the cases to be assigned during a class meeting, because it significantly helps them understand the context of assigned cases. Even with this alternative approach, some students did not put an adequate level of effort in the assigned cases and abused the system. They simply reported notes of class discussion as their answer.

Realizing the limitation of this approach, we devised the following strategy for the next round of experiments. One single identical case is assigned as two separate assignments, offering double opportunities for successful engagement with the material. The first segment is a pre-class meeting assignment due right before the class meeting where the particular case is scheduled to be discussed. We used it to motivate students to read and understand the context of the assigned case. Students are required to submit their own brief answers – at least 75 words for three questions. The goal of the first assignment is to get students prepared before the class discussion. The second assignment is a post-class meeting assignment due after the class meeting. Answers to the second assignment are expected to be more substantive – at least 600 words for three questions. During the class meeting, the key points and instructors' perspective are shared with students. Students were encouraged to participate in the discussion and take notes. The objective of the second assignment was to give students incentive to pay attention to class discussion and learn from instructor and fellow students. We assigned five points for each pre-class meeting case study assignment and ten points for each post-class meeting case study assignment. The current study evaluates if the proposed approach with a pair of pre and post class meeting assignments better motivates students in learning. In addition, it investigates whether students actually accomplish higher achievements with this proposed approach.

RESEARCH HYPOTHESES AND METHODOLOGY

How effective is the proposed approach in practice? The effectiveness of the proposed approach is measured by evaluating the specific research questions formulated as hypotheses. With incremental improvements added on the proposed case teaching method at each round of experiments, we aimed to fulfill a set of objectives (i.e. student motivation and outcomes). The constructed hypotheses demonstrated below reflect these objectives.

Research hypothesis 1: Students perceive that pre-class meeting case study assignment motivates students' learning.

Research hypothesis 2: Students perceive that post-class meeting case study assignment motivates students' learning.

Research hypothesis 3: Overall, students perceive that the proposed approach with a pair of pre and post class meeting assignments improves their learning experience.

Research hypothesis 4: Students achieve higher outcomes with the proposed approach

A set of survey questionnaire was developed to evaluate research hypotheses. Items are designed to assess students' attitude toward the pre and post class case discussion teaching method. As shown in Appendix A, the questionnaire comprised six items with Likert scale (1 for strongly disagree and 5 for strongly agree). Question 1 measures students' perception of the effectiveness of pre-class case study assignment. Similarly, question 2 measures students' perception of the effectiveness of post-class case study assignment. Question 3 to 6 measure students' perception of the effectiveness of overall proposed framework.

As detailed in the previous chapter, the pre and post class case discussion teaching method was incrementally developed between 2012 spring semester and 2014 spring semester. Adopting and applying "Just in Time Teaching" paradigm [2], several rounds of experiments utilizing pre-class and post-class assignments were conducted. Once the proposed framework was matured and finalized in 2014 spring semester, students were asked to voluntarily fill out the survey on the proposed framework during the last session of semester. A full fetched version of the proposed framework was implemented for case analysis over the semester and forty one students responded to the survey. In addition, exam scores between 2013 fall semester and 2014 spring semester are compared to examine research hypothesis 4. The framework adopted in 2013 fall semester is a stripped down version without pre class meeting case intervention and serves as a control condition.

RESULTS

The descriptive statistics of the six items are depicted in Table 1, representing the effectiveness of fully matured framework implemented in 2014 spring semester.

Table 1. Descriptive Statistics of Six Items

	Mean	Standard Deviation	Median	Mode	Minimum	Maximum
Q1	4.27	0.59	4	4	3	5
Q2	4.32	0.65	4	4	2	5
Q3	4.07	0.85	4	4	2	5
Q4	3.76	0.92	4	4	2	5
Q5	4.10	0.77	4	4	2	5
Q6	4.20	0.64	4	4	3	5

Table 1 suggests that the average value of each item (except question 4) is greater than four – indicating that students strongly agree or at least plainly agree on the given statements. This is bolstered by the median and mode values which are unanimously fours again across each and every item. Among these six items, questions 2 and 1 have relatively larger mean values, 4.32 and 4.27 respectively. This suggests that both post-class assignment and pre-class assignment are highly effective to motivate students' learning, positively supporting research hypothesis 1 and 2. Question 6, 5, and 3 concern students' perception of whether the overall proposed approach is intuitive and effective for reinforcing learning experiences and enabling students to learn novel subjects. The values of these three items are all above 4, strongly supporting hypothesis 3. Question 4 evaluates whether this proposed approach enhances students' interest in MIS. The resulting value (3.76) is close to but less than four, indicating that students are inclined to agree, yet not solidly affirm this statement. Although students' interest in the field of MIS might not be a personality trait which varies from one individual to another, the proposed teaching approach alone has limited effect on changing students' attitude toward the general topics of MIS. Taken together the evidences presented

above, we find that, overall, the proposed pre and post class case discussion teaching method is effective in MIS education.

