

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

Playable urban citizenship: Social justice and the gamification of civic life

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1710396> since 2020-02-19T15:53:26Z

Publisher:

Emerald

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

PLAYABLE URBAN CITIZENSHIP: SOCIAL JUSTICE AND THE GAMIFICATION OF CIVIC LIFE

Alberto Vanolo

Manuscript; final version published as:

Vanolo A. (2019), "Playable urban citizenship: Social justice and the gamification of civic life", in P. Cardullo, C. Di Feliciano, R. Kitchin (eds.), *The Right to The Smart City*, Emerald, Bingley, pp. 57-69.

Abstract

Over the last few years, technological developments have allowed new possibilities for fostering civic participation and engagement, as testified by various smart city experiments. In this framework, game elements are diffusely mobilized in order to develop responsible and active citizens with the aim of tackling urban problems. Gamification may be effective in nudging citizens and promoting various forms of participation, but fundamental ethical and political questions have to be addressed. This chapter develops the argument by interpreting gamification in light of the classic conceptualization of social justice proposed by David Harvey, arguing that participation through gamification potentially implies critical elements of injustice.

Keywords

Gamification; civic gaming; serious games; smart city; participation; civic engagement

Introduction

Traffic Agent is a mobile app produced with large-scale funding from the city of Oslo, the Research Council of Norway, and IT corporation Capgemini. Basically, it is a GIS-based app which allows children to report safety hazards they encounter on the way to and from school. The app has been designed in order to crowdsource data for improving road maintenance and infrastructure planning; it enables the sourcing of cheap and up-to-date information straight from children who are subjects usually difficult to co-opt into planning. However, as with crowdsourced projects in general (Dodge & Kitchin, 2013), there is a concern about how to motivate children to take part and to maintain engagement. The core idea has been to develop the app as a kind of spy-based game for mobile phones and tablets. Children are said to be excited about taking on the role of secret agents to help keep the city safe. According to the project manager: “the Traffic Agent engages young children and shows them they have a role in their community. This early exposure to civic responsibility is very important.”¹

This is an example of gamification, which is widely intended as the mobilization and implementation of ludic elements in order to manage “serious” issues. In the sphere of urban management, this means that by introducing game mechanics such as competition, rankings, scores, badges, levels, rewards, and virtual currencies, software designers and policy-makers aim to stimulate public engagement and virtuous social behavior (Deterding, Dixon, Khalad, & Nacke, 2011). By reconfiguring citizens into players, and thus urban problems into games, people may be nudged to act and behave in civic, sustainable, and appropriate ways; for example, by separating waste, paying taxes on time, saving energy, consuming, and so on (Morozov, 2013; Vanolo, 2018). Of course, gamification is not limited to children, as in the case of *Traffic Agent*. For example, there are many apps developed in order to gamify tourist experiences by turning tourists into urban treasure hunters, in a way not too different from collecting characters in *Pokemon Go!*

The gamification of civic life is arguably still limited in most cities, but experiments and discourses, including scientific debates, are blooming. Although a large strand of the literature is pretty positive, and even celebratory, about the potential of civic gaming, critical scholarship has also emphasized risks and limits. For instance, it is possible to think of gamification as a governmental technology: by taking part in games, citizens’ agency is reconfigured and moralized in the perspective of a specific rationality, ultimately “conducting the conduct” of subjects, to use a very popular Foucauldian phrase (Rose, 1999).

The aim of this chapter is to develop critical reflections concerning gamification, participation, and citizenship, by mobilizing the notion of social justice as proposed by David Harvey (1973, 1992, 1996). The main idea developed in the chapter is that participation through gamification may trigger forms of injustice which have to be considered with caution by urban planners and policy-makers. In order to develop the argument, the next section discusses the concept of social justice, followed by a discussion on games and gamification. I formulate a hypothesis and develop a tentative map of the different kinds of threats to urban justice posed by the gamification of city life.

