An MIS Approach To Case Analysis

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ABSTRACT

This paper reports on an approach to case analysis designed to develop higher-order learning skills which is presented here as an appropriate format for an IS context. Higher-order learning skills include higher-order thinking skills - conducting research, problem-solving, critical thinking, and generating creative ideas, and team-building skills - communication skills, team cooperation and work coordination. The method adopted is a 9-step approach, based on analyzing managerial, organizational and technological issues. The approach proved to be successful in the three sections in which data was collected, both from the perspective of what was observed by the instructor and by the grades and perceptions of students taking the course. There did not seem to be a difference in perceptions between those in the regular classroom or the electronic classroom.

INTRODUCTION

Merseth (1994) defines a case as, "a descriptive research document, often presented in narrative form, that is based on a real-life situation or event. It attempts to convey a balanced, multidimensional representation of the context, participants, and reality of the situation. Cases are created explicitly for discussion and seek to include sufficient detail and information to elicit active analysis and interpretation by users with differing perspectives." Goals of a case analysis are focused on identifying and articulating issues related to the topic area with an aim to deriving solutions to these issues, using the various course resources, such as the textbook, assignments, the Internet and other technology resources. The Harvard Business School website says this about their case method approach "From the springboard of this opening question and the response, the class collectively dives into a riveting eighty minutes of analysis, argument, insight, and passionate persuasion" (http://www.hbs.edu/case/case-work.html).

As part of teaching a graduate MBA Introduction to Information Systems (IS) course which goals, apart from the assimilation of subject matter content, included developing higher-order learning skills, the author devised and implemented an approach to case analysis designed to develop these skills which is presented here as an appropriate format for an IS context. Higher-order learning skills include higher-order thinking skills - conducting research, problem-solving, critical thinking, generating creative ideas, and team-building skills - communication skills, team cooperation and work coordination. Course content covered topics in the organizational context of information systems, IT infrastructures – hardware, software, telecommunications, database structures, valuing of information systems, design and development methodologies, security and control issues, ethical issues and global information systems.

In this paper, the development of these skills using this approach is examined in the context of a traditional classroom setting and an electronic classroom setting.

SUGGESTED METHODOLOGY FOR CASE ANALYSIS

A methodology, referred to as a MOT's analysis, to bring together the goals of the course and the case method approach, is focused on a nine-step approach to analysis which builds on Laudon & Laudon's (2004) break down of management, organisational and technological issues. Significantly missing from their and other approaches

to case analysis is the identification of symptoms or red flags which prescient a problem may be looming, thereby prompting a call to preventive action rather than remedial action, as is a consideration of the management, organizational and technological factors for successful implementation of the proposed solutions.

The MOT's case analysis steps outlined are:

- Identify symptoms, or red flags, which indicate that a problem exists, or may arise;
- Identify problems of the case;
- Identify management causes of the problems;
- Identify organizational causes of the problems;
- Identify technological causes of the problems;
- Derive solutions to the problems;
- Identify management factors for success of solutions identified;
- Identify organizational factors for success of solutions identified;
- Identify technological factors for success of solutions identified.

These steps might be explained through the colloquial example of a fire thusly,

- symptom – smoke in computer server room
- problem – fire
- management cause – lack of prior planning of safety measures and supervision
- organisational cause – no clear standard safety operating procedures and structures in place
- technological cause – short in one of the wires, no adequate monitoring system in place
- solution – extinguish the fire using available tools/ technology, institute safety policies and procedures
- management factors for success – competent management leadership and action, appropriate allocation of financial resources
- organisational factors for success – design, creation and implementation of monitoring system and safety plan of action
- technological factors for success – competency and expertise in devising monitoring system and in correcting short, acquisition of required hardware, software and human resources for implementation of system

SUGGESTED CLASS MANAGEMENT OF CASE ANALYSIS METHODOLOGY

The methodology can be employed in traditional as well as virtual classroom situations.

- Divide class into nine teams with each team assigned to a different step or set of steps as outlined above;
- Require students to interact across teams in performing their analyses;
- Have the teams prepare one cohesive analysis to the case, whether in written or oral format.

To answer the step assigned to the team, they must interact across teams to coordinate their analyses. Solutions cannot be derived without reference to the problems nor to symptoms and causes. Symptoms, causes and problems are closely related and often overlap. Management, organisational and technological issues that need to be addressed for a successful implementation, require reference to the management, organisational and technological causes of the problem.

Expected Outcomes

Barriers are broken down amongst class members, b) Interactions and communication are enhanced, c) Discussion and exchange of ideas is stimulated, d) Boredom is reduced, e) Motivation and interest are increased, f) Participation and attention are encouraged, g) Encourages challenging of ideas and therefore critical thinking, h) Encourages knowledge of case and subject matter, i) Encourages research to support ideas, j) Encourages separation and consideration of the issues.

