PACIFIC RIM PROPERTY RESEARCH JOURNAL, 2018
VOL. 24, NO. 1, 1–15
https://doi.org/10.1080/14445921.2017.1391680

Routledge
Taylor & Francis Group

How gameplay can enhance learning and engagement for first year property students: a case study using Monopoly City™

Lyndall Bryant

School of Civil Engineering and Built Environment, Queensland University of Technology (QUT), Brisbane, Australia

ABSTRACT

This article outlines the results from a study into the educational use of the board game Monopoly City™ in a first-year property economics unit. Gameplay was introduced as an interactive way of achieving a number of desired outcomes including: enhanced engagement of first-year students; introduction of foundation 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 first-year cohort, all in an engaging and entertaining way. The results from this two-stage action research project are encouraging. The students participating in this unit have demonstrated explicit linkages between their Monopoly City™ experiences and foundation urban economic and valuation theories. However, student resistance to change and innovative learning practices were evident. Key success factors identified when implementing such teaching innovations include: adequate preparation time, use of a "play-share-reflect" component, an ice-breaker activity, a leader board and a novelty factor to keep students interested.

ARTICLE HISTORY
Received 27 February 2017
Accepted 10 October 2017

KEYWORDS
Monopoly™; gameplay; student engagement; student satisfaction; first year; real estate education

Introduction

The use of games in teaching is well researched (see Juul, 2005; Klopfer, Osterweil, & Salen, 2009; Young et al., 2012) as is first-year engagement and retention (see Nelson, Kift, & Clarke, 2012; Tinto, 1987). However, until recently most of the game's literature focused on the learning outcomes of the students and not specifically on engagement and student satisfaction. Recent research has sought to overcome this gap and links gameplay with engagement and student satisfaction (Boyd, 2015, 2016; Connolly, Boyle, MacArthur, & Boyle, 2012; Wouters, Nimwegen, Oostendorp, & van der Spek, 2013). This research seeks to build on this emerging field via the use of the board game Monopoly City™ in a first-year undergraduate course in the discipline of property economics.

The undergraduate course in question had received disappointing student survey results in previous years. An issue identified in both student evaluation surveys and the graduate

CONTACT Lyndall Bryant lyndall.bryant@qut.edu.au

surveys revealed concerns relating to 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 earlier in the program, to increase student engagement and understanding of the importance of core property concepts such as: the value of different property classes, the spending of money for property improvement, maximisation of returns on investment, risk taking and risk mitigation and other urban economic principles. It was also identified that traditional teaching methods and materials were not sufficient to increase initial first-year student engagement and retention in the program.

In concert with a full course review and restructure, gameplay was introduced in this first-year foundation unit as an innovative way of achieving a number of desired outcomes including: 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; enhanced engagement of first-year students; and early team building within the property economics cohort, all in an engaging and entertaining way.

The game Monopoly City™ was selected for use in this unit. This version was chosen 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, while incorporating additional features over the more traditional version of Monopoly™ that can be used to stimulate student curiosity and engagement. For example, players can select whether to build residential or industrial buildings, with residential being far cheaper. The income-producing capability of residential buildings can however be eliminated by the introduction of certain "hazardous" land uses such as a prison, sewerage works, power station or rubbish dump that would not impact the income-producing capacity of industrial land use, had that (more expensive) land use been chosen initially. 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. From this simple decision-making, students begin to understand the concept of value associated with location, income risk and sector performance. Office towers, sky scrapers and stadiums can be built once players meet certain criteria, with significant benefits to the player's income-generating opportunities, further building on earlier concepts of risk and return. The three-dimensional aspect of the game accommodates these and other features. In this fun, competitive and low-risk environment, students learn to apply their core theoretical learnings in a simulated business environment (Axelrod, 2002).

The use of a physical board game, rather than any of the online options, was also considered. While seeming "old fashioned" in comparison with its online counterparts (Boyd, 2015), it brought students together in a face-to-face collaborative learning space which was designed to have additional benefits from a number of perspectives including: physical networking, the act of introducing oneself and having to talk about yourself briefly, verbal communication skills, relationship building and interpersonal skill development all within a time and activity-controlled environment (Figure 1).

