

STUDENTS' VIEW ON THE USE OF BUSINESS GAMING IN HONG KONG – AN UPDATE

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ABSTRACT

This paper describes the results of a survey of 368 final-year degree students in Hong Kong concerning their views toward using Thavikulwat's GEO – A Computer-Assisted Business Gaming Simulation." The focus is on students' perception of the usefulness of using computer simulation as a learning tool in a strategic management course. This article updates the earlier study of 93 final-year students in Hong Kong. The findings from this study confirm the favorable attitude of Hong Kong Students towards the use of business gaming as a teaching tool.

INTRODUCTION

It has been more than 15 years since the last report on the use of business games from Hong Kong students' perspective on the usefulness of using computer simulation as a learning tool in a strategic management course (Chang et al., 1998; Chang et al., 2003). Thus, the authors intend to explore once again how students in Hong Kong view the use of business gaming in their course.

DATA COLLECTION

A survey questionnaire was conducted with full-time and part-time final year degree students who enrolled in strategic fashion management subjects in Textile and Clothing Department from 2010 to 2012. Students in this

survey had participated in GEO: A Business Gaming-Simulation in their classroom setting as well as in their spare time. A total of 382 questionnaires were administered. Of the responses received, 368 usable questionnaires were analyzed.

RESULTS AND DISCUSSION

A total of 66 students (18%) indicated they had previously participated in business gaming, while 302 students (82%) claimed they had not been involved in any computer simulations. All of the 66 students had simulation experiences in the subject of production and operations management before. The results show a drop from 71% from previous study (Chang et al., 1998; Chang et al., 2003) to 18% of students having previous experience in business gaming before taking it again in strategy class.

GRADE WEIGHTING

Students were asked to express their opinions on grade weights on four major activities: examination, computer simulation, case study, and student participation. About 30% of the students preferred 1-10% of grade weights for simulation and 50% chose 1-10% grade weights for simulation report.

When asked on grade weighting between simulation and examination, only 26.4% students agree that an overall grade weight of above 40% should go to simulation – the

game itself and a mere 7.9% students see that the report based on self-evaluation of one's own learning and insights into the total learning event or experience should receive an overall grade weight of above 40%. On the other hand, 50% students think that an overall grade weight of above 40% should go to the examination, which is case analysis – applying knowledge from texts, readings and discussions to produce essay type answers. Please refer to Table 1.

EVALUATION ON BUSINESS GAMING

Students were asked to evaluate business gaming on seven major items: 1. fun/interesting; 2. linking the course to reality; 3. minimizing student frustration; 4. ease of use; 5. conciseness and clarity of student manual; 6. flexibility of the game; and 7. error free programming. A five-point Likert Scale: excellent=1, above average=2, average=3, below average=4, and poor=5 was used to make it easy for students to indicate what they thought at the time.

81% of respondents agreed that GEO was excellent and above average on ease of use. Another 68.7% indicated that it was fun and interesting. Over 68% agreed it did minimize student frustration. However, only 25.2% of

students indicated that business gaming was below average and poor on error free programming. Further in-depth interview (based on 35 students) revealed the following: First, students rated the simulation as showing poor performance when they had poor network service at home. Second, they did not spend as much time as they needed to read the manual (which was in English, their second language) to understand fully how to use the various commands. It should be noted that the simulation is an Internet-based client-server Windows application that requires Microsoft's .NET Framework, which older computers can download from [Microsoft's support Web site](#).

This study showed that over 70% of the students in HK found business gaming fun and interesting and over 78.2% HK students said that GEO could link the course to reality. These were the two areas where similarities occur between the different studies in the US and Australia (Stone, 1995; McKenna, 1991). Table 2 shows the overall result of the HK study.

