

WAR AND PEACE: MANAGING STUDENTS LEARNING EXPERIENCE IN A COMPETITIVE SIMULATION GAME

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ABSTRACT

One of the problems faced by teachers using competitive simulation in their classes is the initial negative reaction of the students. Students reject this approach not necessarily because it is not effective, but because of the difficulties they experience during the process. This project covered a two-part experiment focusing on the learning experiences of more than 200 university students. The results suggest that the students are troubled by problems of individual perception as well as intra and inter group conflicts. This paper discusses these problems and offers different administrative and pedagogical procedures to eliminate such obstacles.

INTRODUCTION

This project aimed to find a better way to manage student's learning experience in competitive simulation game. It covered a two-part experiment (Poon 2000, Poon 2001) involving about 200 final year Business students in a university in Hong Kong. The course described is entitled Strategic Management II, which was the second part of a two semesters Strategic Management course. It was traditionally taught as a lecture-case study approach. However, students usually complained that the materials were too abstract and unrealistic. Some students found difficulties in relating to North American based cases and showed little interest in solving "someone else's problems". Under these conditions, the university decided to pick a different approach.

Thus a computer simulation, *The Marketplace*, was first employed in teaching this course in the academic year 98/99. The exercise was then repeated, in a slightly modified fashion, in the year 99/00. This simulation is built around students competing in teams. Each team will generate input that will then be integrated and transformed into a new market situation (i.e. a new strategic) problem that they will have to solve as competing teams.

One of the advantages of using a computer simulation is the interactive nature of the simulation - the decision of one team will generate problems that the other teams must handle. By solving these problems, students are encouraged to apply what they have learnt and handle the situation that represent the realities executives of the companies face. Another advantage of this approach is the problems generated are sensitive to the culture and background of the

students. The culture and background of the students will influence the decisions they make and thus affect the new situation they have to face.

According to Wolfe (1993), the use of business simulation game in education has a rather long history. In America, Faria (1987, 1998) has reported that the usage of business simulation games has grown during the period between 1987 and 1998. He also expects the growth to continue. In Hong Kong, Chang, Ma, & Lee (1998) surveyed students on the usage of business games in Hong Kong. 71% of the 93 tertiary students surveyed had previously been involved in business. The key benefits reported by the students include: "understanding consequences of decision taken", "better understanding of market mechanism" and "integration of knowledge from a range of subjects"

Previous studies in this region (Du-Badcock & Badcock, 2000) have generally focused on how the students feel toward the educational effect of the simulation. The implication seems to be that the students can judge the effectiveness of the simulation objectively based on their actual learning outcome. Students in Hong Kong tend to be very grade/achievement orientated. They would evaluate a course based on their learning experiences that are strongly affected by its required workload, the grade expectancy as well as the hardship of getting along with the people involved in the course.

In other words, there seem to be a formula of equity through which the students will judge a course by how much they have to "suffer" while going through the program. Students feel very positive toward a course if the required "suffering" (as measured by factors like the time they spend in the game, the skills/knowledge they have to apply, as well as the personal conflicts they have to endure) is relatively low. It would then be very interesting to know if the students' perceived suffering, can be influenced by factors that are controlled by the teachers.

In this project, the following specific issues will be discussed:

1. What are the factors that lead to negative learning experience? What are the factors that affect the perceived costs of the students in this course?
2. How will these perceived costs affect the students' evaluation of the course?
3. What can be done to improve the student's learning experience?

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THE RESEARCH STRATEGIES AND METHODS

Both survey and descriptive case study approach were used. Surveys, in the form of questionnaire, were used to collect data from all the students in the class to ensure that the general opinions of the students could be reflected.

Quantitative data collected were analyzed by statistical techniques. In collecting qualitative data, semi-structured group and individual interviews were used. Reports and reflection submitted by the students were also examined. Details of the data collection techniques will be discussed below.

Pre-simulation: Before the semester started, workshops were held to introduce the students to the idea of learning through simulation. The actual simulation – Marketplace was also introduced in a very casual manner. During the workshop, information related to students' simulation backgrounds as well as their initial reactions toward the simulation were collected through informal discussion.

After the semester had begun but before the start of the game, students were briefed on the contents of the simulation, key issues were identified and explained. Students were allowed to explore a demonstration version of the simulation. This was just to prepare the students psychologically for the simulation. No formal investigation was involved.

During simulation: After the fourth session of the simulation, all students were asked to fill out a questionnaire. In the questionnaire used in round one of the study, they were asked about their pre-simulation experience, the weekly hours they spent on the game, the skills they applied, and the fair credit hour they thought the simulation should deserve. In the second round of this study, students were also asked if they are willing to recommend the course to their colleagues. The result of this question will be used as an indication on whether they are satisfied with the course.

Post-simulation: In the first round, the students were allowed to play the game for six sessions. In the second round, they played eight sessions. After the last sessions in both rounds, students were asked to write a reflection in which they were encouraged to reflect on their learning experience. In the first round, each group submitted a reflection prepared jointly by all the members of the group. In the second round, each of the students prepared their own reflections. These reflections are very useful in understanding the learning experience of the students.

