

## **Student Perception of Using a Monopoly-Based Accounting Simulation Game: Evidence in Hong Kong**

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### **Abstract**

Monopoly-based accounting stimulation game is one of the most popular accounting simulation games in business faculties of universities around the world. Numerous studies (Tanner and Lindquist, 1998; Albrecht, 1995; Heyman,1975; Knechel and Rand, 1994 and Lewis and Mierzwa,1989) have reported that the Monopoly-based accounting stimulation game could effectively facilitate students' learning in accounting courses. Based on the previous studies, we believe that students will find the simulation game is practical, enjoyable, motivating and useful in their learning. However, most of prior studies are not talking about Chinese students and previous studies seldom investigate the gender difference of student perceptions on using this stimulation game in learning. Hence, the study is to fill in the gap to collect Hong Kong students' perception on using Monopoly-based accounting stimulation game in the accounting courses. The results of the study can help instructors assess the impacts of the Monopoly-based accounting simulation game when considering using it as an active learning tool in Chinese community.

**Keywords:** accounting education, Monopoly, simulation game, student perception and Hong Kong

### **I. Introduction**

This paper describes the use of Monopoly-based accounting simulation game in a medium sized introduction accounting class. The simulation game was introduced to raise learning efficiency of students in the course, with the aim of improving students' achievement of learning objectives in the course. The study evaluates the perception of the simulation game for students and instructors and contributes to the literature on the use of simulation games in accounting education showing a positive outcome for students in a medium-sized introduction accounting class.

The use of stimulation games to help students' learning has been supported by many studies e.g. Leong (2005), Saunders and Christopher (2003), Kober and Tarca (2000) and Lewis and Mierzwa (1989). Using Monopoly® to learn accounting has been successful in US undergraduate business education since 1980s. Knechel (1989) is the first one to apply Monopoly® in teaching accounting. His students played a game of Monopoly and then each prepared a balance sheet and income statement summarizing his or her experience. Albrecht

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(1995) reports on the use of Monopoly to generate financial reports for investment decisions. Many scholars point out advantages of using simulation games in learning financial accounting. These can motivate students to participate in educational activities (Tanner and Lindquist, 1998, Albrecht 1995, Heyman,1975, and Knechel and Rand,1994), enhance effective and active learning, provide students with a broader experiential learning environment (Klob and Lewis,1986), improve their technical accounting skills and interpersonal skill (Lucas, 1997, p.189 and Adler and Milne, 1997, Heyman,1975) and train students to be an effective group leader and member (Engeholm and Bigel, 1996).

Wolfe and Chanin (1993) and Plucinski and Falgiani (1989) also find that the accounting simulation game allows the acquisition of conceptual knowledge and greater retention of the accounting principles. Heyman (1975) supports that simulation games are useful for developing written and verbal skills.

The present study extends the prior research by considering the use of Monopoly in a medium-sized class setting of introductory level students. The simulation game was introduced to motivate students to achieve the learning objectives which include an acquisition of the accounting principles and technical accounting knowledge and betterment of students' communication, group work and problem solving skills.

The structure of this paper is organized as follows. First will be providing the background of the study in which a set of research questions will be developed based on relevant literature in Section II. In Section III, we will provide methodological details including data collection and instruments as well as descriptions of data. Result analysis is provided in Section IV. Finally, we will conclude the findings of the study in Section V.

## **II. Background**

A number of prior papers show numerous advantages of using business simulation games in education. Knechel (1989) found that accounting simulations could be used as a teaching resource to add a greater degree of reality to the material covered in courses. Knechel and Rand (1994) suggested the Monopoly-based accounting simulation was used to place the more traditional practice set as it can improve the students' perceptions of learning and raise their level of motivation over that found with a traditional practice set. Keys and Wolfe (1990) showed that simulation games were widely used in management business education. They pointed out that the simulation games raised the level of organizational reality in a course. Tanner and Lindquist (1998) supported that accounting simulation and cooperative learning could be used together to enrich accounting education.

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Regarding student perception of fun using the Monopoly-based simulation game in learning accounting, a number of studies provided evidence to support that “using stimulation game in accounting courses could keep students interested and attentive in a class. Knechel (1989) was the first one to apply Monopoly game in teaching accounting. He agreed that the Monopoly-based stimulation game could raise the students' interest to learn accounting. He concluded that Monopoly was “more interesting to the students, less time consuming and just as effective at communicating the key learning objectives deemed important” (p.419). Knechel and Rand (1994) pointed out that using the Monopoly-based accounting simulation game effectively increased student motivation to complete the practice set in accounting courses. Tanner and Lindquist (1998) also indicated that students enjoyed using the accounting stimulation game in their learning. Based on these results, we hypothesize that accounting students would enjoy using the Monopoly-based accounting simulation game in learning. Thus, the first research question is:

1<sup>st</sup> RQ: Will Hong Kong students major in accounting enjoy using Monopoly-based accounting simulation game to learn in introductory-level accounting courses?

Apart from that, prior studies also found that using accounting simulation game in class was an effective means of students' acquisition of accounting conceptual knowledge as it provided them with an experiential learning environment to acquire accounting knowledge and apply skill sets in class, which was a positive outcome of adapting accounting simulation games in class activities by a number of studies. Wolfe and Chanin (1993) showed that using accounting simulation games in teaching accounting courses allowed students to acquire the accounting conceptual knowledge and techniques more effectively. Plucinski & Falgiani (1989) and Klob & Lewis (1986) also recognized the benefit of using the accounting simulation games in teaching and learning. They discovered that using the simulation game made students better understand the topics as this teaching approach provided students with a broader experiential learning environment to apply accounting techniques and theories. Hence, based on above-mentioned studies, we believe that using accounting simulation game in teaching and learning would improve students' understanding of accounting course materials. The second research question is developed as follows:

2<sup>nd</sup> RQ: Will Hong Kong students in accounting courses perceive that accounting simulation game can increase their “understanding of the accounting course material?”

Regarding student engagement and involvement in a simulation-game based classroom, a number of research argued that “using accounting simulation game in classroom increased students engagement and learning incentive in a class (Tanner and Lindquist, 1998; Albrecht,

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1995; Heyman,1975; Knechel and Rand, 1994). Heyman (1975) indicated that using simulation games made students more enjoyable in their learning process, stimulate their engagement in class and improve their academic performance. He explained that simulations provided students with a ‘learning by doing’ learning environment. The students were motivated to investigate and practice more their accounting principles and relevant techniques. Also, this learning approach could help students improve their communication skill and then accomplish an interactive learning outcome. Knechel and Rand (1994) also discovered that students using the Monopoly-based accounting simulation game significantly increased students’ motivation to complete the practice set in accounting courses. Hence, we believe that using Monopoly-based accounting simulation game would raise students’ motivation to complete the assignment in accounting classes. The third research question of the study is given below:

3<sup>rd</sup> RQ: To what extent does the use of Monopoly-based accounting simulation game effectively increase Hong Kong students’ motivation to complete the assignment in accounting classes?