**TABLE 1
GRADE WEIGHTS**

	1-10%	11-20%	21-30%	31-40%	41-60%	60%+	valid case
Simulation	<u>39.6%</u> (30.0%)	27.5% (30.0%)	13.2% (12.5%)	8.8% (1.3%)	<u>7.7%</u> (15.8%)	<u>3.3%</u> (10.4%)	91 (368)
Simulation report	<u>47.0%</u> (50.0%)	26.5% (28.8%)	13.3% (10.0%)	9.6% (3.3%)	<u>3.6%</u> (6.9%)	<u>0.0%</u> (1.0%)	91 (368)
Discussion/ participation	17.2% (25.5%)	36.8% (40.5%)	19.5% (20.0%)	23.0% (10.0%)	3.4% (4.0%)	0.0% (0.0%)	91 (368)
Case study	17.2% (10.0%)	36.8% (25.5%)	19.5% (25.5%)	23.0% (28.5%)	3.4% (10.5%)	0.0% (0.0%)	91 (368)
Test	23.0% (14.0%)	23.1% (25.0%)	23.6% (26.5%)	22.5% (25.5%)	6.7% (5.0%)	1.1% (5.0%)	91 (368)
Examination	6.7% (10.0%)	6.7% (15.5%)	10.1% (14.5%)	21.3% (10.0%)	<u>39.3%</u> (35.0%)	<u>15.7%</u> (15%)	91 (368)
Other activities	49.0% (10.5%)	23.5% (10.5%)	11.6% (13.5%)	11.8% (5.5%)	2.0% (25%)	2.0% (35%)	51 (198)

Note: Figures in brackets represent data from 2010 to 2012 while those numbers without brackets are of data from 1995-

USEFULNESS OF COMPUTER SIMULATION

To evaluate the usefulness of computer simulation, twelve objectives (Decker et al., 1993) were used. A four-point Likert scale: critical (1), important (2), less important (3), and not an objective (4) was employed to facilitate student responses.

Results showed: 95.2% (86% in previous study) respondents found simulation useful for "developing decision making skills"; 85.3% (78.9% in previous study) for "learning concepts related to business"; 88.8% (78.8% in previous study) for "general problem identification and analytical"; 81.2% (75.3% in previous study) for "developing planning skills"; 88.8% (70.8% in previous study) for "using financial data to make management decisions"; 78% (67.4% in previous study) for "understanding general management perspectives"; and 81.4% (66.3% in previous study) for "improving group process skills". Chang (1997) also reported somewhat similar results based on Hong Kong lecturers' views of simulation usefulness. In that study both "developing decision making skills" and "general problem identification and analytical skills" were highly rated. Though "understanding functional interrelationships" was also

highly rated by lecturers in Chang's report (1997), 65.6% of students in the last study said it was less important (Chang 1998) while only 27.6% of students in current study noted it was less important. This study also confirms Stone's report (1995) and McKenna's report (1991) that the evaluation of the usefulness of simulation was positive, helpful, valuable and achieving objectives. There is no doubt that simulation is valuable towards achieving the objectives of the course. Please refer to Table 3 for local responses on "usefulness".

USING SIMULATION TO TEST STUDENTS' UNDERSTANDING OF BUSINESS ENTERPRISES

Students were asked if business gaming had been helpful towards testing their understanding of business enterprises. 85.5% (71.1% in previous study) agreement went to "what is my business"; 75.5% (70.0% in previous study) to "bargaining & negotiation in strategic management"; 67.8% (70.5% in previous study) to "managing financial, survival, growth, etc."; 64.4% (72.5% in previous study) to "analytical thinking in decision making"; 63.3% (70% in previous study) to "conflicts of stakeholder interest"; and 63.3% (74.4 in previous study %)

