



CreateWorld 2012

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What property students may learn from playing games

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Overview



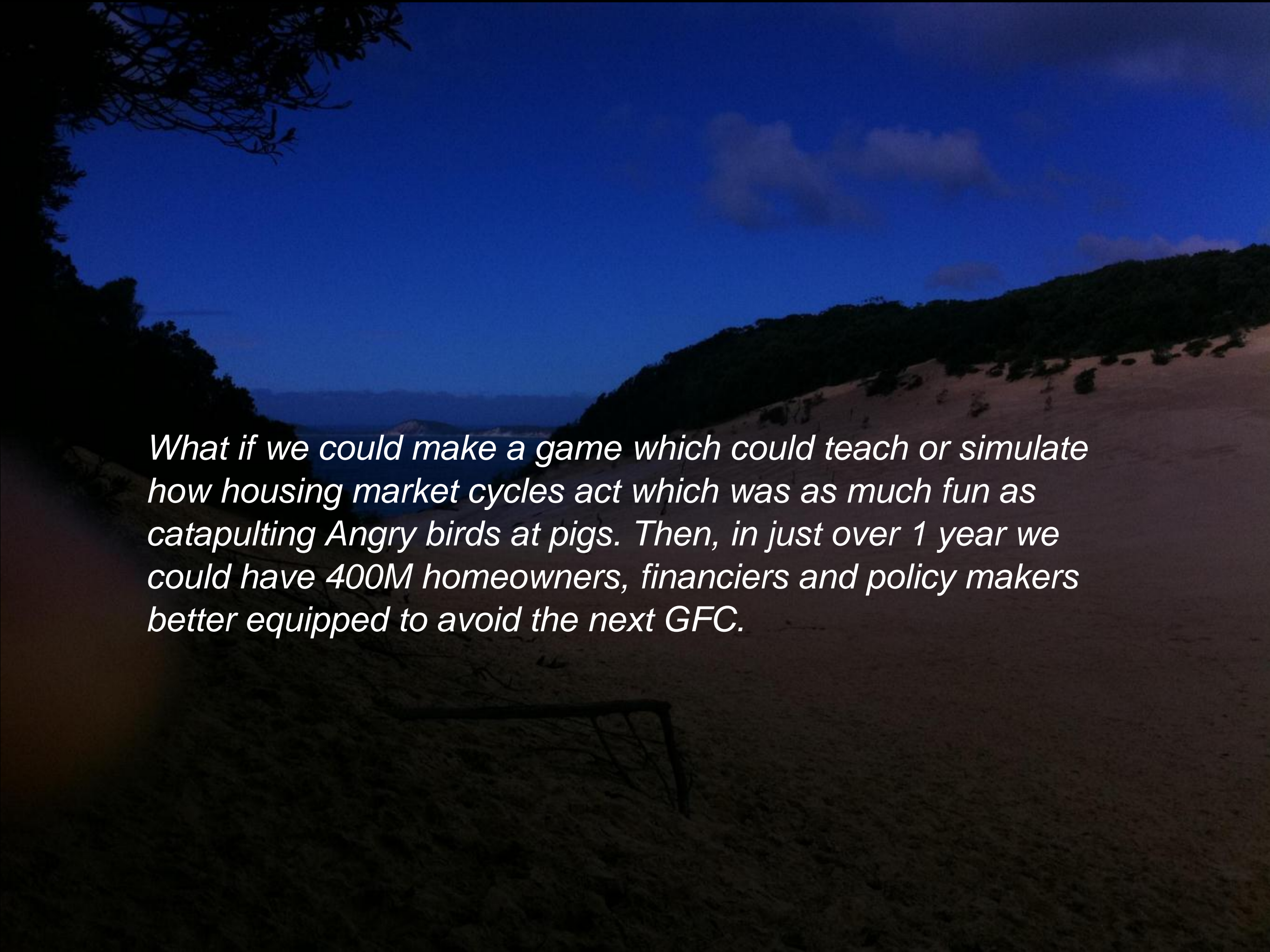
High level research discussion
via 3 minute thesis presentation