The purpose of this article is to document the implementation of the use of the board game Monopoly City™ into an existing real estate education program and to discuss the findings in relation to enhanced first-year student engagement and satisfaction. This paper is arranged in the following manner: further to this introduction, section two reviews the relevant literature on student engagement and satisfaction as well as game playing as a method of enhancing the same. Section three outlines the methodology and data of this

Figure 1. Monopoly City™ playing board. Source: http://www.amazon.de/Hasbro-01790100-Parker-Monopoly-City/dp/B001SRT81Q

two-stage action research project. Section four details the findings from the study including the analysis of key success factors and key learnings. Section five concludes.

Literature

The concept of using games in education has been extant in the educational literature for decades. Starting early last century with the innovations of Montessori in 1912 and Dewey in 1916, games have been used to create participation in the classroom, encourage team work and collaboration, increase student enjoyment of learning and involve students in learning – all of which lead to student engagement and satisfaction with their learning. Game playing is an example of active learning, collaborative learning and many other desirable teaching/learning approaches (e.g. of games used in higher education, see Auman, 2011; Boyd, 2016; Moizer, Lean, Towler, & Abbey, 2009).

The board game Monopoly™ was originally designed to be a learning game (Boyd, 2015). The literature indicates it has been used in teaching in higher education for economics, accounting and business; however, its application in real estate education is under-developed. Tanner and Lindquist (1998) used Monopoly™ in a financial reporting issues unit. The authors found that students' attitudes were positive towards financial accounting and learning after playing the game through the course of the unit. Shanklin and Ehlen (2007) used Monopoly™ to teach the distinction between the concept of income from an economic perspective and the financial accounting concept of income to first-year accounting students. Monopoly™ has also been adapted and the rules modified to allow for a wider and different use of the game. Paino and Chin (2011), for example, have used the game to enhance critical thinking around deviance, and Ansoms and Geenen (2012) have used it to illustrate inequality.

Games can be of two types according to Sauve, Renaud, Kaufman and Marquis (2007): those centred explicitly on learning (didactic games) and those centred implicitly on learning (educational games); however, this distinction is not always made clear in empirical studies (Davis, 2011). An educational game should have the following: a player or players, conflict, rules, pre-determined goals, an artificial nature and pedagogical nature (Sauve

et al., 2007). Monopoly City™ as an educational game satisfies Sauve et al.'s (2007) criteria. It provides an entertaining platform for students to make decisions to buy and sell property and to improve upon and build on properties acquired according to a set of clear rules. The explicit and implicit learning is to do with the desirability and value of different property classes, the spending of money for property improvement and maximisation of returns on investment, risk taking and risk mitigation, site amalgamation, negotiation skills and strategic thinking to maximise wealth (buy, ignore, auction, develop, trade, borrow against). All these aspects of the game are of direct relevance to the property discipline and particularly to the foundation units in real estate education.

Much of the literature around game playing in higher education has a focus on student outcome in terms of learning (e.g. Akl et al., 2010; Klopfer et al., 2009). The implicit question often being asked is: "Does the student learn more as reflected in the results obtained in examinations as a result of playing the game?" This question is difficult to answer conclusively because there are too many variables to isolate for in any systematic investigation. The question that should be posed in terms of learning, according to Young et al. (2012), is: "How does a particular [video] game being used by a particular student in the context of a particular course curriculum affect the learning process as well the products of school (such as test grades, course selection, retention and interest)?" (Young et al., 2012, p. 84). Boyd (2016) suggests that gameplay provides a "motivational activity"(p. 35) that is playful and fun, and this motivates development of the students' knowledge of theory and its application.

This research focuses on how game playing leads to better student engagement (Auman, 2011; Davis, 2011) and therefore better student learning and satisfaction. Student engagement is defined by the Australian Survey of Student Engagement, an office of the Australian Council for Educational Research as: "The time and effort students devote to educationally purposeful activities and on students' perceptions of the quality of other aspects of their university experience." (Australian Council for Educational Research, 2013, p. nil). Elsewhere, engagement is clarified as an "engagement with learning" and expands engagement to areas of curriculum design and enactment for real-world learning, curriculum resources, course design framework and staff development (Queensland University of Technology, 2013). Axelson and Flick (2010) provide a discussion of the ambiguities and slipperiness of the term "engagement" and its sister term "involvement" and also on the limited evidence on the causality between engagement and increased learning. They repeat the common idea of two sets of responsibility; that of the individual student to put in the requisite amount of work to become engaged and that of the institution to provide the opportunities for engagement. Nelson et al. (2012) provide a case study where the institution committed to systematically change the first-year experience of students such that student engagement and success was deliberate, particularly with regard to curriculum design and enactment. While each of these literature details many factors of student engagement, none specifically address the opportunity for gameplay.