¹ http://nws.eurocities.eu/MediaShell/media/CitiesInAction_TrafficAgent_Oslo_Jul16.pdf. Accessed on 26 April 2018.

Social Justice and the (Digital) City

Since the late 1960s, social justice has been a central concern within urban studies. One of the main contributions to the debate was by David Harvey, with his pivotal book *Social Justice and the City* (1973), exploring the relationships between the distribution of power and the dynamics of capital accumulation. He linked the concept of social (in)justice to the intrinsic contradictions of the capitalist mode of production and its crucial role in the production of urban space. The argument was further developed in his 1996 book, *Justice, Nature and the Geography of Difference*, in which he bridges Marxian perspectives (dialectic materialism) with post-structuralist feminism in order to explore the notion of justice in relation to issues of otherness, difference, positionality, and situatedness. Harvey's (1992) article, *Social Justice, Postmodernism and the City*, already mobilized this theoretical construction. By discussing two very different urban examples (the eviction of homeless in Tompkins Square Park in New York and the proposal for a highway infrastructural project in Baltimore), Harvey develops an understanding of social justice which is different from redistributive justice (Rawls, 1971). He rejects the relativism characterizing most post-modern cultural analysis, consisting of deconstructive exercises without taking any meaningful position or triggering action or transformation. Talking about the eviction of the homeless from the park, he asks:

What should the policy-maker and planner do [...]? Give up planning and join one of those burgeoning cultural studies programmes which revel in chaotic scenes of the Tompkins Square sort while simultaneously disengaging from any commitment to do something about them? Deploy all the critical powers of deconstruction and semiotics to seek new and engaging interpretations of graffiti which say "Die, Yuppie Scum"? Should we join revolutionary and anarchist groups [...]? (Harvey, 1992, p. 591)

In the article, Harvey takes inspiration from Iris Marion Young's book *Justice and the Politics of Difference* (1990) in order to stress the centrality of the question of positionality in thinking about the production of urban space. The article proposes six core arguments (propositions) which may help in conceptualizing more just forms of planning (Harvey, 1992):

1. Just planning and policy practices have to support forms of social and political organization and systems of production and consumption which minimize the exploitation of labor power in the workplace and in the living place.
2. They must confront the phenomenon of marginalization in a non-paternalistic mode and find ways to organize and militate within the politics of marginalization in such a way as to liberate captive groups.
3. They have to empower rather than deprive the oppressed of access to political power and they have to encourage the ability to engage in self-expression.
4. They must be sensitive to issues of cultural imperialism and seek, by a variety of means, to eliminate the imperialist attitude both in the design of urban projects and modes of popular consultation.
5. They must seek out non-exclusionary and non-militarized forms of social control to contain personal and institutionalized violence without destroying capacities for empowerment and self-expression.
6. Just planning and policy practices should recognize that the necessary ecological consequences of all social projects have impacts on future generations as well as upon distant peoples and take steps to mitigate negative impacts.

In order to reflect on the impact of gamification processes in terms of justice, this chapter interprets the phenomenon in relation to these six propositions. It aims at contributing to ongoing debates about the social, cultural, and political implications of smart city projects, the multiple and uneven ways in which computer code can shape urban space, and the meaning of the Lefebvian concept of “right to the city” in a scenario of progressive digitalization of urban space (see, e.g., Kitchin & Dodge, 2011; Shaw & Graham, 2017; Vanolo, 2014; and various contributions in this book).

Gamification and Civic Engagement

The literature on gamification is wide, heterogeneous, and not yet fully codified, being composed in large part of conference proceedings, research papers, and other gray materials. Indeed, the main source for a definition of gamification is the well-cited conference paper by Deterding et al. (2011). It describes gamification as “the use of game design elements in non-game contexts” (Deterding et al., 2011, p. 1). According to the authors, gamification comes originally from the business sector, long before the diffusion of mass digital technologies. For example, frequent flyer programs introduced by United Airlines in the 1970s might be considered as a kind of game, designed with the goal of fostering customers’ loyalty: By flying, consuming, and using credit cards, it is possible to earn “points,” to reach upper “levels” and to enjoy exclusive experiences, such as accessing lounge spaces in airports (Reiners & Wood, 2015). But it is also possible to think of “civic” and “non-commercial” examples: The Scout movement mobilizes badges, medals, uniforms, and titles (General, Eagle Scout, etc.) in playful ways with the aim of educating young people (Zichermann & Cunningham, 2011).