Game concept review

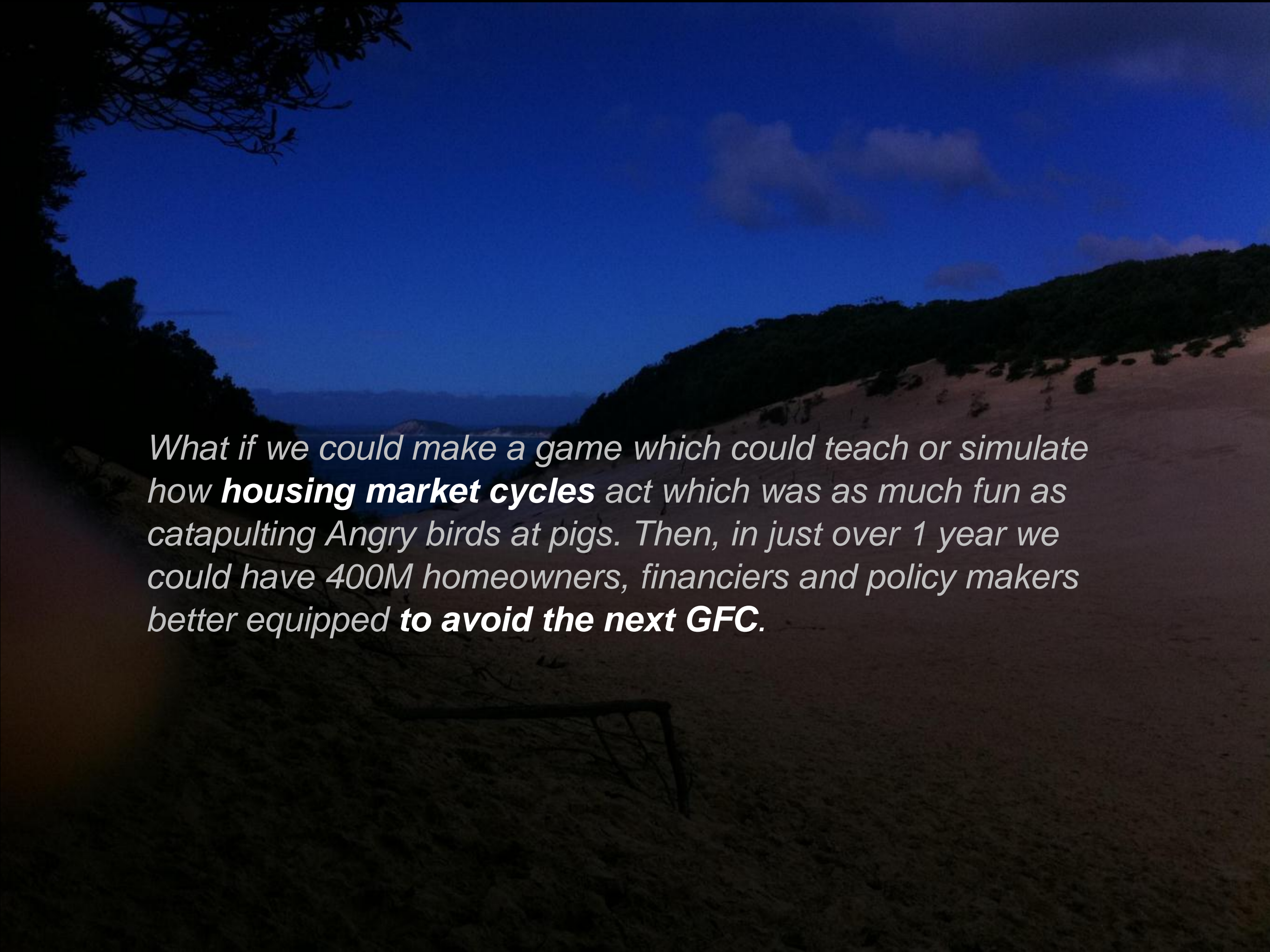
*Authentic Property **Games** in Higher **Education***



*Luka,
5 year old 'prepper'
Bike racing with the Wii*



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



..property

Business

?

