

FUNCTIONAL FICTION TO COLLECTIVE ACTION

Values-Based Participatory Urban Design Gaming

HAMISH BEATTIE¹, DANIEL BROWN² and SARA KINDON³

^{1,2,3}*Victoria University of Wellington*

^{1,2,3}{*Hamish.Beattie|Daniel.Brown|Sara.Kindon*}@vuw.ac.nz

Abstract. This paper discusses the methodology and results of the Maslow's Palace workshops project, which engages with current debates surrounding the democratisation of digital urban design technology and stakeholder decision making, through the implementation of a speculative oriented approach to serious gaming. The research explores how serious games might be used to help marginalised communities consider past, future and present community experiences, reconcile dissimilar assumptions, generate social capital building and design responses and prime participants for further long term design engagement processes. Empirical material for this research was gathered from a range of case study workshops prepared with three landfill-based communities and external partners throughout 2017. Results show the approach helped participants develop shared norms, values and understandings of sensitive topics and develop ideas for future action through "collective tinkering".

Keywords. Participatory design; urban design; social capital; serious games; slum upgrading.

1. Introduction

The use of serious games in participatory design activities in architecture and planning has received growing attention in recent years (Ampatzidou et al., 2018; Beattie, Brown, & Gjerde, 2017; Poplin, 2011; Yamu, Poplin, Devisch, & De Roo, 2017). Serious games - or those designed for a specific purpose other than entertainment - have been shown to increase cooperation between participants, learning, engagement with participatory processes, facilitate ideation and provoke discourse around key issues (Abdul Jabbar & Felicia, 2015; Dalisay, Kushin, Yamamoto, Liu, & Skalski, 2015; Morschheuser, Riar, Hamari, & Maedche, 2017). They can have a direct impact on increasing civic engagement and decision making, giving disparate stakeholders, designers and planners new avenues to converse, shape how opinions get organised, become informed, collaborate and take action (Ben-Attar & Campbell, 2015; Morschheuser et al., 2017). Like other examples of new media approaches, serious games also offer new ways to gather data that is difficult to gather - such as tacit knowledge of participants about context

- allowing for more comprehensively informed and participatory decision making processes. Foth et al. found that parallel development in the use of new media, such as narrative driven serious games can ‘democratise’ urban development by allowing stakeholders to collaboratively express tacit “lived experience” through in-game interactions (Foth, Hearn, & Klaebe, 2007, p. 6).

An investigation into the democratisation of design participation processes that consciously integrate both social capital building and design processes that encourages social discourse and design ideation may help alleviate this tension and foster collaborative action. To explore this, the paper combines serious gaming with future-oriented speculative urban design. Urban-development focussed serious games have been shown to foster participant collaboration, allowing players to collaboratively experiment with difference ideas, perspectives, and design alternatives and solutions within a medium that has a low cost of failure (Vemuri, Poplin, & Monachesi, 2014). Future-oriented stakeholder discussions and experimentation that have been shown to reveal stakeholder values and their tacit and latent needs through a speculative framing of current and future issues (Collie, 2011; Forlano & Mathew, 2014; Iversen, Halskov, & Leong, 2012). This paper explores this theoretical framing through analysis of fourteen participatory design workshops held with three landfill-based informal settlement communities in Delhi and Mumbai, India as part of the Maslow’s Palace project. The approach explores how serious digital games might be used to help marginalised communities consider past, future and present community experiences, reconcile dissimilar assumptions, and generate social outcomes and in-game design responses, while priming participants for further long term slum-upgrading design engagement processes.

2. Theoretical background

2.1. SERIOUS URBAN GAMING FOR SOCIAL CAPITAL BUILDING

The use of videogames in participatory urban design and planning is not new and has been covered in detail in the literature (Borries, Walz, & Bottger, 2007; O’Coill & Doughty, 2004) and the use of custom serious games in participatory design activities in architecture and planning has received growing attention in recent years (Ampatzidou et al., 2018; Beattie, Brown, & Gjerde, 2017; Poplin, 2011; Yamu, Poplin, Devisch, & De Roo, 2017). Serious games - or those designed for a specific purpose other than entertainment - have been shown to increase cooperation between participants, learning, engagement with participatory processes, facilitate ideation and provoke discourse around key issues (Abdul Jabbar & Felicia, 2015; Dalisay, Kushin, Yamamoto, Liu, & Skalski, 2015; Morschheuser, Riar, Hamari, & Maedche, 2017). They can have a direct impact on increasing civic engagement and decision making, giving disparate stakeholders, designers and planners new avenues to converse, shape how opinions get organised, become informed, collaborate and take action (Ben-Attar & Campbell, 2015; Morschheuser et al., 2017). Like other examples of new media approaches, serious games also offer new ways to gather data that is difficult to gather - such as tacit knowledge of participants about context - allowing for more

comprehensively informed and participatory decision making processes. Foth et al. found that parallel development in the use of new media, such as narrative driven serious games can ‘democratise’ urban development by allowing stakeholders to collaboratively express tacit “lived experience” through in-game interactions (Foth, Hearn, & Klæbe, 2007, p. 6).