Furthermore, prior studies presented that using accounting simulation games facilitated interactive learning in class (Lucas, 1997) and improve students’ communication skill. Heyman (1975) explained that the accounting simulation games gave students opportunities to run-through their accounting knowledge each other through interaction in the games. The accounting simulation games were also suitable for improving students’ written and oral presentation skills. Based on these results, we hypothesize that using the Monopoly-based accounting simulation game in learning could improve students’ written and oral presentation skill. Thus, the forth research question is:

4<sup>th</sup> RQ: Will using Monopoly-based accounting simulation game improve students’ written and oral presentation skill of students in accounting courses?

Apart from that, the study also looks at the gender differences of students regarding their belief and usage attitude towards with the simulation game. Numerous research showed that there was a difference between female and male students in their learning behaviour (Gallos, 1982, Gilligan, 1982, Eagle, 1987 and Scheuneman, 1997). Gallos (1982) found a significant difference in learning approach and styles between boys and girls. He pointed out that girls tend to be more timorous but boys are more self-confident in the classroom. The girls need more community of support, confirmation, encouragement and become relatively passive in-class participation. However, the boys are more self-assured and can be more active to present themselves in classroom activities. Scheuneman (1997) also confirmed that girls

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always suffered from a lack of confidence and perform less well than they actually do, especially in accounting classes which requires students highly involve in class participation and discussion. Based on these results of the studies, it is thought that male students in accounting classes are more likely to participate in class interaction. They would more dominate in class discussions compared with female students. On the contrary, the girls would perform less well in class discussion and need more concerns from instructors. Besides, Eagly (1987) indicated that gender role stereotypes often found the female more communal and concerned with the welfare of others than the male. The male was described as more confident and controlling than the female. Gilligan (1982) confirmed the gender differences in learning attitude and approaches and he also explained that the gender difference was attributable to the intrinsic psychological differences between men and women. These findings provide a ground to explain the gender differences in learning style. Based on above-mentioned studies, we believe that male and female students have different perception and preference towards with accounting simulation game in their learning. Hence, the fifth research question is:

5<sup>th</sup> RQ: there is a gender difference in student perception towards with accounting simulation game in Hong Kong.

### III. Methodology

#### Sample size

In order to collect student perception on using the accounting stimulation game in class, a survey with accounting students was conducted. Students who participated in this survey were enrolled in the accounting diploma programme of a private collage in Hong Kong. They were explained the requirements of the accounting simulation games in class and invited to express their perception of the games in the survey. Responses were collected from 40 students (80% response rate). Respondents who participated in the survey were both full-time and part-time students. Participant information includes their responses of the survey and basic demographic information.

#### Instrument

Data on student perception on accounting simulation game was collected using a questionnaire with reference to Kober and Tarca's survey in 2002. The students completed a questionnaire at the completion of their accounting course. The questionnaire consists of 29 items with responses on a three-point Likert scale.

### IV. Result Analysis

Based on the survey results, we found that over 50% of students loved the Monopoly-based

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accounting simulation game and enjoyed to use it in class (Figures 1 and 2). They found that the Monopoly-based accounting simulation game was practical, unique and better than other traditional practical sets (Figures 3 and 4). The result supported the first research question that Hong Kong students major in accounting in general enjoyed using Monopoly-based accounting simulation game to learn in introductory-level accounting courses. However, the survey result did not find any significant results to support that the Monopoly-based accounting simulation game facilitated students to better prepare the financial statements or improve their generic skills (Figures 5 and 6).