In both rounds, students from different tutorial groups were invited to participate in focus group discussions. The size of the groups was kept small, about four per group, so that each student would have a better chance to express his or her opinion. The discussions were semi-structured and similar question lists were used in both rounds.

To apply triangulation technique, a student, who had been described by his classmates as the most annoying

element within their experience, was interviewed separately to get a better understanding of the learning environment in the class. Also, progress reports and other assignments submitted by students were analyzed to identify their key concerns.

DATA PRESENTATION AND ANALYSIS

After the fourth session of the simulation, questionnaires were distributed to all the students in the simulation program. Out of the 116 students who registered for the class in the first round, 108 usable returns (93.1%) were collected. In the second round, 93.6% of the students submitted usable returns.

In order to measure the satisfaction of the students toward the course, the questionnaires used in Round two asked whether the students would recommend the course to other students. In answering this question, 59% of the students selected either "definitely yes" or "yes", 23% "neutral" or "don't know", and 17% "no" or "definitely no".

When students were asked to elaborate their negative answers, "heavy workload" was the typical disadvantage suggested by most students. Some students also indicated that they were worried by the perceived technical knowledge requirement, as one said, "Playing the game is happy and can (help us to) recall some of the theories that we have learnt. However, the game involves a lot of technical aspects that may lead us to failure" (sic). For the students who said they would recommend the course to other students, "fun" and "opportunity to practice what they have learnt" are often cited as the reasons. Typical answers included "Quite interesting. Challenging. Applying skills and knowledge," or more cynically "It is funny. Very, very practical! (Especially on how to resolve relationship conflict)." Apparently, interpersonal relationship was a major concern for a lot of students.

Walker, Bridges & Chan (1996) study the interaction among members of the same team and find hierarchical status in the form of gender, age and job position to be significant factor. The students in their case are adult educational workers and there are great social differences among them. In the current study, as all the students were of similar social background, age and social status did not seem to be very importance factors. However, gender and academic background were still very important factors.

Students of both genders generally agreed that "the way of thinking is different between boys and girls." Hence, it is an acceptable criterion for job allocation. "Being a boy, he is better in strategy. So he concentrates in strategy". Mix of gender can also be a measurement of team performance. "All of our teammates were girls. So when we made decisions, I always felt that we were missing something." Apparently, a team consists of both genders is usually considered to be a more balanced team.

Difference in academic background was a less subtle issue. For some of the students, academic background is a logical base for allocating responsibilities and decisions

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making power. As such, it is natural for the students who have taken more courses in accounting to handle the financial problems and the marketing students to handle the marketing problems.

Two major problems were thus developed. One, the perceived differences in abilities of group members seemed to block teamwork. During the interview, some students were asked why they did not implement some of the strategies they developed in the game, some students complained that they had made many good suggestions but their ideas were never accepted by other team members. One respondent reported, *"We are from different (academic) streams but we should still be working as a team. However, when I make some suggestions to the people who handle the financial part, they just ignore me. It seems like they think I am not capable of making comment on what they are doing. After a few times, I just give up."* The perceived differences in ability lead to interpersonal conflicts that in turn lead to lack of commitment of some team members.

On the other hand, some students complained about the lack of commitment of some of their team members as the next extract suggests. *"Some members may lack the ability or the interest in playing the game or making the decisions and they dump the work to the rest of the team. At times, it could become a test of your friendship"*.

In order to eliminate the "free-rider" problem, a mechanism was established in which the team members could rate each other on their contributions. However, only in one or two cases in the first round were members rated significantly lower than the norm. In the second round, students were invited to report to the instructor if they feel any one of their members was not pulling his or her fair weights. Again, no one came forward. One said, *"The peer-group assessment cannot eliminate the problem (of free-riding) as we seldom give them a very poor rating"*. The traditional concepts of conflict avoidance and group harmony (Kirkbride, Tang & Westwood, 1991) still prevailed.

Other than that, most of the students in the course had been studying in the same class for more than two years and they usually built a rather close relationship with each other and most the teams seemed to get along quite well. "Partner" is the term commonly used to describe fellow members. Still, this "buddy" system could not eliminate all inter-personal problems. Personality clash and high need for power were cited as some of the reasons why group decision making process were far from smooth. Sharing responsibilities and making decisions have always been very important issues in intra group relationship. Apparently, the data suggested that training in soft skills related to group dynamics might still be beneficial.

The game performance of a student's team accounted for only 10% of the student's final grade in this course. Since most instructors tend to avoid extreme marks, the differences in actual grade rewarded tend to be rather small. Yet student attached a very important emotional value to the performance of their companies. This may be the result of

high orientation towards achievement of the students but it could also be the result of inter-group conflicts.

