



# On-Line Game Based Instruction Applied on Marketing Management Education

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**Abstract-** This research aimed to merge on-line games into marketing management instruction through game based instruction. The situation of practical business activities was simulated virtually by on-line games in order to drive students participate proactively and experience virtual business activities by role-play. Results indicated that students received vicarious learning from tries and errors of playing on-line game to enhance knowledge application effectiveness of marketing management. In the meantime, their attitude and value concept were also modified through on-line game based instruction. Furthermore, their employment competence was enhanced through applying the knowledge of marketing management learned from courses to simulated business activities. Students experienced the process of marketing management through the on-line game that simulated practical business activities, which facilitated them to construct required knowledge based on the marketing management results generated by the on-line game and conduct mutual discussion, and knowledge interpretation. And then modified marketing management preferences and strategy by reviewing and analyzing them in order to strengthen marketing management achievement of the virtual business activity that practical business activity was simulated.

**Keywords-** *On-Line Instruction, Game Based, Situated Learning*

## I. INTRODUCTION

The actual marketing management situation of business activities is complex and changeable which is not possible to be considered fully by the traditional instruction. The most critical issue of learning marketing management for students is hardly to experience practical business situation through course instruction. In order to develop virtually the required business situation for students to experience and apply marketing management knowledge in problem solving while learn marketing management, on-line game which simulate business activities of marketing management was applied in the courses of marketing management as an effective tool to generate situated learning. The author designed an experimental research by introducing an on-line game to students and inquired their learning outcomes through pre-test and post-test.

Furthermore, Interviews with students to collect their feedback for the qualitative analysis was conducted in this study.

## II. THEORY REVIEW

### A. Marketing Management

McCarthy [1] noted the most famous marketing management strategy called 4P in terms of Product, Price, Place and Promotion. Marketing management is a social process [2] [3] in which customer demand is satisfied by the exchange of products and value [4]. Marketing is a series of processes and activities, such like development, distribution, promotion and price setting, which facilitates customer satisfaction of exchange [5].

### B. On-Line Game Based Instruction

Game based instruction aims to balance game play and instruction, and cultivate the ability of applying the knowledge learned from games to practical situation. A good game provides strong motivation to the player to participate and crash barriers. The purpose of education and gameplay have to be equally weighted in order to achieve game based instruction [6] [7]. A good role-play based game is able to be a decision making model by developing upper level of recognition structure, which spirits learners' imagination and thinking and provides plentiful learning experience [8]. The influence study of learning outcomes on the competition of game based computer aided learning indicated that the type of group competition in game play increases learning outcomes significantly. Regarding learning attitude, most of students prefer completion and game based learning [8]. The successful strategy of game based instruction exploits the affinity of experience and graphic interface as a learning tool which facilitates students to participate and interact proactively. This is what traditional instruction lacks [7] [9].

### C. Situated Learning

Situated learning theory emphasizes that learners experience actual social situation by themselves [10]. The learning outcomes is generated by applying knowledge and skill to solve problems in practical activities; therefore, the reality of the situation of learning activities is very important in knowledge learning [11]. Effective learning is taken place only

when meaningful situation exists in practical activities [11] [12]. Lave and Wenger [10] noted that students and instructors participate learning together in practical situation through social interaction in order to construct knowledge. Discussions between group members generates collaborative social interaction which constructs common meaning and knowledge [11].

### III. METHOD

#### A. Instruction experiment Design Model

Instruction experiments were conducted according to one-group pretest-posttest design of experimental research. Purposive sampling was taken because it was impossible to select subjects randomly [13]. The instruction experiment design model is shown as TABLE I.

TABLE I. INSTRUCTION EXPERIMENT DESIGN

Group	Pre-Test	Experiment	Post-Test
Experimental	O1	X1	O2

O1 : Pre-test of experimental group

O2 : Post-test of experimental group

X1 : apply on-line game based instruction on experimental group

#### B. Experiment Procedure

The experiment was conducted through the following seven steps:

- (A) research subject set-up
- (B) literature review
- (C) pilot instruction
- (D) research tool preparation
- (E) instruction experiment
- (F) data processing and analysis
- (G) conclusions

##### 1) For step (C) pilot instruction, the following processes were conducted:

- Instruct prior knowledge: Instructor taught students marketing management related knowledge and case study in order to establish the required prior knowledge and understand how to apply.
- Set up marketing management related conditions: Instructor set up marketing management related conditions of a simulated lemonade shop for students to conduct situated learning as the basis business conditions of developing a marketing management planning.