These outcomes are in line with the goals set out for the course which were the acquisition of higher-order thinking skills – conducting research, problem-solving, critical thinking, generating creative ideas, and the acquisition of team-building skills – communication skills, team cooperation, work coordination. In an IS context, these higher-order learning skills are likely to be the most crucial.

Application Of Case Analysis Approach

The approach was first tested in an introduction to Information Systems course with students in the Executive MBA and International MBA programs of the Institute of Business in Trinidad, W.I. This course was an intensive one-week all-day course taught in three modules per day, arranged around chapter presentations by teams of students, and analyses of end of chapter cases. Flip charts were used to preserve and present the results of their analyses done during class, and as a platform for discovering and discussing confusion about issues and for proposed solutions to be challenged. It was then used in three sections of a similar course at a New York-based university, taught by the same instructor using the same instructional design and material, but with students using their own note paper or the computer instead of flip charts to preserve and present their analyses.

In the New York-based university, two sections of the course were taught in an electronic classroom equipped with the Robotel software, which facilitated team activities through the ability to put computers into teams and to allow students to share screens and to take over control of each other's keyboards and mice to develop one analysis on the same computer (Coppola and Thomas, 2000). The third section was taught in a regular classroom with team activities facilitated by the re-arranging of seats into circular teams.

Observed Results

The expected outcomes were certainly observed by this instructor. Classes were animated and highly interactive as students engaged with their own teams and across teams, and sought to resolve differences amongst them. The level of problem-solving and critical thinking was deep, as was the communication and teamwork involved. The approach forced lazier students to pull their weight as work was distributed and required detailed knowledge of the case and subject material for adequate responses to be generated, which were then evident to all the class during interactions. The only downside observed was the noise level of the class as students became engaged in lively and stimulating debate sometimes involving more than one team.

With respect to the learning objectives outlined, the following was observed:

Higher-Order Thinking Skills

- Problem-Solving/ Critical Thinking – Students first of all had to have read the text material, the case material, and use this information to analyse the requirements of the cases, identifying problems, symptoms, causes and solutions. Secondly, students had to resolve differences of opinion amongst themselves and across teams.
- Creative Ideas – Deriving solutions to the problems and causes identified, students were forced to think creatively and to stimulate each others thought processes.
- Conducting Research – Students were motivated to find out the actual results of the case by researching the current state of the firm described in the case, as well to search the text for possible solutions to the case.

Team-Building Skills

- Communication Skills – These skills were enhanced through interaction with fellow students, through articulation and defense of ideas, through written and oral presentation of ideas and solutions.
- Work Coordination/ Team Cooperation – High levels of work coordination and team cooperation were observed as these were required in order to present a cohesive analysis of the case using this methodology, as agreement must be reached and work tasks distributed and then combined.

Survey Results

A survey to capture students' perceptions of the support for these various skills, as a consequence of this approach, was developed and administered in the three New York-based sections of the course. A 3-point scale (no support, some support, a lot of support) was used as it was felt this adequately captured the extremes, which were the points of interest.

Thinking skills were defined in the survey as:

- Critical thinking – analysis, inference, reasoning, evaluation, explanation, interpretation
- Problem-solving – deriving alternatives and solutions for complex problems/issues with incomplete information
- Conducting research – investigating, finding, and synthesizing information from multiple sources
- Creative idea generation – ideas that are novel or unique
- Team-Building skills were defined as:
- Coordinating Work – bringing together work from multiple sources and team members
- Team Cooperation – interpersonal skills, resolution of differences
- Communication skills – conveying ideas effectively, both orally and written

These results are summarized in Tables 1-4, below.

Demographics

There were a total of 24 students in the three sections. Most students fell in the 20-29-age category, 18 out of 24, and most were male, 14 compared to 7 females. Students had mostly moderate computer experience, 11 out of 24, however, in one of the electronic classrooms, there were more with extensive computer experience, 6 out of 11.

Table 1 –Demographics

		Age				Gender		Computer Experience		
	N	**<20**	**20-29**	**30-39**	**39+**	**M**	**F**	**Min**	**Mod**	**Ext**
Total	24	1	18	3	3	14	7	0	11	9
E-Class	7	0	7	0	0	5	2	0	5	2
T-Class	6	0	4	2	1	3	3	0	3	1
E-Class	11	1	7	1	0	6	2	0	3	6

Legend: E-Class – electronic classroom; T-Class – traditional classroom; Min – Minimum; Mod – Moderate; Ext – Extensive.

Higher-Order Thinking Skills

As seen in Table 2, below, most students felt that the cases and the activities and assignments of the course provided a lot of support to their acquisition of the higher-order thinking skills. They were somewhat evenly split on the contribution of the textbook between moderate and a lot of support for developing critical thinking, research skills and creative idea generation. Problem-solving support was perceived as being offered moderate support. Most rated the team activities as contributing a lot to their development of these skills, except in one of the electronic classes were they were split between some and a lot of support.

