

Serious Games

Can games change your business and change the world?

Post-event briefing by David Rowan, editor of WIRED magazine

On 12 October 2010, NESTA hosted Alex Fleetwood and Mary Matthews for a discussion of ‘serious games and gamification’ and how they can increase engagement, provide new technologies and generate positive side effects in other sectors.

Introduction and background to the event

‘Serious games’ are games designed for purposes beyond pure entertainment – for example to promote social change, as a teaching tool, to encourage healthier living, for technical training, or to market a product. The topic received prominent coverage in February 2010, when Jane McGonigal, director of game R&D at the Institute of the Future in Palo Alto, gave a TED talk on how ‘gaming can make a better world’ (www.ted.com/talks/view/id/799). The talk touched on themes raised in her book *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. McGonigal argued that, with 3 billion hours a week spent playing online games, game designers can usefully address environmental and social problems by rewarding players’ ‘good’ in-game behaviour with positive feedback.

At around the same time, a debate was prompted by David Helgason, CEO of Unity Technologies, in a blog post that declared 2010 ‘The Year of Gamification’ (<http://blogs.unity3d.com/2010/01/14/2010-trends>). Helgason defined gamification as “the adoption of game technology and game design methods outside of the games industry” – for example through competitive geolocation ‘check-in’ services such as Foursquare, employee training and simulation applications, and games built around personal finance on sites such as Mint.com. He advised those reading his blog: “Learn game design and apply it to everything – how people sign up for a website, how people ‘succeed’ in using your product, how customers share it with their friends and become leaders of user groups/clans, etc.”

Game mechanics have long been used in teaching contexts, from flight-training simulations to a three-dimensional anatomy programme (www.visiblebody.com). Similarly, Spore, developer of the game LittleBigPlanet, has collaborated on the US Digital Media and Learning Competition to promote new ways of learning about science, technology and maths.

Hot Topics is a series of NESTA events driven by ideas and technologies. They aim to introduce the technological tools that will change how we do things in the next few years, and are designed to bring together the best of business, academia, start-ups and investors.



But what's new today is the enthusiastic embrace of the concept by marketers seeking to drive greater customer engagement, both on- and off-line. Companies ranging from 7-Eleven and JetBlue to Tesla Motors and H&M have developed games-based rewards systems.

On the web, Badgeville (www.badgeville.com) offers online businesses a white-label 'Social Rewards & Analytics Platform' as a way to 'increase [website] audience loyalty and engagement'. Badgeville founder Kris Duggan has identified 40 types of behaviour that he says can be influenced through game mechanics, such as personal achievement and group motivation.

Notable examples of competitive 'real-life' games built around game mechanics, besides Foursquare, include the Huffington Post's 'Huff Post' loyalty badges, and GateGuru, a navigational app for airports, which rewards users for checking in to terminals and rating businesses. In an H&M campaign, developed with Booyah, players checked in to real-world locations, which they could 'own' and 'charge rent' for. Ad Age reported: *"H&M was the most searched location within the game, 700,000 users checked in to its retail stores, and eight million saw its virtual goods."*

“The gamification era will have an even bigger impact on the world than social networks”

Silicon Valley investors, too, are identifying big financial opportunities in what Tim Chang, principal at social-game backer Norwest Venture Partners, calls the 'gamification of life', whereby competition and points gain ground in offline activities. According to Chang, games *"keep people engaged to keep doing things, as opposed to what goes viral quick: You click, you watch and then never see it again... Basically game mechanics are a way to get consumers addicted to things."*

Advocates of the sector are talking up the commercial opportunities for businesses that 'gamify'. In January 2011, San Francisco hosts the first Gamification Summit, which promises to teach *"how game mechanics and the new science of engagement are rewriting the rules of brand marketing, product design and customer acquisition"*. Nathan Lands, CEO of Gamify, a San Francisco start-up, goes as far as to claim: *"The gamification era will have an even bigger impact on the world than social networks have had because everyone loves to connect with friends, but they like to have fun and see the positive results of their actions even more."*

Clay Shirky, in his book *Cognitive Surplus*, describes a shift from passive consumption of media to more active engagement, with production and sharing by consumers. Games are inherently interactive, with other players or the games themselves. So will games be one of the routes through which this radical change takes place? Or will the application of game mechanics be less about addressing 'serious' issues such as climate change, as it will be about short-term product marketing and brand-building?