Contemporary forms of gamification are strongly connected to the affirmation of digital technologies and social media. Digital and mobile technologies offer a number of possibilities for gamifying life. In order to frame the phenomenon, it is important to be clear about concepts such as “game” and “playing,” which are at the core of game studies. Leyden J. Huizinga, author of the book *Homo ludens*, defines play as

a free activity standing quite consciously outside ‘ordinary’ life; as being ‘not serious’, but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner (1938 [1950], p. 13).

This understanding of play has been further developed by Roger Caillois (1958). In *Les jeux et les hommes*, he distinguishes between play and games, describing the latter as activities which are formally free, separated in time and place, uncertain (the course cannot be determined), unproductive, and governed by rules and logics which differ from those of ordinary life (cf Bateson, 1972).

It is easy to notice that Huizinga and Caillois’ classical conceptualizations of game and play fall short in explaining many contemporary forms of gaming. For example, many “serious games” imply productive activities; there are games and videogames which are not governed by rules in strict sense (cf Rodriguez, 2006); and the idea that there is no profit in playing is controversial because – as it will be further discussed later in the text – people may play games for money, social capital, prizes, and other kinds of rewards. Rather than trying to define game

and play, more recent contributions in game studies tend to approach them as cultural formations, for example, game cultures (cf Ash & Gallacher, 2011; Mäyrä, 2008; Shaw, 2010; Steinkuehler, 2006). This way, gamification may be intended as the progressive diffusion of gaming cultures in everyday life. As stressed by Palmer and Petroski (2016), gamification does not mean necessarily to play games; rather, it concerns embedding game thinking or game mechanics in daily activity such as shopping, consuming, training your body, studying, or working in order to render these practices more attractive and/or productive, particularly by nudging users.

The idea of nudging comes from behavioral economy, and it has been popularized by Thaler and Sunstein (2008). According to them, people's behaviors may be driven by developing "choice architectures," which means shaping the contexts in which people make decisions. Choice architectures are inescapable, as choices are always presented and framed in partial and situated forms; nudging hence means altering these architectures in order to alter behaviors "in predictable ways, without forbidding any option or significantly changing their economic incentives" (Thaler & Sunstein, 2008, p. 6). The aim is to encourage behaviors and decisions which are supposed to be beneficial for society and for the individual, for example, acting in sustainable and healthy ways or participating in civic life. Choice architectures may be manipulated by shaping the way information is presented, by modifying urban design, by defining default choices, or by motivating people with different kinds of immaterial rewards. This latter case is specifically associated with gamification, as proper behaviors may be rewarded with extrinsic rewards (related to the game design: badges, trophies, awards, levels, scores, points, missions, quizzes, leaderboards, and other "tokens"), intrinsic rewards (implicit in playing, such as self-worth through beating records, and mastering the game), and social rewards (such as the narcissistic display of results and performances through social media).

As anticipated, gamification elements (and games) have been implemented in the sphere of civic life and planning, particularly in order to nudge collaboration, participation, and deliberation (Lastowka & Steinkuehler, 2014). Lerner (2014) suggests that democratic engagement is most likely to occur when democracy is designed in a playful way. Games, in fact, may favor participation, cooperation, decision-making, and compromise. For example, by transforming political decisions into games, it is possible to include people who do not have specific technical knowledge of political and urban problems. Of course, the point is not to turn everything into a game, but to include playful elements in planning systems in order to nudge effective participation and interest, as testified by a number of experiments and initiatives carried out by urban laboratories such as Mexico City's *Laboratorio Para La Ciudad*, Dublin's *The Studio*, Boston and Philadelphia's *Offices of New Urban Mechanics*, San Francisco's *Office of Civic Innovation*, and Singapore's *Human Experience Lab*. These include the gamification of participatory budgeting, collective design of public space, and a number of other planning spheres (Ampatzidou, Bouw, van de Klundert, de Lange, & de Waal, 2015; Gordon, Haas, & Michelson, 2017; Schouten, Ferri, de Lange, & Millenaar, 2017).