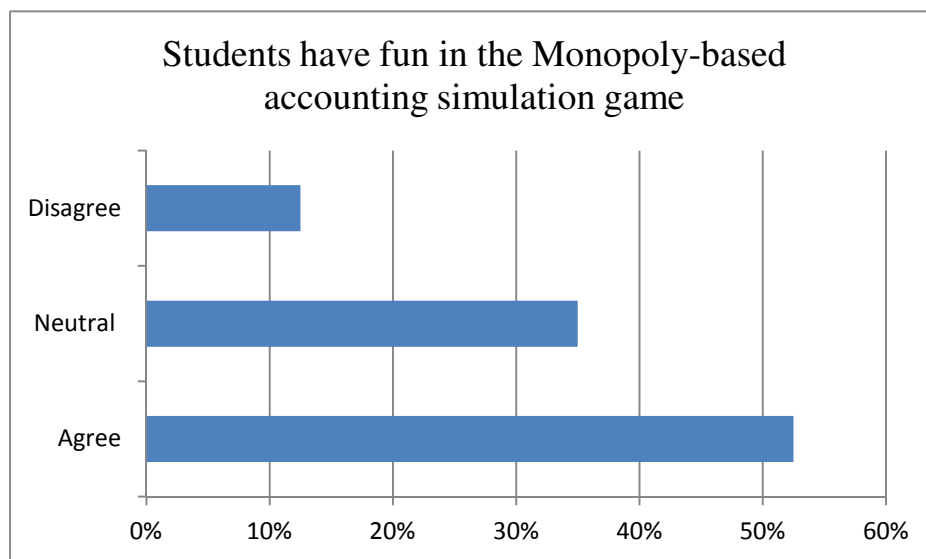


Figure 1: Students have fun in the Monopoly-based accounting simulation game

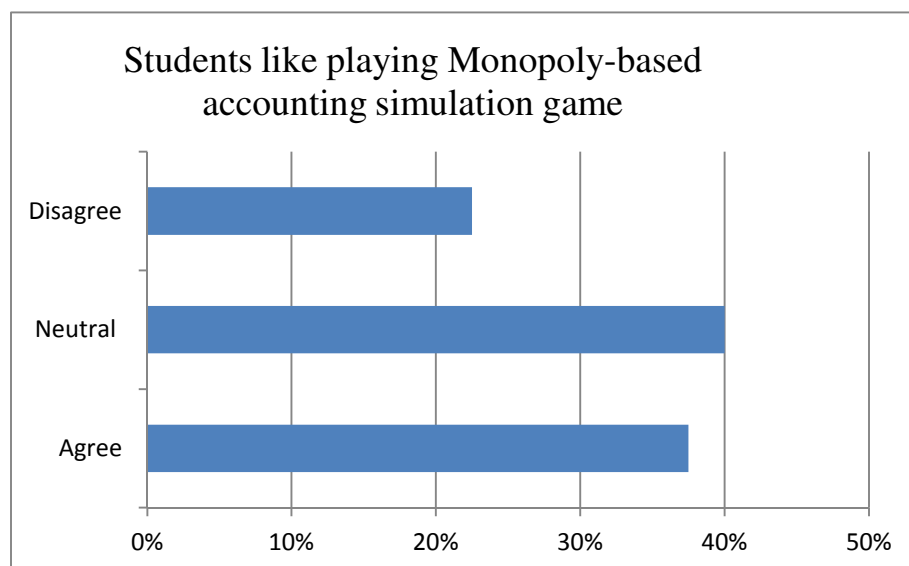


Figure 2: Students like playing Monopoly-based accounting simulation game

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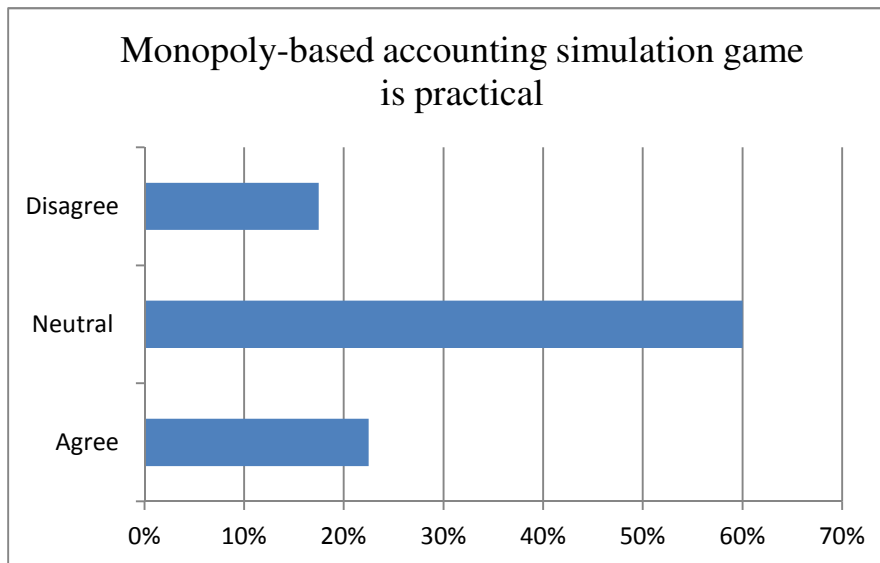


Figure 3: Monopoly-based accounting simulation game is practical

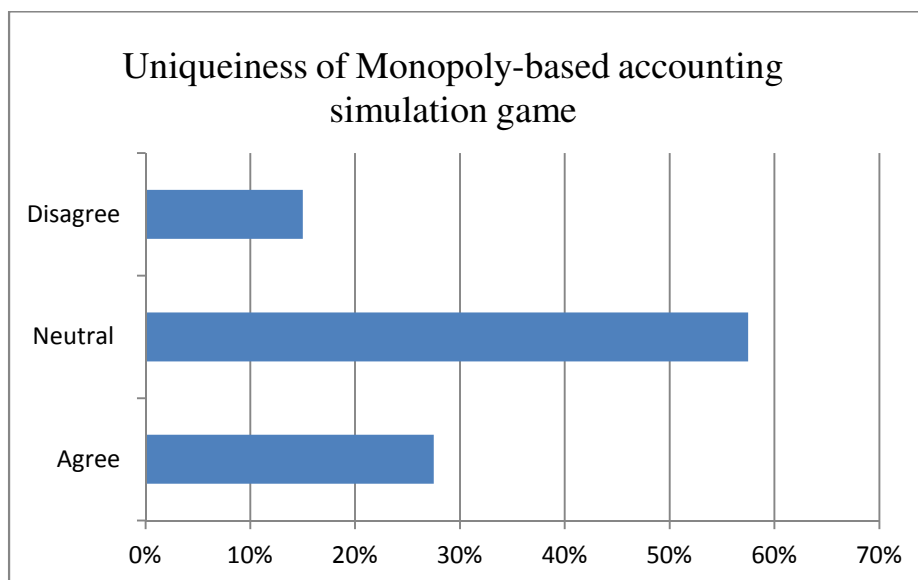


Figure 4: Monopoly-based accounting simulation game is unique and better than other traditional assignments

For the 2nd research question about whether Hong Kong students in accounting courses perceive that accounting simulation game can increase their “understanding of the accounting course material, the survey results found significant evidence to support it. The result showed that only 15% of students disagreed the accounting simulation game increased their “understanding of the accounting course material (Figure 7) but most of students agreed that the game made them better understand financial accounting theories (Figure 8). They also agreed that the simulation game was able to enhance their ability to apply financial accounting concepts and principles (Figure 9).

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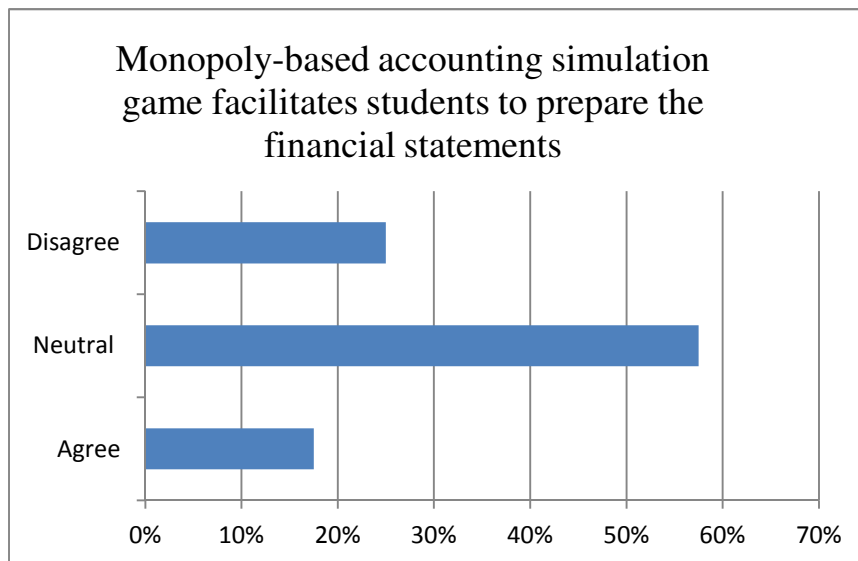


Figure 5: Monopoly-based accounting simulation game facilitates students to prepare the financial statements