The NESTA event

On October 12 2010, NESTA brought together Mary Matthews, strategy and business development director for Blitz Games Studios, one of the world's largest independent videogames developers; and Alex Fleetwood, founder of Hide&Seek, a three-year-old start-up that sees play as integral to understanding how culture will develop. Their panel discussion on the issues surrounding serious games and 'gamification' was moderated by Stian Westlake, NESTA's executive director for policy and research. Stian explained that NESTA's work following the government's *Digital Britain* report – in particular its Reboot Britain programme – had helped develop some game-based responses to problems. He pointed to NESTA's own interest in the sector, both through its Creative Industries programme supporting developers of serious games, and via its early-stage investments in start-ups.

The discussion examined how games and games technologies are being brought into 'serious' areas such as education and medical training; how serious tasks are being made more game-like; and how the use of game mechanics was moving into marketing-led areas. The panel discussed three specific ways in which games can be adopted by other sectors:

- By generating positive side effects from gameplay.
- By creating technology that can be reused.
- By increasing engagement with a problem or activity.

Definitions

Here we define 'gamification' as the process of increasing user engagement and/or participation by integrating game mechanics into a website, service, training programme or other non-core gaming environment. Games are defined as activities which usually have elements of competition, scores, rules, a challenge or objective and interaction. There is also a defined environment for the game.

A useful glossary published by Seattle games start-up BigDoor includes other terms such as 'gamify', the verb related to gamification; the collective term 'funware', which refers to applications which use game mechanics in non-game contexts; and 'game mechanics', defined in *Theory of Fun for Game Design*, by Raph Koster, as rule-based systems or simulations "that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanisms".
(www.bigdoor.com/resources/gamification-glossary)

Case studies

The panelists presented a number of case studies to show how serious games can be effective.

Patient Rescue

Mary Matthews demonstrated this medical training game developed by TruSim, part of Blitz Games Studios, as an R&D project part funded by the Technology Strategy Board. This simulation game aims to train medical students by replicating the discomfort faced by ailing patients, so that they identify signs of patient distress before it is too late. It is being used in County Durham and the Darlington Foundation NHS Trust. In the demonstration, Patient 01 – an Asian man with severe asthma – has checked in to A&E with an asthmatic attack. His clinical data is based on that supplied by UK clinicians, and players can check medically validated indications such as breathing rates, circulation, pulse, temperature and

Further reading

The Art of Game Design
by Jesse Schell
www.artofgamedesign.com

Game-Based Marketing
by Gabe Zichermann
<http://gamification.co>

Changing the Game
by David Edery
and Ethan Mollick

Total Engagement
by Byron Reeves and
J. Leighton Read

patient history. The player can intervene to determine the correct interventions to stabilise the patient's condition; or by not intervening can watch the patient deteriorate and die. The game ends when the patient is either stabilised or dead. The game has been trialled with trainee medical students and first-year doctors, and modified according to their feedback. (A demonstration can be seen at www.trusim.com/?page=Demonstrations&videos=1)

Triage Trainer

Another training game from TruSim, this aims to develop accurate decision-making in the life-saving skill of triage. In the game, there has been an explosion in a busy high street and the player must prioritise the multiple casualties for treatment. Trainees must follow set protocols to make their decision and they are faced with highly realistic characters that react emotionally and physically to their injuries.

Tate Trumps

A Top Trumps-style game developed by Hide&Seek with Tate Modern, involving digital cards featuring works from the gallery's permanent collection. It can be played on an iPhone or iPod Touch. Under the slogan 'Explore. Collect. Win.', the game encourages players to roam the collection either alone or in teams, and select works according to their strength in beating other works in one of three modes: battle mode, mood mode, and collector mode. In battle mode, for instance, players must consider how effective an artwork would be in a battle, if it were to come to life. In mood mode, players look for artworks they consider menacing, exhilarating or absurd. In collector mode, they must find pictures which are famous, recently produced or practical to house. Players must form a hand of seven cards, and once they have done so the competition begins. (More details at www.tate.org.uk/tatetrumps)

Re-mission

A multi-level game developed by HopeLab, a non-profit organisation, in conjunction with game developers and medical consultants, to help teenagers with cancer. It is designed to be fun and challenging, while helping players stick to their prescribed treatments and giving them a sense of power and control over their disease. Its efficacy has been evaluated with a randomised research trial, which found that it improved treatment adherence and increased cancer-related knowledge. (www.re-mission.net)

PlayStation Game Runners

An experimental project whereby PlayStation, members of the public and young people from diverse backgrounds come together to create social games. There are three games in development: Flags, Blocks and Hoops. Blocks, voted most popular, is a three-dimensional game of strategy and precision movement in which opposing players take it in turns to place blocks in a 2 x 2 tower. When a player places a block, the symbols on all touching faces must match. As the blocks are stacked, players must not let the tower topple. The games aim to integrate social engagement and game design with the close involvement of young people.

