Over the past ten years, advances in internet connectivity and processing power have increased both the types of content accessed and the ways that content can be accessed. Whether on mobile devices, tablets, or PCs, the diversity of digital data interactions has increased in step with social interactivity and more globalised societies. In the realm of games and simulation based content this has brought huge advances in the size of files that can be streamed live over the web and onto our pocket devices. With the pervasiveness of entertainment games, the availability and the use of these forms have made games an everyday experience, and the genres of games have diversified rapidly to meet the increasing markets.

At the same time, new genres of games have been emerging including mobile games played on portable devices, mixed reality games that combine digital and physical world interactions, casual games played at home informally, and serious games, which are games used for training, awareness raising and education. The last category of serious games has real potential for new applications in medical and health contexts. With 47% projected increase in serious games sector over the five years from 2010, games used for education, training, and awareness raising have real potential for changing social behaviour, attitudes, and health issues.

Some of the earliest examples of serious games were used for military training, but increasing examples are from healthcare contexts, including using games for example in therapy, emergency and ward training, and drug adherence. The use of serious games in high critical training arenas such as flight simulators and medical training provide an indication of the levels of efficacy that educational games can provide for learners. Acceleration of training and remembering lessons learnt for longer are the benefits of this form of engaging and immersive game play, although more studies and research are needed to fill in the gaps in our knowledge about why games are effective learning tools and how they can be used to push back boundaries in new applications that focus upon therapy and medical uses of games for behavioural and attitudinal change. While early studies have supported the benefits of learning with immersive tools such as simulations and games, this volume is a much needed contribution to the emerging and growing field and helps us to map out a new agenda for serious games in the healthcare arena.

While this category of games applications have been regarded as technologies, this volume and previous work highlights games as different kinds of tools from the usual technology push. Games have evolved with humans over long periods of time making them closer to a cultural form which more easily maps against human behaviour and activities which is probably why early studies comparing game-based learning against traditional learning have resulted in significant difference in favour of games, in sharp opposition to e-learning studies which invariably demonstrate ‘no significant difference’ when compared with traditional modes. The use and adoption of games in health contexts will have significant benefits not just for behavioural and attitudinal change in training contexts but will also transform therapy by providing new and innovative techniques for rehabilitation, monitoring drug adherence, and eventually, virtual operations and procedures.
This volume provides an opportunity to step back and consider the issues around using games in healthcare applications, considering ethics, modern game engines and how they can be used and research methodologies underpinning the use, evaluation and validation of games applications. As such it marks a new and more critical trajectory for serious games in healthcare contexts, moving away from the evangelistic early stage work to the practicalities of implementing and testing game technologies in real contexts of use. The work provides an invaluable handbook for charting the changes affecting all areas of work, play, and learning that are being pervaded by the more immersive and engaging forms of game-play and rehearsal. The potential for providing a better join up between hospital and home care, through considering new ways to engage patients and healthcare workers to maximise ‘hopeful care’ and to improve the quality of communications between patients, healthcare workers, and other stakeholders. Serious games and the innovative use of technologies in healthcare contexts have the real potential to provide a game changer for modern healthcare.

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