Democracy, Video Games, and Urban Design

Minecraft as a Public Participation Tool

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Participation in urban design is essential to creating inclusive, sustainable and democratic cities. The creation of public space, in particular, should involve those whom that space will serve at some point, or else it is unlikely to meet their needs and interests. Young people, as a demographic group, face an additional challenge in this area. They are often under-represented in the planning process, resulting in political alienation as well as the creation of city spaces that do not sufficiently address their needs.

Our cities are growing at an unprecedented rate, as is the proportion of young people within those cities. By 2030, it is estimated that sixty percent of the world's population will be living in cities—and by the same year, sixty percent of urban dwellers will be under the age of eighteen due to rapid population growth, especially in Africa, despite ageing trends in high-income and medium-income countries.[1] Additionally, there has been a dramatic increase in access to the internet. Worldwide, fifty percent of the population was online as of 2017.[2] In this context, the importance of participation in urban design and governance—and youth participation,

1 | United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2015 Revision* (July 2015), https://www.un.org/en/development/desa/publications/world-population-prospects-2015-revision.html (accessed May 28, 2018), p. 7.

2 | International Telecommunications Union, *ICT Facts and Figures* (2017). https://www.itu.int/en/ITU-D/Statistics/Documents/factsICTFactsFigures2017.pdf (accessed May 28, 2018), p. 2.

in particular—cannot be overstated. In this chapter, I propose that information and communication technology (ICT), and more specifically the computer game *Minecraft* (2009), can both improve and facilitate public engagement in the planning process, unlike traditional consultation processes.

Digital Engagement

The ICT revolution has transformed the way in which both individuals and communities communicate, interact, and engage. Youth are at the center of this technological revolution and are twice as likely to be online than the global population. This gap is even more pronounced in developing countries, where youths are three times more likely to be online than the general population.[3]

This shift in methods of communication has generated both a need and an opportunity to change the way in which we engage, and how we invite the people that the built environment serves to participate.[4] According to Michael Kohn, CEO of the online participation platform *Stickyworld*, this opportunity comes at a time when three trajectories align. Firstly, the "user experience" has become mainstream—meaning the success and viability of all products, services, and processes are now underpinned by good design and ease-of-use, without which people quickly disengage. Secondly, the internet and open data have transformed information access, allowing users to be informed about and engaged with any topic relevant to them, wherever they go. Thirdly, the resurgence of localized legislation and devolved decision-making power (particularly regarding the built environment) has helped authorities to understand and engage

3 | Daniella Ben-Attar and Tim Campbell, *Urban Governance and Youth, Report 4: Global Youth-Led Development Report Series* (Nairobi: UN-Habitat, 2015), http://www.youthpolicy.org/wp-content/uploads/library/2012_ICT_Urban_Governance_Youth_Eng1.pdf (accessed May 28, 2018) p. 5.

4 | Michael Kohn, *Designing Democracy and Democratising Design* (London: The Design Commission, 2015) https://s3-eu-west-1.amazonaws.com/dcfw-cdn/Designing_Democracy_Inquiry-March-20151.pdf (accessed May 28, 2018), p. 77-78.

with citizens on a granular level.[5] As a result, the need and potential to use digital solutions for public consultation is greater than ever. The most commonly used and most thoroughly studied digital solutions come in two forms: the use of online platforms or virtual discussion forums, and the use of virtual reality and visualization technology.

Virtual reality (VR) technology has generated the widest range of possibilities for visualization within the decision-making process. Given its use in many different contexts, it is tricky to provide a precise definition of this technology. Aukstakalnis and Blatner determined a general definition of VR in 1992: "Virtual Reality is a way for humans to visualise, manipulate and interact with computers and extremely complex data".[6] Since then, the field of VR has experienced massive growth with the development of computer and graphics technology, in particular, the graphics cards of personal computers. Thanks to this technology, VR devices can now simulate a fully immersive and interactive environment—and more importantly, provide the capacity to explore this environment as a user would in real life. There are two benefits of VR for public consultation: firstly, creating a more realistic (and neutral) presentation for members of the public to experience the existing and proposed situation; secondly, on a higher level, it offers enhanced interaction, such as the ability for citizens to offer comments on a virtual model—a kind of "digital graffiti" inscribed into the existing and proposed environments.[7]

While mature VR-software has been specifically developed for 3D city-model representations and for urban planning, most software is reserved for professionals, and lacks even the most basic public consultation features. The most accessible and easy-to-use VR technology has, instead, been developed by the computer game industry, which now leads the market in the development and production of VR technology. Currently, at least ninety percent of all content built for VR is created with the video

5 | Ibid., p. 78.