Comparison with a Control Group

Research hypothesis 4 is tested by using a control group to compare to the experimental group. This control group study aims to investigate if the proposed framework actually affects students' learning outcomes. The control group is composed of participants who did not receive pre class meeting case intervention in 2013 fall semester. The identical framework was applied to the participants in 2014 spring semester except that they were treated with pre class meeting case intervention this time. The participants in 2014 spring semester serve as an experimental group. We used the same set of instructional frameworks, contents, pedagogical methods, and exam questions for both groups. Sixty multiple choice questions are used to objectively measure students' learning outcomes in midterm and final exams. The exam scores represent objective indicators for students' achievements, at least capturing an important dimension of multipronged learning outcomes. The results of this control group study are presented in Table 2.

Table 2. Average Students Grades (Scale: 0 – 100)

	Fall 2013	Spring 2014
Midterm exam	78.27	88.39
Final exam	79.42	87.56

Table 2 clearly indicates that the average midterm exam grade was increased by 10.12 points in the experimental group (i.e., class in 2014 spring semester). Similarly, 8.14 point increase was observed in the average final exam grade of the same experimental group. Given the fact that the only difference between the control and experiment groups is whether the participants received the pre class meeting case study treatment or not, it is evident that the full fetched version with the complete set of dual treatments leads to higher grades and better learning outcomes in the experimental group. Overall, the results strongly support research hypothesis 4, validating the effectiveness of our proposed method.

Analysis of Students' Comments

Three open-ended questions are included in the survey to capture additional in-depth information from students; the aspects students favor in the proposed framework, the possible changes students suggest, and any relevant open comments. Most comments are positive, reconfirming our research hypotheses. Some students suggested that the required length (600 words) of case analysis needs to be reduced given the number of case studies (twelve) that are assigned over the semester. Compiled examples of students' comments are listed as following.

"Helped make me dig deeper into the subject"

"It really kept me on track and that I was surprised about. Doing this work regular and often, keeps me on track of homework and where we are in the course"

"It gave me some insight into what the class would be discussing the next day and then reinforced what I learned in the post class"

"I guess it depends on each student's learning style. I personally do not enjoy writing and would rather discuss topic"

"I would suggest that this approach is continued in the future. I enjoyed the assignments although some cases were somewhat confusing at times."

"Less than 600 words for post"

CONCLUSIONS

The current study reviewed the applicability of various case study methods in IS education and explored alternative ways to improve students' learning experiences in a junior level undergraduate MIS course. The eventual pre and post class case discussion teaching method emerged after multiple rounds of incremental developments and experiments between 2012 spring semester and 2014 spring semester, applying "Just in Time Teaching" paradigm. Feedbacks and observations from each round of experiments formed the basis for the new features and frameworks of the next version. The exploration of various attempts of implementing mini-case studies in the course was recorded and reported. Survey results confirm that the proposed method is more effective and better student engagement in the classroom setting. Students reported that they were more motivated with the new approach. Moreover, the empirical results of control group study indicate that students achieve better outcomes with the proposed pre and post class case discussion teaching method. This research contributes to the pedagogical knowledge by proposing a new case study method and validating it with an empirical study in the context of motivating business students to actively engage in the MIS case analysis. Future research plan includes the further investigation of the effect of different learning styles on the proposed framework.

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APPENDIX A

Student Evaluation Form for the Method of Pre and Post Class Case Discussion Teaching Method

Statement of Purpose:

The purpose of this survey is to provide the instructor with your feedback on your experience with Pre and Post class case discussion teaching method. Your voluntary participation is of vital importance to you and the instructor. Your honest and thoughtful response will be greatly appreciated.

1. The Pre-class meeting case study assignment motivates me to read the case and write down my own brief answers.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

2. The Post-class meeting case study assignment motivates me to pay attention to class discussion and learn from instructor and fellow students.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

3. I learn more new things through this new approach.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

4. The new approach enhances my interest in Management Information Systems.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

5. I enjoyed the new learning approach. Overall, this is a good way to reinforce learning.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

6. The new approach is worthy and intuitive. There were no major problems to speak of.

   1. Strongly disagree 2. Disagree 3. Undecided 4. Agree 5. Strongly agree

Please provide your comments in the following section.

1. Please write down things you liked about learning with the new approach in this course.

2. Please write down your suggested changes about the new approach in this course.

3. Please write down additional comments about learning with the new approach.