Gaming for a better world

Researchers and video game designers are discovering all sorts of ways to impact our physical and mental wellbeing — and not all the effects are bad.

WORDS MEENA AZZOLINI

Computer and video games have earned a bad rap over the course of the industry’s growth. From its beginning in the early 1970s to the multibillion-dollar industry it is today, gaming has been described as mindless and a waste of time that leads to bad outcomes for physical and mental wellbeing.

The emergence of casual, mobile and social gaming has quickly displaced these opinions by opening the doors to larger audiences and receiving the embrace of nearly everyone — individuals and families, businesses and corporations, kids, teenagers and adults — while permeating every field of human activity, from work to home. As the impact of gaming grows, it’s now seen as an essential part of popular culture and, as such, poses questions about cultural change, not least our perception of gaming and its impact on our daily lives.

Today, 68 per cent of Australians play video games and 98 per cent of homes with children have computer games, according to the 2016 report by the Interactive Games & Entertainment Association. The numbers are similar everywhere in the world — and growing exponentially. In 2015, the Entertainment Software Association reported that 155 million Americans played video games and four out of five households owned a device for game

With such staggering numbers, it’s hard to underestimate the importance of the video gaming industry and how it affects our wellbeing.

The importance of play

World-renowned designer of alternate-reality games ("designed to improve real lives and solve real problems") and author of the bestseller SuperBetter, Jane McGonigal, believes "games can change the world".

Nicole Stark, game designer and co-founder of Disparity Games in Noosa, Queensland, shares that sentiment: "Play is our first learning tool, one of the building blocks of a competent and happy human. It can motivate us to continue unpleasant activities and distract us from our worries. It can help us digest and understand the world we live in. And, more importantly, it helps us build connections with each other."

Evolutionary psychology has long espoused the value of play in the social and emotional development of children. Play allows children to experiment with social experiences and stimulate emotional consequences that help them deal with real-life situations. It provides them with opportunities to emulate real-life problems and discover their own solutions.

The concept of play also extends into the digital world. The nature of online games has changed in the past decade, becoming "increasingly complex, diverse, realistic and social in nature", according to Isabela Granci and her fellow researchers at Radboud University in the Netherlands. Though they caution that a more balanced view is necessary to consider the impact of video games on children and adolescents, significant research in the past five years shows the benefits experienced by children and adolescents when they play new and interactive video games, which can provide them with social, cognitive and emotional experiences that potentially increase mental health and wellbeing.

Games provide four things essential for a happy and meaningful life: satisfying work, real hope for success, strong social connections and a chance to become part of something.

Serious games

The past decade has seen consistent evidence emerge that video games provide many benefits to players, leading to the arrival of "serious games". The term is used to describe games that have been designed for purposes other than just entertainment. Serious games are developed and used in industries such as defence, healthcare, education, scientific exploration, emergency management, engineering, politics and city planning, using virtual and augmented reality, simulations and gamification technologies.

One of the most significant examples of serious games is the development of exergaming: games used to enhance physical wellbeing through exercise such as sport, dance or movement. The Nintendo Wii platform does this well and taps into social gameplay and physical activity by introducing games that get people moving in a way that's comparable to mild-to-moderate physical activity, according to a review in the journal Pediatric Exercise Science.

Zombies, Run! became the highest-grossing Health & Fitness app on the Apple App Store within two weeks of its initial release in 2012. This is an immersive running game that spurs participants to run from hordes of zombies pursuing them. The runner's dash through missions and collect supplies, all the while listening to audio narrations and sound effects to uncover the story. Mobile health (mHealth) apps such as these are designed to promote aerobic activity and monitor progress using GPS technologies and are prime examples of gamification used in health and fitness.
One of the most significant examples of serious games is the development of evergaming: games used to enhance physical wellbeing through exercise such as sport, dance or movement.

Video games are also used for physical therapy and are largely effective due to the added engagement and motivation that game playing imparts to otherwise mundane repetitive tasks associated with physical therapy. In a study of 35 patients with spinal cord injuries, racing games were used with a manual wheelchair interface called GameWheel, which turned the wheels into a virtual joystick; patients could control game play through the movement of their wheelchairs. Patients were motivated to play popular racing games such as Need for Speed and the results showed they were able to reach their fitness goals.

New research and technologies have enabled gaming to expand into the treatment and care of serious physical and mental issues. SnowWorld is a 3D virtual game created by researchers at the University of Washington to help patients with severe burn injuries. They are given VR (virtual reality) headsets to wear and a joystick to navigate a virtual frozen world.

Unlike physical games, this is designed to minimise bodily motion and while patients explore ice caves, navigate through cold water and shoot snowballs — activities controlled by a fixed joystick — their wounds and injuries are cleaned and dressed by nurses. The game is played during the most painful part of the treatment.

