What property students may learn from playing games

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What property student may learn from playing games

Create World 2012 Presentation

Overview

Game concept review

Property and the financial crisis
• property
• property economics
• property & financial crisis
• crisis and property

Games and learning
• games for learning
• learning from games

Property and games
• literary findings
• for and against property games
• research approach
• sample
• games assessment rubric
• assessment findings
• conclusion
• further research

High level research discussion via 3 minute thesis presentation
Authentic Property Games in Higher Education

Luka, 5 year old ‘prepper’
Bike racing with the Wii

Steven Boyd University of the Sunshine Coast
What if we could make a game which could teach or simulate how housing market cycles act which was as much fun as catapulting Angry birds at pigs. Then, in just over 1 year we could have 400M homeowners, financiers and policy makers better equipped to avoid the next GFC.
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Property and the financial crisis
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Super fund
$130k '96

$410k '94
$3.52M '07

Business

property

?
Economics …the branch of knowledge concerned with the production, consumption, and transfer of wealth. (Oxford dictionaries 2012).

Property characteristics and investors create imperfect markets and inefficiencies.

It is likely that the imperfections of property markets, such as the “local monopolies” for unique sites, cause inefficiencies that persist for long enough to be analysed and exploited… (Rowland 2010, p. 13)
...property & financial crisis

...it was the collapse of the **housing bubble** - fueled by low interest rates, easy and available credit, scant regulation, and toxic mortgages— that was the **spark that ignited** a string of events, which led to a full-blown crisis in the fall of 2008.

(Financial Crisis Inquiry Commission 2011).
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Presentation
...crisis on property

Impact of property on the Sunshine Coast:

335,273 people

say 129,000 dwellings (2.6 people)

say $62.3b ($483,000 per house)

a 20% variation ~ $12.5b ~ GRP
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...property on crisis
What if we could make a **game which could teach** or simulate how housing market cycles act which was as much fun as catapulting Angry birds at pigs. Then, in just over 1 year we could have 400M homeowners, financiers and policy makers better equipped to avoid the next GFC.
Games are thus the most ancient and time-honoured vehicle for education... We don't see mother lions lecturing cubs at the chalkboard; we don't see senior lions writing their memoirs for posterity. In light of this, the question, ‘Can games have educational value?’ becomes absurd. It is not games but schools that are the newfangled notion, the untested fad, the violator of tradition... (Crawford 1984, p.18)

Games and play can be more than process learning tools. Young et al (2012) cites Vygotsky (1978) ‘highlighting play as the means... to develop abstract imaginative thinking and realise goals that they could not yet achieve in real life’.
...learning from games

...students do learn from playing computer games (Egenfeldt-Nielsen 2009 and Wu et al 2012), as an emergent research field the body of academic literature, and empirical evidence of learning, is not deep (Gee 2011, Iacovides et al 2012).

Egenfeldt-Nielsen (2009) and Wu et al (2012) criticise the majority of published studies noting they were not based on learning theory or aligned to learning content.
What if we could make a **game which could teach** or simulate how **housing market cycles** act which was as much fun as catapulting Angry birds at pigs. Then, in just over 1 year we could have 400M homeowners, financiers and policy makers better equipped to avoid the next GFC.
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Image source: http://www.flickr.com/photos/harshlight/3235469225/in/photostream/

Property & games

Children's Discovery
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**...literary findings**

<table>
<thead>
<tr>
<th>Learning enhancing</th>
<th>Literary findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving</td>
<td>Khatib et al (2011) evidenced the link between games and targeted problem solving through harnessing the problem solving ability of online gamers to decipher the structure of an enzyme of an AIDS like virus that had thwarted scientists for a decade. By incorporating a fun-for-purpose game, Foldit, Khatib et al (2011) demonstrated how problems in science, in particular protein folding, may be solved through gameplay.</td>
</tr>
<tr>
<td>Functional knowledge construction</td>
<td>Gaming related authentically to course content can help a student gain a fresh perspective on the material and potentially engage them in the content in more complex and nuanced ways (New Media Consortium 2011). In discussing engagement in games Mayo (2009) cites rapid feedback and the relationship between reward and self-confidence/self-efficacy, and the translation to greater persistence and thus a higher level of accomplishment.</td>
</tr>
</tbody>
</table>
Further the literary findings into game-based learning and property education through experiment, reflection and assessment.

