Playing it Safe: Co-designing Safe, Inclusive, Sustainable and Resilient Future Cities

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Introduction

With the majority of the world's population living in cities, it is crucial to provide urban environments that are safe, inclusive, sustainable and resilient. Using United Nations Sustainable Development Goal 11 (UNSDG11) as an interdisciplinary framework, we are designing a 3D printed tabletop board game that can be applied as a tool for co-designing resilient neighbourhoods and cities. This paper reports on progress in gamifying the design of resilient cities to test markers of sustainability, community cohesion and disaster preparedness.

Co-design of neighbourhoods and cities

Co-design is optimally an inclusive and democratic process and shares features with the 1970's Scandinavian tradition of Participatory Design (PD) (Bannon & Pelle, 2012). "Co-Design's engagement with the public realm is rooted in an activist tradition aspiring to increase democratic participation of diverse societal groups in design activities related to public space, services, systems or policy" (Huybrechts, Benesch & Geib, 2017). Kaethler, DeBlust & Devos (2017) caution that participatory planning processes require co-designers to apply reflexivity and "a critical stance" to balance the needs of all stakeholders. Co-design processes need to involve multiple stakeholders to ensure that the voices of the excluded and most vulnerable are considered in decision-making processes (Gaete et al., 2021; Remesar, 2021).

In a case study in London Hackney Wick, Yang, et al. (2021) combined qualitative data collected from pedestrians, Agent-Based Model (ABM), serious games, and co-design, to successfully involve locals into the urban design process with an end product of visualising and designing "attractive and pedestrian-friendly transport-public space systems" that respond to their needs. The Centre for Active Transportation (TCAT) in Canada note the importance of inclusivity across income, race, age, gender, disability, and other identities, if the co-design process is to avoid further marginalizing these individuals in planning processes. TCAT recommend that, "opportunities to engage residents should be interactive, inclusive, and fun."

Gamification to Facilitate Co-design

Gamification applies game-like rules and objectives in non-game contexts to help players develop solutions to real-world problems and has been shown to motivate community participation by increasing feelings of challenge and enjoyment (Kankanamge et al., 2020; Morschheuser et al., 2017). Salliou et al. (2021) determined that games can be applied as a tool to achieve transdisciplinary

collaboration “and connect with local stakeholders to jointly solve complex problems”, as demonstrated in their case studies of two alpine socio-ecological system (SES) in Switzerland and France. Their co-constructed game successfully engaged participants, by creating “a discussion space for identifying problems of scientist and stakeholder concern” about local land use, climate change and socio-economic issues.

Koens, et al., (2020) reflected on the impact of their use of serious games to explore sustainable urban tourism development with stakeholders across six European countries and concluded that gamification helped “stimulate the uptake of academic insights in a playful manner”. They found that it is a tool for discussion rather than actual planning or policy making and that it’s inclusivity is limited by the inclusiveness of the game-design and the wider participatory planning approach.”

Hatton et al. (2020), through their international consortium (ReFURB) used creative engagement activities (LEGO® Serious Play, mind maps, poster gallery walk) along with presentations from experts and facilitated small group discussions, to identify the needs of older people in relation to ageing well in the environment. They concluded that this mixed co-design process, “was a valuable tool that helped understand the perceptions of participants and develop effective interventions and solutions”, by helping participants share personal stories and reflect on issues affecting the participants as they age.

Co-designing the Game

The main output from our research will be a boardgame that is flexible enough to be played using different sets of rules as an entertaining board game for the general public; for use by educationalists to provoke learning about sustainability; or by co-design facilitators as a co-design tool to engage communities in the challenges of re/designing resilient future cities and neighbourhoods.

In the game, players will work together to build their own resilient cities by connecting tactile game pieces that represent neighbourhood infrastructure. Tokens will add, for example, natural disaster mitigation measures, and crime prevention strategies. Event cards will provide opportunities for players to build social capital through social events and services and experience shocks, such as natural disasters, that test how resilient the players have made their city.

Testing the prototype for its use as a co-design tool will be a co-designing exercise with planning practitioners, educationalists and community groups who may plan to use the tool. Queensland College of Art design students are bringing the ideas to life for the prototype game. One challenge of designing the game is to predict slightly into the future (2030 to 2050), so the game realistically explores themes that test the resilience of the neighbourhoods and provoke discussion in co-design settings.

We are exploring ideas of what cities in the near future may look like along a range of dystopian to protopian perspectives. To achieve this, the team is consulting experts across urban planning, criminology, climate science, geography and other social sciences as well as drawing on media releases on social and technological developments and inventions.

Conclusion

By gamifying urban resilience, we aim to engage both communities and practitioners in the challenges of designing future cities and neighbourhoods. While not possible to completely accurately predict the future, we hope the game can be applied as a co-designing tool so players can be engaged in a process of collaborative problem-solving to inform improvements in urban resilience.

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