6 | Steve Aukstakalnis and David Blatner, *Silicon Mirage: The Art & Science of Virtual Reality* (Berkeley CA: Peachpit Press Inc., 1992).

7 | T.L.J. Howard and Nicolas Gaborit, "Using Virtual Environment Technology to Improve Public Participation in Urban Planning Process," *Journal of Urban Planning and Development*, Vol. 133, Nr. 4 (2007), pp. 1–28.

game engine *Unity*.[8] In 2016, Microsoft released a new version of *Minecraft* specifically tailored for VR, such that users could experience existing *Minecraft* environments as VR environments, as well as design new ones using the software. Although this was an expected and seemingly obvious development for Microsoft, the consequence of this version was, arguably, to make *Minecraft* the most effective and easily available participatory design tool on the market—one that combines the social networking and communication aspects of online discussion forums with the immersion and interactivity of virtual environments used in VR technology.

Design and Play

> "For, to mince matters no longer, man only plays when he is in the fullest sense of the word a human being, and he is only fully a human being when he plays."
> Friedrich Schiller, 1794[9]

There is a rich history of using games and play for serious tasks, and significant literature upon which this idea is founded. Our philosophical understanding of games and play has been elaborated upon by many thinkers—Schiller's sentiment is echoed by Johan Huizinga's (1872-1945) *Homo Ludens* (1938) in which he presents play not as an aspect of culture, but culture itself as a manifestation of play.[10] Roger Caillois' (1913-1978) *Man, Play and Games* (1958)[11], and Jean Piaget's (1986-1980) *Play, Dreams and Imitation in Childhood* (1945) also provide insight into games and play

8 | John Gaudiosi, "This company dominates the VR business, and it's not named Oculus," *Fortune online* (March 19, 2015), http://fortune.com/2015/03/19/unity-virtual-reality/ (accessed March 19, 2018).

9 | Friedrich Schiller, *On the aesthetic education of a man in a series of letters* [1794], fifteenth letter, ed. and transl. by Elizabeth M. Wilkison and L.A. Willoughby (Oxford: Clarendon Press, 1967), p. 107.

10 | Johan Huizinga, *Homo Ludens: A Study of Play-Element in Culture* [1938] (Abingdon: Routledge & Kegan Paul, 1949).

11 | Roger Caillois, *Man, Play and Games* [1958] (New York: Free Press of Glencoe, 1961).

from the perspectives of philosophy, sociology, and psychology, revealing a wide range of possible uses for games in real-life tasks.[12]

The importance of play in creative processes was truly appreciated by the founders of the Bauhaus: Weimar, Germany's iconic, modernist school. One of the school's professors, László Moholy-Nagy (1895-1946) played a crucial role in understanding the relationship between play and creativity—and the importance of maintaining the spirit of play that is lost in adulthood. As he describes: "The method is to keep in the work of the grown-up the sincerity of emotion, the truth of observation, the fantasy and creativeness of the child".[13] The work of Moholy-Nagy, among others, identifies play as one of the most important companions of creativity, and an essential element of the creative problem-solving process.