\$410 k '94
\$3.52M '07

Super fund
\$130 k '96



...property economics

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).



...**crisis** on property

Impact of property on the Sunshine Coast:

335,273 people

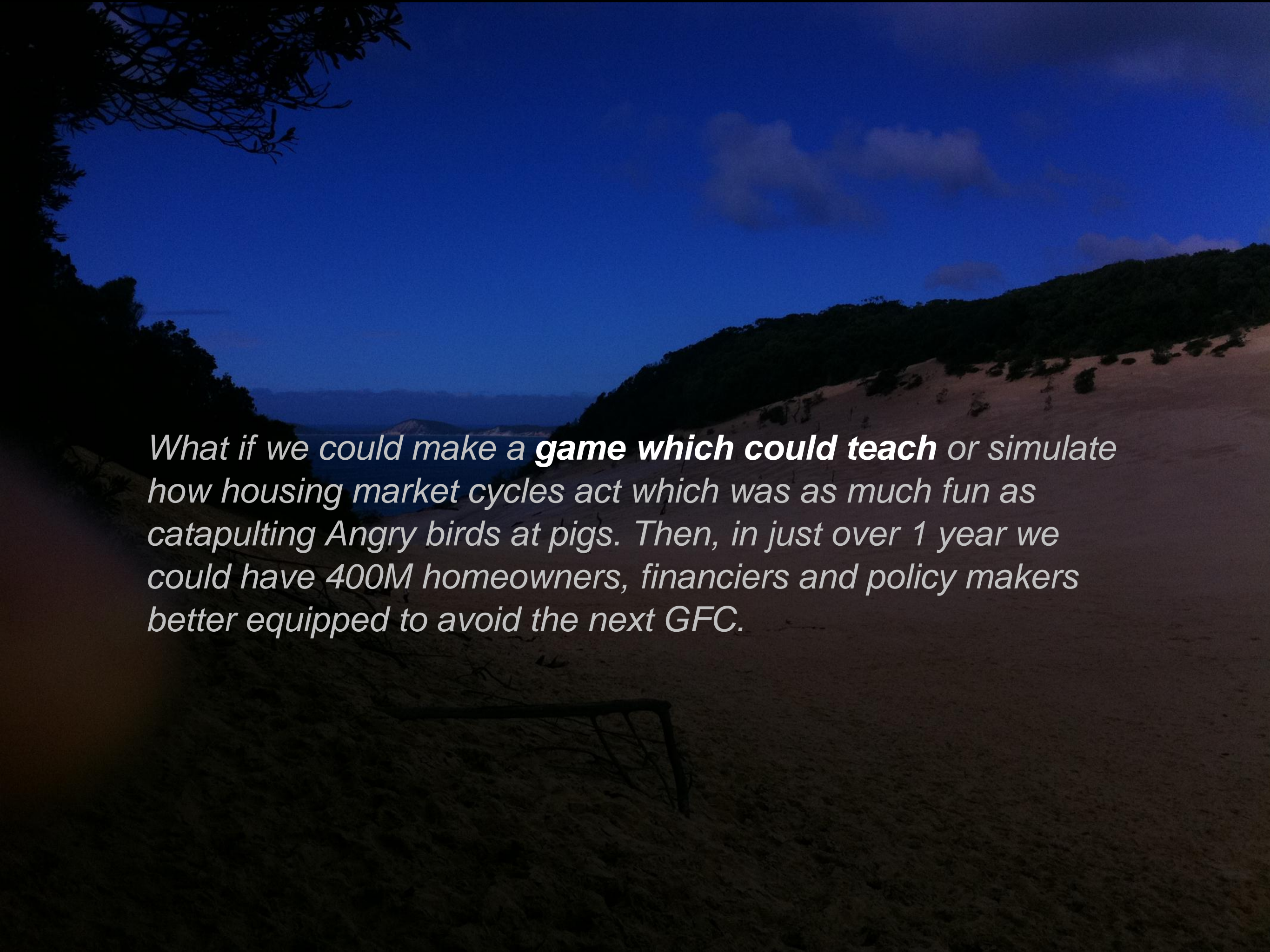
say 129,000 dwellings (2.6 people)

