CAN PLAYING MONOPOLY™ ENHANCE LEARNING FOR PROPERTY STUDENTS

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ABSTRACT

This paper outlines the initial results from a pilot study into the educational use of the board game Monopoly City™ in a first year property economics unit. This game play was introduced as a fun and interactive way of achieving a number of desired outcomes including: enhanced engagement of first year students; introduction of foundational threshold concepts in property education; introduction of problem solving and critical analysis skills; early acculturation of property students to enhance student retention; and early team building within the Property Economics cohort, all in an engaging and entertaining way.

Preliminary results in this research project are encouraging. The students participating in this initial cycle have demonstrated explicit linkages between their Monopoly City™ experiences and foundation urban economic and valuation theories. Students are also recognising the role strategy and chance play in the property sector. However, linking Monopoly City™ activities to assessment has proved important in student attendance and hence engagement.

Keywords: Monopoly City™, student engagement, learning outcomes, real estate education

INTRODUCTION

This paper outlines the research methodology and initial results from a pilot study into the educational use of the board game Monopoly City™ in a first year property economics unit in terms of the student's satisfaction, engagement and retention in the unit and overall course. This research project seeks to investigate the potential of incorporating game playing into students' first year studies. Game play is recognised as an effective active learning tool to enhance student engagement (Auman, 2011). Game playing also contributes to the acquisition of required skills and competencies (Klopfer et al, 2009) whilst supporting collaboration, communication and problem solving (New Media Consortium, 2012).

This project introduces structured game activities based around the board game Monopoly City™ to tie theoretical class room learning with collaborative, play based problem solving to increase student engagement and satisfaction and thus reduce attrition. This game play was introduced as a fun and interactive way of achieving a number of desired outcomes including: enhanced engagement of first year students; introduction of foundational threshold concepts in property education; introduction of problem solving and critical analysis skills; early acculturation of property students to enhance student retention; and early team building within the Property Economics cohort, all in an engaging and entertaining way.

The purpose of this paper is to document the research process by which game play is used to increase student satisfaction, engagement and retention as well as to report on preliminary results from the pilot project. This research utilises student survey data and teacher observations to identify the key success factors and areas of improvement for this pilot project, with a view to introducing the game play concept into the curriculum permanently in order to innovatively improve student's satisfaction, engagement and retention in the unit and overall course.

BACKGROUND

There is increasing competition between Australian universities to attract and retain students. This is particularly relevant in the post global financial crisis environment, with international student numbers plummeting and there being a "flight to quality" of the remaining student cohort. First year engagement and retention is well researched (for example Tinto 2012; Nelson, Kift and Clarke 2012) as is the use of games in teaching (for example Juul 2005, Young et

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al 2012; Klopfer et al 2009), albeit with most of the game play literature focusing on the learning outcomes of the students and not specifically on the engagement and retention. The use of Monopoly™ as a tool for tertiary student engagement and retention has been researched previously with a focus on business, accounting and finance applications (Tanner and Lindquist 1998; Shanklin and Ehlen 2007) while others have used it to investigate sociological aspects such as critical thinking and inequality (Paino and Chin 2011; Ansoms and Geenen 2012). All the Monopoly ™ games literature show an increased student satisfaction with the teaching (and therefore engagement) but not necessarily how this links to student retention.

A major issue identified in both QUT student evaluation surveys and the QCS (Graduate Survey) revealed a major concern with year one and graduating students is the issue of the relevance of early units in the course and how they link to later units in the program. Numerous student comments highlighted the need to cover the introductory concepts of property and how they link to the degree structure and accreditation requirements earlier in the program to increase student engagement and understanding of the importance of all units in the degree program. Students commented that they did not appreciate the course fully until they were in later years of the program, as many of the initial units were not specific property units. Internal QUT course data showed that year one attrition rates in the Property Economics degree program were slightly higher than rates recorded for Business and Engineering degree programs. This evidence supported the need to develop a first semester unit that had the ability to summarise the importance and operation of the property industry and the relationship between the property industry and the overall course structure. It was also identified that traditional teaching methods and materials were not sufficient to increase initial student engagement and retention in the program.