Among the many reasons for play's value in creativity is its self-rewarding nature. Playing games is an autotelic experience, engendering positive emotions that provide the motivation to solve creative problems. Psychologist Mihály Csikszentmihályi (*1934) describes this as "the optimal experience of flow"—the enjoyable experience of creative activity that induces "an almost automatic, effortless, yet highly focused state of consciousness".[14]

Another benefit of play as a creative process is that the cost of failure in games is typically low. In the context of design, the "safe space" created by games provides an opportunity to experiment and test design ideas without fear of criticism of failure. Ambiguity is also an important aspect of play. By its very nature, play involves uncertainty—the play theorist Brian Sutton-Smith (1924-2015) explains how the ambiguous nature of play removes the constraints of what we know to be possible, allowing us to explore creative possibilities that would otherwise be suppressed by the limits of reality.[15] In the design process, play stimulates associations between elements, which are usually disparate. In other words, play results

12 | Jean Piaget, Play, *Dreams, and Imitation in Childhood* [1945] (New York NY: W.W. Norton & Co., Inc., 1962).

13 | László Moholy-Nagy, *The New Vision* (New York: W.W. Norton & Co., Inc., 1938), pp. 20–21.

14 | Mihály Csikszentmihályi, *Creativity: Flow and the Psychology of Discovery and Invention* (New York NY: Harper Collins Publishers, 1996), p. 110.

15 | Brian Sutton Smith, *The Ambiguity of Play* (Cambridge MA: Harvard University Press, 1997).

in things being put together in new ways—thus making the designer aware of new ideas and creative solutions.

The links between design and play are well established. However, the question that remains is which methods and types of play are most beneficial to the design process. I believe that the computer game *Minecraft* best suits this task; specifically, it contains intrinsic features that render it useful for the design process in the context of public consultations.

Minecraft and Public Participation

The easiest way to describe *Minecraft* is as a form of "digital Lego." It is a "sandbox game," an open world without a pre-determined course for players to follow. The player makes up their own rules and can play the game in any way they wish. It is also a "voxel world." Voxels are 3D pixels—the entire *Minecraft* universe is generated upon a 3D grid and made up of blocks, which can be placed or destroyed by the player. Crucially, players can animate these blocks, or add characters and objects—all of which the player can interact with. The versatility of *Minecraft* allows new games and fully interactive experiences to be created within the game, which challenges us to consider *Minecraft* as a game design tool rather than a game itself.

Fig. 111: Mojang AB/Microsoft, A "vanilla" Minecraft world, 2018

Minecraft is the most successful video game in history, with over 250 million users worldwide—and counting. If all the *Minecraft* players in the world were to form a country, it would be the world's fifth most populous. Minecraft is almost gender equal in its userbase (45% female, 55% male)—unusually balanced for a video game. The game's audience also has an enormous age range, from children as young as five to adults of fifty or older. *Minecraft's* consistent growth since its release in 2009 demonstrates its long-lasting appeal; it retains the game's loyal fan base, while continually attracting a growing younger audience. In all senses of the word, *Minecraft* is a phenomenon. It has defied all expectations of the video game industry, and clearly resonates much more with its players than many of its competitors.

Minecraft has also caused a sensation on social media and other digital communication platforms. Curiously, more people watch videos of other people playing *Minecraft* than play the game themselves. In 2014, the most searched-for term on YouTube was "music." The second was *Minecraft*.[16] This game has a highly developed online community that frequently shares, adapts, and collaborates on digital environments created within the game itself. On one popular *Minecraft* community website, over 440,000 digital environments have been uploaded and shared amongst the game's users from around the world.[17]

"Notch [the creator of the game] hasn't just built a game, he's tricked 40 million people into learning to use a CAD program." This quote from MIT Media Lab's Cody Sumter, only one year after the game's release, suggests looking at *Minecraft* from another perspective. In the right hands, *Minecraft* transforms from a computer game into a computer-aided design tool, and moreover, it acts as an entire language of digital design, with the potential to overcome the barriers of communication between professionals and laypeople.

If we consider *Minecraft* a CAD program, an interesting comparison can be made with other available CAD software, putting the scale of *Minecraft* into perspective. John Bacus, Product Management Director of

16 | Google Trends: YouTube Search, 2014. https://trends.google.com/trends/explore?date=2014-01-01%202014-12-31&gprop=youtube&q=music,minecraft (accessed March 28, 2018).