This research addresses the gap in the literature in relation to using gameplay to enhance (first year) student engagement, thus leading to enhanced learning outcomes and student satisfaction. It is also innovative as the use of the game Monopoly™, and its enhanced version Monopoly City™, in real estate education is undeveloped.

Methodology and data

This research introduced structured game activities based around the board game Monopoly City™ to tie theoretical classroom learning with collaborative, play-based problem solving for the purposes of increasing student learning and engagement, and thus enhance satisfaction using an action research approach. The features of this research's design are consistent with many of Cohen, Manion, and Morrison (2005) key principles of action research including: improving education by changing it, learning from the consequences of change, improving teaching practice through research, implementing change via a self-reflective spiral and collaboration.

This section outlines the data collected in each of the usual action research steps of plan, act, observe and reflect (Kemmis & McTaggart, 1988). These principles were utilised over two cycles to identify issues, plan and then implement change, monitor results, refine the actions taken and then reflect on the impacts against the initial objectives. The first cycle of this action research incorporated a pilot phase with a small class. A critical revision of the pilot phase was untaken to optimise student engagement and satisfaction in the second cycle of the study, which introduced the project to a full year cohort.

The data for this research are drawn from student questionnaires completed at Monopoly City™ tutorials throughout the project, end of unit student satisfaction surveys, a student focus group, as well as the observations of the teaching team.

Cycle one

Plan

Planning for the first cycle of this project involved the initial conceptualisation of the gameplay project objectives, structure and learning outcomes for the appropriate year group, and the unit content.

A first-year compulsory introductory unit was selected that had close alignment between the learning outcomes of the unit and the game concepts. This unit could be readily reorganised to accommodate new and innovative approaches to learning and teaching through its existing weekly lecture plus tutorial structure. Another feature of this unit that made it suitable for this project was that it was run in both semesters one and two each year. This ensured consistency and momentum in the research design. The second-semester cohort was selected for Cycle One as it was usually a smaller group in comparison with the first-semester cohort. This allowed the Monopoly City™ concept to be trialled with a smaller group before the introduction the full cohort.

The plan phase also included the conceptualisation and development of tutorial material, lesson plans, structured exercises, assessment items, student surveys, the purchase of multiple sets of the board game and familiarisation of the research/teaching team with the Monopoly City™ game.

Act

In Cycle one, Monopoly City™ was played by students during three tutorial sessions across the semester. These sessions were designed to allow students to firstly become familiar with the game concept and rules, secondly to reflect on their game strategies in conjunction with the unit content and finally to implement new strategies and more advanced rules in

latter game sessions, in the light of the knowledge gained through the semester. Tutorials were conducted at regular intervals throughout the semester (Weeks 3, 6 and 9 of 13). This occurred in concert with the development of their theoretical knowledge acquired during lecture time.

Observe

Tutorial 1 – Week 3. An element of intrigue was developed prior to this tutorial in an effort to encourage attendance by the students. 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 9am–11am time slot.

This tutorial received very positive feedback, with 100% of students providing positive responses in relation to learning and engagement outcomes in the surveys completed at the end of the tutorial. About 94% of students were able to directly relate the gameplay to the unit learning outcomes. During the tutor-led reflection time at the end of the tutorial, the students demonstrated awareness of the links between the objectives of the unit and the gameplay by answering questions and participating in the discussion. They articulated links between the game strategies and real-world strategies of property acquisition, decision-making and development and could relate the relevance of the game to the theoretical content delivered during lectures. Tutorial 1 was considered a great success by the teaching team.

> The game resembled property types in the real world from least expensive to most expensive zones and how this was reflected in rents collected showing the concept of value and bang for buck. Student 3

Tutorial 2 – Week 6. The element of intrigue was removed for this tutorial, instead a longer game time (as requested in tutorial 1 student feedback) was promoted in the lead up to the second tutorial.

Unfortunately, the second tutorial did not repeat the success of the first. Despite the positive feedback of tutorial one, only one student arrived on time for this tutorial. A second student arrived 10 min late and a third student arrived 20 min late. After 25 min, the tutorial was abandoned with no student data collected. However, the cancellation allowed the tutors time to reflect on the implementation plan and recognised the need to include gameplay as an assessment item in order to ensure student participation.

