Games to engage: increasing mental health awareness

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In recent years there has been rapid growth in the development and use of digital tools in healthcare. One area of research interest is the use of games as tools to improve health and education. Gamification of health is a broad area that includes games aimed at encouraging healthy behaviours through motivation, 'exergaming,' which explicitly aims to improve health through physical activity, 'serious games' that are intended to support therapies and rehabilitation, and games that support training, for example through simulation. Another area is public health awareness and education which is an area of current research in MindTech.

MindTech is a healthcare technology co-operative funded by the National Institute for Healthcare Research. We work in a health research organisation linked to a university and community NHS trust, with a specific focus on mental health, including diagnosis and treatment. We are also concerned with the need to increase public awareness, particularly to address the problem of stigmatisation of people living with mood disorders such as depression, neurodevelopmental conditions like Attention Deficit Hyperactivity Disorder (ADHD), or dementia.

Research suggests that the stigma of mental health conditions can significantly impact on engagement with treatment and affect mental wellbeing. With respect to ADHD, for example, factors associated with stigma include public uncertainty about the validity of ADHD as a diagnosis, perceived dangerousness of individuals with ADHD, and scepticism towards ADHD medication. Progress has been made in the acceptance of ADHD in children, which has a prevalence of 3-5% at school age. However, despite European-wide consensus validating ADHD as a condition persisting into adulthood for the majority, it remains under-diagnosed and under-treated in adults.

Evaluation and engagement gap

Examples of awareness initiatives for mental health that use game elements are few, but include puzzles such as crosswords and word-squares, Flash video games, and one notable narrative-based adventure game called Depression Quest. These examples are all delivered on web browsers suited to desktop or tablet PC platforms.

Even when they exist, however, evaluation of digital mental health public initiatives is missing. This lack of evaluation is perhaps not so surprising. England's largest programme aiming to challenge mental health stigma is Time to Change, which includes social marketing and media campaigns, community activity and events, user-led projects and a network of patient leaders. The programme has an integrated evaluation led by the Institute of Psychiatry and its chosen methods for assessing impact are longitudinal designs which sample the population to compare knowledge, attitudes and behaviour before and during/after any campaign. Results of the evaluation have shown that while it is likely that such programmes can produce short term positive effects, longer term impacts can be harder to discern and sustain. Furthermore, it is difficult to determine the exact contribution of any campaign initiative to the changes reported in the follow up studies.

Still, it should be possible to evaluate some aspects of individual initiatives. For digital technologies such as websites and apps it is already possible to introduce surveys and use data analytics, although there are limitations, not least that web surveys are not exactly fun. Moreover, data analytics running in the background are aimed at developers and may not offer the information healthcare researchers are looking for. Developers may be interested in engagement but they may be less interested in measuring what impact playing has on outcomes in terms of a change in behaviour or an increased awareness.

In parallel to this emerging field, a strong element of the anti-stigma work in mental health is the long tradition of activism and self-advocacy: people with lived experience of mental health problems are actively involved in improving care, treatment and services

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as well as increasing understanding in the general population about mental health, as demonstrated by their role in the Time to Change campaign.

Active involvement has extended into health research, where it is deemed good practice to involve people with lived experience in the design, conduct and dissemination of research. Typically, people have been involved in research through fairly conventional methods, such as consultations, telling their stories and participating in committees and groups. Again, these methods have limitations as they tend to appeal to only certain sections of the population. However, more recently, researchers are beginning to draw on methods from user-centred design to enliven the processes and are extending into the digital realm, for example, using social media for engagement and the growing number of citizen science projects.

Maybe gamification could offer an engaging way to evaluate public mental health activities whilst facilitating more meaningful involvement and sharing of lived experience in novel and interesting ways.

Screens in the wild

Emanating from a previous study where MindTech had developed an interactive reaction time test for ADHD on a web-based platform, we linked up with Nottinghamshire Healthcare NHS Trust who had recently produced a video aimed at patients and healthcare professionals to educate them about ADHD in adults. The existing test, which involved presenting stimuli on a touch screen for a little over two minutes, was made into a game called Attention Grabber, where the players were instructed to watch a sequence of different fruit but to touch only one type, bananas, and ignore the rest. Scores were awarded as the game progressed, depending on reaction time. Penalties were given for incorrect or missed selections. The score was also compared to the high score at the end. The screens were large 46-inch touchscreen displays at four public places in Nottingham and London, networked to allow players to share high scores and see themselves and others playing.

After the game, players were invited to watch the video about adults with ADHD, lasting a further two minutes. To integrate evaluation we included three questions before the video: Did playing the game make you think about your own attention span? How much do you know about ADHD? How aware are you that ADHD affects adults? After the video there was one question: How much has the film increased your knowledge of ADHD?

The study is still running but initial results are encouraging: from 860 plays, players are prepared to answer questions integrated into the game (48% answering the pre-video questions and 20% persevering through to the post-video question). This data will enable us to measure levels of prior knowledge and its perceived improvement.

Taking it further

Ergonomists are conversant with a toolkit of methods for co-design and evaluation which already include game-like elements. For example, personas, scenarios and role-playing translate well to narrative-based games. Can we use gamification to make our methods of involvement more fun and engaging and capture our evaluation data as we go?

Games-based learning (GBL) is the primary focus of serious games and has particular relevance in health education. There is a body of literature that includes evaluation frameworks focused on educational outcomes with learners and instructors. GBL strategies are used to support training courses for medical and nursing students and there some examples with young people to encourage healthy behaviours. Evaluation frameworks could be usefully developed for the mental health domain where the participants are patients, carers or the general public and the outcomes are related to health education or awareness goals. Extending use of games to engage a wider section of the population, especially younger people, is an area we are keen to explore in MindTech.

Whilst considering gamification, there are some ethical issues within mental health in particular. One is risk of harm from failure in competitive games. Cooperative games are an attractive alternative. Another risk is that games could make mental health seem less serious than it is. Actively involving people with lived experience in the design of the gaming aspects would help to avoid this.

If done with care and sensitivity, bringing game elements into the toolkit of user-centred design methodologies for engaging people with research and mental health awareness has good potential and is worthy of continued attention. ❖

FURTHER READING

Craven, M P, Young, Z, Simons, S, Schnädelbach, H, Gillott, A. From SnappyApp to Screens in the Wild: Gamifying an Attention Hyperactivity Deficit Disorder continuous performance test for public engagement and awareness. Proceedings of the 2014 International Conference on Interactive Technologies and Games.

Messineo, L, Allegra, M, Alessi, N. Game-based learning for education and training in the health sector. Proceedings of the 4th International Conference of Education, Research and Innovations (ICERI 2011).