17 | Planet Minecraft. https://www.planetminecraft.com/ (accessed March 28, 2018).

SketchUp, claims *SketchUp* is the most widely used 3D modeling software product in the world, with 35 million unique users as of 2016.[18] *AutoDesk* software (including the programs *Revit* and *AutoCAD*) claims subscriptions of 3.11 million users for its products, as of 2017.[19] If *Sketchup's* claim to be the world's most-used 3D design software is true, then with over twice as many users, deeming *Minecraft* a CAD program would, in fact, make it world's most popular—and by a significant margin. It is therefore also true that more digital environments have been created through *Minecraft* than any other tool or software program. Despite this, research into the nature of the environments being created in *Minecraft*, and the game's potential use for real-world architectural and urban applications, remains woefully thin.

BlockWorks, a company I established in 2012, uses *Minecraft* to educate, facilitate engagement, and enable participation in arts projects, local planning, and architecture-related processes. The first step towards this unusual use of a computer game came about through the exploration of the game's potential as a tool for sculpting, architectural design, and landscape design.

Fig. 112: BlockWorks, Hedgeland Exeter Model, Royal Albert Memorial Museum, June 5, 2017

18 | John Bachus, Sketchup/Trimble User Presentation (3D Basecamp Steamboat Springs, 2016). https://youtu.be/N5PojLA71KM?t=5907 (accessed March 28, 2018).

19 | Autodesk, Corporate Info. https://www.autodesk.com/company/newsroom/corporate-info (accessed March 19, 2018).

In recent years, the role of architecture and architects in the design of video games has been given much attention; game developers have sought the advice and assistance of trained architects, in order to create increasingly more convincing and engaging virtual environments. On the other hand, little attention has been paid to how video games and game developers might benefit the field of architecture. *Minecraft* stands as a paradigmatic example of this potential, and is, in my opinion, the most convincing argument for why the collaboration between the fields of architecture and video games should become a reciprocal and mutually beneficial cooperation.

Fig. 113: UNHabitat Block by Block workshop, Surabaya, Indonesia, July 2016

As such, what could *Minecraft's* role be in citizen participation and urban design? There are several characteristics of the game that make it a valid and potentially successful tool for architectural design, not only for use in citizen participation but also by architects themselves. Firstly, *Minecraft* is an adept, accessible, and effective tool for visual communication. It is quick to learn, easy to use, and—most importantly—can be used both by professionals and non-professionals. Unlike many existing design and visualization tools, *Minecraft* does not discriminate between those with architectural training and those without it—an essential factor in any open, democratic design consultation. Not only does *Minecraft* allow par-

ticipants to easily see and engage with the content created by professionals, but it provides them with the agency to adapt that content and submit their own ideas and proposals in a 3D form. The flexible and adaptive nature of the game makes it easy to test and change proposals; nothing is permanent in *Minecraft*, and the speed with which such changes can be made contributes to its strength as a visualization and design tool.

Even those who are entirely unfamiliar with the game can easily be taught during a short teaching session, as I discovered during my facilitation of a UN-Habitat *Minecraft* workshop in Surabaya, Indonesia. At this workshop, I was tasked with teaching a community group how to use *Minecraft*. Despite difficulties in translation and technology (many of the workshop participants were entirely unfamiliar with the use of computers in any form), almost all of the participants were fluent in *Minecraft* within two to three hours. As expected, teaching younger participants in this workshop was considerably faster.

Another benefit to using *Minecraft* in architectural design is that it provides a new way of designing and constructing within a digital workspace. When you build in Minecraft, you do so from the perspective of your avatar, a virtual character that represents you inside of the game. All interactions within a *Minecraft* world must be conducted through this avatar: for example, to build a wall, you must walk to where you want the wall and place blocks in front of you. Although this is a common interface for players to use in video games, it is never used in design software and digital tools. On the other hand, architects using CAD have a "birds-eye" view. It look down on the design from above, and the architect has no agency or avatar within the program to represents a human presence. As a result, it is very easy to lose a sense of scale or human perspective with traditional design software, whereas *Minecraft* users are entirely immersed in the environment they are designing, moving through their designs as they create them.