Toyota Prius dashboard

Mary referenced the feedback screen from her Prius, which has encouraged her to try to beat her fuel-consumption score by accelerating and decelerating more slowly. As an unintended consequence, she said, she had become a more courteous driver.

You can read more case studies on NESTA's event resources page:

www.nesta.org.uk/events/hot_topics/assets/features/serious_games_1



Game screens from TruSim's *Triage Trainer* (above) and *Patient Rescue* (below), copyright TruSim, a division of Blitz Games Studios



Requirements of an effective serious game

Mary Matthews suggested a framework model for those developing serious games, designed with the Serious Games Institute at Coventry University. These include themes such as the game's pedagogic goals, fidelity of the situation represented on-screen, and access to support materials. At the heart of all serious games is the need to be purposeful and rewarding, she said. Content must be trusted, objectives clear, programmes personal, and progress trackable and validated. There should be contextual rewards, shared experiences and supportive environments. The player's trust in the game designer will be increasingly important as the sector becomes more crowded.

Alex Fleetwood said developers of serious games must be committed to good game design, to testing and feedback. Paper prototyping is ineffective, he argued: a game must be played and iterated before it is ready for use. He voiced scepticism about the short-term approach often taken by the marketing industry: *"Game designer is not a job title in any digital creative marketing services agency I'm aware of,"* he said.

At Hide&Seek, games must have a social or cultural value. Before taking on a project, the company needs to be convinced that it is a) ethically sound, b) an innovative cultural opportunity, and c) economically viable.

"Game designer is not a job title in any digital creative marketing services agency I'm aware of."

One difficulty addressed by the panel was ascertaining the metrics of success. How do you know that what you're putting out there is making a difference? Just because a serious game on the web may score millions of plays, that does not guarantee behaviour change of long-term engagement with the social purpose. The panel suggested that more research was needed: in the case of Re-mission, extensive research studies had shown the game to be effective in helping young people control their cancer drugs.

Mary Matthews raised a concern: in daily life, good behaviour tends not to be rewarded. *"It's always the bad schoolkids who get the stars when they behave for once. The good kids never get anything."* This imbalance might be effectively addressed through the incentives of badges and points – *"but don't call it a game"*.

The reaction against gamification

The panel addressed the headlong rush towards 'gamification' when the goal went beyond play itself. Gathering points and badges, the panel stressed, was

not the same as play.

Alex Fleetwood referred to a much-referenced protest by the writer Margaret Robertson (see: www.hideandseek.net/cant-play-wont-play):

“Gamification’, the internet will tell you, is the future. It’s coming soon to your bank, your gym, your job, your government and your gynaecologist. All human activity will be gamified, we are promised, because gamifying guarantees a whole bunch of other buzz-words like Immersion! and Emotional Engagement! and Socialised Monetisation! ... ‘Gamification’, that said, can go take a long walk off a short pier. I’m heartened beyond measure to see that it’s been deleted from Wikipedia. What we’re currently terming gamification is in fact the process of taking the thing that is least essential to games and representing it as the core of the experience. Points and badges have no closer a relationship to games than they do to websites and fitness apps and loyalty cards. Gamification, as it stands, should actually be called pointsification, and is a bad thing because it’s a misleading title for a misunderstood process... Games are good, points are good, but games ≠ points.”

Alex Fleetwood argued that Foursquare isn’t really a game, but an application of points and badges to a behaviour. He worries about the trend. *“There is going to be a plethora of these gamified content opportunities hitting the market,”* he said. *“If you think points and badgeification are the solution to your engagement problem, I beg to differ – you’re competing not only with all the other point and badge games, but with all the genuine games.”* Games designers need to concern themselves more with nurturing exploration, creativity and social play, and understanding the behavioural psychology that drives us, he said. He cited Melvin Konner’s book *The Evolution of Childhood* as offering evolutionary evidence of the importance of play *per se*. He also cited a presentation at the Playful conference by user-experience researcher Sebastian Deterding, which critiqued the current ‘badge measles’ trend. Play, Deterding argued, involves freedom. *“Yet when I look at most gamified applications today, what they do is to employ game elements to tie us even more tightly into our worldly toils and schemes. They are glorified report cards that turn games into work rather than life into play, and users into pawns rather than players.”*

