CASE STUDY

'Gamification'

Brief:

Imaginative tools invite imaginative solutions to apparently unassailable problems. Gamification is one such tool in humanitarian learning, providing a potential scale and reach beyond that of traditional learning modalities. How humanitarian organisations are addressing the challenges, and harnessing the opportunities of gamification is the subject of this case study. Examples are drawn from interviews with professionals using games, game designers, and published material in the public arena. Mini case reviews throughout the article highlight current areas of practice and development.

Introduction

The concept of learning through play is not new, but we might well ask 'are we too keen to gamify'? It's true that some sceptics have dismissed game-based learning as fashion or fad, yet serious games present a serious learning offer to the humanitarian community which has long relied on the impact of learning tools such as role-play and immersive simulations to provide participants with realistic, memorable and engaging learning experiences.

In this case study we focus on the increased uptake of digital gaming in humanitarian learning, and identify where and how it is being applied, particularly when it is being used to respond imaginatively to learning obstacles that other learning solutions have not effectively addressed.
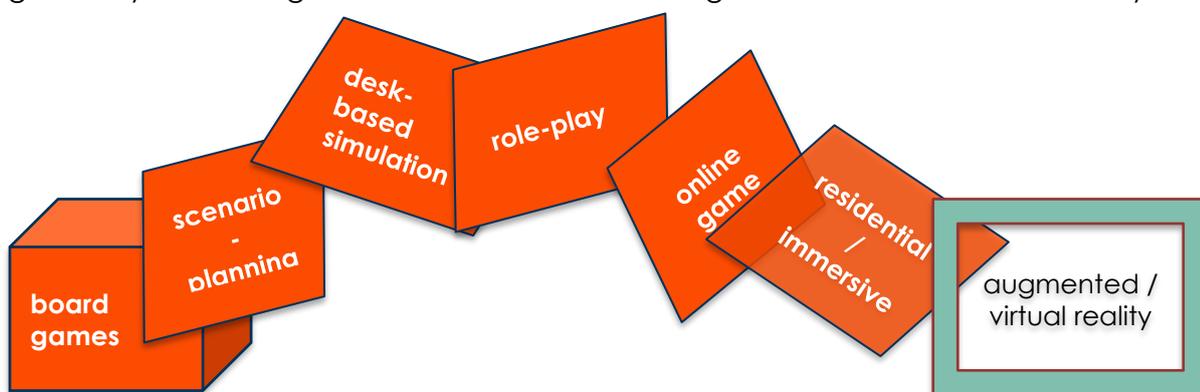
What's involved in game-based learning?

How organisations are applying gamification

Organisations are using games across a variety of applications. A plethora of free educational games target children, whether as potential future donors (e.g. FreeRice[1] where player scores translate into donated grains of rice), or potential members of at-risk communities (e.g. ISDR's disaster simulation game Stop Disasters[2] aimed at educating children in responding to natural hazards, to reduce death and injury). Other games were designed for advocacy and publicity, whether organisational or issue-based. UNHCR has for the last 10 years hosted Against All Odds[3], 'the game which lets you experience what it's like to be a refugee', to raise awareness of the reality of refugees' experiences, and the WFP's video game Food Force[4] was released back in 2005, to educate children about the logistical challenges involved in delivering food in emergencies. In 2014, Mercy Relief launched Code Blue[5] for a teenage audience, challenging them to engage with effective humanitarian resource allocation and in the process, learn more about what they can do to support the community.

Digital games might be seen as one of the latest offerings on the game-based learning continuum but as recently as 2015, new board-game Aftershock[6] was created by PAXsims addressing

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[1] http://freerice.com/#/english-vocabulary/1405
[2] http://www.stopdisastersgame.org/en/playgame.html
[3] http://www.playagainstallodds.ca
[4] http://www.wfp.org/videos/food-force-promo
[5] http://www.mercyrelief.org/humanitarian-lessons-goes-on-the-digital-gaming-platform/
[6]
https://paxsims.wordpress.com/aftershock/

interagency cooperation in humanitarian crisis response, and has since been extended with a Gender Dimensions Expansions Set addressing gender-related needs and opportunities. With components of the game bought online in a pack, a range of downloadable rules and tools and the option of fully facilitated training sessions, the game works as a ready-to-go desk-based simulation and is being used as a challenging learning tool for humanitarians and peacekeepers. Nevertheless, one of the great advantages offered by digital over a traditional board game is the opportunity for the learner to interact with the game without being physically present in the same space as other players.