The multiplayer feature of the game allows users to access the same virtual environment remotely, from anywhere in the world, and interact with the environment in real-time. For instance, a change made by one user will be seen by all other users in the same environment without delay. This kind of responsive technology does exist in the professional design field, with software such as Building Information Modeling (BIM). However, Minecraft also allows users to view the avatars of other users as they adapt the environment. This makes collaborative design in Minecraft far

more fluid and natural, resulting in 3D models that are more coherent in their final design.

Fig. 114: BlockWorks, Atropos—The Walking City, 2014

Minecraft is also unique in its playful approach to design. Existing CAD software has been designed specifically to create technical drawings. However, they provide no consideration for conceptualization or experimentation of design ideas in a playful manner. As previously mentioned, the links between design and play are well documented; play is a natural mechanism for humans to solve problems—albeit while enjoying the activity at the same time. The similarity of the nature of play with real-life situations has generated a whole field of study, led by thinkers such as Johan Huizinga and Jean Piaget, examining how game and play can complement our real-life tasks. The concept of "playful design" is something with which all *Minecraft* users are familiar; *Minecraft* is a game without instructions, and when left without instructions, a player is forced to come up with creative solutions to the design problems they face in their world. Finally, *Minecraft* allows users to create a narrative in and around the environments they build. Traditional CAD software requires users to create their designs on a blank digital canvas; prior to the user's interaction with the program, there is no existing context or environment. Conversely, *Minecraft* users design and build within a universe, which has existing environmental features and assets. This includes, for instance, a day and

night cycle allowing players to experience their designs in changing lighting; weather conditions roughly match real-life environments. Players can also add characters, animals, written books, and other content into their environments, with which they can adapt and interact. When used in this way, *Minecraft* becomes a narrative-based design tool, which facilitates the creation of inhabited, living digital spaces rather than the inoperative and unresponsive 3D models—which are the product of traditional design software.

It is also worth considering the limitations to using *Minecraft* in the consultation process. *Minecraft* was never intended to be used in this way, and the game's low resolution makes it ineffective for producing technical models or detailed proposals. While there are creative benefits to using a game for design, there is also a potential for distraction: young children may struggle to focus on a set task inside a gameplay environment. The use of *Minecraft* also risks the potential alientation of different age groups. Rather than mediating between older and younger participants, older participants may be limited by their technical competence, while younger participants, who are more familiar with *Minecraft* or game environments in general, could dominate the process.

Case Study: Victoria & Albert Museum Minecraft Workshop

To celebrate the opening of the Victoria & Albert Museum's (V&A) *Exhibition Road Entrance* in June 2017, *BlockWorks* was asked to develop and run a *Minecraft* workshop at the V&A Museums's new learning center.[20] The workshop was hosted on the same weekend that the Exhibition Road Entrance was first opened. Thus, the workshop presented an opportunity to help children engage with the architecture of this new space and develop their own response to it.

First, we recreated architect Amanda Levete's (*1955) new design in *Minecraft*. For the workshop, we had fifteen available laptops with *Minecraft* installed. Attendee sessions were limited to thirty minutes each, allowing

20 | Olivia Rickman, V&A gets set to open new Exhibition Road Quarter by Amanda Levente. June 15, 2015, http://www.vam.ac.uk/blog/network/hello-exhibition-road (accessed 28/03/18).

us to reach a total of 200 attendees over the course of the weekend. The vast majority of attendees were children between ages seven and eleven. Each laptop station also had printed instructions on how to use *Minecraft*, so attendees with little or no experience could also participate. Each laptop contained our pre-built *Minecraft* version of the Exhibition Road Entrance and, upon arrival, attendees were encouraged to look around this model and then to adapt it based on their ideal version of a museum entrance. No further creative instruction was given, and there were no limits or guidelines on what attendees could create.