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

*a 20% variation ~ **\$12.5b ~ GRP***

...property on crisis





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...games for learning

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**'.

Games & learning

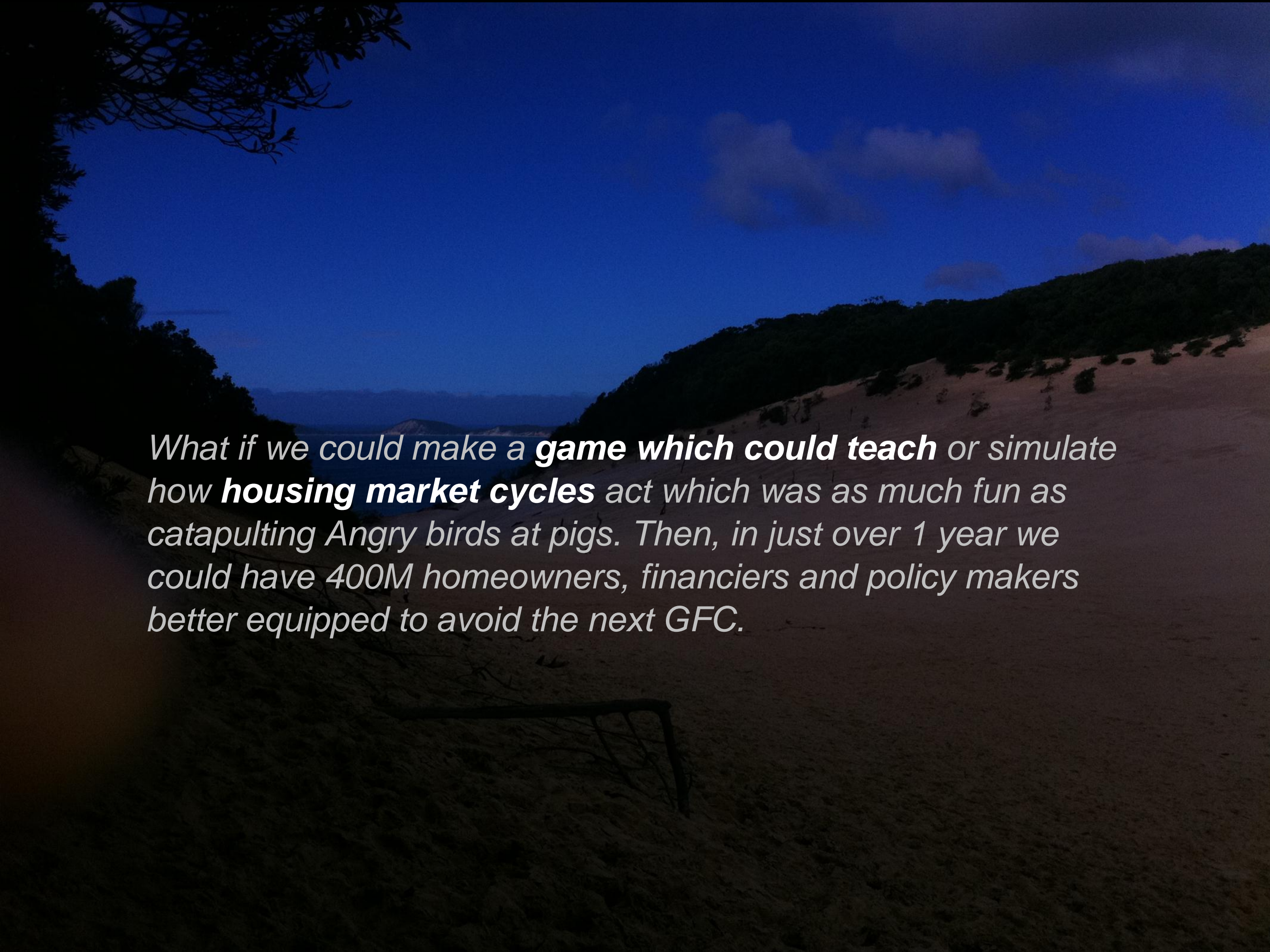


Image source: <http://www.zastavki.com/eng/Animals/Cats/wallpaper-15901.htm>

...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.*



Property & games



Children's Discovery

Image source: <http://www.flickr.com/photos/harshlight/3235469225/in/photostream/>

...literary findings

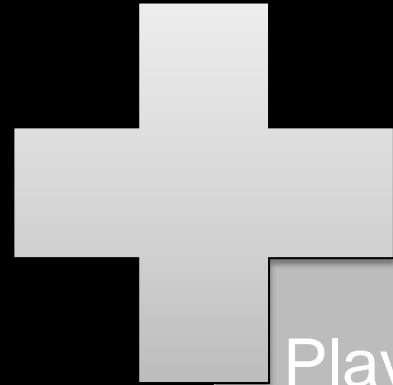
Learning enhancing	Literary findings
Collaboration & communication	Massively multiplayer (online) games support collaborative problem solving (Isbister et al 2010, Gee 2003, 2011, New Media Consortium 2011, and Klopfer et al 2009) with gameplay requiring teamwork, leadership, and discovery (New Media Consortium 2012). Isbister et al (2010) speaks of massively multiplayer online games as ‘... provide[ing] structured experiences in which players take on specialized roles and work together to solve problems, leveraging one another’s strengths...’ (Isbister et al 2010, p. 2043).
Problem solving	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.
Functional knowledge construction	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.

...research approach

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

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



...games assessment rubric

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

...assessment findings

Game	Be Rich - HD	Millionaire Tycoon	Monopoly Hotels	Sim City Deluxe	Build-a-lot 2 Free	Investorville	Monopoly Streets
Knowledge of property practice	2	1	0	2	2	2	2
Knowledge of property market	1	1	1	2	1	2	1
<i>Knowledge</i>	3/6	2/6	1/6	4/6	3/6	4/6	3/6
Communication	1	0	1	0	1	1	1
Numeracy	1	1	1	1	1	1	1
Interpersonal	0	0	0	1	0	1	1
<i>Skills</i>	2/9	1/9	2/9	2/9	2/9	4/9	3/9
Creative/critical problem solving	1	1	1	3	1	2	1
Team work	0	0	0	0	0	0	1
Social and environmental awareness	1	0	0	2	1	0	0
Motivation	2	3	1	2	2	1	2
<i>Attributes</i>	4/12	4/12	2/12	7/12	4/12	3/12	4/12
<i>Total</i>	9/27	7/27	5/27	13/27	9/27	11/27	10/27

...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.

...findings - **skills**

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.

...findings - attributes

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.

...further research

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.