Drivers for gamification

Naturally, humanitarians expect more from the genre than 'edutainment'. Even simple role-playing games require learners to operate, consult, and understand other sectors in order to take them into account in decision-making. In any game that is not dependent on interaction between multiple players, individuals have far more control over the progression of their learning and can repeat levels or explore game zones as many times as they choose until they are confident that their learning objectives are satisfied. Nevertheless, both players and learning and development specialists cite fun as a key driver for gamification.

Humanitarian Principles Game: The International Rescue Committee (The IRC)

The IRC's Syria programme identified the need for an accessible learning platform that supports front-line humanitarians in understanding how to apply the humanitarian principles in their complex and highly challenging environment.

The target learners are experienced humanitarians in an environment where they are exposed to extreme challenge, and are frequently required to make difficult decisions. The learning manager identified CHS Alliance materials to deliver basic orientation around the humanitarian principles via e-learning modules. To support staff in identifying how to apply the principles, she commissioned a game where players are posted to respond to an escalating and complex emergency located in a fictitious 'Independent Republic of Amunithrania'. The game is divided into levels of increasing complexity, and as the scenario worsens in Amunithrania players are required to demonstrate how their decisions are based on humanitarian principles and seek information from game characters to improve the quality of their decision-making. At the end of each level, players have the opportunity to review their decisions and complete reflective practice questions which they can discuss with colleagues or supervisors.

The game tool was chosen to repeat the success of simulation-based learning, using a digital platform for delivery. It fits the specifications for accessibility that the remote learning application demands, and offers players the opportunity to progress at their chosen rate, repeating and experimenting with the consequences of different decisions.

> *"We wanted a way to deliver quality, dynamic training to staff based in remote locations inaccessible to in-person training programs. We have seen how successful in-person simulation or game-based learning can be, so we wanted to design online learning in a similar way."*
>
> Mary Jilek, Deputy Director Talent Management,
> The International Rescue Committee

Outside the humanitarian context, games have served as an innovative problem solving solution. The well-publicised example of Foldit[7] demonstrated that gamers can contribute to a 'crowdsourced' solution to scientific puzzles. Patrick Meier and Peter Mosur are collaborating with MMOS (Massively Multiplayer Online Science[8]) to investigate ways in which humanitarian challenges could benefit from a similar boost[9].

Perhaps the most obvious place for games to fit is within a wider blended learning package. Many training programmes allocate a significant portion of workshop time to a scenario, simulation or role-play game, encouraged by positive participant feedback about the impact of this type of learning experience. Using mobile technologies offers support to this type of scenario-based learning; in the first instance, using a ready-developed game framework with a proven track record enables the development of a high quality yet tailored game, with a variety of potential story lines. Secondly, the sense of real-life is enhanced by messages and information injects received electronically, according to the roles assumed by the players. The game is partially managed by players navigating through a structured scenario, and their progress recorded by saving their responses to the input messages, e-mails, calls etc. This leaves the game directors/facilitators to observe and assist, and thus provide more specific feedback during the debrief. Finally, a record or log of the decisions made, responses given and communications between the players is created by the mobile technology and can be accessed by the players, enabling them to reflect in depth on their learning and how they would do things 'next time'[10].

Simulation Game: UNHCR and OUNL Mobile simulation
Access: Mobile (smartphone) on a site location
Game Elements: Challenge, Narrative, Role-play, Interaction with game director(s),
Credits: Atish Gonsalves (UNHCR), Stefaan Ternier, Fred de Vries, Marcus Specht (Open Universiteit Nederland)
This pilot was run in December 2011, built with a modified ARLearn tool. The game was developed to provide an alternative to the immersive role-played simulation, which can be resource-heavy and requires enormous input from facilitators. In the pilot phase, the game focused on response to a hostage-taking scenario.
The game is structured into a number of phases, and played using smartphones. Each role in the game was allocated to two players who shared a smartphone, and had the opportunity to confer –in role- on their decisions.
Instructions and information inputs arrived with the participants by mobile notification, but could take a number of forms, to increase the sense of authenticity. For example; a video message from the staff member taken hostage, audio recordings, messages and e-mails from different game characters. Players were expected to respond to instructions via their mobiles and meet, cooperate and coordinate in real time to deal with the tasks assigned to them. Facilitators used the prepared messages and inputs to manage the pace of the game by sending them manually at key points, and were able to give meaningful feedback to all roles in the debriefing stage thanks to the electronic record of decisions and responses, and the resource-light approach which reduced the amount of physical organisation required.