Fig. 115: Minecraft/BlockWorks, V&A Exhibition Road Entrance Minecraft Model, 2017

This workshop provided a unique opportunity to judge young people's reactions to a newly designed space; the entrance had only opened that same weekend; as such, the proposals created in *Minecraft* were a "gut reaction" to this new place. Out of a huge variety of creative, fantastical and controversial proposals, there was a noticeable trend toward additional green space. Over seventy-five percent of the attendees placed trees, water, or plants in the courtyard entrance—and in some cases, they forested the entire area. This is an understandable response, considering that the actual design of the entrance is a dazzling, tiled, white surface made from concrete and polished ceramic tiles—yet suggests an instinctive reaction among children that a softer, greener design may prove a more inviting environment.

Despite this passive criticism of the courtyard design from the majority of children who attended the workshop, architect Amanda Levete's design was described by critics as "a triumph" and received widespread critical acclaim.[21] For an internationally renowned museum with the stated aim of "inspiring the next generation",[22] it would seem that youth consultation for the design of the new museum entrance may have facilitated the development of a more child-oriented space, welcoming to youths as well as adults.

Fig. 116: Minecraft/V&A, Workshop Attendee Courtyard Proposal, 2017

The design of a fifty million pound public space and museum entrance is an enormously complex task, necessitating the use of a myriad of specialist design tools and kind of software. *Minecraft* is by no means a full replacement for such tools. However, as we learned with the V&A project, the use of the game in the early planning stages would at least have given the youth some agency and voice in the design process.

This workshop showed that children were highly engaged—requiring them to leave at the end of each thirty-minute session was a most difficult

21 | Ellis Woodman, "The V&A's new £48m Exhibition Road Quarter is a triumph," *The Telegraph*, June 28, 2017.

22 | *V&A Museum. Annual Review 2016-2017.* September 6, 2017, https://www.vam.ac.uk/info/reports-strategic-plans-and-policies#strategic-plans (accessed March 28, 2018), p.21.

process, with almost all of the children indicating that they would have preferred to stay longer. The workshop was also successful in demonstrating *Minecraft's* potential as a communication platform. Although none of the children verbally expressed dislike of the new entrance space, their intuitive response of adding trees and greenery described an opinion which only came to be through use of the program. This case study is one example of many from companies such as *BlockWorks* and other institutions that have used *Minecraft* to great effect. Also of note is the *Block by Block Foundation*, a UN-Habitat, Microsoft and Mojang collaboration, which uses *Minecraft* as a community participation tool in urban design, focusing on poor communities in developing countries.

Conclusion

Observations from case studies such as the one outlined in this chapter indicate that *Minecraft* can be a powerful tool in the design consultation process. It is particularly effective in engaging youth, improving visual communication during consultations, and giving people the ability and platform to contribute their own ideas in three dimensions. This ability is usually only available to specialists and professionals. Although designed as a computer game, and never intended for use in public consultation, the features of *Minecraft* make it an effective tool that can improve the consultation process. While *Minecraft* is not an appropriate program to use throughout the urban design process, I would argue that future design software intended for use in consultation should look to *Minecraft* as an example which, though unorthodox, has produced useful results in a variety of design consultation processes. Based on my own experiences, I have found that the structure and format of consultation workshops is essential to maximizing the potential benefits of *Minecraft*. Firstly, a sufficient provision of laptops and access to *Minecraft* must be made. When possible, all attendees should have access to the game to enable equal opportunities. Secondly, consultations should make use of the collaborative aspect of the game. Attendees should use the multiplayer feature to design and build in the same digital space at the same time, thus promoting negotiation, mediation, and interaction between participants. Thirdly, attendees should not be limited by rules or practical considerations. The most creative proposals often emerge from states of play, and participants should be allowed to explore design proposals in the playful manner that *Minecraft*

so brilliantly provides. Finally, it is also evident that the greatest opportunity *Minecraft* presents is in regard to youth engagement. Nowhere is this more important than in developing countries, where a growing young population is being increasingly marginalized due to their lack of involvement in decision-making processes. When used in the correct manner, *Minecraft* provides a platform for all stakeholders to present their views equally—it is a tool for a more democratic approach to urban design that would greatly enrich public participation processes.