2.1.1. Exploring multiple perspectives, revealing values and refining group norms

Serious games have been shown to enable participants to explore multiple perspectives, reveal values and refine group norms. Salen and Zimmerman, in *Rules of Play: Game Design Fundamentals*, define games as “a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome” (2004, p. 80). Through rule guided conflict, serious games can act as what Carl DiSalvo calls “spaces for agonism”, which are platforms that enable diverse perspectives to be brought forward and debated by stakeholders (DiSalvo, 2010). Drawing upon the agonistic political theory of Chantal Mouffe, DiSalvo argues that by revealing the conditions of political issues and relations, this type of “adversarial design” can identify new terms and themes for contestation and new trajectories for action - by purposefully provoking contestation of ideas between participants (DiSalvo, 2012, p. 12; Mouffe, 2000). They can also, as Holland & Roudavski show, help to establish communication amongst diverse participants with different values (2016, p. 299).

2.1.2. Facilitating Design Ideation

Serious games have been shown to be well-suited to communicating a shared understanding of design problems, because they allow participants “to experiment with potential solutions in a safe setting and generate their own mental frames and responses to problems” (Swain, 2007). This participatory experimentation can be described as “collective speculative tinkering” and can help stakeholders collaboratively generate ideas (Innes & Booher, 1999, p. 9). Within the safe, restricted, and structured realm of multiplayer serious games, stakeholders can gain feedback from others on each experimental iteration, accumulating new knowledge from the game system and player interactions (Cheng, 1999, p. 97). Another benefit of serious games is that they facilitate a playful and subversive environment, which is conducive to encouraging greater exploration of ideas between players (Coulton, Burnett, & Gradinar, 2016; Salen & Zimmerman, 2004). Serious games not only have the ability to deliver messages, but also to simulate experiences (Bogost, 2007). Collaboratively simulating urban design ideas can be transformative, because participants can rehearse scenarios with a low cost of failure and then interpret game events’ personal experiences (Brandt, 2006).

2.2. POSITIONING PARTICIPATORY URBAN SPECULATION

Visioning, foresight or speculative urban design exercises can reveal values and tacit and latent needs of stakeholders through discussion and experimentation that are conducive to building mutual understanding, networks and relationships between participants (Visser, Stappers, Van Der Lugt, & Sanders, 2005, p. 122).

This can help establish common ground for future collaboration. A number of useful examples of this exists in the literature. Pollastri et.al, for example, enabled participants to explore new sets of values through visualising a city designed to promote slow mobility. They create “composite scenarios” - compositions of real elements into a fiction - within fictional boundaries (Pollastri et al., 2017). Forlano and Mathew argue that conceptual future-oriented space explored through the concept of “design friction” is useful as a way of understanding the ways in which stakeholder conflicts, tensions and disagreements can move complex socio-technical discussions forward (Forlano & Mathew, 2014). While Natalie Collie draws a parallel between Science Fiction and community engagement in urban design, so called “cities of the imagination” have been shown to provide a means of understanding, communicating and enriching the connections between stakeholders, place and communities and thus enriching “social sustainability” (Collie, 2011, p. 424).

Despite these few examples of participatory speculative urbanism, however, much of the criticism faced by speculative design practice is related to the perceived elitist nature of speculative architecture and its perceived inability to include those central to the speculations. Forlano and Mathew argue that most unbuilt works of speculation do not move beyond “the museum exhibit” (Forlano & Mathew, 2014). This is what Tharp & Tharp referred to as a terminal form of speculative design; the design is the terminus of the designer’s direct effort and control over an observer’s or participant’s reflection or interaction (2013, p. 408). The serious gaming approach can help structure instrumental speculative design - where the game designer provides in-game “prompts” to participants, and then they themselves construct the majority of the speculation through gameplay and interaction (ibid).