The purpose of the standard simulation is usually to provide a lived experience where participants are able to employ new knowledge and skills in a realistic scenario. Introducing mobile game elements can be an alternative or adjunct to the immersive simulation. Although the perfect

[7] http://blogs.discovermagazine.com/notrocketscience/2010/08/04/foldit-tapping-the-wisdom-of-computer-gamers-to-solve-tough-scientific-puzzles/#.WGKtsrGcZE4
[8] http://mmos.ch
[9] https://irevolutions.org/2015/04/14/humanitarian-mmos/
[10] http://ceur-ws.org/Vol-955/papers/paper_41.pdf

blend of real and virtual is hard to create, it's conceivable that at a decision point within a game, players may be more likely to remain in role and engaged with the simulation when a question is presented and answered via mobile technology, rather than 'acting it out' (pretending), which can serve as a reminder that the scenario is after all, 'just a game'. Atish Gonsalves puts it this way: "Although they don't match the immersive feeling a participant gets when entering a real-world simulation, mobile devices are well suited to orchestrate a flow of events through a 'mixed-reality' environment, allowing the learners to move between virtual tasks assigned on the device and the physical environment."

A blended experience of a simulation using mobile technology yet integrated in physical surroundings may present a cost-effective option that relies minimally on the props a full-scale immersive simulation requires (actors, explosives, vehicles etc.). Since humanitarian workers increasingly rely on their mobile device for e-mail, messages, updates, instructions and 'breaking-news' or situation reports, the use of the mobile platform may even increase the feeling that players are operating 'in real life'.

As a tool, what innovation does the game offer?

Most organisations are using games in one form or another to support learning, yet digitally-accessed games offer the advantage of being accessible to more people, more of the time. With more complex games (aimed at developing leadership skills) that offer a range of possible scenario outcomes or routes depending on decisions made by the player, these games can be – and are – played repeatedly. This kind of engagement simply cannot be achieved within the constraints of a classroom or workshop setting. Individual learners set their own goals within the game and are able to track their own progress towards success. They also have the opportunity to explore possible detrimental consequences of decisions without negative impact in the real world.

Innovative Serious Games for Humanitarian Security: Mission Ready[11]
Access: Online platform
Game Elements: Challenge, Narrative, Role-play, Supporting reference materials, Security/Hostile Environment
Credits: RedR, Digital Training Solutions
Game summary:
Mission Ready makes no secret of its 'training course' identity, but engages humanitarian professionals as learners by creating a virtual hostile environment with which to interact in real-time interaction through an series of prompts which are delivered – and then responded to – by an 'intelligent platform'. The game was designed with accessibility in mind, with the objective of delivering engaging and dynamic training that is affordable for humanitarian organisations. Course content is written by humanitarian security experts and can be referenced at any time. Theory is presented in the form of micro-documentaries, that introduce key concepts and learning points. Realistic scenarios present a challenge at the end of each course, requiring the learner to make decisions and test the capacity of the learner to apply the course content in a simulated real life situation.

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[11] https://www.missionready.org.uk

Benefits of digital game-based learning

What are the benefits of digital for game-based learning? Richard Smith, the late director of Totem Learning, said "We find that people play a well-designed game several times. This leads to greater understanding and "sticky" learning. Another benefit of games is that 50% or so of a workforce are gamers and gamers will play any game once. So 50% at least of your workforce will embrace the games initiative". Alongside this key benefit, the relative safety of a game platform where players head out of their comfort zone without ever needing to be medevac-ed, is an obvious advantage for humanitarians!

Although game development can be a costly process, set against the alternatives (sending trainers and facilitators to remote locations, or relying on over-stretched in-country staff to deliver high-quality learning events) it could well be the more economic option. And games are flexible, too. With options for solo- or multi-player and access online, off-line and via apps, they are becoming more accessible and can be applied in multiple locations.