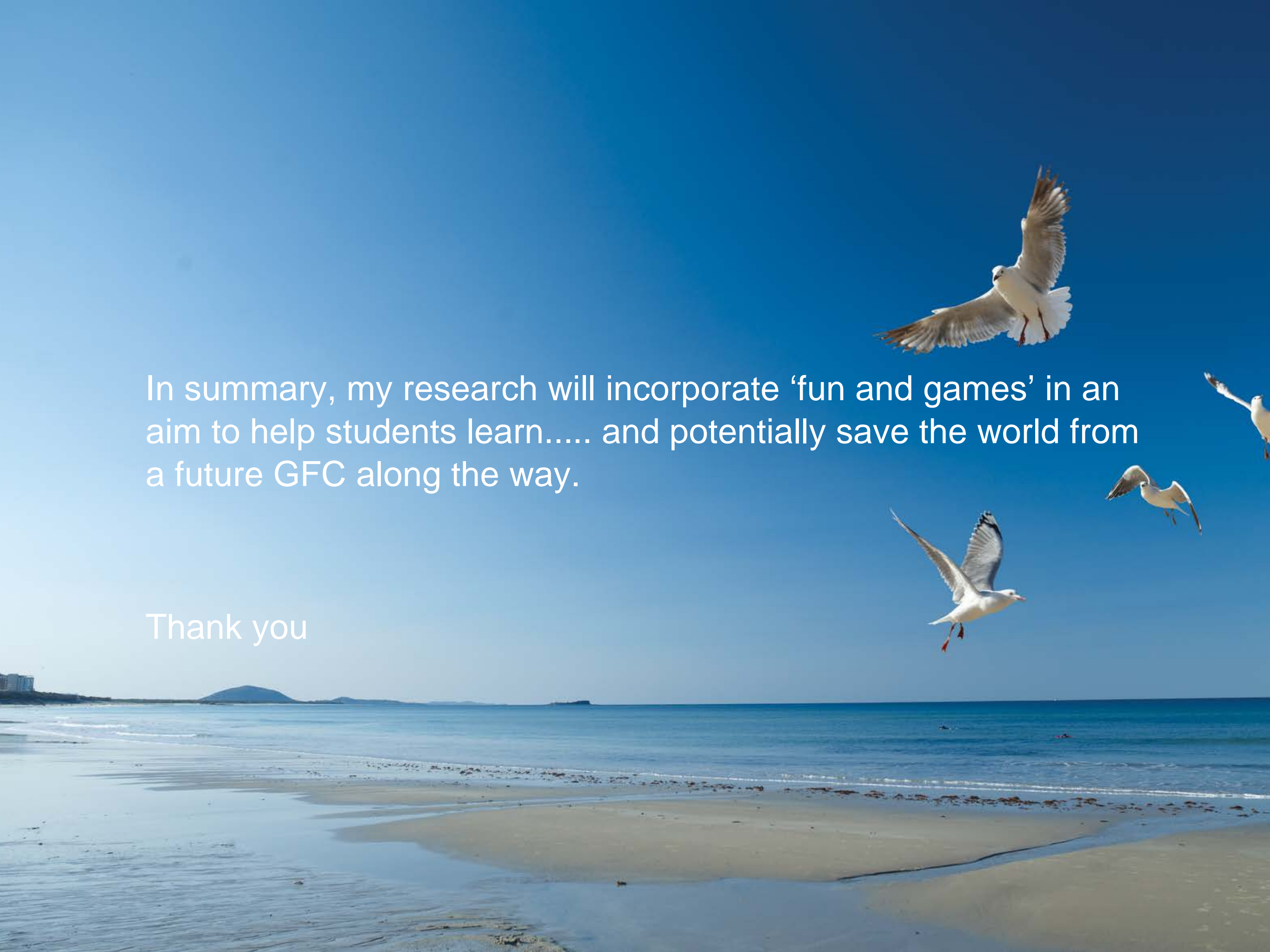
As a broader frame the research method will continue to follow the Design Science Paradigm as defined by Hevner *et al* (2004) with two distinct deliverables anticipated, a thesis and games suite.

...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.

A wide-angle photograph of a beach scene. In the foreground, the wet sand of a beach is visible, with gentle waves lapping at the shore. The ocean extends to the horizon, showing a clear blue sky above. Several seagulls are captured in flight, their white feathers contrasting against the deep blue sky. The overall atmosphere is bright and serene.

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

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