It seemed inter-group conflicts may start as just a few harmless remark or jokes from one person. However, his classmates might take his 'jokes' very seriously. One student explained that *"Some teams that have better result may tease other teams with poorer result. I think it is not a good atmosphere for a class. Not only that they did not help other students to solve their problems; they are really putting salt in the wounds. I don't think it is nice"*. The whole situation soon degenerates and the competitive nature of the simulation amplifies the effect of winning and losing. Teams that were ahead develop a feeling of superiority over their fellow classmates, and teams that were lagging behind feel a loss of "face" and will try very hard to fight back.

Eventually, this sense of competition interrupted the normal communications among students. Students didn't want to discuss their strategy with their teammates in the classroom because they are afraid that competitors may overhear what they plan to do. *"We try to hide (our information) from people of other teams"*.

In the tutorial, there was no open discussion in the class on how to handle problems. Students were afraid that if they disclosed their plan of actions, the other competitors might use this information against them. Learning from each other through free exchange of ideas became impossible. *"As for the other teams in the class, we see them as competitors and we will not help each other"*. In the extreme case, some students were so concerned about their conversation with their tutor being overheard by other students in the class that they demanded, *"Each team should have private meeting with the tutor. They can then talk more freely."*

Their fears seem not to be unfounded. Student X admitted that, *"Sometimes, I joked with them and said I would buy their company and tell them to close their companies down. They would retaliate and I could then get a feeling of what they would do (in the game)"*. Casual conversations among classmates then become a way to "spy" on other people.

One might argue that, we should not expect this kind of behavior from university students. However, this phenomenon was so wide spread that students from different groups had reported similar incidences. Unfortunately, this kind of inter group conflict had a very strong impact on the behavior of students. For example, poorer relationship with their "enemy" had pushed a team to implement a strategy that is going to hurt their enemy, even when the strategy was completely irrational from the business viewpoint. One student said, *"We make a lot of decisions simply to get even with him. Some of the decisions are really irrational. I guess we should play the game according to economic theories but now we are playing it according to hatred"*.

Other students also complained about the competitive environment but for a totally different reason. *"It is just like 'dog eat dog'. If we are playing against teams from other classes, since you don't know who they are, you won't have*

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guilt feeling if you take market share from them. However, if you are playing against teams from your own class, even when you can figure out the best strategy, you have to consider its impact on your friend's team. On the other hand, we have to remember that business is business. So I think it is better if we are playing against somebody we don't know".

Such statements may cast some insight in the research of business ethics. In a study of how managers in an organization make decision that are related to business ethics, Jones (1991) comes up with the Issue Intensity model. He proposes that the manager will consider six factors when they make decisions related to business ethics. Apparently students decisions were actually affected by their relationship with their classmates. They would consider their proximity to victim (their close friends) and the probability that their decision may harm their friends. So even though the effect is just performance in a game, they seemed to have developed a feeling of guilt, if implementing their best business strategy were affecting the performance of their classmates.

Thus, the competitive environment induced aggressive behavior in students especially those who had high need of achievement but distorted the decisions of the students who had high need of affiliation. The competitive environment did not match the social needs of the students and an emotional stress was thus induced.

In round two of this study, a different approach was used. Teams from the same tutorial group played in different games. In other words, students who meet in the same class would not be competing among themselves. Each team was still required to share their experience with other classmates but their presentations was scheduled to be taken place **after** all the teams had submitted their decisions and there is no fear about other people can be benefited from these disclosure. Under the pretext of benchmarking, top performance scores of different areas, for example, lowest costs or highest productivity were published regularly on the web site specially designed for this course. Students were encouraged to compete with these targets and not with any specific team. The result of these changes was a much smoother relationship among students. Even though some teams still spent four to five hours per day in the game "*because they want to beat their competitors*", the competition was less hostile in nature.

CONCLUSIONS AND RECOMMENDATIONS

This study suggests that students' acceptance of the learning process is affected by the workload and the intra and inter group conflict the students had to endure during the process. Hence, reducing the perceived workload of the students by providing more administrative assistance would be beneficial. Similarly, providing pre-game training in group decision making could also be helpful. In this study, the competitive nature of the simulation and the

achievement oriented attitudes of the students lead to an over-emphasis on "winning". Competition among teams then interferes with the normal inter-team communication and render open discussion ineffective and even impossible. This result in interference to the learning process and create a negative impression toward the whole exercise. Proper arrangement had to be made to avoid direct competition (and hence emotional stress) among students from the same class. Providing proper training in interpersonal skills may also reduce the emotional stress and hence reduce the rejection of the students.

Teachers should also note that unless the issues of inter group conflict can be properly handled, grading the performance of the students can become an insurmountable problem. Students attach emotional labels to their grades that then become not just indications of their performances but also judgements of their social status. This creates a very high pressure in the instructors of the class. Students may develop a very negative opinion toward the game (and also their instructor) when they find that they get a grade that is lower than their expectation.

In conclusion, the emotional needs of the students must be carefully managed in a competitive simulation. Reducing the perceived emotional cost of the students can be the key factor to the success of applying competitive simulation in teaching.

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