TABLE 2
STUDENTS' EVALUATION ON BUSINESS GAMING

	Excellent	Above Average	Average	Below Average	Poor	Valid Case
Fun/interesting	18.3% (35.3%)	34.4% (34.7%)	37.6% (20.6%)	7.5% (7.4%)	2.2% (2.0%)	93 368
Links the course to reality	4.3% (35.8%)	3.3% (42.4%)	41.9% (9.4%)	17.2% (10.2%)	3.2% (2.2%)	93 368
Minimizing student frustration	2.2% (20.2%)	48.4% (40.4%)	52.2% (25.0%)	17.4% (11.4%)	3.3% 3.0%	92 368
Ease of use	11.8% (21.0%)	54.0% (60.0%)	34.4% (14.4%)	5.4% (4.6%)	0.0% (0.0%)	93 368
Conciseness & clarity of student manual	5.4% (15.4%)	32.3% (42.6%)	54.8% (39.8%)	1.1% (1.2%)	1.1% (1.0%)	93 368
Flexibility of the game	5.4% (15.4%)	39.8% (41.8%)	28.0% (28.0%)	21.5% (11.5%)	4.3% (3.3%)	92 368
Error free programming	0.0% (10.0%)	14.1% (34.1%)	45.7% (30.7%)	31.6% (18.6%)	8.7% (6.6%)	92 368

Note: Figures in brackets represent data from 2010 to 2012 while those numbers without brackets are of data from 1995-1996.

to "how information and communication affect competitive position". The current outcome turned out as expected. GEO exposed participants to the reality real people in real market activities in the supply chain of products produced by the five industries in different nations and provided practice in performing the seven roles (consumers, founder, investor, director, manager, buyer, and seller). Thus, students learned to make decision constantly, and work out over diverse stakeholder interests in the simulation. As the game progressed, students were better able to understand the kinds of businesses they were in and the management of different types of firms facing their relevant stages of growth or decline. GEO was designed by Thavikulwat (2010) to do just that – it required participants to work out

real deals with one another in five interdependent industries of which each of the outputs of the firms in earlier formed industries were inputs to firms in industries formed later. Table 4 summarizes the outcome of questions in understanding of business enterprises.

BENEFITS FROM PLAYING GEO

Students were asked to indicate the benefits they received when they worked through GEO. A total of 82% (52.7% in previous study) of students selected "understanding consequences of decision taken". This finding is consistent with Stone's report (1991) of where

**TABLE 3
USEFULNESS OF COMPUTER SIMULATIONS**

	Critical	Important	Less Important	Not an Objective	Valid Case
General problem identification & analytical	4.4% (10.4%)	74.4% (78.4%)	17.8% (10.8%)	3.3% (1.3%)	93 368
Understanding functional interrelationships	1.1% (21.1%)	14.4% (37.4%)	65.6% (27.6%)	18.9% (13.9%)	93 368
Learning concepts related to business	18.9% (25.5%)	60.0% (59.8%)	17.8% (12.9%)	2.2% (1.8%)	93 368
Developing planning skills	14.6% (20.0%)	60.7% (61.2%)	21.3% (17.0%)	3.4% (1.8%)	93 368
Developing decision making skills	22.7% (28.5%)	63.6% (66.7%)	9.1% (2.9%)	3.4% (1.9%)	93 368
Understanding general management perspectives	9.0% (16.0%)	58.4% (62.0%)	31.5% (21.0%)	1.1% (1.0%)	93 368
Improving group process skills	13.5% (18.5%)	52.8% (62.9%)	28.1% (15.1%)	4.5% (3.5%)	93 368
Using financial data to make arrangement decisions	20.2% (30.2%)	50.6% (58.6%)	20.2% (10.2%)	9.0% (1.0%)	93 368
Improving written communication skills	3.4% (5.4%)	21.3% (25.3%)	46.2% (45.2%)	29.2% (24.1%)	93 368
Improving verbal communication skills	9.1% (10.5%)	26.1% (33.9%)	44.3% (40.3%)	19.3% (15.3%)	93 368
Encouraging student computer usage	7.9% (15.5%)	38.7% (48.5%)	40.4% (23.5%)	16.9% (12.5%)	93 368
Using secondary sources	7.9% (10.0%)	36.% (40.0%)	43.8% (40.8%)	12.4% (10.2%)	93 368

Note: Figures in brackets represent data from 2010 to 2012 while those numbers without brackets are of data from 1995-1996.