> I've got better things to do at Uni than play board games. Informal

Tutorial 3 – Week 9. In order to attract students to the third tutorial, students were reminded in class of the tutorial details, as well as a reminder that the tutorial material was examinable. Nine students (41%) attended this tutorial, only one of which had not attended either of the first two tutorials. The format was similar to the earlier lesson plans (refer Annexure), with shorter preliminaries and a one hour game time. Students were randomly allocated across three tables so as to encourage a greater opportunity for students to meet new people (students self-selected game tables in tutorial 1). More advanced rules were outlined, so as to encourage students to advance their learning to more complex issues such as mortgages, trading and auctions.

All students 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.

> Playing this game broke the ice between students. I can see the similarities between the game and the unit concepts such as how much someone is willing to pay for a property and not to overvalue/pay for a property. Student 9

Focus Group. In an attempt to fully understand the student experience of playing Monopoly City™, a focus group was formed part of the research design. This approach was adopted to allow for a freer and deeper discussion of the questions than are usually received in questionnaires. The focus group was facilitated by a member of the research team, who was not a member of the teaching staff. This approach was adopted to comply with ethics approvals and as a further incentive for students to speak openly. Open questions were asked in the focus group to draw out insights into what was successful and unsuccessful in this Cycle from the student perspective.

Discussion on the data collected in this focus group is provided in the next section: *Reflect*.

Student Engagement Survey – In Class. A survey of the full cohort of students was conducted during class time at the end of semester. Nine students present in the lecture submitted completed surveys. This survey was more detailed than the post-tutorial surveys which were designed to be a 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, such as, age, gender and university major/minor.

In relation to student engagement, all but one student had made friends by attending the Monopoly City™ sessions. 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 indication of student engagement given only two (12%) of respondents were actually enrolled in the property economics major.

> What I enjoyed most was identifying the similarities between the board game and the real world as well as socialising and meeting new people. Student 7

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 average of 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 1–5, with 5 being the highest, students indicated Monopoly City™ helped students feel like part of a cohesive property economics cohort to a good extent (3.9). These findings were encouraging to the research team in relation to the desired outcomes: 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 first-year cohort, all in an engaging and entertaining way.

Reflect

This section details the Cycle One reflections of the teaching team involved in this project further to all the data collected and observations throughout the first cycle. At the end of Cycle One, there were clearly some things with this initiative that had worked, but also things that needed changing for Cycle Two. Attendance was identified as the key issue to overcome. The students who attended engaged in the activity, reported greater engagement in the unit and course, and could identify learning benefits from the activity. The unit's student satisfaction scores had increased from the previous year; however, the students did not directly attribute this to playing Monopoly City™. An assessment item had been directly linked to the Monopoly City™ tutorials during the semester, but this still was insufficient incentive for the students to attend the final tutorial in the same numbers as the first tutorial. The focus group gave greater insight into the student perceptions of the gameplay concept and format. In general, the response to playing Monopoly City™ was positive. However, two major issues were raised during the discussions. The first was that there was no perceived benefit to participating in the tutorials unless they were assessed (even though all expressed an increase in learning, engagement and an enjoyment of the game), and second that Monopoly City™ needed to be more contextualised to the information that was covered in the lectures so that the links and relationships between the unit objectives and the game were more closely aligned and made more explicit.

When asked what would result in greater engagement in the unit and the course, students struggled to answer. In general, Monopoly City™ was seen as interesting, as a way of relating unit information to a larger context, as a way to see how investment in property was dependent on external factors and as a way to build acquaintances in class and talk with them about the unit information. There was, however, a recurring theme in the responses to all the questions that the tutorial game was fun but not really learning. This theme is important because even though students could articulate the links, see real-life continuities, and apply theory in a simulated setting, they still did not believe that this had any real benefit to their learning especially when their and the teaching team's concept of learning failed to align. Anecdotally, the students had reported that while playing Monopoly City™ at university was fun, they had better things to do with two hours in a day. This theme arose out of the end semester student satisfaction survey as well. A more traditional, content-focussed tutorial was perceived as more useful and as such was more likely to be attended. This is always the challenge with innovation and change of any sort and fits with the literature on student resistance to change (Ford, Ford, & D'Amelio, 2008; Trees & Jackson, 2007).