##### 2) For step E instruction experiment processing, the following processes were conducted:

- Apply pre-test: Students issued marketing management proposals of lemonade shop according to marketing management related conditions by utilizing marketing management related knowledge and applications taught by the instructor in courses. Then the panel of judges organized by experts conduct assessment for those proposals issued by students. The assessment results were taken as the pre-test scores.
- Apply on-line game based instruction: Students played the on-line game called Sim Lemonade which simulated marketing management of a lemonade shop.
- Apply post-test: After accomplishing on-line game based instruction, students issued marketing management proposals of lemonade shop again. The same panel of judges conducted assessment for those proposals and the assessment results were taken as the post-test scores.

#### C. Research and Hypothesis

- H0: For the students, who participated on-line game based instruction, their pre-test score was much higher with significant difference than post-test score of marketing management proposals.
- H1: For the students, who participated on-line game based instruction, their post-test score was much higher with significant difference than pre-test score of marketing management proposals.

#### D. Research Tools

##### 1) Sim Lemonade

Sim Lemonade, applied as the research tool for students to play in on-line game based instruction, is an on-line game which simulates marketing management of a lemonade shop. Students merged into simulated business situation and conducted marketing management related activities through role play as the manager of a lemonade shop. They experienced changeable business situation and drafted marketing management strategy in terms of product recipe, product price, raw material purchase, inventory management, shop location and advertisement according to the changes of business situation.

##### 2) Assessment Chart of Marketing Management Proposals

The panel of judges took standard assessment chart to evaluate marketing management proposals issued by students who participated on-line game based instruction. There are five elements included in the assessment chart in terms of product recipe setting, product price setting, raw material purchase and inventory management, shop location setting and advertisement design. Likert scale was used for the assessment. The score 1 to 5 was given by judges based on the assessment levels in sequential order of bad, require improvement, fair, good and excellent. Higher score represents better learning outcomes of marketing management. The assessment chart of marketing management proposals is shown as TABLE II.

TABLE II. ASSESSMENT CHART OF MARKETING MANAGEMENT PROPOSALS

Assessment						
Assessment Elements	%	1	2	3	4	5
		Bad	Imprv.	Fair	Good	Excel.
Product recipe setting	20%					
Product price setting	20%					
Purchase & Inventory	20%					
Shop location setting	20%					
Advertisement setting	20%					

3) *On-Line Game Data Sheet of Daily Marketing Management Records*

Instruction experiments were conducted according to one-group pretest-posttest design of experimental research. On-line game based instruction was applied to students between pre-test and post-test. Students record the data of those five assessment elements of marketing management daily on the on-line game data sheet while they played Sim Lemonade. The data was used to inquire the influence of on-line game based instruction of marketing management on students' learning outcomes. The on-line game data sheet is shown as fig.1.

Day	Weather	Recipe				Price	Advertise	Rent	Profits	Current Money
		Lemon	Ice	Sugar	Water					
1	cloud	3	2	2	6	0.8	0	30	159.6	239.2
2	sunny	4	3	3	7	0.8	0	30	90	315
3	sunny	4	3	3	7	0.9	0	30	103.2	403.4
4	sunny	4	3	3	7	0.9	200	30	-125.6	265.8
5	cloud	3	2	2	6	1	0	30	194	445.6
6	sunny	4	3	3	7	1.2	100	30	47.6	477.3
7	sunny	4	3	3	7	1.2	0	150	28.8	492.8
8	sunny	4	3	3	7	2.5	200	150	60	537.1
9	sunny	4	3	3	7	3.6	0	150	440.4	963.6
10	cloud	3	2	2	6	5	0	150	-150	797.8

Figure 1. On-line game data sheet

IV. CONCLUSIONS

A. *Quantitative Analysis*

In order to identify the score difference of marketing management proposal caused by applying on-line game based instruction, dependent sample T-test was conducted to verify the difference between pre-test and post-test scores of marketing management proposals. Analysis results,  $t(11)=3.436$  and  $p=.006<.01$ , indicated significant difference between pre-test and post-test scores. Therefore, null hypothesis is rejected, which represents on-line game based instruction is able to promote students' learning outcomes of marketing management proposals.

