

Introduction

Games for Change Editorial

Following the inaugural Games for Change Asia-Pacific Festival in October 2021, the first volume of the Games for Change Asia-Pacific Journal was released with the generous assistance of ETC Press at Carnegie Mellon University. Since then, the first volume of the journal has demonstrated significant impact, with almost 1500 views in its first year and a current Altmetric score of 19, which places the journal in the top 10% of all research outputs ever tracked by Altmetric, and the top 6% of research outputs tracked from Carnegie Mellon University. This data shows that the journal is playing an important role in the ongoing dialogue around how games can be used to make the world a better place.

We would like to thank all of the authors from both last year and this year for the important contribution your research is making to this burgeoning body of knowledge.

This second issue of the Games for Change Asia-Pacific Journal embodies one of the key themes presented at the inaugural 2021 Festival. That is, the use of games in drawing attention to the United Nations Sustainable Development Goals (UN-SDGs). The 2030 Agenda which introduced the seventeen Sustainable Development Goals (SDGs) was agreed to by all 193 member states of the United Nations (UN) in 2015. The 2030 Agenda called for global action on some of the world's most pressing problems related to poverty, inequality, health, climate change, peace and prosperity (UN, 2020). The seventeen unique goals are detailed in Figure 1. In this editorial, we highlight how each of the nine papers contribute to the mission and

values of the Games for Change organisation as well as foster the UN 2030 SDG Agenda.

As we will highlight in this second issue, gamified immersive technologies can forefront the world's wicked and sometimes cognitively challenging problems. Games provided opportunities to problem solve and show, through their design features, how they would deal with the challenges posed by the seventeen unique but interrelated SDGs. While each article, in its own way, contributes toward one or more of the seventeen sustainable development goals (SDGs), we argue that the Games for Change mission to make the world a better place is largely accomplished through the aims of *SDG 4: Quality Education*.

Games offer a unique educational medium to help to “ensure that all learners acquire the knowledge and skills needed to promote sustainable development ... human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development” (UN SDG, Target 4.7). The insightful and provocative articles in this issue can be analysed through the lens of the UN SDG to help demonstrate the impact of games to society more broadly.

The notion of predictability being beneficial for trust is a theme captured in several papers including *Embodied Conversational Agents for Health: A Comparison of Empathic versus Neutral Dialogue* by Sana Salman, Deborah Richards and Mark Dras. These authors find that patients engage more with digital agents who embody a humanlike appearance and exhibit humanlike verbal and non-verbal behaviours. By promoting the use of empathetic Embodied Conversational Agents (ECAs) in digital apps for mobile phones, these authors suggest that there are improved opportunities for changing the behaviours of users for improved health outcomes. This theme links nicely with *Goal 3: Good Health and Well-Being* which is evident across a number of papers in this issue. The findings in each of these papers suggest that serious games have the capacity to manage national and global health risks through more effective and targeted communication that will strengthen the capacity of all countries for early warning, risk reduction and management of national and global health risks. Given the growing accessibility of mobile phones and

transferability of health concerns through mobile applications, developing countries and patients in remote regions can potentially benefit from these health-based digital interventions.

An aligned theme is explored by Kathleen Yin, Matthew Lee, Charbel KISRwani, Kiran Ijaz, James Smith and Louise Ellis in their paper *Fit to Game: The experience of exercising indoors using games during the COVID-19 pandemic*. The authors investigate the use of video games for exercise during the pandemic isolation. They identify certain factors that limit the effectiveness of such games including design features, monotonous exercise types, and contextual limitations of the space and time involved. They argue for software design features to inspire a purpose behind the exercise journey as well as engage in social connections. They also propose innovative hardware that incorporates a holistic regimen of fitness activities. While beneficial for people isolated through COVID-19, improved video games can also support the health and wellbeing of a percentage of the populations who find themselves in other forms of isolation.

In considering the way serious games promote decent work and economic growth as in *SDG 8: Decent Work and Economic Growth*, there is a focus on promoting sustained, inclusive, productive employment, ensuring decent work for all. Leadership can play an important role in ensuring labour rights are protected and there is a safe and secure working environment for all workers (SDG 8, Target 8.8). The authors of *A Fine Balance: Cultivating Compassion and Leadership through Games*, Anurati Srivastva, Sai Siddartha Maram and Magy Seif El-Nasr, consider leadership styles that are important for building such a culture. These authors claim that serious games can be used to cultivate leadership competencies cultivated qualities critical to leadership, such as self-compassion, empathy, and emotional management and present game elements, themes, and mechanics to support. They suggest the following features in game design: (1) Eudaimonic Game Design, (2) In-Game Reflection, (3) Non-competitive Gameplay, (4) Limited Agency and Forced Failure, (5) Digital Companion, and (6) Dialogue-based Responses can be used to draw out the skills of empathy, self-compassion, and emotional management can foster compassionate leaders and decent work environments.