While this data was from a small sample set, intuitively it was reflective of the mood of the cohort for the pilot phase. The students enjoyed the gameplay experience and could articulate the linkages between the gameplay and learning outcomes of the unit; however, they didn't really feel like it was "learning" and felt their time could be better used. Unless the tutorial activities were assessable, then they voted with their feet. This was a disappointing outcome from a teaching and learning perspective, but a success from an action research

perspective. In this instance, the data collected were compelling evidence that the initial "… practices, ideas and assumptions were wrong or wrong-headed" (Cohen et al., 2005, p. 229).

At the end of Cycle one, the challenge was thus to replan for Cycle Two. How could we retain the success of the first tutorial (that students were happy to attend) and achieve the engagement, learning and student satisfaction objectives?

Cycle two

Plan

The unit content was amended to include only one Monopoly City™ tutorial in Cycle Two. This outcome was a combination of factors that included: Cycle One findings, resourcing and timetabling. These pragmatic factors pointed to only one tutorial, despite the theoretical basis for the gameplay such as learning outcomes indicating more.

The students were aware from the beginning of the semester that one assessment item would be based on this tutorial and that it incorporated playing Monopoly City™. This assessment item was a workbook entry that combined the short response questions from Cycle One: Tutorial One with the reflective learning outcome questions of Cycle One: Tutorial three. Data for this cycle were collected from the student workbook responses relating to the one Monopoly City™ tutorial.

In the lead up to the tutorial, the emphasis was put on the assessability of the material to entice students to attend. Then, once students were in attendance, the emphasis changed to one of engagement, meeting their peers and learning through gameplay. The students completed their workbook questions in their own time after the tutorial.

Act

This tutorial was held in week 6, after the students had settled in to their first semester of studies and had a feel for the unit material. A similar structured lecture plan as to Cycle One was followed that included an introduction and scene setting, short ice-breaker activity for students to meet each other, overview of the rules, just over an hour of gameplay (longer in Cycle Two) followed by tutor-led reflective discussion on learning outcomes.

The tutorial time allocated to data collection in Cycle One was redirected to gameplay time to allow students a longer game, and thus, the opportunity to progress to the more advanced rules of the game such as taking out mortgages, asset trading and maximising return on investment decisions.

Observe

Of the 58 enrolled students, 43 (74%) attended. Table seating was randomised to maximise the opportunity for students to interact with new people. The purpose of the tutorial was very explicitly scaffolded to ensure the students were fully aware of why they were there: to get to know their classmates early in their degree, to enhance their learning in an engaging way, to contextualise the theoretical unit content to concepts which they already understood and to reflect up on how game concepts are mirrored in the real world.

The students actively engaged in the gameplay and were encouraged to make the most of the hour's play time. Questions about the rules and various rule interpretations were responded to by the tutors. Often rule interpretation questions were responded to by "How do you think that would apply in the real world?" This approach encouraged students to

reflect upon the application of the unit theory, while creating the opportunity for the tutor to stretch the student's learning.

At the end of the hour, all groups were actively engaged in the game and the volume level in the room was high. Game end totals were tallied, and the leader board concept from Cycle One continued, with totals posted online for students to reflect upon later. This was followed by tutor-led reflective discussion which was designed to explicitly close the learning circle for the students. This was achieved via probing questions on the linkages of theory and game play, as well as facilitation of group discussion designed to share learnings from each group with the full cohort. The class was fully engaged in these discussions with a number of student questions demonstrating their reflection on the application of the gameplay to theory and real-world scenarios.

Analysis of the student workbooks on Cycle Two confirmed the tutor observations that the Cycle Two tutorial had been a success in relation to both student engagement and learning.

> This would have to be the most enjoyable lecture I have attended at [NAME] to date. Student 5

About 98% of the students reported enhanced engagement in the unit further to the gameplay activity.

> What I enjoyed most was that the activity was different to just sitting in the lecture room listening to someone speak and looking at slides. This activity gave us more hands on learning experience about the property market while having some fun at the same time. It kept me interested the whole time as I generally lose interest after a while and allowed me to meet some more students which I hadn't met so far during the course. Student 35

About 93% of the students reported that the gameplay assisted in their understanding of foundation urban economic and valuation theories.