Furthermore, several city institutions are promoting initiatives aiming at creating *playful cities*, to be intended as spaces engendering or allowing a spirit of gaming and playing (Alfrink, 2014). Digital technologies may allow new sets of possibilities for heterogeneous experimentation with urban playfulness; examples include various forms of "pervasive games" based on augmented reality technologies, commercial apps such as *Foursquare*, which mobilize ludic elements, and artistic and technological experiments aiming to create new connections between people and the urban space (Nijholt, 2017).

Being Part of What Game?

As anticipated at the beginning of the chapter, gamification can be deployed as a governmental technology, and it is not a coincidence that the expression “persuasive system” is quite diffused in the language of software design (cf Bogost, 2014). By providing rewards, points, and charts, games define “appropriate” and “inappropriate” behaviors, and hence, they subjectify “good” and “bad” citizens/users. The computational technology of measurements, charts, points, virtual trophies, and leaderboards assigns a position to each user, transforming them into assessable and enumerable units. Neoliberal rationalities inform the mechanics of performance and competition triggered through gamification constructing of a hierarchical social structure within the group of users, and it responsabilizes users/players in order to achieve results and performances (Berry, 2012; Rey, 2014). In fact, gamification simplifies the complexity of reality and everyday life by setting well-defined rules and enabling the constant quantification of user performances through status bars, progress bars, and other representational tools taken from videogame culture. We are therefore asked subtly to measure our own productivity, health, and well-being, with the implicit imperative to perform and to govern ourselves in relation to health care, education, sustainability, workplace productivity, etc. In exchange for the provision of personal data and quantified performances, the user is rewarded with a sense of participation.

At the same time, the potentialities of games to achieve social goals and trigger transformative and progressive forces in society have not to be underestimated. The example of the Situationist movement (1957-1972) is emblematic, as it aimed at destabilizing and criticizing advanced capitalism and its related cultures by blending play, spontaneity, and critical thinking, ultimately celebrating the revolutionary potential of gaming in allowing re-appropriation, re-employment, and re-configuration of public spaces beyond pre-given routines (Andreotti, 2000; De Certeau, 1980; Lefebvre, 1968). In more recent times, various playful practices connected to smart tech and civic hacking have been analyzed (Ampatzidou et al., 2015; Corsín Jiménez, 2014; de Lange, 2015). In this sense, rather than criticizing gamification per se, it may be interesting to try to map the forms of injustice which may be enacted through the gamification of civic life. With this aim in mind, the six propositions formulated by Harvey may offer some coordinates.

The first proposition concerns the need to minimize the exploitation of labor power. In this sphere, gamification seems to be dangerous and subtle, being a powerful technology for the exploitation of digital labor. Turning work into a game is an effective strategy, as fully acknowledged by human resource management divisions in companies all over the world (Bogost, 2014, ironically names gamification “exploitationware”). By replacing “real” incentives for workers and customer with fictional rewards that have no meaningful value and require no meaningful investment, gamification allows new forms of exploitation of cheap work, which has been named “playbour.” This may be the case of the work of data-provision through gaming.² But there is more: By blurring work and play, gamification does not just turn work into a playful activity, but it also turns game into productive work (Rey, 2014). For example, social media have been arguably gamified through the introduction of progress bars in users’ profiles, “like” and “share” buttons and related systems for enabling measurement on users’ posts and interactions, the connection of various external gamification applications (such as

² <https://thesocietypages.org/cyborgology/2012/10/15/gamification-playbor-exploitation-2>. Accessed on 26 April 2018.