The Monopoly City™ version was selected for use in this project over the traditional Monopoly™ board game for a number of reasons. The decision making required in this version of the game has greater linkages to urban economic theory and business strategies and incorporates new features to stimulate student curiosity and engagement. For example, players can select whether to build residential or industrial buildings in the first instance, with residential being far cheaper. The income producing capability of residential buildings can however be eliminated by the location of certain "hazardous" land uses such as a prison, sewerage works, power station or rubbish dump that do not impact the income producing capacity of industrial land use. On the other hand, residential asset value can be protected by proximity to "bonus" land uses such as a: school, park, wind farm or water tower. Office towers, sky scrapers and stadiums can be built once players meet certain criteria, with significant benefits to the player's income generating opportunities. The three dimensional aspect of the game accommodates these and other features.

Figure 1: Monopoly City™ Playing Board

Source: http://www.amazon.de/Hasbro-01790100-Parker-Monopoly-City/dp/B001SRT81Q

The use of a physical board game, rather than any of the online options was also considered. Whilst seeming "old fashioned" in comparison to its online counterparts, it brought students together in a face-to-face collaborative learning space which was seen to have benefits from a number of perspectives including: physical networking, the act of introducing oneself and having to talk about yourself briefly, verbal communication skills, and interpersonal skill development all within a time and activity controlled environment.

This paper is arranged in the following sequence: this initial section has presented the background to the research problem and the Monopoly City™ research concept. The second section outlines the methodology and data collection proposed for this research project; the third section describes its implementation and presents the initial findings of the pilot phase. The final section concludes and provides recommendations for future research.

METHODOLOGY AND DATA COLLECTION

This research project obtained funding from a QUT Learning and Teaching Fund to investigate and trial the use of the board game Monopoly City™. A two stage process was proposed, with implementation issues and initial outcomes of the pilot project forming the basis of this paper.

This research has been conducted in a first year introductory property unit that is offered in both first and second semesters, permitting this research to be carried out over a 12 month period. The pilot project was run in Semester 2, 2013 in a small cohort class (23 students), with full implementation scheduled for Semester 1, 2014 into a full sized cohort class (around 100 students). The pilot project with a small cohort enabled the development, trailing and refinement of appropriate activities, lesson plans, communications, data collection and assessment items. The full project implementation program and timelines are indicated below in Table 1.

Table 1 Implementation phases, deliverables and timeline

Implementation	Deliverables	Timeline
Pilot Project	Prepare structured exercises, tutorial material, assessment item and student surveys.	Semester 1 - 2013
	Survey 2013 1st year cohort to establish satisfaction and engagement benchmarks	End Semester 1 - 2013
	Pilot project in UDB140 (smaller cohort than Sem 1, approx 30 students)	Semester 2 - 2013
	Data on student engagement and satisfaction gathered via REFRAME* instant response and tailored surveys for the Pilot project. Survey data further examined through a student focus group. Teacher/tutor reflections also gathered.	Semester 2 - 2013
	Data analysis and critical reflection of the data collected.	Late 2013
Full Cohort Implementation	Amend structured exercises, tutorial material, assessment item and student surveys further to pilot study results and reflection.	Pre - Semester 1 – 2014
	Introduction of new unit, with this project forming part of the tutorial component. A critical reflection report forms an assessment item.	Semester 1 – 2014
	Data on student engagement and satisfaction gathered via REFRAME* instant response and tailored surveys. Deeper analysis undertaken through a focus group. Teacher/tutor reflections also gathered.	Semester 1 – 2014
	Data analysis and critical reflection of the data collected.	Mid 2014

*REFRAME is a QUT university wide student satisfaction survey of all units.

The evaluation framework for this research is set out in Table 2 below. In summary, student engagement data from the Semester 1, 2013 class was collected for benchmarking purposes by way of an in-class student survey. The pilot group data (Sem2, 2013) was collected via end-of-session worksheets completed by students upon completion of each Monopoly City™ tutorial; in-class survey after the third and final tutorial; voluntary online student satisfaction surveys which assesses the student's satisfaction with the unit as a whole (REFRAME); a Monopoly City™ focus group held at the end of semester; teacher/tutor reflections collected at the end of each tutorial and university/faculty wide student retention data. Given the pilot nature of this initial phase, the data collection included questions on further development of the concept and delivery of the use of Monopoly City™ as a learning aid, as well as the more formal engagement, learning, satisfaction and retention evaluation questions indicated below.