The analysis of the property games principally comprises observations and assessment from situated gameplay captured through voice recording with assessment utilising a scoring rubric.
...for and against property games

Playing the right property game will:
- complement traditional teaching and encourage the attainment of skills and attributes
- enhance a student’s functional knowledge construction
- provide the emotive support to encourage further learning

No right type of game noted

How could a game meet all learning outcomes sought?
- Authentic presentation v accurate representation
- Motivated v addictive
### Sample Table

<table>
<thead>
<tr>
<th>Game</th>
<th>$AU</th>
<th>Release/Update</th>
<th>Platform</th>
<th>Rating</th>
<th>Developer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be Rich - HD</td>
<td>Free</td>
<td>26-Oct-11</td>
<td>iPad</td>
<td>4.84 / 5 (185)*</td>
<td>Big Fish Games</td>
</tr>
<tr>
<td>Millionaire Tycoon</td>
<td>$0.99</td>
<td>30-Jan-12</td>
<td>iPad, iPhone and iPod touch</td>
<td>4.00 / 5 (38)*</td>
<td>Savy Soda</td>
</tr>
<tr>
<td>Monopoly Hotels</td>
<td>Free</td>
<td>9-May-12</td>
<td>iPad, iPhone and iPod touch</td>
<td>3.91 / 5 (433)*</td>
<td>Hasbro/Electronic Arts</td>
</tr>
<tr>
<td>Sim City Deluxe for iPad</td>
<td>$7.49</td>
<td>10-May-11</td>
<td>iPad</td>
<td>3.51 / 5 (170)*</td>
<td>Electronic Arts</td>
</tr>
<tr>
<td>Build-a-lot 2 Free</td>
<td>Free</td>
<td>1-Oct-10</td>
<td>iPad, iPhone and iPod touch</td>
<td>3.41 / 5 (88)*</td>
<td>HipSoft/Glu</td>
</tr>
<tr>
<td>Investorville</td>
<td>Free</td>
<td>1-Aug-11</td>
<td>PC</td>
<td>295 'likes' on Facebook</td>
<td>Commonwealth Bank of Australia</td>
</tr>
<tr>
<td>Monopoly Streets</td>
<td>$29.99</td>
<td>14-Jun-11</td>
<td>Xbox, PlayStation 3, Wii</td>
<td>273 'likes' on Facebook</td>
<td>Hasbro/Electronic Arts</td>
</tr>
</tbody>
</table>
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### ...games assessment rubric

<table>
<thead>
<tr>
<th>Assessment</th>
<th>3 (Excellent)</th>
<th>2</th>
<th>1</th>
<th>0 (Poor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td><strong>...of property practice</strong>&lt;br&gt;The model underlying the game validly represents property practice</td>
<td>The model underlying the game represents several elements of property practice</td>
<td>The model underlying the game rarely represents property practice</td>
<td>The model underlying the game is does not represent the property practice</td>
</tr>
<tr>
<td></td>
<td><strong>...of property market</strong>&lt;br&gt;Simulates real property markets</td>
<td>Simulates property markets</td>
<td>Attempts to simulate a market</td>
<td>Does not simulate a market</td>
</tr>
<tr>
<td>Skills</td>
<td><strong>Communication</strong>&lt;br&gt;Necessitates articulation through numerous communication channels</td>
<td>Encourages articulation through communication channels</td>
<td>Provides scope for articulation through communication channels</td>
<td>No communication channels provided</td>
</tr>
<tr>
<td></td>
<td><strong>Numeracy</strong>&lt;br&gt;Requires feasibly and investment analysis</td>
<td>Encourages feasibly and/or investment analysis and necessitates mathematical problem solving</td>
<td>Requires mathematical problem solving</td>
<td>Does not require mathematical problem solving</td>
</tr>
<tr>
<td></td>
<td><strong>Interpersonal</strong>&lt;br&gt;Necessitates reflection and sharing of emotions and strategies</td>
<td>Encourages reflection and/or sharing of emotions and/or strategies</td>
<td>Provides scope for reflection and/or sharing</td>
<td>No reflection or sharing options</td>
</tr>
<tr>
<td>Attributes</td>
<td><strong>Creative/critical problem solving</strong>&lt;br&gt;Large number of original ideas and strategies are required</td>
<td>Several original ideas and strategies are required</td>
<td>Original ideas and strategies are rarely required</td>
<td>No original ideas or strategies are required</td>
</tr>
<tr>
<td></td>
<td><strong>Team work</strong>&lt;br&gt;Necessitates effective teamwork between small and large cohorts</td>
<td>Encourages effective teamwork and cooperation</td>
<td>Provides scope for cooperative multiple playing</td>
<td>No multiplayer option</td>
</tr>
<tr>
<td></td>
<td><strong>Social and environmental awareness</strong>&lt;br&gt;Requires critical reflection on authentic social and ecological environments</td>
<td>Encourages critical reflection on social and ecological environments</td>
<td>Provides scope for critical reflection on social and/or ecological environments</td>
<td>Does not present social or ecological environments.</td>
</tr>
<tr>
<td></td>
<td><strong>Motivation</strong>&lt;br&gt;Fully immersive, sustaining continued and repeated playing</td>
<td>Engaging, encouraging continued and repeated playing</td>
<td>Relatively engaging and/or engaging for set periods</td>
<td>Lacking engagement</td>
</tr>
</tbody>
</table>
### Assessment Findings