Nike+), and the emergence of social games especially designed to be played within social media.³

Second, just planning has to confront marginalization. Gamification may allow interesting forms of inclusion of “marginal” subjects, as in the example of children as mentioned at the beginning of this chapter. At the same time, it may produce other forms of marginalization. As stressed by Isin and Ruppert (2015), there are a number of ways citizens can cope with digital technologies, and the old binary division between those “having” and those “not having” technologies offers just a partial view over the complex landscape of positionalities associated to digital citizenship. Digital technologies are likely to determine new forms of exclusion in the process of producing gamified citizens. For example, various subjects may not have the capability or the will to be reconfigured as digital citizens and digital gamers. A number of people, for a number of different reasons, do not have a Facebook or Google account. Most probably, issues of class, wealth, gender and race strongly influence attitudes to participation in digital citizenship projects and in engaging in civic games. It is hence difficult to imagine that gamification of civic life will be a universally inclusive exercise.

The third proposition on social justice concerns empowerment and the ability to engage in self-expression. Most current experiments with gamification are not particularly helpful in this sense, as participation is often intended in a very codified and pre-packaged way (i.e., it is possible to express views and positions just in the ways set and coded by the software designer), and hence there seems to be little space for self-expression. Moreover, the evolving relation between citizens and gamified environments (and digital technologies in general) is producing a huge gap in empowerment and social positionalities: on the one hand, a limited number of technologically skilled citizens seem to have the capacity to modify software codes, to manipulate games, and to use gamified environments in creative and playful ways; on the other, many people – arguably, most people – simply experience gamified engagement in quasi-passive and pre-packaged ways, turning into what Gabrys (2014) names *ambividuals*, for example, malleable subjects that are expressions of a computerized ambient. This adds to a further line of reflection, that is, questioning whether avatars and online identities may be considered as forms of empowerment and expansion of personal identities into a virtual space of citizens; this issue might be linked with the problem of cultural imperialism (fourth proposition). Gamification is indeed a governmental technology mostly implemented by companies and institutions with a hegemonic position in order to nudge users and to extract their digital labor, but this is just one part of the story. It has to be taken into account that game identities may allow the playful experimentation of alternative ways of being and acting, and in this sense, progressive gamification may have an emancipatory and transformative role. An example is offered by Ahwaa, an open discussion platform for Arab LGBT individuals using game mechanics (e.g. custom cartoon avatars, scoring systems and unlockable features) in order to protect and engage its community.⁴ The gamified relational space of Ahwaa represents a form of virtual “third space” opening possibilities for self-expression, identity formation, and community building. It is a sort of “gated community” within a heteronormative society which tends to marginalize, stigmatize, and even repress non-hegemonic sexualities.

Fifth, Harvey argues that just planning has to seek out non-exclusionary and non-militarized forms of social control. Gamification (unlike videogames, see Ash & Gallacher, 2011) has apparently limited connections with military powers and industries, but it has for sure a lot to do with social control. On the one hand, digital games are made up of algorithms which

³ See, for example, the software package GamEffective: <https://www.gameeffective.com>. Accessed on 26 April 2018.

⁴ <https://majal.org/ahwaa>. Accessed on 26 April 2018.

leverage a variety of data sources to develop interactions in effective ways; in this sense, games constantly watch over users (O'Donnell, 2014). On the other hand, game mechanics and game designers take advantage of different forms of data gathering and analytics about the behaviors of users, and little is known about the use and values of these data which are in the hands of companies (Whitson & Simon, 2014). However, the relationship between gamification and surveillance is not that straightforward, because it is possible to mention examples of countersurveillance games and strategies. For example, in *CCTV Treasure Hunt*, participants have to scout English cities in order to photograph CCTV cameras; data generated by users are then mapped in order to make the cities' surveillance apparatus visible.⁵ In Berlin, a more radical version of the game, named *Camover*, requires the physical destroying of the cameras.⁶ Gamification may become then subversive and counter-hegemonic.