The Maslow’s Palace project explored using future orientated discussions within the gaming medium as a means of facilitating social capital building and ideation as a “priming” participatory design activity. The intention of this future orientation was to loosen the pragmatic restrictions of the participants’ everyday lived experiences in order to encourage creativity, discussion and openness to new ideas that might be contentious or unfeasible. Drawing on futures theory, the authors utilised Voros’s Foresight framework to provoke participant speculation though the design of the virtual environment within the Maslow’s Palace (Voros, 2003). The framework allows in-game representation of urban systems to be located on a continuum of likelihood - between probable, or what is most likely to become reality, and the impossible, representing the designs hardest to perceive becoming reality in the future. Intentionally, speculative designs are usually positioned between the plausible and the possible in order to break outside the realm of reality and pragmatics. The plausibility of such fictions comes by achieving the right blend of typological familiarity from the present when scaffolding provocative diegetic visions (Coulton et al., 2016). Maslow’s Palace adapted a number of strategies from the literature for the creation of a speculative approach digital participatory design serious game to scaffold social capital building and urban design ideation discussions. They are detailed in Table 1 below.

Table 1. Strategies for Urban Design Serious Gaming.

Strategies	Work
Consider the design of the serious game's connection and position to temporality – from probable to impossible;	(Coulton et al., 2016; Dunne & Raby, 2013; Voros, 2003)
Present players with alternative presents, futures, systems or worlds to provoke values-based discourse;	(Dunne & Raby, 2013; Forlano & Mathew, 2014; Pollastri et al., 2017; Tharp & Tharp, 2013)
Facilitate stakeholder-oriented <i>instrumental</i> speculative design within the serious game;	(Tharp & Tharp, 2013, p. 408)
Engage the players in contextual issues through in-game typological familiarity;	(Auger, 2013)
Engage communities in the process of connecting to, imagining and remembering place;	(Collie, 2011, p. 427)
Raise questions instead of solve problems;	(DiSalvo, 2010, 2012)
Limit pragmatic contextual factors that might constrain the design process or discussion about the design or socio-political ideas;	(Forlano & Mathew, 2014)
Research, model and capture the complexities of experience across multiple stakeholder perspectives for analysis;	(Collie, 2011, p. 427)

3. The empirical study

3.1. DATA

We gathered data from 14 participatory urban design workshops held in November 2017 with the Ghazipur, Bhalaswa and Shanti Nagar communities in Delhi and Mumbai in collaboration with Chintan Environmental Research and Action Group in Delhi and Apnalaya in Mumbai. Each of the workshops used the game Maslow's Palace at the heart of its inquiry. Maslow's Palace is a multiplayer, turns-based digital participatory urban design game designed by the authors and with the collaborative input of the communities for the purposes of generating social discourse and urban design ideation (Beattie et al., 2017, 2018). The game is based on the above criteria to help build social capital and creating slum-upgrading ideas amongst disparate stakeholders through gameplay and discussion. The game focuses representing urban design problems Shanti Nagar, Ghazipur and Bhalaswa, and revealing disparities of views and opinions within the communities to help them move toward a common vision regarding their urban design challenges. In this way, Maslow's Palace functions as a 'priming' activity as a precursor to pragmatic participatory slum-upgrading design processes (Sanders, Brandt, & Binder, 2010).

The main goal of the game is for players to collaboratively design speculative community upgrades through five levels of gameplay that ascend in representational realism. Players collaboratively respond to increased numbers of challenges, modules and details of context as the game unfolds. Level one is designed to be situated at the less plausible end of the temporality spectrum, representing a significant departure from reality. This is designed to remove the pragmatic discursive impasses embedded in reality and foster collaboration

between participants through an abstract task. Subsequent levels gradually introduce more familiar contextual elements. Level five includes a simple in-game economy and a range of identifiable site features, buildings and spaces to which the participants respond. Through an inventory system, participants are provoked to address issues such as access to adequate housing stock, water and electricity infrastructure, sanitation facilities, adequate roads and drainage, availability of public and community spaces, health facilities and schools. Players are instructed via in game prompts to construct a home for each player, as well as to design the area around it to incorporate necessary changes, wants and needs. Each level is completed when all players are satisfied with the chosen actions within a particular level by moving their character to a specific area of the map. Through this consensus mechanic, it seeks to provoke discussion on differences in norms, values and understandings of social and urban design orientated issues to better understand each other's points of view regarding a range of problems. Employing agonistic and adversarial design theory of Mouffe and DiSalvo, the game purposefully provokes contestation of ideas between participants and acts as a "boundary object" between disparate participants to facilitate mutual ground (DiSalvo, 2012; Mouffe, 2000; Star & Griesemer, 1989).