Table 2 Evaluation Framework

Key evaluation questions	Evaluation data sources	Data collection and analysis methods to inform the overall project outcomes
Has 1st year student retention	Faculty student retention data,	Quantitative analysis to measure changes in student

Key evaluation questions	Evaluation data sources	Data collection and analysis methods to inform the overall project outcomes
improved from previous years?	Individual course report, REFRAME* data	retention in comparison to previous years' performance
How did game playing assist in developing an understanding of core threshold concepts in property education?	Student responses to surveys administered at the start, during and end of semester.	REFRAME instant response and tailored surveys, together with automated REFRAME data collection. Quantitative and qualitative analyses to be undertaken to measure changes in student perceptions relative to student engagement and satisfaction
Did game playing assist in engaging the student and creating a sense of belonging to the property discipline?	Benchmark of satisfaction and engagement to be established via survey of 2013 cohort (where traditional teaching methods are employed)	Focus groups to elucidate student responses Qualitative analyses to be undertaken to measure changes in student perceptions relative to student engagement and satisfaction
How did game playing assist in creating a cohesive property cohort?	Survey structure to be developed in consultation with project team and informed by relevant literature and other ongoing studies of student engagement and literature on evaluation on game playing in higher education	Teacher/tutor survey Quantitative analyses to be undertaken to measure changes in student perceptions relative to student engagement and satisfaction
What is the evidence of students achieving a greater level of understanding and engagement with core threshold concepts?		Teacher/tutor reflection Qualitative analyses to be undertaken to measure changes in student perceptions relative to student engagement and satisfaction

*REFRAME is a university wide student satisfaction survey of all units.

Due to conference deadlines, this paper has been prepared prior to finalisation of the pilot study. Hence the evaluation recorded so far includes student responses to surveys at the start and during the semester as well as teacher/tutor reflections. The findings from the pilot focus group and end of year University data sources were not available at time of writing.

FINDINGS

The Monopoly City™ game and concepts were introduced to students during three tutorial sessions during the semester in weeks 3, 6 and 9 with the focus group held in week 12. This allowed students to firstly become familiar with the game concept and rules, to reflect on their game strategies and then implement new strategies and more advanced rules within controlled game times. This occurred in concert with the development of their theoretical knowledge acquired during lecture time.

Each tutorial ran for two hours, with a structured lecture plan designed to incorporate: a short "ice breaker" activity, an introduction or refresher on the game rules (this included progression of more advanced rules as the tutorials progressed), approximately one hour of game time, tutor lead discussion on the learning outcomes, update of the leader board and data collection. The tutorial was held in a flexible flat teaching space, with tables and chairs arranged into groups of 4-6 students. Prize money was offered for the three students with the highest winnings at the end of the semester.

The findings in this section are separated into two categories: project related findings and student related findings. The former category is associated with the learnings of the research team in relation to developing a robust, repeatable and successful tutorial format that delivered the required learning outcomes. This section documents some of the procedural aspects of implementing this innovative learning concept. The later category is associated with the research outcomes in relation to student satisfaction, engagement and retention in the unit and overall course through game play.

Tutorial 1 – Week 3

An element of intrigue was developed prior to this tutorial in an effort to encourage attendance. Details of the tutorial activities were not released in advance, though the Monopoly City™ rule book was released to students as prior reading. This strategy was successful, with 16 (out of 22) enrolled students attending the 9-11am time slot. A formal lesson plan was followed, which included a short "ice breaker" activity, a summary of the rules, play of a 45 minute game in groups (4-5 players with student selected seating), tutor lead discussion on the learning outcomes, creation of a leader board and completion of a short survey by students. A sample copy of the lesson plan is appended.