Finally, according to Harvey, policy practices have to think about the ecological consequences of social projects. Of course, gamification may nudge behaviors in sustainable ways, and there are countless examples of green gamification. TerraCycle, for example, is a portal collecting programs offering individuals, businesses, and organizations the opportunity to earn TerraCycle points for the waste they collect and send in, which are redeemable for cash donations to charity or non-profit organizations.⁷ Recycling is rewarded with points, and additional points may be obtained through brand sponsored contests. TerraCycle was born in 2001 as a start-up, and it is now a flourishing company acclaimed on the web as a model of eco-capitalist and ethical business, currently operating in 20 countries. Together with game development company Guerillapps, in 2011, it introduced a Facebook game named *Trash Tycoon*. Sponsored by various commercial and non-commercial organizations, the game generates profits by advertising brand logos and by the use of a virtual currency; 10% of the profit is donated to Carbonfund.org.

Green gamification, like the one proposed by TerraCycle, may be interesting and useful, but it also worth noting that it supports a quite narrow understating of sustainability, one that accommodates and tames the concept in a way that not only is not threatening capitalism, but it even encourages it. As a sort of "sustainable modernization," it fuels the idea that the right game and the right app will provide an environmental fix, without the need of a radical rethinking of our society, as stressed by more radical scholars in the sphere of urban political ecology (Heynen, Kaika, & Swyngedouw, 2006; Keil, 2007) and in debates about the ideologies of smart city techno-solutionism (Cardullo, Kitchin, & Di Feliciano, 2018; Morozov, 2013).

Endnote: A Just Playable Urban Citizenship?

At present, in China, there are at least eight social credit systems in operation, which assign scores based on behavior (Liang, Das, Kostyuk, & Hussain, 2018). The main two are run by two giant corporations. One is Sesame Credit, a private credit scoring system developed by an affiliate of the Chinese Alibaba Group: It uses data from Alibaba, and customers receive a score related to social media interactions and purchases. The other is run by Tencent: It gives scores ranging from 300 to 950 by combining subscores related to various subcategories: social connections, consumption behavior, wealth, etc. The rewarding system produces real effects: Some Chinese companies, for instance, do not require a deposit for renting bicycles, cars, and apartments to individuals with higher scores. In a similar way, applications to get a visa are

⁵ <https://cctvtreasurehunt.wordpress.com>. Accessed on 2 August 2017.

⁶ <https://camover.noblogs.org>. Accessed on 2 August, 2017.

⁷ <https://www.terracycle.com>. Accessed on 26 April, 2018.

easier, since people with high credit scores are considered “financially reliable.”⁸ Scores are also displayed in some Chinese online dating websites.

The Chinese government is currently allowing private companies to run pilot schemes with the intention to combine successful systems into one unified “social trust” system to rate citizens and to make scores publicly available. The potential consequences in terms of justice and social control may be huge, and it is easy to guess that this will further transform the self-governance of citizens. Those with lower scores, in fact, will be “guilty” of poor citizenship for example, because of bad-driving, smoking in forbidden zones, or posting fake news online and they thus potentially excluded from public offices, good jobs, luxury hotels, good restaurants, etc.

The point of these examples from China is not to forecast a dystopian future. On the contrary, the aim is to point out that there are countless examples of gamification in the here-and-now of everyday life, and new technologies are just expanding the interconnections between games and life. While the separation of the spheres of life and games has traditionally been difficult to trace, it has now become even more difficult under the growing diffusion of ludic mechanisms in everyday life, including civic life. By mobilizing Harvey’s ideas on social justice, this chapter has suggested that there are several reasons for considering gamification with caution, as it might produce new forms of injustice at the very same moment when gamification aims at nudging positive and inclusive behaviors. If gamification is going to represent a new force in the production and experience of spaces and relations, critical analysis and serious reflections on the politics of gamification are surely needed in urban studies.