Designers anticipate this will continue with the expansion of Augmented Reality and Virtual Reality (AR/VR) technologies, enabling gamers to have a 'real experience' in the process of playing. The expansion of use of Artificial Intelligence (AI) will also impact serious games, making the interaction between gamer and game richer and more life-like. While this technology is likely out of the current financial reach of the average humanitarian organisation, it plays a part in advancing the edges of game-based learning, thereby simultaneously pushing other access routes into the mainstream.

Learner profile and topics

An essential part of identifying what game to use, and indeed whether to use a game at all, is to identify who the learning is for. Learning needs assessments tend to focus on topics and competencies, but does game-based learning better suit those with activist learning preferences[12]? Humanitarian organisations who have begun to experiment with gamification have tended to focus on experiential learning for behavioural and attitudinal change, using games that focus on extending leadership competencies, and improving the capacity for collaboration and coordination. Aside from simulations on security and emergency response/coordination, technical topics are currently better represented among e-learning curricula.

These two[13] games from ITLCO (International Training Centre of the International Labour Organization) demonstrate their approach to creating games with the purpose. The game *'Sexual Harassment at the Workplace'* not only raises awareness but also expands the player's portfolio of responses to support women dealing with these situations. *'Can you play the facilitation role?'* enables the player to hone skills that can be transferred directly into the working environment, in this case in the context of Market Systems Facilitation. Both games encourage the player to learn and use skills within the game that they then lift directly into their workplace toolkits, and both games promote action and intervention over passive observation.

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[12] http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSdir/styles.htm

[13] https://gamification.itcilo.org/portfolio_page/gamifying-market-system-facilitation-principles/

Games to raise awareness and change behaviour patterns: ITCILO

Example 1: Sexual harassment at the Workplace
Access: Online and offline
Game Elements: Badge, Challenge, Narrative, Role-play, Re-playability
Credits: Carolina Marquez Ferracini, Johanne Lortie, Benedetta Magri, Alessia Messuti, Nora Soler Pastor
Game summary:
Game elements (storytelling and narrative, fictional characters, role reversal, time triggers etc.) are used to raise awareness of women's exposure to GBV at work. The game supports players to recognize situations where women are put at risk, and take actions and decisions in response. Each story has multiple possible routes and endings so the learner's decisions direct the path of the story, replicating reality. In the course of the game, the player is provided with information injects that propose ways for the working environment to offer support to women workers.

Example 2: Market System Facilitation Principles - Can you play a facilitation role?
Access: Online and offline
Game Elements: Badge, Challenge, Narrative, Role-play, Re-playability
Credits: Matthew Ripley, Daniela Martinez (ILO), Joel Alcocer, Carlo Delu, Alessia Messuti (ITCILO), Giulia Ortoleva (Development), Fabrizio Furchi (Graphic)
Game summary:
Market System Facilitation Principles are perceived as a complicated topic, so the game designers wanted to offer future participants of a face-to-face training the chance to engage with the concepts prior to the workshop, in a way that was substantially different from the 'standard informative e-Learning module'. To encourage the genesis of a 'facilitative mind-set', the game invites players to develop their decision-making skills in a story-based environment where actions taken and choices made, will influence the path and ultimate outcome of the storyline. By recognising challenging situations and making decisions in a limited timeframe in the game, the players prepare for their on-going training through practicing the application of market system facilitation principles.

Proponents of gamification assert that there is no optimal learner profile – games work for everyone as long as they are used in the right way. However, a reward system in the form of high scores, badges etc. will only work for some people, some of the time. But serious games and simulations have proven their worth in every setting, as long as they are not 'games for the sake of games'. In Mary Jilek's words "…it [*the game*] allows the training to come much closer to real life."

Risks

Surely an inherent risk is a poorly designed game that results in reduced engagement? If e-learning is thinly-disguised as a game, the user will feel patronised, bored, or frustrated. Tools such as Mobilize.Life can allow providers to 'design their own' game[14] and incorporate specialist game content, but designers say that achieving the combination of good quality design and enough input from subject matter experts can be a challenge. Getting professional designers to create your game is likely to cost as much as high-end e-learning, in other words, outside the budget of many in the humanitarian sector. However humanitarian agencies including UNHCR, IRC, Sphere Project and local partners are collaborating to make the development of games more accessible to trainers, for example through the ITCILO project Game4Dev LAB (below).