61.7% of students could feel the pressures faced by strategy makers. Another 84% (49.5% in previous study) agreed that the benefit was "better understanding of market mechanism". The response from this study was somewhat different from McKenna (1991) where his students thought the market environment and marketing policy in simulation was unrealistic. 87% (47.3% in previous study) of students thought that "integration of knowledge from a range of subjects" was also a benefit from GEO. The study by Stone (1995) showed that nearly 60% students agreed that simulation helped them understand business strategy. This showed up as interesting common perceptions. Table 5 details students' perceived benefits of business gaming.

DEMERITS FROM PLAYING GEO

The majority of the respondents perceived the following demerits in GEO: "long waiting time after sign on"; "decisions unrealistic"; and "preparation time very demanding – understanding manual" (Please refer to table

6). Whilst most students in HK are bilingual, English is their second language. To the extent that they had to read and understand the manual, produced in English, to be able to participate meaningful in the game, this imposed a 'workload' requiring substantial reading and re-reading and brought a degree of hardship they had not anticipated. Understandably the manual served to prepare them start the game and they could hardly get on until they had gained a proper grasp of what they were required to do!

Students also felt that practice time (familiarity exercise) on the game was considered too short (16%). The game which represented a sequence of decisions over time exposed the individuals engaged in it to a competitive environment that was also dynamic (other participants' decisions alter the decision making environment) and decision stages move ahead at a speed influenced by the intensity of the responses of other participants as well. Students though anxious to start needed considerable assurance that they could cope with both the technology (commands, instructions, etc.), unfamiliar to them at the time, and the actual demands of the game. A practice

TABLE 4
USING BUSINESS GAMING TO TEST STUDENTS' UNDERSTANDING OF BUSINESS ENTERPRISE (COMPARISON BETWEEN DATA FROM 1995-1996 AND 2010-2012)

	<u>1995-1996</u>	<u>2010-2012</u>
What is my business	71.1%	85.5%
Bargaining & negotiating in strategic management	70.0%	75.5%
Managing financial, survival, growth, etc.	67.8%	70.5%
Analytical thinking in decision made	64.4%	72.5%
Conflicts of Stockholder interest	63.3%	70.0%
How information & communication affect competitive position	63.3%	74.4%
Sharing information between firms	58.9%	70.8%
Managing risk in business decisions	54.4%	65.5%
Consequences of current action on future direction	47.8%	65.8%
Economic issues in business decisions and activities	44.4%	68.5%
Intuitive thinking in decision made	42.2%	60.2%
Ethical issues in business decisions and activities	40.0%	62.0%
Environmental changes as constraints and stimuli	40.0%	62.5%
Networking behavior	40.0%	65.0%
How decisions taken within a specific role managers can influence industry forces	38.9%	63.3%
Evaluation of on-going action	36.7%	58.3%
Strategy as plan pattern, perspective	35.6%	55.5%
Predicaments of founders, directors, managers, etc.	35.6%	58.2%
Strategic efforts of firms for the benefit of society	34.4%	45.5%
Future direction and content action	33.3%	45.4%
Testing assumptions about the market	33.3%	46.0%
Causing a situation to occur	30.0%	56.4%
Acquiring strategic information	28.9%	55.0%
Functional interaction	28.9%	58.4%
Hierarchy of goals	27.8%	55.0%

period of two weeks in tutorial with other classes to attend and coursework to complete did seem to go by very quickly and those who expressed this view did not feel comfortable moving on to the real event. In wanting to achieve and beat competition from other group members more preparation time could have made a lot of difference to the players! After all they grew up in a society where people want 'achievement' and the 'competitive spirit' of its people has been employed frequently to explain its success.

It was within such a context of uncertainty that players were involved in a series of 'too simple' decisions (9.5%). They had to make decisions related to scope of the business, staff employment, responsibilities and roles, functional decisions, etc. It was true that those requirements seemed simple but their consequences were by no means insignificant. Indeed, at the time when those decisions had to be made they looked straight forward enough. Not so immediately obvious to students then was that the risk of making 'poor' decisions because they underestimated the price of light-hearted decisions.