References

- Alfrink, K. (2014). The gameful city. In S. P. Walz & S. Detering (Eds.), *The gameful world: Approaches, issues, applications* (pp. 527-560). London: The Mit Press.
- Ampatzidou, C., Bouw, M., van de Klundert, F., de Lange, M., & de Waal, M. (2015). *The hackable city: A research manifesto and design toolkit*. Amsterdam: Amsterdam Creative Industries Publishing.
- Andreotti, L. (2000). Play-tactics of the ‘Internationale Situationniste’. *October*, 91, 37-58.
- Ash, J., & Gallacher, L. A. (2011). Cultural geography and videogames. *Geography Compass*, 5(6), 351-368.
- Bateson, G. (1972). *Steps to an ecology of mind*. Chicago, IL: Chicago University Press.
- Berry, D. M. (2012). The social epistemologies of software. *Social Epistemology: A Journal of Knowledge, Culture and Policy*, 26(3-4), 379-398.
- Bogost, I. (2014). Why gamification is bullshit. In S. P. Walz & S. Detering (Eds.), *The gameful world: Approaches, issues, applications* (pp. 65-79). London: The Mit Press.
- Caillois, R. (1958). *Les jeux et les hommes*. Paris: Gallimard (English edition: *Man, play and games*. Urbana and Chicago: University of Illinois Press, 2001).

⁸ <https://supchina.com/2017/06/07/good-credit-visa-japan-luxembourg-chinas-latest-business-technology-news/>. Accessed on 26 April, 2018; <https://www.independent.co.uk/life-style/gadgets-and-tech/china-social-credit-system-punishments-rewards-explaineda8297486.html>. Accessed on 17 August, 2018.

- Cardullo, P., Kitchin, R., & Di Feliciantonio, C. (2018). Living labs and vacancy in the neoliberal city. *Cities*, 73, 44-50.
- Corsín Jiménez, A. (2014). The right to infrastructure: A prototype for open source urbanism. *Environment and Planning D: Society and Space*, 32(2), 342-362.
- De Certeau, M. (1980). *L'invention du quotidien. Vol. 1: Arts de faire*. Paris: Gallimard (English edition: *The practice of everyday life*. Berkeley and Los Angeles: University of California Press, 1984).
- de Lange, M. (2015). The playful city: Using play and games to foster citizen participation. In A. Skaržauskienė (Ed.), *Social technologies and collective intelligence* (pp. 426-434). Vilnius: Mykolas Romeris University.
- Deterding, S., Dixon, D., Khalad, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining 'gamification'. In *11th proceedings of the 15th International Academic Mindtrek Conference*; <http://gamification-research.org/2012/04/defininggamification>. Accessed on 31 July, 2017.
- Dodge, M., & Kitchin, R. (2013). Crowdsourced cartography: Mapping experience and knowledge. *Environment and Planning A*, 45(1), 19-36.
- Gabrys, J. (2014). Programming environments: Environmentality and citizen sensing in the smart city. *Environment and Planning D: Society and Space*, 32(1), 30-48.
- Gordon, E., Haas, J., & Michelson, B. (2017). Civic creativity: Role-playing games in deliberative process. *International Journal of Communication*, 11, 3789-3807.
- Harvey, D. (1973). *Social justice and the city*. London: Arnold.
- Harvey, D. (1992). Social justice, postmodernism and the city. *International Journal of Urban and Regional Research*, 16(4), 588-601.
- Harvey, D. (1996). *Justice, nature and the geography of difference*. Oxford: Blackwell.
- Heynen, N., Kaika, M., & Swyngedouw, E. (Eds.). (2006). *In the nature of cities: Urban political ecology and the metabolism of urban environments*. London: Routledge.
- Huizinga, L. J. (1938). *Homo ludens*. Groningen: Wolters-Noordhoff (English edition: *Homo ludens*. New York, NY: Roy, 1950).
- Isin, E., & Ruppert, E. (2015). *Being digital citizens*. Lanham, MD: Rowman & Littlefield.
- Keil, R. (2007). Sustaining modernity, modernizing nature: The environmental crisis and the survival of capitalism. In R. Krueger & D. Gibbs (Eds.), *The sustainable development paradox: Urban political ecology in the United States and Europe* (pp. 41-65). London: Guilford Press.
- Kitchin, R., & Dodge, M. (2011). *Code/space*. Cambridge, MA: MIT Press.
- Lastowka, G., & Steinkuehler, C. (2014). Game state? In S. P. Walz & S. Detering (Eds.), *The gameful world. Approaches, issues, applications* (pp. 501-512). London: The Mit Press.
- Lefebvre, H. (1968). *Le droit à la ville*. Paris: Anthropos.
- Lerner, J. (2014). *Making democracy fun: How game design can empower citizens and transform politics*. Cambridge, MA: MIT Press.
- Liang, F., Das, V., Kostyuk, N., & Hussain, M. M. (2018). Constructing a data-driven society: China's social credit system as a state surveillance infrastructure. *Policy & Internet*, 10(4), 415-453.
- Mäyrä, F. (2008). *An introduction to game studies. Games in culture*. London: Sage.
- Morozov, E. (2013). *To save everything, click here. Technology, solutionism and the urge to fix problems that don't exist*. London: Allen Lane.
- Nijholt, A. (Ed.). (2017). *Playable cities. The city as a digital playground*. Singapore: Springer.
- O'Donnell, C. (2014). Getting played: Gamification, bullshit, and the rise of algorithmic surveillance. *Surveillance & Society*, 12(3), 349-359.
- Palmer, C., & Petroski, A. (2016). *Alternate reality games. Gamification for performance*. Boca Raton, FL: CRC Press.