Figure 1. Maslow's Palace. Image by Authors.

Participants were recruited by Chintan and Apnalaya's local community-based staff two weeks in advance of the workshops. The majority of the participants were Muslim migrants to the communities from Kolkata with the remainder arriving from other areas of Delhi or nearby Uttar Pradesh or Mumbai. All participants engaged in the formal or informal recycling sector in some capacity and resided within the informal housing cluster adjacent to the landfill within each community. The 44 players who participated in the workshops were aged between 19 and 40 years old with a mean age of 26.75 years. Staff from the partner organisation were trained to facilitate the workshops. The screen video capture software Flashback was used to record the gaming process and a digital SLR camera captured participants and facilitators and their interactions and the computer monitor.

3.2. RESULTS

Observation and analysis of the process of the workshops revealed interesting outcomes that highlighted how the serious gaming approach within Maslow's Palace helped build social capital by increasing shared norms, values and

understandings by helping participants to explore a range of issues and each other's positions and to increase understanding around some of those issues. The approach also allowed for a number of slum-upgrading ideas to manifest. From the workshops, a number of trends were identified.

3.2.1. Trend One: Slum-Upgrading Ideation

All workshop groups explored urban issues, created a diverse range of in-game spatial responses and discussed the political and economic considerations and social implications of each - indicating that the game is conducive to provoking a range of urban focussed discourses. Participants across the workshop groups and communities actively debated the importance of housing in close proximity landfill, the problems associated with issues of security of tenure, the role of Waste-to-Energy plants and the importance of locating public space and amenities centrally within communities - often deliberating in a "hybrid-reality" state. For example Ghazipur workshop Group Four debated the role of the Waste-to-Energy plant within the community when constructing their living areas within Maslow's Palace. It was argued that while it provides a means of livelihood, it causes social tensions as only women are employed due to drug and alcohol issues within the community, and it also endangers livelihood generating opportunities for others due to decreased access to solid waste streams for informal recycling. The participants suggested out-of-game action in the form of lobbying local politicians for help in gaining alternative modes of employment as well as access to child care to reduce strain on working mothers. Chintan, the facilitating organisation, stated they could help with this process. Here participants exhibited collective planning for future actions outside of the workshop.

3.2.2. Trend Two: Exploring conflict, values and misunderstandings

When conflict arose - generally around more complex socio-political issues such as livelihood generation and security or the placement of toilets within the community in relationship to gender or LGBTQIA+ rights - peripheral issues or other facets of the issue were voiced and explored, allowing for players to gain a better understanding of each other's perspectives through discussion and develop shared values and norms.

For example debate within the Shanti Nagar workshops centred on the positioning of toilets within the game level. After some discussion with the rest of the group, Participant Four, a single male, proposed building a toilet close to the homes of other players for convenience of access as "it will be simpler for each person to reach the toilet" (Participant Four, Group Three). However this positioning was rejected by the two female participants within the group. Participant two stated "we should put it in the back of the area because it won't look nice near the houses" (Participant Two, Group Three). After some probing by the two male players it was discussed that the underlying reason for wanting the toilet further away was due to the stigma surrounding menstruation. Participants discussed why the stigma exists. One of the male participants, who identified as homosexual, raised the issue of the prevalence of violence against the LGBTQIA+

community around public toilets. He offered that “toilets should have good views and cameras to catch violence” (Participant Three, Group Three). All players then agreed to design a park that had good visibility and public toilets as a central component of the composition.

During focus group discussions, players of Group Three reported that the informal nature of the game made them feel comfortable raising and discussing sensitive topics with strangers, and that they now understood other issues within their community that they had not considered before. Participant Three said during the focus group that it was “important for the players to talk about and share opinions; otherwise nobody knows why you need something” (Participant Three, Group Three). This aspect became a design consideration for participants, where the real world implications of their design decisions were considered within the context of the game. This added discursive considerations to the organisational problems faced by participants in-game and facilitated more complex discussion.

3.2.3. Factors affecting and limitations of the study

Unsurprisingly, higher levels of digital literacy allowed players to progress to experimentation within the game more quickly, which opened up new avenues for discussion in earlier game levels and increased “collective tinkering” with fictitious and realistic spatial systems, which resulted in better conflict resolution and more in-depth conversations. Further, the introduction of real world issues to the workshop by participants was also affected by the workshop facilitator. In some cases the facilitator explained the game was for “community development” purposes, which prompted participants to discuss real-world issues at an earlier stage than if they had not been prompted. This allowed participants to begin to discuss urban development issues earlier and in some cases in more depth, but drastically restricted the time for playing initial tutorial levels as players progressed more quickly.