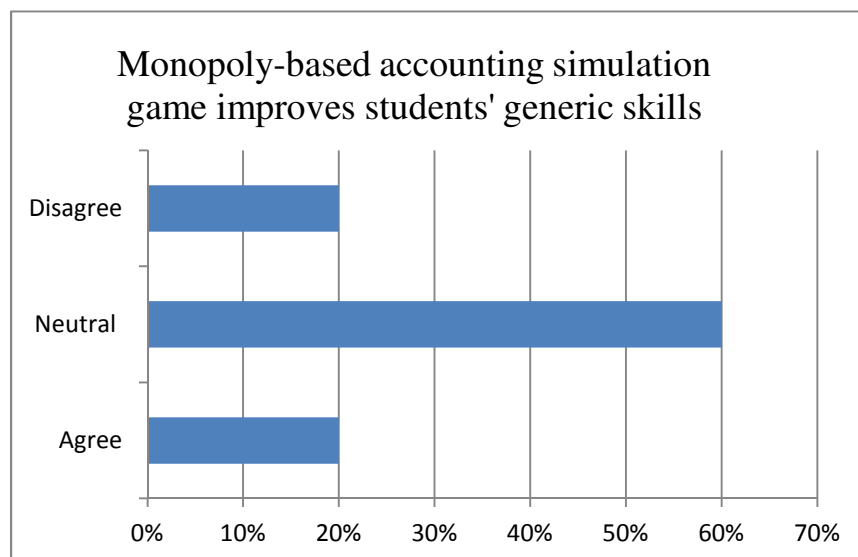


Figure 6: Monopoly-based accounting simulation game improves students' generic skills

With regard to the third research question about whether the use of Monopoly-based accounting simulation game in learning effectively can increase Hong Kong undergraduate students' motivation to complete the assignment in accounting classes, the survey results found significant evidence to support the hypothesis. Over 30% of students agreed that using the accounting simulation game raised their motivation to complete the assignment more effectively but only 18% of students disagree on this (Figure 10). In general, students are positive towards using the simulation game in learning. When comparing the Monopoly-based accounting simulation game with other traditional accounting assignments, students found that the simulation game was more practical and enabled them to learn more effectively (Figures 11



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and 12). The result also reflected that students preferred to do the simulation game assignment than other traditional accounting assignments (Figure 13).

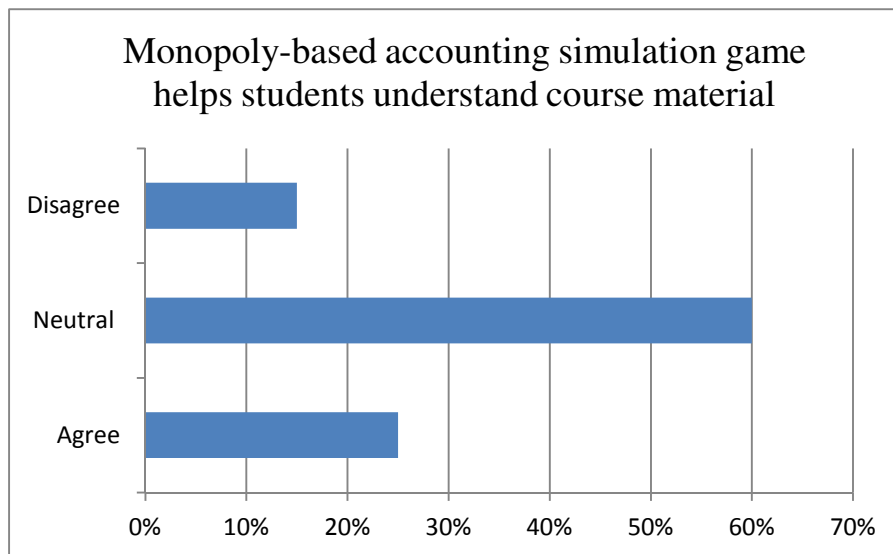


Figure 7: Monopoly-based accounting simulation game helps students understand course material

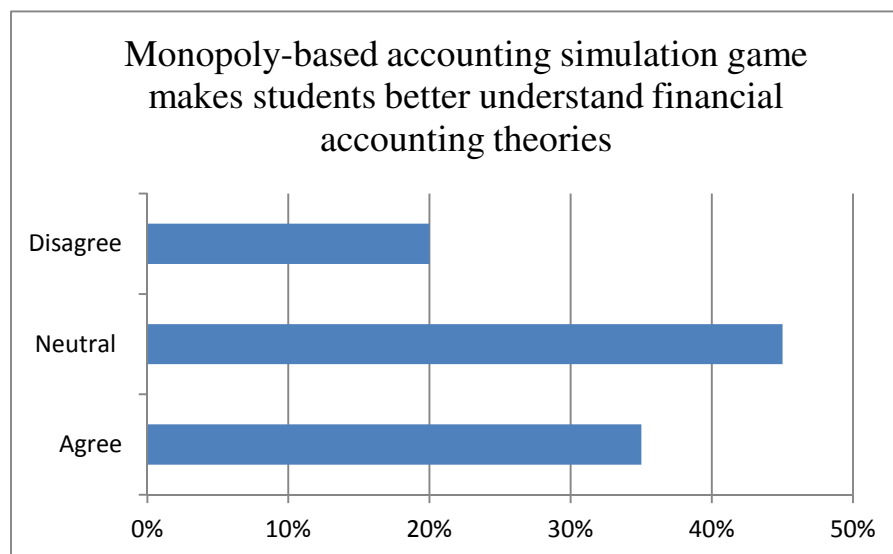


Figure 8: Monopoly-based accounting simulation game makes students better understand financial accounting theories

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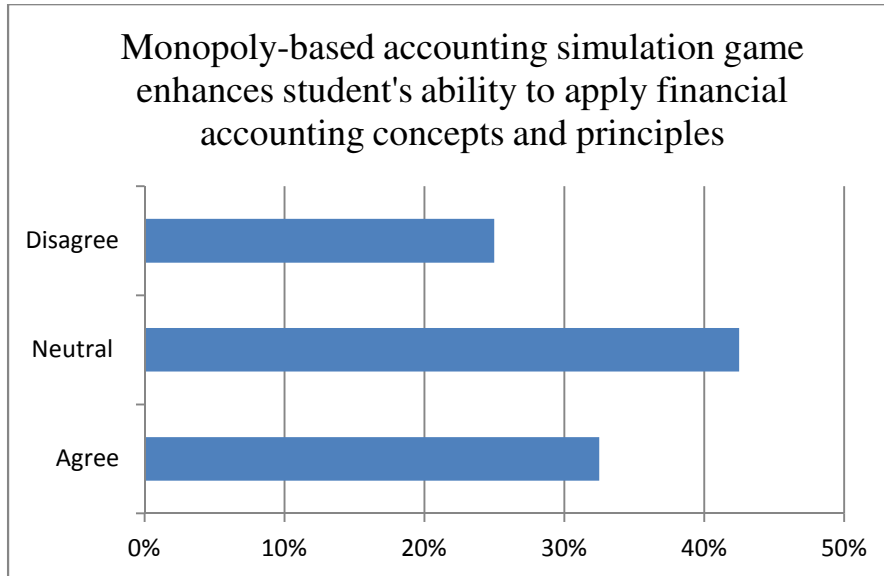