The student survey data collected at this time was very positive[2]. All students (16) completed paper surveys at the end of the tutorial. All students (100%) expressed positive responses in relation to the game enhancing student interaction

[2] Copies of the surveys are available on request from the corresponding author.

and engagement. 94% of students (15) were able to directly relate the game play to the unit learning outcomes. When asked what could have been improved in the tutorial session, 33% requested more game time in the next round, whilst 67% reflected on their game strategy.

Tutorial 2 – Week 6

The element of intrigue was removed for this tutorial, instead a longer game time (as requested) was promoted in the lead up to the second tutorial. Unfortunately the second tutorial did not repeat the success of the first. One student arrived on time for this tutorial. A second student arrived 10 minutes late, and a third student arrived 20 minutes late. After 25 minutes, the tutorial was abandoned with no student data collected. Interestingly, two of the three students that attended were in the top two spots on the leaderboard from tutorial 1.

Tutorial 3 – Week 9

In order to attract students to the third tutorial, students were reminded of the tutorial details, of the prize money up for grabs, as well as a reminder that the tutorial material was examinable and notification that the tutorial material would be the topic of one of the major questions on the final exam. Nine students attended this tutorial, only one of which had not attended either of the first two tutorials. The format was similar to the lesson plan in Annexure A, with shorter preliminaries and a one hour game time. Students were randomly allocated across three tables so as to encourage a greater diversity in groups. More advanced rules were outlined, so as to encourage students to advance their learning to more complex issues such as mortgages and auctions.

All nine students present completed paper surveys at the end of the tutorial. Four questions were asked, two relating to the effectiveness of the student's game strategy, and one question each relating to how Monopoly City™ helped the student understand the unit content and the property industry in general. The game strategy questions were designed to promote student reflection on the success or otherwise of their game strategy and that of others. All students (100%) indicated having gained additional knowledge in relation to the unit learning outcomes from playing the game. All students (100%) were also able to indicate additional knowledge of the property industry from having played Monopoly City™. Specific linkages between game concepts/rules and the desired learning outcomes were made in all responses.

Student Engagement Survey – In Class

A survey of the full cohort of students was conducted during class time after the last Monopoly City™ tutorial. Nine students present in the lecture submitted completed surveys. This survey was more detailed that the post tutorial surveys which were designed to be quick response. Separate questions were asked in relation to student engagement and satisfaction with the unit as a whole, as well as general identifier questions ie. Age, gender, university major etc. In relation to the general questions: 78% (7) of the students were not first year students, and property was not their first major. 66% (6) of the students were female. 56% (5) of the students were international, quantity surveying students.

In relation to student engagement, all but one student had made friends by attending lectures/tutorials in this unit. On a scale of 1 to 5, with 5 being the highest the likelihood of the student to seek help from the lecturer rated 4.2, and the sense of belonging to the property discipline rated 3.5. This later outcome was a pleasing result given only two (12%) of respondents were actually enrolled in the property economics major.

The findings in relation to how Monopoly City™ positively contributed to student satisfaction were mixed. The question was posed asking students to rank which component of the unit most helped in their learning. Monopoly City™ ranked a disappointing 4.3 (out of six options). Conversely, when the students were asked an open ended question on what was the best part of the unit, 33% stated that playing Monopoly City™ in the tutorials was the best part of the unit, ranking only behind the acquisition of valuation skills. On a scale of 1 to 5, with 5 being the highest students indicated Monopoly helped students feel like part of a cohesive property economics cohort to a good extent (3.9).

Focus Group – Week 12

This paper was prepared before the focus group was conducted. Five consent forms for the focus group were collected at the third tutorial.

Key Success Factors

Overall, despite the disappointment of the second tutorial, the pilot project was considered a success from a student satisfaction and engagement perspective. Analysis of the teacher/tutor reflections has revealed a number of key success factors as well as key learnings associated with this research project. These are detailed below.