Table 2 - Student Perception - Support for Higher-Order Thinking Skills												
	Total (24)			**E-Class (7)**			**T-Class (6)**			**E-Class (11)**		
	N	**S**	**L**	**N**	**S**	**L**	**N**	**S**	**L**	**N**	**S**	**L**
Textbook:												
Critical Thinking Skills	2	11	11	0	4	3	1	2	3	1	5	5
Problem-Solving Skills	4	13	8	1	3	3	2	2	2	1	8	3
Research Skills	0	12	11	0	4	3	0	4	1	0	4	7
Creative Idea Generation	0	13	11	0	2	5	0	4	2	0	7	4
Cases:												
Critical Thinking Skills	1	8	14	0	4	3	0	1	4	1	3	7
Problem-Solving Skills	0	4	19	0	2	4	0	1	5	0	1	10
Research Skills	0	5	19	0	1	6	0	2	4	0	2	9
Creative Idea Generation	0	5	20	0	1	6	0	2	5	0	2	9
Activities/ Assignments:												
Critical Thinking Skills	2	8	14	0	3	4	1	1	4	1	4	6
Problem-Solving Skills	0	8	17	0	0	7	0	3	3	0	5	7
Research Skills	0	0	14	0	3	4	0	3	3	0	3	7
Creative Idea Generation	0	8	16	0	1	6	0	3	3	0	4	7
Class/Robotel Team												
Activities:	3	8	7	1	4	1	1	1	3	1	3	3
Critical Thinking Skills	1	4	14	1	0	5	0	1	4	0	3	4
Problem-Solving Skills	0	5	13	0	0	6	0	2	3	0	3	4
Research Skills	0	6	12	0	1	5	0	2	3	0	3	4
Creative Idea Generation												
Support Legend: N - Not at All; S – Somewhat; L – A Lot; (N) – no. of students in class												

Team-Building Skills

With respect to the team-building skills, the results were the same for the cases and activities used in the course (See Table 3, below). Most perceived a lot of support for developing the team-building skills. Most felt the same about the textbook, except for work coordination, which was rated as being provided moderate support. Team activities in the regular classroom and in the electronic classrooms were perceived by most as offering a lot of support to the acquisition of the team-building skills.

Grades

The grades corroborate the students' views of the support given to the development of their higher-order learning skills aimed at with this approach. Compared with grades from sections of the course where this method was not used, an increase in the class average can be observed as seen in Table 4, below. The class averages without the method were 85 and 87%, in the traditional classroom and the electronic classroom, respectively, whereas with using the method, the averages were 90% and 93% with no major difference observed between those in the traditional classroom and those in the electronic classroom.

Table 3 - Student Perceptions - Support for Team-Building Skills												
	Total (24)			E-Class (7)			T-Class (6)			E-Class (11)		
	N	S	L	N	S	L	N	S	L	N	S	L
Textbook:												
Communication Skills	1	10	13	0	2	5	0	3	3	1	5	5
Work Coordination	2	13	9	1	2	4	1	4	1	0	7	4
Team Cooperation	1	9	14	0	2	5	1	3	2	0	4	7
Cases:												
Communication Skills	0	3	21	0	0	6	0	1	6	0	2	9
Work Coordination	1	7	16	1	3	3	0	1	5	0	3	8
Team Cooperation	1	6	17	1	1	5	0	2	4	0	3	8
Activities/' Assignments:												
Communication Skills	0	8	16	0	2	5	0	2	4	0	4	7
Work Coordination	1	5	18	1	1	5	0	2	4	0	2	9
Team Cooperation	2	6	16	0	1	5	1	2	3	1	2	8
Class/Robotel Team												
Activities:	0	5	13	0	1	5	0	1	4	0	3	4
Communication Skills	0	4	14	0	0	6	0	2	3	0	2	5
Work Coordination	0	4	14	0	0	6	0	2	3	0	2	5
Team Cooperation												
Support Legend: N – Not at All; S – Somewhat; L – A Lot; (N) – no. of students in class												

Table 4 – Grade distributions					
	With Method			Without Method	
	E-Class	T-Class	E-Class	T-Class	E-Class
A (90-100)	7	13	8	8	19
B (75-89)	1	1	5	15	10
C (60-74)	1	-	-	-	-
D (50-59)	-	-	-	-	-
F (<50)	-	-	-	-	-
Average %	90	93	90	85	87

CONCLUSION

Notwithstanding the small sample size of the classes, the case method approach as adopted for introductory Information Systems MBA courses, in the three sections in which data was collected, proved to be successful both from the perspective of what was observed by the instructor and by the grades and perceptions of students taking the course. There did not seem to be a difference in perceptions between those in the regular classroom or the electronic classroom, which was surprising and deserves more research. The level of team work and interactivity used in the case analysis approach would have suggested that the team features of the electronic classroom, as described previously, would have especially enhanced the perception of the team-building skills. Given the cost of these electronic classrooms, it is important to know whether they are providing the benefits expected and desired. Avenues for further research present themselves both in terms of the case approach used and the effect of the technologies available for assisting instruction.

REFERENCE

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