- Rawls, J. (1971). *A theory of justice*. Cambridge, MA: Harvard University Press.
- Reiners, T., & Wood, L. C. (Eds.). (2015). *Gamification in education and business*. New York, NY: Springer.
- Rey, P. J. (2014). Gamification and post-Fordist capitalism. In S. P. Walz & S. Detering (Eds.), *The gameful world. Approaches, issues, applications* (pp. 277-295). London: The Mit Press.
- Rodriguez, H. (2006). The playful and the serious: An approximation to Huizinga's Homo Ludens. *Game Studies*, 6(1); <http://gamestudies.org/0601/articles/rodrigues>. Accessed on 31 July, 2017.
- Rose, N. (1999). *Powers of freedom: Reframing political thought*. Cambridge: Cambridge University Press.
- Schouten, B., Ferri, G., de Lange, M., & Millenaar, K. (2017). Games as strong concepts for city-making. In A. Nijholt (Ed.), *Playable cities. The city as a digital playground* (pp. 23-45). Singapore: Springer.
- Shaw, A. (2010). What is video game culture? Cultural studies and game studies. *Games and Culture*, 5(4), 403-424.
- Shaw, J., & Graham, M. (2017). An informational right to the city? Code, content, control, and the urbanization of information. *Antipode*, 49(4), 907-927.
- Steinkuehler, C. A. (2006). Why game (culture) studies now? *Game and Culture*, 1(1), 97-102.
- Thaler, R., & Sunstein, C. (2008). *Nudge: Improving decisions about health, wealth and happiness*. New Haven, CT: Yale University Press.
- Vanolo, A. (2014). Smartmentality: The smart city as disciplinary strategy. *Urban Studies*, 51(5), 881-896.
- Vanolo, A. (2018). Cities and the politics of gamification. *Cities*, 74, 320-326.
- Whitson, J., & Simon, B. (2014). Game studies meets surveillance studies at the edge of digital culture: An introduction to a special issue on surveillance, games and play. *Surveillance & Society*, 12(3), 309-319.
- Young, I. M. (1990). *Justice and the politics of difference*. Princeton, NJ: Princeton University Press.
- Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. Sebastopole, CA: O'Reilly Media.