Preparation

Being suitably prepared for the tutorial sessions was essential to the success of these sessions being able to engage the students and achieve all the required outcomes. Significant preparation time went into each session to ensure all

resources (both physical and online) were available. Multiple copies of the board game had to be ordered from overseas with sufficient delivery time allowed (Monopoly City™ is no longer distributed in Australia). Prior to the first tutorial each copy of the board game was unpacked, batteries inserted in the timer, game pieces unpacked and repacked into zip-lock bags etc. Legal signoff from the Australian distributor of Monopoly City™ had to be arranged, as did ethics approval. A formal lesson plan was prepared to ensure all desired learning outcomes could be achieved in the two hour tutorial time slot. These are each time consuming activities that must be prepared for.

Leader Board

A leader board was established at the onset to record each student's game performance. Prize money by the way of book shop vouchers were offered to the three students with the highest Monopoly City™ "net worth" at the end of the three tutorial sessions. The leader board was introduced as a way of encouraging competition between the students and hence stimulate their interest in attending and participating fully in the tutorials. It was also used as an important tool in the engagement process, as a way of students to see/learn the names of their class mates. The short "ice breaker" activity at the beginning of each session was also a key success factor. Students from diverse backgrounds and cultures engaged with each other informally before the game commenced. Name tags were also used to help students get to know each other.

Key Learnings

Introducing this concept in a pilot fashion has been enlightening in a number of ways. It has enabled the research team to test ideas and then adapt as required. Some of the key learnings from this process are described below.

Student Motivation

Whilst we would all love for our student's primary motivation to be learning oriented, this is not always the case as we learnt from the second tutorial experience where only three students arrived, with only one of them on time. This was despite the very positive feedback and data gathered from the first tutorial where we had 69% (16) attendance. Further, we found that the lure of $100 or $50 book shop vouchers was also insufficient incentive for students to attend class at a 9am timeslot and participate in a game play learning activity for two hours. Timetabling considerations have not been assessed at this stage i.e. were students on campus for other classes that day/morning. Informal student feedback provided to one research team member indicated that whilst tutorial 1 was fun, the students had better things to do with their time than play board games at University.

Attendance = Assessable

The variance in attendance over the three sessions was enlightening. Prior to the first session, the students were not told of the nature of the tutorial exercise. They were issued with a copy of the Monopoly City™ rule book, but no further information was provided. It appeared that a certain amount of intrigue drew students to the first tutorial. In contrast, knowing the second tutorial was "only playing monopoly again" appeared insufficient incentive to attend.

The solution to the student motivation/attendance issue then moves to assessment. After tutorial 2, students were advised that the tutorial material was assessable. After being reminded that the tutorial material was assessable and on the final exam, student attendance improved to 41% (9) for tutorial 3. The motivations behind attendance will be further examined during the focus group.

Other Observations

The nature of the pilot study group is roughly indicative of the semester two cohort in any given year, however the semester one cohort differs in a number of ways that may impact the research design and the outcomes from this pilot group.

Class enrolment data indicates a wide variance in the pilot study student group by way of background, year group and discipline. The second semester offering of this unit fulfils a need from: property economic students attempting the unit for the first time (2, 9%), property economic students repeating the unit (2, 9%), international quantity surveying students doing a minor in property economics (8, 36%), and other discipline domestic students doing a minor in property economics (10, 45%). The cohort of 22 students enrolled in the pilot study unit comprised 9% (2) first year students, 68% (15) second year students and 23% (5) third year students.

This is in contrast to the first semester offering of the unit which is an "on plan" unit for students undertaking the Property Economics degree. Class enrolment data from last year (which would be considered a normal year) indicated an enrolment of 71 students comprising: first year property economic students (77%), international quantity surveying students doing a minor in property economics (3%), and other discipline domestic students doing a minor in property economics (20%). Approximately 100 enrolments are forecast for 2014.

CONCLUSION

The introduction of Monopoly City is part of a wider unit improvement and course review process. Consistent with the literature associated with students' first year experience, this game play initiative has been designed to engage students in their discipline early in order to maximise the learning experience.

The pilot project with a small cohort enabled the development, trailing and refinement of appropriate activities, lecture plans, communications, data collection and assessment items.