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[14]
http://www.mobilize.life

Essential to a good game is the element of exploration and discovery that is equally the hallmark of a great learning experience. One reason poor games quickly lose audience is because the emphasis is on 'telling the content' rather than creating an environment where they can discover it for themselves[15]. In this vein, learning specialists looking to incorporate games into a program need to identify early on whether the game is the right tool for the content, and how information can best be presented in a way that maximises learner-led discovery. Understanding the tool is key to being able to use it to best advantage.

Developing humanitarian game design: Game4Dev LAB[16]
Access: Face-to-face programme to support non-profit and development professionals to extend their game design skills.
Credits: Tom Wambeke & Alessia Messuti (ITCILO) and the Humanitarian Leadership Academy
Programme summary:
Within a 3-day programme on innovation organised by the Humanitarian Leadership Academy in January 2017, the Game4Dev LAB workshop (run by ITCILO) engaged delegates in designing serious games that focused on essential humanitarian themes. The participants worked across the design journey from concept to evaluation and had hands-on practice of profiling users, identifying challenges, prototyping scenarios and testing and evaluation of their prototype games.
By beginning with a cohort of whom in total 79% had either not heard of gamification (21%) or had heard about it but had no experience (58%), the workshop realised not only a net knowledge gain among participants but also produced 5 game prototypes which participants can return to and edit or develop on the Mobilize.Life platform. Participants evaluated their work against a set of optimal criteria, which made it easy to see how the prototype games could be further improved. They identified the value of learning more about gamification in terms of;
▪   extending their own portfolio of problem-solving methods
▪   having the permission and capacity to experiment
▪   being able to raise awareness, increase knowledge and encourage change in behaviour.
Additional value is likely to be seen as participants take their learning back to the diverse range of organisations from which their cohort was drawn, and apply gamification as a new tool. In addition the on-going opportunity to continue the collaboration on key themes as a learning community, augurs well for future developments and positive relationships.

Getting access to games

Many games are available on- and off-line, significantly improving access. As is the case for other learning content, the size of game and available connectivity for the user play a part in uptake. Making it easy for non-gamers to engage with the game is important, especially when the game is intended for use as a learning tool in remote locations. Part of the key game design criteria needs to be ensuring that wherever and however the game is accessed, each player gets the same quality of experience, and this will require both expertise on the part of the designer and also some piloting time. The hardware the player uses could have a make-or-break impact on game uptake, and will affect their access to important features of more complex games such as interaction with other players, a facilitator or game director.

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[15] http://www.totemlearning.com/totemblog/2016/2/12/how-not-to-create-a-game-with-purpose
[16] From: Final Report: Game4Dev LAB at Train The Trainers Innovation Training (Kenya), 10 – 12 January 2017, ITCILO

Expanding the options for game development: Mobilize.Life[17]
Access: Mobile framework and app, mixed reality gaming
Summary:
The Mobilize.Life framework and app gives users an authoring tool for designing, building, editing and adapting games to meet the requirements of their application. Launched in 2015 in partnership with ITCILO, the framework is designed to generate serious games (crisis response, security simulation and the humanitarian themes identified in the examples above) but it can be used in other contexts such as table-top exercises, team building events and peer-to-peer learning. An early example had ITCILO staff participating in mixed-reality and mobile supported games to promote uptake of more 'green behaviours' – i.e. ecologically and environmentally sound choices – when on campus. App-based games represent an increasingly important offer as more and more people report using a mobile phone as their number one way to access online content.

Evaluating impact and learning

Evaluating learning from a game requires a different approach to the ubiquitous measuring of completion rates favoured for compliance-based e-learning. Individual game designers work with clients to identify their desired outcomes, which incorporates how Return on Investment (ROI) will be calculated for a game, but what about learning specialists who are choosing games 'off the shelf'? 'Return On Engagement' is an alternative measure. Serious games are often played and re-played, and this engagement can be quantified. If we see engagement as the key to better learning, we may gain a more accurate evaluation from calculating 'ROE' than ROI.