Figure 9: Monopoly-based accounting simulation game enhances student's ability to apply financial accounting concepts and principles

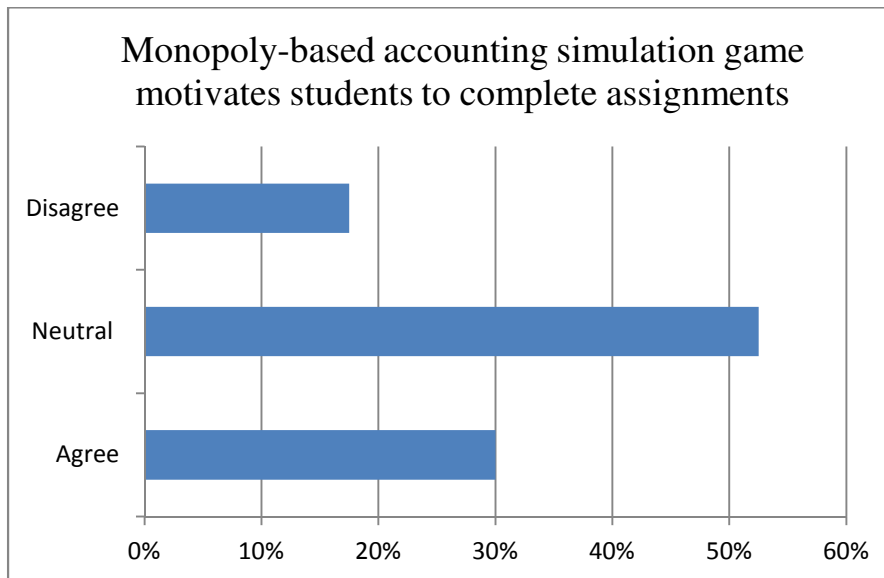


Figure 10: Monopoly-based accounting simulation game motivates students to complete assignments

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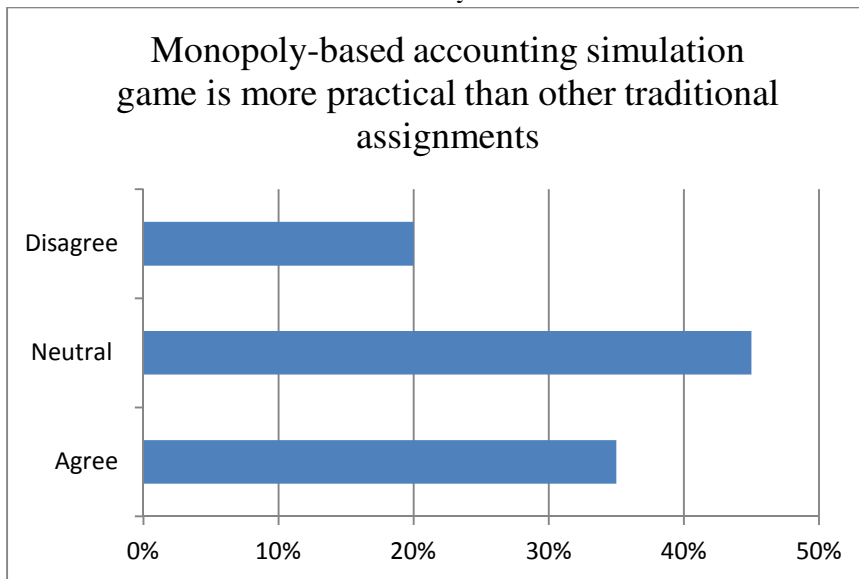


Figure 11: Monopoly-based accounting simulation game is more practical than other traditional assignments

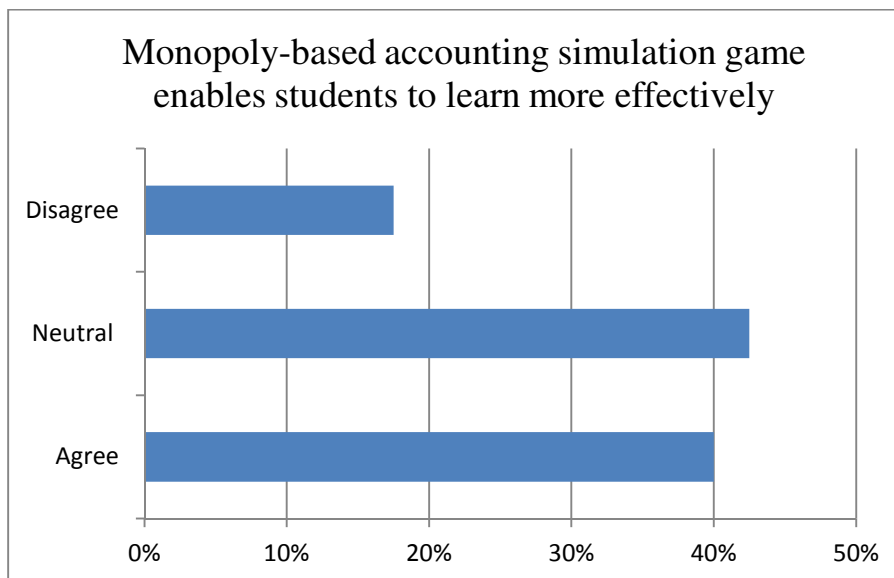


Figure 12: Monopoly-based accounting simulation game enables students to learn more effectively