<table>
<thead>
<tr>
<th>Game</th>
<th>Be Rich - HD</th>
<th>Millionaire Tycoon</th>
<th>Monopoly Hotels</th>
<th>Sim City Deluxe</th>
<th>Build-a-lot 2 Free</th>
<th>Investorville</th>
<th>Monopoly Streets</th>
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</thead>
<tbody>
<tr>
<td>Knowledge of property practice</td>
<td>2</td>
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<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Knowledge of property market</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
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<tr>
<td>Knowledge</td>
<td>3/6</td>
<td>2/6</td>
<td>1/6</td>
<td>4/6</td>
<td>3/6</td>
<td>4/6</td>
<td>3/6</td>
</tr>
<tr>
<td>Communication</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Numeracy</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Creative/critical problem solving</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Team work</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Social and environmental awareness</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motivation</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Attributes</td>
<td>4/12</td>
<td>4/12</td>
<td>2/12</td>
<td>7/12</td>
<td>4/12</td>
<td>3/12</td>
<td>4/12</td>
</tr>
</tbody>
</table>
…findings - knowledge

With exception of *Monopoly Hotels* the games present a general understanding of property practice.

Playing *Be Rich* and *Build-a lot-2* provides players with exposure to the simplified practices of developing land.

Games are designed for the amusement and do not reflect the more complex operation of the property profession.

The games focus on financial gain and encouragement of a risk seeking strategy to ultimately ‘win’ or succeed.

From a town planning perspective *SimCity* presents a rich learning environment. *SimCity* is however not accurate and the knowledge gained through play should be assumed only as a tool supported by other teaching approaches.

Playing *Investorville* did lead to personal knowledge construction specifically set in the discipline of property. Though the quality and authenticity of the knowledge gained appears questionable or even misleading at stages.

It would not be prudent to play without acute understanding of the game limitations and inherent bias of the game provider.
Playing of the sampled games for the enhancement of communication, numeracy and interpersonal skill would not be a worthy allocation of time.

Nevertheless there are commendable sub activities in the *SimCity*, *Investorville* and *Monopoly Streets* games that encourage skill development. The games present numerous problems for solving which are met with immediate or prompt feedback.

*SimCity* does not necessitate self-reflection although in playing the game you are compelled to consider the appropriateness of our choices.

As the only sampled game with remote multiplayer capability *Monopoly Streets* creates channels for communication beyond just a link to a discussion group.
SimCity presents the opportunity to apply imaginative thinking to realise goals that could not be readily achieved in real life. The success or otherwise of the city developed and choices made are measured in real time with financial as well as social and environmental benchmarks.

The sample are inherently problem solving vehicles encouraging creative problem solving. The structure and ‘scaffolding’ of the modelled gameplay for the rest of the sample are more restrictive and supportive than SimCity.

The collaborative opportunities associated with massively multiplayer (online) games are overlooked in the sampled games.

Millionaire Tycoon whilst shallow in its education offer is motivating to the extent of addiction.
Subsequent stages of this research will draw upon the reviewed literature and exploratory research into functional learning games, by advancing the game suite and providing recommendations on the essential elements of games to optimise functional learning.

As a broader frame the research method will continue to follow the Design Science Paradigm as defined by Hevner et al (2004) with two distinct deliverables anticipated, a thesis and games suite.
...conclusion

No existing games could conceivably meet all the learning outcomes sought from a property program. As such no game, or games suite, would provide a standalone pedagogical method for effective property educating. Rather games, forming part of a constructively aligned learning and teaching program, may ensure the elemental development of knowledge, skills and attributes in a subtle and engaging manner.

As an emerging intervention in property education there will be barriers to the widespread adoption of game-based learning. To overcome the barriers and support the first adopters, stakeholders, will need to be actively engaged.

Learning activities based on playing SimCity and Investorville may enhance the experience for students studying early planning and property investment courses respectively. The learning activities would require a level of facilitation and benefit from critical reflection assessment. The supporting assessment may incorporate a reflective journal addressing the perceived authenticity of the gameplay whilst critiquing the behaviour of the self and others.
In summary, my research will incorporate ‘fun and games’ in an aim to help students learn..... and potentially save the world from a future GFC along the way.

Thank you
References


Gee J., 2003, What Video Games Have to Teach Us About Learning and Literacy, Palgrave Macmillan, New York USA.


Klopfer E., Osterweil S. and Salen K., 2009, Moving Learning Games Forward – Obstacles Opportunities and Openness, The Education Arcade Creative Commons, Massachusetts Institute of Technology, Cambridge Massachusetts USA.


Rowland P. 2010 Australian Property Investment and Financing, Thomson Reuters, Pyrmont NSW.


...games


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