The workshop compared favourably with other participatory planning methods in terms of cost, time and benefits such as enjoyment, creativity and engagement. One of the main benefits of the gaming process was the rapidness of the workshops when considering the number of ideas explored by participants in a short time period.

4. Conclusion

Maslow’s Palace was effective in creating “spaces-to-think-with” - allowing participants to discuss a large number of social and design orientated issues, develop understanding around sensitive social topics and resolve conflicts through iterative ideation and discussion. The approach was instrumental in creating an environment conducive to participants raising and discussing sensitive or controversial ideas, developing preliminary planning proposals and more clearly defining urban problems to interface with future design processes. The workshop also compared favourably with other participatory planning methods in terms of cost, time and benefits such as enjoyment, creativity and engagement. One of the main benefits of the gaming process was the rapidness of the workshops when

considering the number of ideas explored by participants in a short time period.

Dindler and Iversen argue that the trouble with practising participatory design as the art of solving immediately identifiable problems is that the designers risk coming up with great solutions for erroneous problems (p. 231). The speculative serious gaming technique in Maslow's Palace acted as a problem setting process, which simultaneously strives to develop as well as address what Schön refers to as the design and social capital building "problem" (Schön, 1983).

The process of participants building hybrid-state urban environments within the game was akin to conceptual design processes and helped to democratise the creation of ideas and future actions. The strength of the approach is therefore to provoke discussion surrounding what Holt et al. term "the imaginative leap beyond what already exists" (Holt, Radcliffe, & Schoorl, 1985).

References

- Ampatzidou, C., Gugerell, K., Constantinescu, T., Devisch, O., Jauschneg, M. and Berger, M.: 2018, All Work and No Play? Facilitating Serious Games and Gamified Applications in Participatory Urban Planning and Governance, *Urban Planning*, **3**(1), 34-46.
- Auger, J.: 2012, *Why Robot? Speculative design, the domestication of technology and the considered future*, Ph.D. Thesis, The Royal College of Art.
- Auger, J.: 2013, Speculative design: crafting the speculation, *Digital Creativity*, **24**(1), 11-35.
- Beattie, H., Brown, D. and Gjerde, M.: 2017, Generating Consensus: A Framework for Fictional Inquiry in Participatory City Gaming, *Serious Games*, 126-137.
- Ben-Attar, D. and Campbell, T.: 2015, *ICT, Urban Governance and Youth*, UN-Habitat.
- Bogost, I.: 2007, *Persuasive Games: The Expressive Power of Videogames*, The MIT Press.
- Brandt, E.: 2006, Designing Exploratory Design Games: A Framework for Participation in Participatory Design, *Proceedings of Participatory Design Conference*.
- Cheng, N.Y.W.: 1999, Playing with digital media: enlivening computer graphics teaching, *Proceedings of the Association for Computer Aided Design in Architecture*, 96-109.
- Collie, N.: 2011, Cities of the imagination: Science fiction, urban space, and community engagement in urban planning, *Futures*, **43**(4), 424-431.
- Coulton, P., Burnett, D. and Gradinar, A.: 2016, Games as Speculative Design: Allowing Players to Consider Alternate Presents and Plausible Futures, *2016 Design Research Society 50th Anniversary Conference*.
- Dalisay, F., Kushin, M.J., Yamamoto, M., Liu, Y.I. and Skalski, P.: 2015, Motivations for game play and the social capital and civic potential of video games, *New Media & Society*, **17**(9), 1399-1417.
- Dindler, C. and Iversen, O.S.: 2007, Fictional Inquiry—design collaboration in a shared narrative space, *CoDesign*, **3**(4), 213-234.
- DiSalvo, C.: 2010, *Adversarial Design*, The MIT Press.
- DiSalvo, C.: 2012, Design, Democracy and Agonistic Pluralism, *Proceedings of Design Research Society Conference*.
- Dunne, A. and Raby, F.: 2013, *Speculative Everything : Design, Fiction, and Social Dreaming*, The MIT Press.
- Evans, M.: 2011, Empathizing with the Future: Creating next-next generation products and services, *The Design Journal*, **14**(2), 231-251.
- Forlano, L. and Mathew, A.: 2014, From Design Fiction to Design Friction: Speculative and Participatory Design of Values-Embedded Urban Technology, *Journal of Urban Technology*, **21**(4), 7-24.
- Foth, M., Hearn, G. and Klæbe, H.: 2007, Embedding digital narratives and new media in urban planning, *Proceedings Digital Resources for the Humanities and Arts*.