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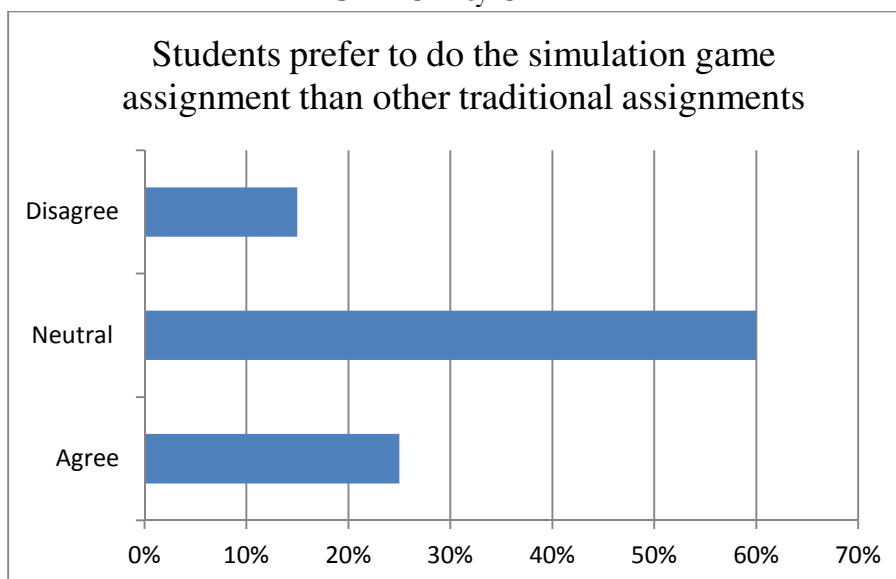


Figure 13: Students prefer to do the simulation game assignment than other traditional assignments

For the fourth research question about whether *Hong Kong undergraduate students* perceive that the Monopoly-based accounting simulation game can improve their written and oral presentation skill of students in introductory-level accounting courses, the result does not find any significant result to support the hypothesis. In the study, 28% of students disagreed (vs. 23% agreed) that the simulation game improved their written and oral presentation skill (Figures 14 and 15) and 30% of students (vs. 16% agreed) disagreed that the simulation game increased their reading capability of understanding annual financial reports (Figure 16).

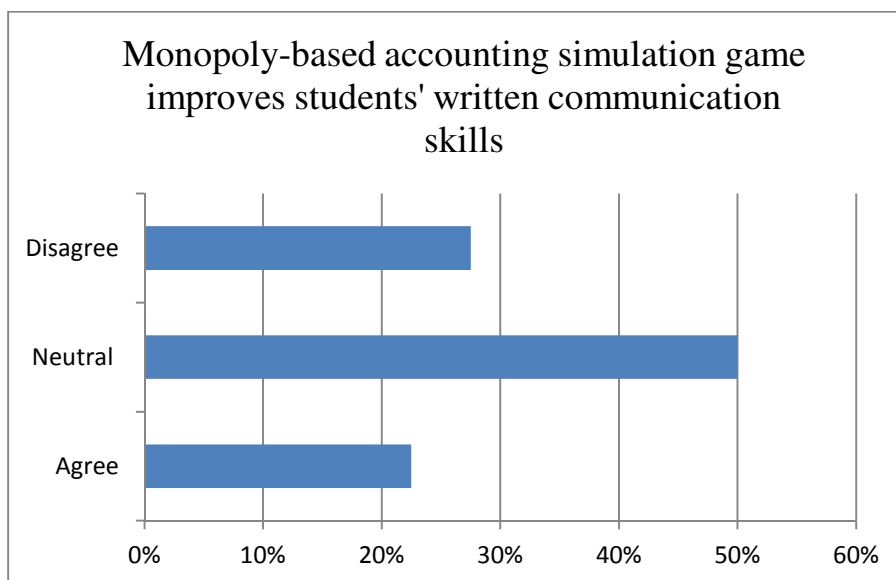


Figure 14: Monopoly-based accounting simulation game improves students' written communication skills

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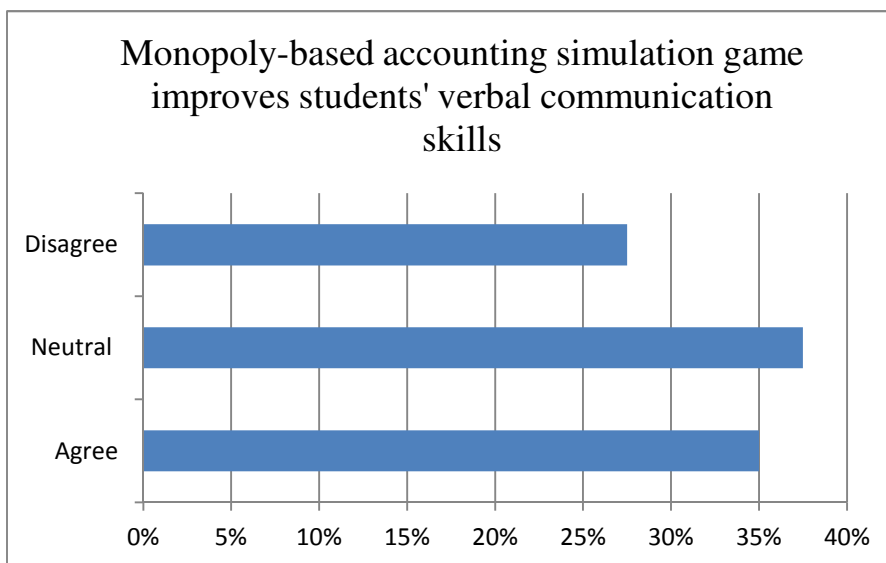


Figure 15: Monopoly-based accounting simulation game improves students' verbal communication skills

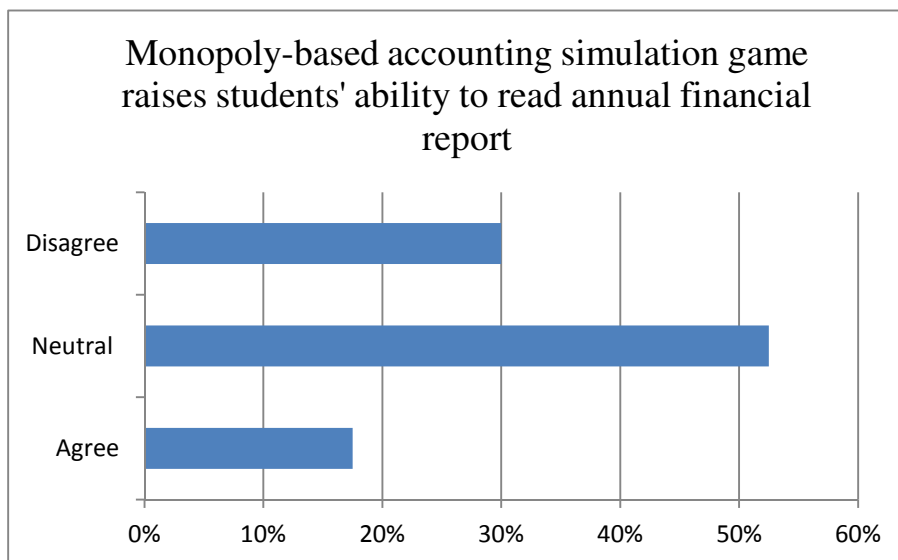


Figure 16: Monopoly-based accounting simulation game raises students' ability to read annual financial report

As a whole, students agreed that the Monopoly-based accounting simulation game was supportive for their learning. However, they also pointed out the problems using the simulation game. They found that the Monopoly-based simulation game assignment was more difficult, demanding and time-consuming compared with other accounting assignments (Figures 17, 18 and 19). The game required students to form group to play and each group members need to highly participate in the game, so students found difficult in preparing the group assignment (Figures 20 and 21).