> The thing I enjoyed the most about the Monopoly session was the fact it wasn't a standard lecture or tutorial, which simply goes over course content. By introducing a game to the class it enhances interest and adds practical balance to a course which otherwise could be dominated by theory. Student 19

In relation to the unit learning outcomes, 80% of the students reported the gameplay enhanced their learning in relation to recognising the nature of property, the residential property market and concepts of value.

About 80% of the students were able to identify key problem solving and critical analysis components of the gameplay that were directly relatable to their learning outcomes in this unit.

About 93% of the students identified team building as a key outcome of the gameplay concept.

> I thoroughly enjoyed this game, it was a nice change from the normal lecture period creating a more engaging atmosphere. This game allowed the students to bond in a social setting while still following the learning outcomes of [Unit NAME]. Further, creating a competitive setting forced everyone to communicate with each other, while focusing on the one topic. Student 31

Reflect

The remainder of this paper forms the "Reflect" phase of this research after completion of the second cycle. The reflections comprise an assessment of the key success factors of this project, as well as the key learnings to take forwards into future cycles or to be considered by others when implementing similar teaching innovations.

Key success factors

Preparation

While this was more of a challenge during Cycle One, being suitably prepared for the tutorial sessions was essential in order 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.

A formal lesson plan was prepared to ensure all desired learning outcomes could be achieved in the two-hour tutorial time slot. These lessons plans then needed to be amended to ensure all learning objectives could be achieved within the single gameplay session which was introduced to the full cohort. The amount of time and organisational skills involved at this stage cannot be underestimated.

Play-share-reflect

While only having one gameplay tutorial in the semester risked not achieving all the desired outcomes, it was important to design that tutorial and associated activities to ensure the outcomes achieved were maximised. This imperative led to the Play-Share-Reflect concept. "Play" was the act of game playing, against the explicit scaffolding initially set by the tutor on the expected learning outcomes i.e. "The reason you are here today is to …". "Share" was within the groups during the gameplay time, but also with the wider cohort during the tutor-led reflective discussions. Students were able to share their learning and also gain the benefit of the experiences of other groups via the tutor asking probing questions during the gameplay on the linkages of theory and gameplay, as well as facilitation of group discussion designed to share learnings from each group with the full cohort.

"Reflect" was the workbook component, due at the end of semester. The six-week gap between the gameplay and having to answer reflective questions had unintended benefits. Upon reflection at the end of semester, students were better placed to appreciate the linkages between the gameplay and the theoretical concepts of the full unit. Friendships initiated during the gameplay had time to develop over the course of the semester and upon reflection, students were able to identify that this was due to the gameplay tutorial. The Play-Share-Reflect design of this one gameplay opportunity was deemed a key success factor in achieving the desired outcomes, from both a teaching and learning perspective.

So while getting students to understand requires that they undertake appropriate learning activities (Biggs, 1999), giving the students time (and compulsion) to reflect on that learning activity can even further enhance their understanding.

> At first sceptical about the relevance of the game to the unit, but after playing it was clear. Student 27

Ice-breaker activity

The short "ice breaker" activity at the beginning of each tutorial was also a key success factor. Students from diverse backgrounds and cultures engaged with each other informally before the game commenced. Held in "speed dating" style, this activity was very effective in getting the students to introduce themselves and find out a little more about each other. The noise level was high, there was a lot of laughter and many students were still talking at the point where they due to move on to the next person. This positive atmosphere carried over to the teams when they began to play the game.

> I was a bit apprehensive about meeting and interacting with my classmates as I have not studied in a while, I found it helped break the ice and understand that we are all working towards our own individual goals with our study. Student 23

Leader board

A leader board was established for each cohort to record student's game performance. 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 classmates. In an online environment, with privacy concerns ever present, a simple thing like a class list is not generally made available to students.

> By putting us into this setting it allowed us to talk freely and interact with each other. This would not have been previously possible in the current lecture/tutorial format. Further, allowing us this time has given us all the opportunity to create groups for our major assignments. Student 12

Novelty

The "retro" notion of a physical board game was consciously chosen over various online gaming options. This required students to physically interact with each other within a structured format. Each student took a turn to play, to make decisions, to strategise, to participate in interpretation and enforcement of the rules and to express themselves. This appeared to be particularly helpful for international students and introverted students to participate individually.