The true benefit of playing Monopoly City™ with the students has been to form explicit linkages between their *existing* play based understanding of how the property market functions and the "new" theoretical concepts associated with the unit content. By making these connections, students can rapidly apply these "new" concepts into their existing understanding of the real world property industry, and hence fast track their comprehension and acculturation i.e. they "get it" sooner in their progression through their studies.

Further research will monitor student learning, participation, engagement and retention to test the efficiency and effectiveness of this learning and teaching initiative, with any further required changes implemented in future years.

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REFERENCES

Ansoms, A. and Geenen, S. 2012. Development Monopoly: a simulation game on poverty and inequality. *Simulation and Gaming*. 43:6. 853-862.

Auman, C. 2011. Using simulation games to increase student and instructor engagement. *College Teaching*. 59:4. 154-161.

Klopfer, E., Osterweil, S., Salen, K. 2009. *Moving learning games forward.* Cambridge, MA: Education Arcade.

Juul, ?. 2005. *Half real: video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.

Nelson, K., Kift, S. and Clarke, J. 2012. A transition pedagogy for student engagement and first year learning, success and retention. In Solomonides, I. Reid, A. and Petocz, P. (Eds) *Engaging with Learning in Higher Education*. Libri. In Press.

Paino, M. and Chin, J. 2011. Monopoly and critical theory: gaming in a class on the sociology of deviance. Simulation Gaming. 42:5. 571-588.

Shanklin, S. and Ehlen, C. 2007. Using the Monopoly ® board game as an efficient tool in introductory financial accounting instruction. *Journal of Business Case Studies*. 3:3. 17-22.

Tanner, M. and Lindquist, T. 1998. Teaching resource using Monopoly ™ and Teams-Games Tournaments in accounting education: a cooperative learning teaching resource. *Accounting Education: An International Journal*. 7:2. 139-162.

Tinto, V. 2012 a. *Completing college: rethinking institutional action*. University of Chicago Press. E-book.

Tinto, V. 2012 b. Enhancing student success: taking the classroom success seriously. *The International Journal of the First Year in Higher Education*. 3:1. 1-8.

Young, M., Slota, S., Cutter, A., Jalette, G., Mullin, G., Lai, B., Simeoni, Z., Tran, M. and Yukhymenko, M. 2012. Our princess is in another castle: a review of trends in serious gaming for education. *Review of Educational Research*. 82. 61-89.

ANNEXURES

Annexure A: Lesson Plan 1 – Monopoly City [TM]

Time	Who	Activity	Resources
Preparation	Tutor	Unpack games, insert batteries, check box contents etc	Post Announcement and rule book on BB
00:00 – 00:10 (10 mins)	Tutor	Introduction to tutorials - Research project - Participation forms? - Game Rules/features - Tutorial purpose	Power point Power point notes You tube Intro Video
00:10 – 00:20 (10 mins)	Students	Get to know you activity - Speed dating style (talk about yourself 1 minute, swap)	Inner/outer circle OR 2 lines. Outer circle asks inner circle Qs about themselves for ~30 seconds, then swap. Outer circle moves to left after 1 minute. Repeat.
00:20- 00:30 (10 mins)	Tutor	Run through game basics, box contents and role of the banker	How much of each money unit 3-4 key rules
	Students	Group formation - 3+1 banker - Unpack game, deal money, check rule book - Determine 1st player	
00:30-01:15 (45 mins)	Students	Game	How much of each money unit 3-4 key rules
01:15-01:25 (10 mins)	Students	Add up money and rent value - Turn OFF timer - Fill in leaderboard sheet	Pen and paper, calculator Leaderboard sheet with class names
1.25-1.35 (10 mins)	Tutor	Tutor lead reflective discussion	Power point – Research purpose lead questions. - Responses recorded by 2nd tutor
01:35 – 01:45 (10 mins)	Students	Workbook time	Handouts of workbook - Pack up game, Turn OFF timer
	Tutor		- Enter leaderboard on screen - Check box pack up and contents
01:45-01:50 (5 mins)	Tutor	Run through Leader board - Class list sorted by $ in game 1 (winner is top 2 end bank amounts. Ie can only be the banker once) - Posted in BB each time? Close – next time	Excel file with class list - 4 columns (3 + running total)