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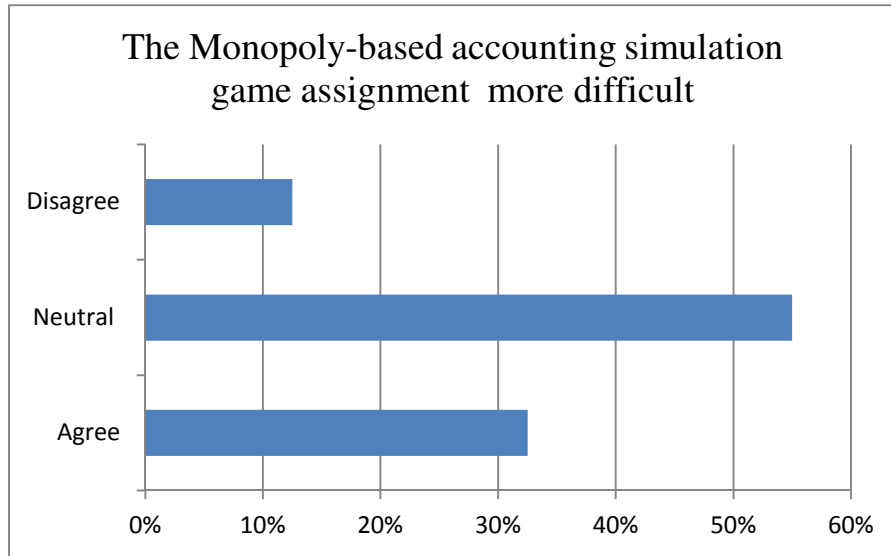


Figure 17: The simulation game assignment more difficult compared with other traditional accounting assignments

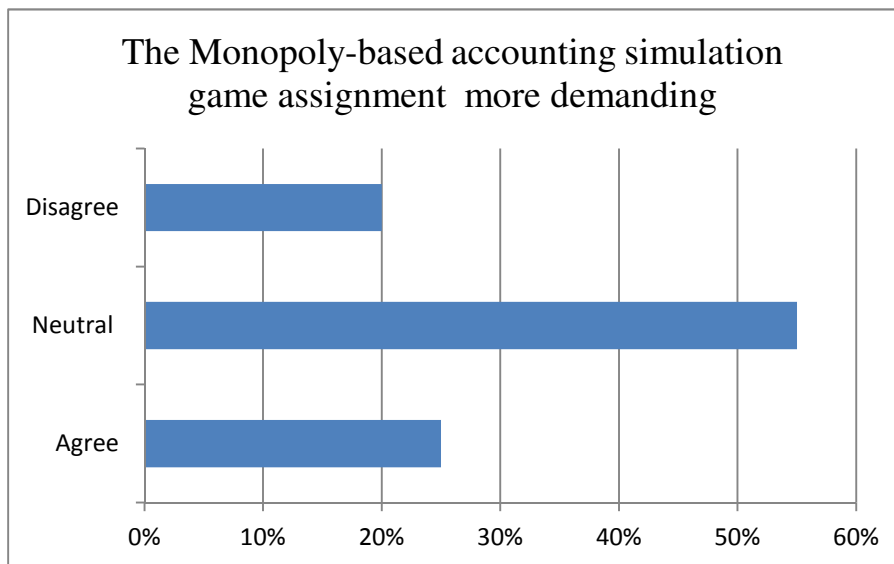


Figure 18: The Monopoly-based accounting simulation game assignment more demanding

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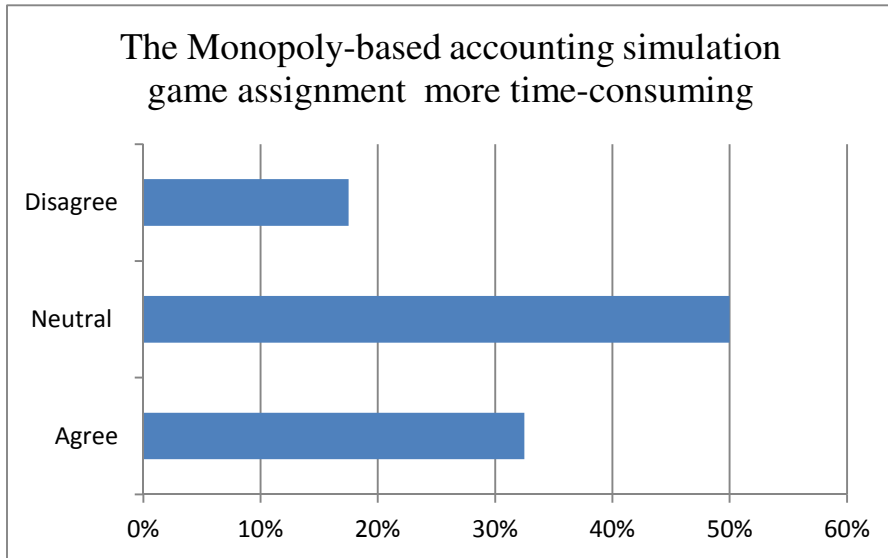


Figure 19: The Monopoly-based accounting simulation game assignment more time-consuming

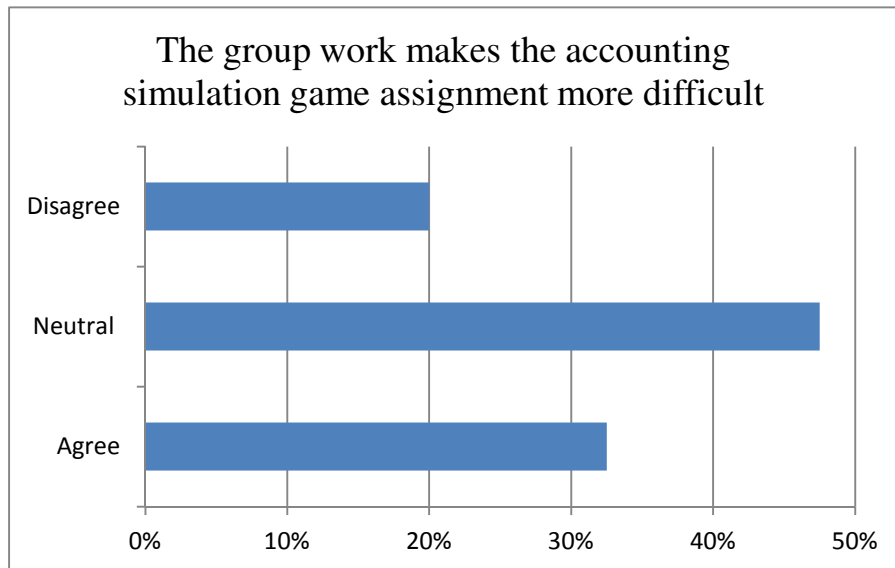


Figure 20: The group work makes the accounting simulation game assignment more difficult