> The gameplay was a really good way of breaking the awkward barrier you have when you meet new people. Student 28

Key learnings

The action research nature of this project enabled the teaching team to test its curriculum development ideas and then adapt as required. Some of the key learnings from this process are described below.

Attendance = Assessable

While 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 during Cycle One. This was despite the very positive feedback and data gathered from the first tutorial. Informal student feedback indicated that while Tutorial One was fun, the students had better things to do with their time than play board games at the university.

The student's reasons for attending Tutorial Three included that: it was now assessable and furthermore related to the exam; the game was now part of the unit structure and therefore attendance was worthwhile; it was intrinsically interesting; and that it provided relaxation from lectures and other content-focussed tutorials. None of these answers (except for the fact of intrinsic interest) respond to student engagement and satisfaction because they were complying with another set of requirements for assessment.

While holding only one tutorial felt like an uncomfortable compromise initially, with fears of reduced learning outcomes, it turned out to be a successful refinement that equated to the student's tolerance level for non-traditional learning styles.

Student resistance to innovation

Student resistance to innovations in learning is a reality. However, it does not help to blame the students but to look more closely at issues such as the curriculum development timeline (compressed), student expectations (are objectives explicit enough?), the content and the assessment of the unit (is attendance necessary to pass?) and consider how these factors contribute to the success (or otherwise) of innovation and student engagement.

A start was made in this project by making the gameplay tutorials an assessable part of the curriculum but further consideration needs to be made about how the objectives of teaching innovations such as gameplay are effectively communicated to the students. The objectives were outlined in the student workbook in the description of the activity, but this appeared ineffective. Are we expecting too much of first-year students to make linkages between theoretical lecture content and game-based application of those concepts? Or are we removing the expectation for students to actually do any critical thinking when we explicitly scaffold everything for them?

Conclusion

This project introduced gameplay into a foundation unit within a property economics degree, as part of a wider curriculum redesign process aimed at enhancing student learning and engagement. This two-stage action research project proved useful in testing this innovation on a small cohort prior to its introduction to a full year group. The key successes have been early acculturation of first-year students, encouraging student engagement results from the students who actively engaged in the activity and the establishment and refinement of core teaching materials and assessment items.

Key learnings of this project include: making explicit linkages for students on the desired learning outcomes, better integration of lecture and tutorial material and concepts, and a stronger focus on the transferability of the game skills and concepts to the real world.

The findings of this research do have limitations associated with the small sample size and the low participation rates of the student cohort involved. Further cycles of action research will continue to seek ways of engaging students in the activity and thus enhance the learning opportunity. Further research will monitor student learning, participation and engagement to test the efficiency and effectiveness of this curriculum development initiative, with any further required changes implemented in future semesters.

Despite these limitations, the principles of this research project are expected to have external validity throughout Australia as well as internationally, particularly in real estate education. The use of the international game, Monopoly City™ adds to this potential as it is widely available, is broadly familiar to users and simulates reality in large cities throughout the world. The key success factors and learnings from this project are relevant to any curriculum development actions that are considering introducing innovative and engaging teaching methods.

Acknowledgements

Members of the teaching team assisting with this project are gratefully acknowledged: Professor Chris Eves and Dr Andrea Blake and Mr Patrick Palmer for his expertise in curriculum design and research assistance.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by the Queensland University of Technology Learning and Teaching Grants Scheme.

References

Akl, E., Pretorius, R., Sackett, K., Erdley, W., Bhoopathi, P., Alfarah, Z., & Schünemann, H. (2010). The effect of educational games on medical students' learning outcomes: A systematic review: BEME guide no 14. *Medical Teacher, 32*, 16–27.

Ansoms, A., & 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.

Australian Council for Educational Research. (2013). Retrieved from http://www.acer.edu.au/

Axelrod, A. (2002). *Everything I know about business I learned from Monopoly®: Successful executive strategic lessons learned from the world's greatest board game*. Philadelphia, PA: Running Press.

Axelson, R., & Flick, A. (2010). Defining student engagement. *Change: The magazine of higher learning, 43*(1), 38–43.

Biggs, J. (1999). What the student does: Teaching for enhanced learning. *Higher Education Research & Development, 18*(1), 57–75.

Boyd, S. (2015). *Playing property – Designing serious games to enhance the learning experience for undergraduate property students in Australia* (thesis). University of the Sunshine Coast.

Boyd, S. (2016). Experiencing university through playing property. *Pacific Rim Property Research Journal, 22*(1), 31–44.