- Frank, U. and Niels, H.H.: 2017, Creating Evaluation Profiles for Games Designed to be Fun: An Interpretive Framework for Serious Game Mechanics, *Simulation and Gaming*, **48**(5), 695-714.
- Frediani, A.: 2016, Re-imagining Participatory Design: Reflecting on the ASF-UK Change by Design Methodology, *Design Issues*, **32**(3), 98-111.
- French, M., Popal, A., Rahimi, H., Popuri, S. and Turkstra, J.: 2018, Institutionalizing participatory slum upgrading: a case study of urban co-production from Afghanistan, 2002–2016, *Environment & Urbanization*, **1**, 1-22.
- Hamdi, N.: 2010, *The Placemakers Guide to Building Community*, Earthscan Publications.
- Holland, A. and Roudavski, S.: 2016, Mobile gaming for agonistic design, *Fifty years later: Revisiting the role of architectural science in design and practice*, 299-308.
- Holt, J., Radcliffe, D. and Schoorl, D.: 1985, Design or problem solving—a critical choice for the engineering profession, *Design Studies*, **6**(2), 107-110.
- Innes, J.E. and Booher, D.E.: 1999, Consensus Building as Role Playing and Bricolage: Toward a Theory of Collaborative Planning, *Journal of the American Planning Association*, **65**(1), 9-26.
- Iversen, O.S., Halskov, K. and Leong, T.W.: 2012, Values-led participatory design, *CoDesign*, **8**(2), 87-103.
- Abdul Jabbar, A.I.A. and Felicia, P.: 2015, Gameplay engagement and learning in game-based learning: A systematic review, *Review of Educational Research*, **85**(4), 740-779.
- Molyneux, L., Vasudevan, K. and Zúñiga, H.G.d.: 2015, Gaming Social Capital: Exploring Civic Value in Multiplayer Video Games, *Journal of Computer-Mediated Communication*, **20**(1), 381-399.
- Morschheuser, B., Riar, M., Hamari, J. and Maedche, A.: 2017, How games induce cooperation? A study on the relationship between game features and we-intentions in an augmented reality game, *Computers in Human Behavior*, **1**(77), 169-183.
- Pollastri, S., Boyko, C., Cooper, R., Dunn, N., Coulton, C. and Clune, S.: 2017, Envisioning urban futures: from narratives to composites, *The Design Journal*, **20**(1), S4365-S4377.
- Poplin, A.: 2011, Games and Serious Games in Urban Planning: Study Cases, *Computational Science and its Applications*.
- Salen, K. and Zimmerman, E.: 2004, *Rules of Play - Game Design Fundamentals*, MIT Press.
- Sanders, E., Brandt, E. and Binder, T.: 2010, A Framework for Organizing the Tools and Techniques of Participatory Design, *Proceedings of PDC 2010*.
- Sanoff, H.: 2007, Multiple views on participatory design, *2007*, **2**(1), 57-69.
- Sanoff, H.: 2010, *Community Participation Methods in Design and Planning*, Wiley.
- Schön, D.: 1985, *The Reflective Practitioner*, Basic Books.
- Shah, D. and Gil de Zúñiga, H. 2008, Social capital, in P. Lavrakas (ed.), *Encyclopedia of survey research methods*, Sage Publications, 824-825.
- Star, S.L. and Griesemer, J.R.: 1989, Institutional Ecology,, *Social Studies of Science*, **19**, 387-420.
- Swain, C.: 2007, Designing Games to Effect Social Change, *Situated Play*, 805-809.
- Tharp, B. and Tharp, S.: 2012, Discursive Design Basics: Mode and Audience, *Proceedings of the Nordic Design Research Conference*.
- Vemuri, K., Poplin, A. and Monachesi, P.: 2014, YouPlaceIt!: a Serious Digital Game for Achieving Consensus in Urban Planning, *AGILE 2014*.
- Voros, D.J.: 2003, A Generic Foresight Process Framework, *Foresight*, **5**(3), 10-21.
- C. Yamu, A. Poplin, O. Devisch and G. De Roo (eds.): 2017, *The Virtual and the Real in Planning and Urban Design: Perspectives, Practices and Applications*, Routledge.