B. *Qualitative Analysis*

The qualitative analysis was conducted according to students' learning feedback. Main results are shown as following:

- Through several tries of Sim Lemonade, some tips were generated and shared with others such like recipe adjustment based upon weather and advertisement investment based upon revenue.
- Compared with traditional instruction, learning marketing management through playing on-line game is much fun

and more effective. Therefore, Sim Lemonade is highly recommended for people who are willing to learn how to operate a shop by using marketing management knowledge.

- The following learning were generated through tries and error by playing Sim Lemonade. The more product price increase, the more possibility of loss. Shop location setting is very important.
- Lots of valuable experiences were received through playing Sim Lemonade such like product price setting, raw material inventory management, shop location setting and advertisement setting. Especially bad inventory management resulted in loss. Furthermore, product price increase is based on effective advertisement. Therefore, how to run a shop successfully and inspire potential of marketing management can be achieved through on-line game based instruction.
- Never try to rent a more expensive shop if you do not have enough cash in hand. Product price setting is art instead of technique. Careful deliberation is required to run a shop successfully.
- Sim Lemonade is quite helpful and fun in learning marketing management through particle practices.

Marketing management knowledge in terms of product price setting, product recipe setting, shop location setting, advertisement setting and inventory management were learned through playing on-line game Sim Lemonade. The difficulty of being a boss was experienced by playing on-line game Sim Lemonade.

Therefore, on-line game based instruction applied on marketing management is verified to influence students' learning motivation and learning outcomes effectively which are not able to achieved through traditional instruction.

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#### REFERENCES

[1] J. E. McCarthy, Basic Marketing : A Managerial Approach Homewood, 7th ed.. IL: Richard D. Irwin Inc., 1981.

[2] Y. Dong, Correlation research of policy holders' perception of graph and text advertisement handbill and product satisfaction of life insurance, Master dissertation, Taipei, Taiwan: Department of Graphic Arts and Communications of National Taiwan Normal University, 2011.

[3] C. Pang, J. Chen, and M. Wei, Marketing. Taipei, Taiwan: Yeh Yeh Book Gallery, 2006.

[4] C. Hu, A Study of advertisement strategy of digital publishing industry in Taiwan, Master dissertation, Taipei, Taiwan: Department of Graphic Communication and Digital Publishing of Shih Hsin University, 2013.

[5] Y. Wu, The empirical analysis of total quality management for marketing management, customer satisfaction and customer loyalty- the case of security industry, Master Dissertation, Miaoli, Taiwan: Department of Marketing & Logistics Management of Yu Da University of Science and Technology, 2012.

[6] K. Kiili, "Digital game-based learning: Towards an experiential gaming model", vol. 8, Internet and Higher Education, 2005, pp.13–24.

[7] L. Lu, Using freeware to construct an online contest game-based learning system for junior and elementary students, Master dissertation, Kaohsiung, Taiwan: Department and Graduate School of Computer Science and Information Engineering of Shu-Te University, 2009.

[8] T. Wu, Development of a gamed-based learning system for enhancing learner's motivation and self-perception in energy education, Master dissertation, Chungli, Taiwan: Graduate Institute of Network Learning Technology of National Central University, 2007.

[9] L. Johnson, The 2009 Horizon Report. Austin, Texas: The New Media Consortium, 2009.

[10] J. Lave, and E. Wenger, Situated Learning: Legitimate Peripheral Participation. Cambridge, NY: Cambridge University Press, 1991.

[11] T. Hsieh, A study on the effect of applying contextual teaching through role play to Taiwanese seventh graders learning english, Master dissertation, Changhwa, Taiwan: Graduate Institute of Curriculum & Instruction of Mingdao University, 2008.

[12] J. Choi, and M. Hannafin., "Situated cognition and learning environments: Roles, structures, and implications for design", vol. 43(2), ETR & D, 1995, pp. 53-69.

[13] W. Wang, and Z. Wang, Educational Research Methods. Taipei, Taiwan: Wunan Culture Enterprise, 2017.



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