Funding issues

The panel suggested the funding model for serious games had yet to be clearly established. *“New business models will emerge,”* Mary Matthews said. *“Everyone needs funding.”* Initial funding has mostly come from public bodies, but future opportunities will include crowdsourced learning, by which players will invest via micropayments in ‘bite-sized learning’. Games which offer a social or training benefit – such as Patient Rescue – are more likely to attract government funding. Brands are likely to invest increasingly in branded games, which are likely to grow.

Blitz is examining the US market, where high-quality instructional cinematic-quality games have been commissioned by government agencies. Blitz received a grant from the Technology Strategy Board to research in this area, and partnered with universities including Coventry. An early conclusion: *“If we were starting today, we wouldn’t be looking at the same cinematic outcomes – we’d be looking at where the audience is. We’d look at social networks first, and the consumer first – because people are taking control of their own learning.”* Rather than expensively commissioned cinematic games, she said, the fully connected mobile internet offers new, low-cost ways to deliver games to a mass audience.

Further viewing

Jesse Schell’s blog:

<http://gamepocalypsenow.blogspot.com>

Gamification 101: An Introduction To The Use Of Game Dynamics to Influence Behavior
White paper by Bunchball
www.bunchball.com/gamification/g101-list.shtml

Presentation: Work Sucks – Games are great
by Byron Reeves, the Paul C. Edwards Professor in the Department of Communication at Stanford University, and cofounder of the H-STAR
<http://vimeo.com/6440614>

Interview: VC Tim Chang at VentureBeat’s GamesBeat@GDC conference, on where the investment opportunities lie
www.youtube.com/watch?v=Id7FwPt7Ybg

All the World’s a Game, and Brands Want to Play Along
Article in AdAge
http://adage.com/digital/article?article_id=144154

Blog posts by Hide&Seek
www.hideandseek.net/tag/gamification/Posts

Some questions put to the panel

How would games platforms such as Microsoft's Kinect affect serious games?

Alex Fleetwood said he was unconvinced by Kinect as a gaming platform – “it's more a way to interact with an entertainment platform”. He was more excited about the use of smartphones with sensory inputs, which can use GPS, camera recognition, audio, etc. to help the user interact with their environment in new ways. Mary Matthews, by contrast, saw Kinect as “a game changer – it will change how we design games. You have to think differently about the interactions and the play experience.” PlayStation's Move has similar characteristics, she said.

Do marketing services agencies get it?

Mary Matthews cited a successful US project Blitz conducted with Burger King in 2006, whereby customers could buy a box game for just \$3.99. Burger King, she said, attributed a 40 per cent uplift in profit to the promotion. Yet ad agencies had failed to build on the opportunity and not taken the market to ‘the next level’. Ad agencies are focusing on mobile games – driven by the success of projects such as Barclays' Waterslide iPhone game – and on games on social networks. Blitz consistently gets requests from ad agencies to develop Wii games – but Nintendo will not accept advertising in their games.

Can realistic simulations also be effective play?

Mary Matthews argued that good simulations can also be good games. “Patient Rescue isn't just a simulation – it exhibits good game design. The core underpinning compulsion loop that makes you want to play that game doesn't necessarily depend on money or technology.” Purposeful play, she said, is at the core of serious games: whether a game is cinematic or static is immaterial if it is addressed effectively to its audience.



The fuel consumption screen on the Toyota Prius' dashboard

Conclusion

Badge and point-collecting alone don't guarantee effective gameplay that can drive behaviour change. Instead, the panel argued for experienced game designers to drive projects that focus on play rather than short-term marketing goals. Success and engagement cannot simply be measured in commercial terms. “There's a world of interest in and desire for games, and a world of people trying to service that need coming from a real games background not necessarily with commercial success behind them”, Alex Fleetwood said. The problems arise where creative agencies “with skills in other areas” decide to create games.

The good news, Alex Fleetwood said, is that the principles of game design are now well established and set down in academic texts. Agencies that engage with these principles have a greater chance of success than those that simply follow the badgeification trend, he said.

Mary Matthews argued that games alone will not transform society – but in the right context could be a useful tool in shaping behaviour. But to be effective, games must be iterated, researched and operate a feedback loop. And the developer must gain the player's trust.