Cohen, L., Manion, L., & Morrison, K. (2005). *Research methods in education*. (5th ed.). Taylor & Francis e-Library, ISBN 0-203-22434-5.

Connolly, T., Boyle, E., MacArthur, T., & Boyle, J. (2012). A systematic literature review of empirical evidence on computer games and serious games. *Computers & Education, 59*, 661–686.

Davis, J. (2011). Games and students: Perceptions and evidence from a DUT case study. *The International Business and Economics Research Journal, 10*(10), 1–15.

Ford, J. D., Ford, L. W., & D'Amelio, A. (2008). Resistance to change: The rest of the story. *Academy of Management Review, 33*(2), 362–377.

Juul, J. (2005). *Half real: Video games between real rules and fictional worlds*. Cambridge: MIT Press.

Kemmis, P., & McTaggart, R. (1988). *The action research reader* (3rd ed.). Melbourne: Deakin University.

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

Moizer, J., Lean, J., Towler, M., & Abbey, C. (2009). Simulation and games: Overcoming the barriers to their use in higher education. *Active Learning in Higher Education, 10*(3), 207–224.

Nelson, K., Kift, S., & Clarke, J. (2012). A transition pedagogy for student engagement and first year learning, success and retention. In I. Solomonides, A. Reid, & P. Petocz (Eds.), *Engaging with Learning in Higher Education* (pp. 117–144). Faringdon: Libri Publishing.

Paino, M., & Chin, J. (2011). Monopoly and critical theory: Gaming in a class on the sociology of deviance. *Simulation Gaming, 42*(5), 571–588.

Queensland University of Technology. (2013). *Learning and teaching unit*. www.qut.edu.au

Sauve, L., Renaud, L., Kaufman, D., & Marquis, J.-S. (2007). Distinguishing between games and simulations: A systematic review. *Educational Technology and Society, 10*(3), 247–256.

Shanklin, S., & 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., & Lindquist, T. (1998). Teaching resource using Monopoly™ and Teams-Games Tournaments in accounting education: A cooperative learning teaching resource. *Accounting Education, 7*(2), 139–162.
Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
Trees, A. R., & Jackson, M. H. (2007). The learning environment in clicker classrooms: Student processes of learning and involvement in large university-level courses using student response systems. *Learning, Media and Technology, 32*(1), 21–40.
Wouters, P., Nimwegen, C., Oostendorp, H., & van der Spek, E. (2013). A meta-analysis of the cognitive and motivational effects of serious games. *Journal of Educational Psychology*, February 4, Advance online publication.
Young, M., Slota, S., Cutter, A., Jalette, G., Mullin, G., Lai, B., … 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.

Annexure: Sample lesson plan.

Time	Who	Activity	Resources
Preparation	Tutor	Set up tables into 4–5 groups Allocate each table a number Each student to pick a number out of a hat to allocate groups Hand out name tags and pens	Post Announcement and rule book online Numbers/tokens for tables Name tags and pens
00:00–00:10 (5–10 min)	Tutor	Reminder on tutorial purpose • Tutorial purpose • Overview of game rules/features	Power point Power point notes
00:10–00:20 (10 min)	Students	Get to know you activity • Speed dating style (talk about yourself 30 s, swap)	Form 2 lines facing each other. Line 1 asks Line 2 Qs about themselves for ~30 s, then swap. Swap pairs, Repeat
00:20–0:25 (5 min)	Tutor Students	Instructions and groups to decide on role of the banker • Unpack game, deal money, check rule book • Determine 1st player	Auctions, Mortgages, etc.? Last time's banker must play this round
00:25–01:25 (55 min)	Students	Game	Role of the banker
01:25–01:30 (5 min)	Students	Add up money and rent value • Turn OFF timer • Fill in leader board sheet	Pen and paper, calculator Leader board sheet with class names
1.30–1.45 (15 min)	Tutor	Tutor-led reflective discussion	Power point? • Learning outcome-related questions • Engagement-related questions
1.45–1.50 (5 min)	Students Tutor	 • Pack up game, Turn OFF timer • Check box pack up and contents	Handouts of workbook • Enter leader board on screen
01:50–01:55 (5 min)	Tutor	Run through Leader board • Class list sorted by $ in game 1 (winner is top 2 end bank amounts.)	Excel file with class list Close