A learning specialist might also expect to see clear learning outcomes identified prior to a simulation intervention and effective debriefing afterwards, as evidence of a high-quality learning tool. It is important that these expectations are met by games too, as they take their place in a mature blended curriculum. The metrics we apply to other learning methods are just as relevant with games; the quality of the product, ease of use, specific relevance to the context and clarity of purpose in application (intended learning outcomes) must be evaluated as rigorously as we would for any other training model. Game designers will typically accommodate an organisation's approach to learning impact measurement rather than implementing their own standard template, so it's important that any organisation commissioning game design has clear ideas about the changes they want to see in staff knowledge, skills, attitude, behaviour and outcomes that will result from playing the game. More difficult to measure although deeply interesting to learning professionals is the game that supports players in traveling a 'thinking journey' where they are encouraged to wrestle with issues of principle as part of the process of making in-game decisions. Evaluating impact in this instance will require a more nuanced approach as it will not necessarily correlate with game scores, leader-boards, completion rates or number of repeated plays. Put simply by Mary Jilek, *"The ideal outcome would be for participants to meaningfully and routinely apply learning from the program to their everyday work."* IRC have used the opportunity provided by follow-up visits to informally assess the impact of training on behaviour.

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[17] https://blog.itcilo.org/green-gamification-itcilo-using-mobile-devices-to-take-action-in-a-playful-way/

The initial financial outlay for a bespoke game may be significant. Humanitarian organisations are embracing e-learning in a range of applications both within networks and organisations and via external learning platforms. But there are fewer examples of generic / open-source games specifically for humanitarian capacity strengthening, especially immersive scenario-based games that mimic the real-world challenges experienced by staff who are already embedded in organisations and are well past the need for induction and orientation. The perfect game for the sector would not only be sector-wide, accessible and reality-mimicking, but also free.

Value – what to measure

At the player interface, game progression is usually represented by a score, credits/tokens earned in-game or levels the player unlocks as they advance through the game. Rewards like these can motivate players to continue playing or re-play to improve on their performance, and the numerical values of time spent playing, or number of repeat plays is taken as a useful guide to player engagement. However we found that for most organisations, accrediting learning derived through digital games is still in its infancy, with providers identifying it as something that needs more work. One proposal is that engagement is sustained by involving gamers in communities of practice around different themes, after the game is completed. This sits well within the blended learning model where many programmes already seek to set up groups as a distinct phase in the learning model.

Learning impact however is typically subject to the same methods of evaluation applied to other training methodologies – whether they are specific metrics set by the organisation commissioning the game, or Kirkpatrick levels[18], or a customised evaluation measuring both quality of experience, and before and after knowledge.

What's the future for gamification?

Everyone agrees that the future holds more take-up of gamification, with designers anticipating that the advancement of technology (AR/VR) will be a major escalating factor. The expectation is that technology and game hardware will continues to become more financially accessible, contributing to this drift. The incorporation of AI technologies is in its infancy for learning games, but correctly applied they could significantly enhance the reality of simulations and the uniqueness of each game-play experience as well as supporting / accompanying the individual gamer's progress as a learner.

Warning voices predict huge failures, however, where 'gamification' is applied for its own sake rather than being built purposefully within a blended learning approach, as the right tool for the desired learning outcome.

The best picture of the future of gamification shows learning specialists choosing well-designed games to include in their toolkit. Finding the place where the game is the best tool requires a mature approach, and access to a good selection of high-quality games available at low cost! New games are constantly being generated, for example ITCILOs 2016 MOOC (Massive Open Online Course) generated a range of intriguing learning games[19] with intended audiences as diverse as women-owned businesses, children suffering the health-impacts of worm infestation, judges and emergency first-responders. With such a huge choice of games available, learning

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[18] http://www.kirkpatrickpartners.com/OurPhilosophy/TheKirkpatrickModel
[19] https://www.canva.com/design/DAB3xc4-6jI/cBuuCo8bzBBdkQTFe4C4Rg/view?utm_content=DAB3xc4-6jI&utm_campaign=designshare&utm_medium=link&utm_source=sharebutton

specialists will need to develop a robust system for selecting appropriate games and evaluating their quality and ability to deliver against stated learning needs.

Effective measurement of impact must be advanced alongside more widespread gamification. Most learning providers use different evaluation tools for different games, which may be appropriate but compounds the difficulty of comparing games and selecting the right game tool for an application. Future measurement of impact will need to focus on quantifying the transferrable learning (in terms of knowledge, skills, attitudes and behaviours) that is demonstrated in the workplace after playing the game.

Abi Green and Ben Emmens, The Conscious Project
London 2016