Students mentioned that they thought the decisions were unrealistic (9.5%). They experienced chaos in the market place, yet transactions came to close in split seconds and they then found opportunities lost and gone. It was true that they were rushed, did not have much or enough time to think and must still be fast on their feet as circumstances change. It was the pace of decisions in games coupled by its illusive simplicity that they found unrealistic. It was precisely that surprise element that gave the game its strength – there was a lesson to be learned in contingency planning and thinking in terms of scenarios and what ifs. The events/circumstances also exposed students to possible loss of face should the business go downhill because of careless/flawed decision making at some stage on their part.

Students, who associated the game with fun, also treated it as playing and little learning resulted (4.9%). Perhaps this was a way of coming to terms with the fact that even if they did not receive very good final scores, it was to be expected – they just treated the experience as playing and (not being very serious) little learning resulted – aware that they did make mistakes along the way! The use of attitude to protect any unpleasantness associated with loss of face from not doing well should such an outcome arise.

CONCLUSION

This study reflected the favourable attitude of Hong Kong students towards the use of business gaming as a teaching tool. 324 out of 368 (88%) students indicated they would recommend business gaming to the next group of students in the forthcoming year. 57.6% of students would highly recommend it for other strategic management class – Stone report (1995). Students confirmed that they learned concepts related to business and developed important skills such as problem identification, planning and decision making. In a limited way, they did what they could to make use of relevant environmental information to help them analyse the stream of decision situations that confronted them. Gaming thus served to give students a taste of strategy implementation and enhanced their understanding of the complexity of managing a real business enterprise. It justified initiating this study which covered 6 groups of full-time and part-time undergraduate students in Hong Kong. The updated information generated from this survey study between 2010 and 2012 has helped us again to further our understanding of what students thought and felt about the gaming experience and highlighted certain unmet

TABLE 5
BENEFITS FROM PLAYING GEO
(COMPARISON BETWEEN DATA FROM 1995-1996 AND 2010-2012)

	<u>1995-1996</u>	<u>2010-2012</u>
	Frequency	Frequency
	(out of 93)	(out of 368)
Understanding consequences of decision making	49 (52.7%)	302 (82%)
Better understanding of the market mechanism	46 (49.5%)	310 (84%)
Integration of knowledge from a range of subjects	44 (47.3%)	320 (87%)
Exercising self control over amount of time spent per session	42 (45.2%)	315 (86%)
Exercising self initiative in own learning	41 (44.1%)	310 (84%)
Developing entrepreneurial skills	40 (43.0%)	302 (82%)
Allowing participants to practice the art business dealing	39 (41.9%)	298 (81%)
Exploration, testing 'what if' in decision making	37 (39.8%)	300 (82%)
Confrontation of constraints in decision making	34 (36.6%)	277 (75%)
Scheduling time to cope with other objects	31 (33.3%)	248 (67%)
Inclusions of mullet-industry with real markets for products, resources & shares	31 (33.3%)	298 (81%)
Others	4 (4.3%)	28 (7.6%)

expectations and areas for future improvement to our own efforts in Hong Kong.

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TABLE 6
DEMERITS FROM PLAYING GEO
(COMPARISON BETWEEN DATA FROM 1995-1996 AND 2010-2012)

	<u>1995-1996</u>	<u>2010-2012</u>
	Frequency	Frequency
	(out of 93)	(out of 368)
Long waiting time after sign on	21 (22.6%)	56 (15.0%)
Decisions unrealistic	18 (19.4%)	35 (9.5%)
Preparation time very demanding – understanding manual	14 (15.1%)	60 (16.0%)
Practice time on business gaming too short	13 (14.0%)	38 (10.0%)
Preparation time very demanding – reading manual	12 (12.9%)	45 (12.0%)
Decisions too simple	12 (12.9%)	35 (9.5%)
Others	12 (12.9%)	40 (11.0%)
Experience treated as playing and little learning resulted	9 (9.7%)	18 (4.9%)
Uncertainty managing inputs from other class members	1 (1.1%)	4 (1.2%)