Author Matthew John Dyet also promulgates the notion of decent work

through his article *Tabletop Games for Training: Teaching Soft Skills to Game Development Students*. In this paper Dyet promotes soft skill development through his action research which resulted in the development of a tabletop card game, *Trial by Fire*. This paper provides a narrative of the three year iterative process of game testing and revision. The author found that following gameplay, students had a clearer understanding of how soft skills are essential for their careers.

SDG 9: Industry, Innovation and Infrastructure is about building resilient infrastructure and fostering innovation through supporting technology development and research. This goal is measured by the extent of high-tech industry value added to society. The paper by Matt Cabanag and Christopher Stanton, *Towards Understanding the Cognitive Aspects of Transparency in Human-Autonomy Teaming*, embodies SDG 9 by providing insights for designers of autonomous agents and the ways they share information with human users. In this paper the authors investigate the actions of autonomous agents in a computer-based game experiment where students were given the role of air-traffic controllers. Provided with an autonomous teammate and different types of visual and other workload information, students were required to safely land aeroplanes for cargo rewards. The researchers examine the information flows (user workloads) between the student and the autonomous agent in terms of trust and agent predictability and argue that cognitive fit theory is an important guiding principle. They agree that transparency in relation to the understandability of a system is not necessarily about the amount of visualisations presented to the user, but the human cognitive load limit in managing the information. Rather than aim for cognitive fit through efficient information displays, they propose more practical heuristics where domain expert knowledge plays an important role. With information flows between human and autonomous agents increasing in innovative industrial designs, this study has implications for transparency design in self-driving cars, domestic household robots, as well as other industrial applications where autonomous systems and agents are used.

The paper by authors Vedant Sansare, Malcolm Ryan and Mitchell McEwan, *An Oscillatory Model for Developing Narratives for Serious Games*, also focuses on game design elements. In supporting innovation in game design, the

authors aim to bridge the gap between scripted and systemic approaches in narrative designs. This work helps to emphasise games as an interactive medium and highlights how the conflict between procedural and semiotic layers can be used in conjunction with the pros of the scripted approach to developing a systems-based narrative.

Serious Games, Stealth Interventions and Accounting Ethics: A reflective essay, by Dale Linegar, Gillian Vesty and Eva Tsahuridu draws on the essence of *SDG10: Reduced Inequalities* to “Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard” (UN SDG Target 10.3). The authors do this through the design features of their game *Bogart*, which uses intermixing, obfuscating and distancing strategies so the player potentially ignores or is diverted away from some of the key messaging in the game. By creating a fictitious, future-focused workplace the player is psychologically distanced from reality but this all culminates in the final scenes of gameplay when the (un)ethical aspects are revealed and the character is fired/promoted as a result of their choices. The stealth interventions designed in the game aim to drive home the ethical impact on society when leaders do not comply with policy. The dilemma of ethical principles in the workplace similarly takes precedence in the article *Providing alternative ethical perspectives through intelligent agents in a serious game for cybersecurity ethical training* by authors Muhammad Hassan Ali Bajwa, Deborah Richards and Paul Formosa. They also use a serious game to provide a training medium for undergraduate cybersecurity students. They use non-player characters (agents) to present different ethical choices and issues through the gameplay dialogue. They found that through comparison of pre- and post-game responses to other cyber-ethical scenarios, that the students who played their game had a greater understanding of ethical principles in cybersecurity.

Climate resiliency for our habitat through Cross-Reality technologies by Yétindranathsingh Vipin Dhunnoo, a concerned author from Mauritius, highlights the importance of Cross Reality (XR) technologies, such as Virtual Reality (VR) and Augmented Reality (AR) as climate change communication tools to better understand climate ramifications to mitigate and adapt the

built environment. With the effects of Climate Change leading to adverse repercussions such as soil erosion, flooding and coastal displacement, there is an urgent need to model, illustrate and communicate climate change impacts. People living in vulnerable regions and coastal areas are at the ones at greater risk of climate change, particularly exposed small island developing states and coastal areas.

Together these articles continue the creative journey in positioning games and game making as world changing and impactful. We are delighted to follow the first issue of this new journal with our second exciting volume and look forward to receiving further contributions to our subsequent issues.