In 2011, medical researchers reported that playing SnowWorld reduced pain by 30 to 50 per cent compared to medication. The game is designed on the principle of the well-established psychological phenomenon, the spotlight theory of attention, whereby the brain is persuaded to ignore pain signals and turn the “spotlight” on other compelling scenarios.

“Games, and particularly virtual worlds rich in 3D imagery, serve this purpose perfectly,” explains McGonigal. “They require so much active attention, the patient runs out of cognitive resources to process the pain.”

Gaming for health
SnowWorld is far from the only game that uses technology to improve patient outcomes. Packy & Marlon is a Nintendo game that’s aimed at children with diabetes while Re-Mission helps adolescents and young adults with cancer improve their treatment and better manage their illness.

Serious games have shown positive outcomes in the treatment of mental health problems such as depression as well as dealing with core issues that trigger negative responses and affect our mental health and wellbeing. A large number of studies show that video games increase positive emotions, resulting in improved mood. Such games provide the ideal opportunity to be engaged or even immersed in the flow of the game with no awareness of competing thoughts, emotions or other factors. The flow of the game helps players exert more control over anxiety and other emotions by providing them with a clear goal.

“Digital games provide near-constant feedback so we can improve our performance,” says McGonigal. “As soon as we improve our skills, the game gets harder, ensuring that we are sufficiently challenged.”

“We made a game called Ninja Pizza Girl, a serious game about self-esteem, bullying and resilience — and pizza-delivering Ninjas,” says Stark, whose daughters had a hard time at school, experiencing bullying first-hand. Ninja Pizza Girl is an example of a game that communicates serious issues and provides the motivation to deal with difficult challenges, much like those persistent in video games.

In Be a Gamer, Save the World, McGonigal writes: “Research shows that gamers spend, on average, 80 per cent of their time failing in game worlds but, instead of giving up, they stick with the difficult challenge and use the feedback of the game to get better. With some effort, we can learn to apply this resilience to the real-world challenges we face.”

Designed by neuroscientists, the brain-training game Lumosity has been shown to improve cognitive abilities such as processing speed and problem-solving skills. But it’s not only specifically designed games that enhance our wellbeing and improve
Mobile health (mHealth) apps are designed to promote aerobic activity and monitor progress using GPS technologies and are prime examples of gamification used in health and fitness.

Games that teach

Experts proclaim video games to be an effective learning tool of the future as they allow students to be more engaged in curricula while also developing important technology skills. Well-designed games provide an ideal framework for project-based learning with the support of ongoing instructions from a teacher. A version of Minecraft called MinecraftEdu was created to teach mathematical concepts as well as foreign languages. The instantaneuous feedback from video games helps teachers recognise how well the student understands the game and how to further develop their learning pathways.

Research shows that playing commercial video games results in improved surgical skills, such as grasping objects and suturing, and specially designed video games are used to teach medical students important clinical skills. Game-based technologies such as the world-first dementia simulator, Virtual Dementia Experience, also help users to better understand ailments and situations.

The benefits of video games extend to emergency services training, military training and even to corporate education, yielding improved learning at all levels. “Games don’t have to be made for serious purposes to work, either,” says Stark. “Many people reported that their mental health was better when they were playing Pokemon Go and researchers have found that playing a puzzle game within 10 minutes of trauma helped reduce PTSD.”

Addis Johnson, “One of the major ways video games can improve our wellbeing is by connecting us with others. Much like playing sport together, video games allow us to collaborate, co-operate and compete with others. This brings us closer together.”

In her 2010 TED Talk, Gaming Can Make a Better World, McGonigal says, “Gamers always believe that an epic win is possible and that it’s always worth trying, and trying now.” She calls this enthusiasm “urgent optimism”; combine it with social connectivity and a willingness to work hard and be part of something epic and it makes gamers — you and me — capable of tackling real-world problems and finding epic solutions. In this context, McGonigal cites such games as Evoke, Superstruct!, World Without Oil, Cruel 2 B Kind, Find the Future and The Lost Ring.

Despite the benefits, she warns that playing more than three hours a day or 21 hours a week will lead to a sharp decline in these benefits. Stark adds, “You must be mindful about the kind of games you’re playing and the lessons you learn. Play games you enjoy and chances are learning will happen all on its own.”

As for the future, the potential benefits of video games will continue to be harnessed in other areas. According to Stark, “I think we’re only seeing the tip of the iceberg of the potential for games with serious applications.”

The last word goes to McGonigal: “People who continue to write off games will be at a major disadvantage in the coming years … They will be less prepared to shape the future.”

Meena Azzollini is passionate about holistic wellbeing, alternative healing, health and personal power. She is a freelance writer and content creator from Adelaide, who draws inspiration from family, travel and her love for books and reading.