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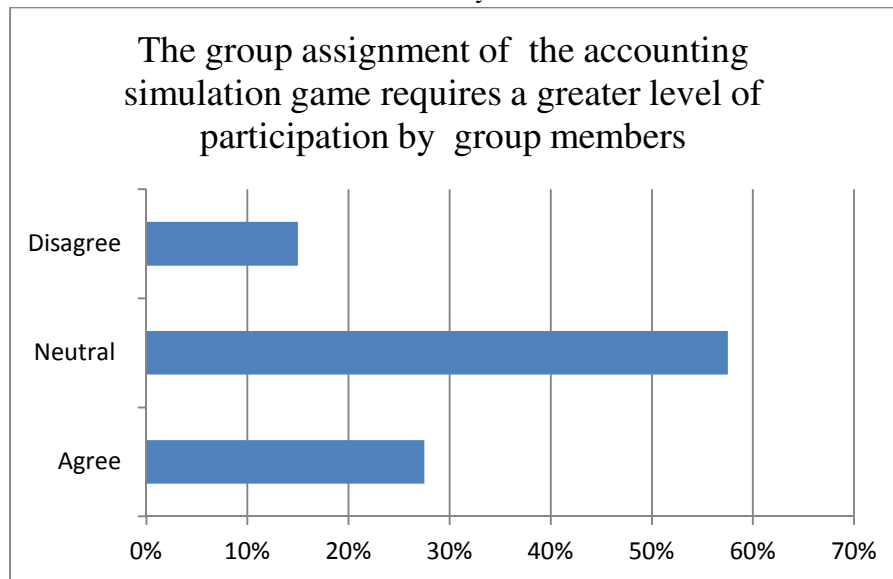


Figure 21: The group assignment of the accounting simulation game requires a greater level of participation by group members

In order to investigate the fifth research question about a gender difference in students’ perception of using accounting simulation game in Hong Kong, the T-test statistics were applied to examine whether there was a statistically significant difference between the male and female students in the responses. Table 1 presents the mean scores for males and female students on each survey questions. The last column shows the statistics significance of the t-test result. Among 29 items of the survey, only five items are found significant differences between male and female students’ responses. The items one and three refers to the simulation game helped student better understand the financial accounting and the course materials. Scores on this was significantly higher for females, indicating female students more supported the accounting simulation game than did males. Female respondents also had higher mean scores on items six and twenty-nine. This reflects that female students more agreed the simulation game to increase to ability to read annual reports and improve their oral communication skill, compared with the male students. Even though the female students were more positive towards using the accounting simulation game, female students also had higher mean scores on items 11 and this showed that they preferred to do traditional assignment more. For other items of the survey, there was not any statistically significant difference between male and female students.

**Table 1: Gender Difference in Student Perception on the Monopoly based Simulation Game**

Items	Student views of the Monopoly simulation game	Mean response for males	Mean response for females	t-test results
1	It helped me understand financial accounting	2.00	2.40	-1.71*



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2	It enhanced my ability to apply financial	2.00	2.20	-0.80
3	It helped me understand course material	1.92	2.40	-2.47**
4	It increased my written communication skills	1.84	2.13	-1.27
5	It increased my verbal communication skills	1.92	2.33	-1.62
6	It increased my ability to read annual reports	1.72	2.13	-1.90*
7	The weighting of marks was appropriate for the time required	2.00	2.33	-1.51
<b>Student views comparing the Monopoly simulation game and other university assignments</b>				
8	It motivated me to a greater extent	2.08	2.20	-0.53
9	It was more practical	2.04	2.33	-1.23
10	It enabled me to learn more	2.08	2.47	-1.65
11	I enjoyed doing the assignment more	1.92	2.40	-2.47**
12	I found the assignment more difficult	2.20	2.20	0.00
13	It was more work	2.04	2.07	-0.12
14	It took more time	2.04	2.33	-1.29
15	Group work was more difficult	2.04	2.27	-0.96
16	There was a greater level of participation by group members.	2.16	2.07	0.44
<b>Student's views on whether the assignment should be repeated in the following year</b>				
17	Would you recommend that the assignment be repeated in 1999?	1.40	1.47	-0.40
<b>Student's views: Best aspects of the Monopoly simulation game</b>				
18	What do you believe were the best aspects of the assignment?	2.40	2.40	0.00
19	Fun	2.00	2.13	-0.63
20	Practical	2.08	2.27	-0.74
21	Playing Monopoly	1.84	2.07	-1.06
22	Preparing the financial statements	2.00	2.00	0.00
23	Improves generic skills	2.08	2.20	-0.56
24	Uniqueness	2.00	1.93	0.38

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25	Other comments	2.24	2.07	0.83
	<b>Student’s views: Worst aspects of the Monopoly simulation game</b>			
26	Too much work given time constraints	1.96	2.14	-0.94
27	Preparing the financial statements	2.08	2.00	0.38
28	Having group member selection process being restricted to tutorial group restricted to tutorial group	2.24	2.07	0.78
29	Oral presentation	1.88	2.27	-2.65**

Remark: \* indicates the statistically significant level at 90%, \*\* at 95%, respectively.

**V. Conclusion**

In line with prior literature such as Bee and Hayes (2005), Haywood, et. al. (2004), Nitkin (2011) and Pillsbury’s (1993), surveyed students who played the simulation game reported that the game was fun, interesting, and informative. The game also fostered their learning and made them better understand the course content. Due to time and resource constraint in the study, it only focused on the students’ perception on the impacts of the simulation game on their learning. In future, we can expand the scope of the survey and add more questions to assess the instructors’ opinion on the game teaching in classroom activities. Hence, we suggest that more resources are required to invest in doing surveys to collect instructors’ opinion on the game teaching approach, investigate main difficulties for them to adopt the teaching approach in classroom and conduct some feasibility studies of the game teaching in business faculty.

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