# Generating Consensus: A Framework for Fictional Inquiry in Participatory City Gaming

Hamish Beattie[(✉)] [iD], Daniel K. Brown, and Morten Gjerde [iD]

Victoria University of Wellington, Wellington, New Zealand
`Hamish.Beattie@vuw.ac.nz`

**Abstract.** Contemporary digital urban design games or 'city games' can function as a constructive instrument for exploration and discourse, serving as an essential interface between abstract decision-making processes and real world development decisions. Research suggests that city games are useful for engaging stakeholders, allowing them to explore a range of ideas. However when dealing with marginalized communities with low levels of cognitive consensus, one difficulty is that conventional city game approaches tend to engage pragmatic problems set in realistic contexts, rather than providing scope for discussion of the "soft city" or intangible aspects of a community. To address this problem, this paper proposes a new constructive gaming framework that incorporates Fictional Inquiry along with a "perceptual bridge" to help players contextualise a fictional proposition within their perception of real world problems. Fictional Inquiry differs from traditional participatory design practice as it temporarily changes or bypasses existing socio-cultural structures. The aim is to help marginalised communities learn to make effective decisions about intangible issues, and then to transform those choices into desired actions and outcomes. This paper illustrates the advantages of a perceptual bridge through the design of a new participatory design game the author calls "Maslow's Palace". This new conceptualised framework may be used as a catalyst to enable stakeholders in marginalised communities to foster a common vision through fictional inquiry as a prefix to pragmatic community design processes where consensus is required.

**Keywords:** City games · Participatory design · Design fiction · Fictional inquiry · Perceptual bridge · Consensus building

## 1 Introduction

"City games" can be used as an effective engagement strategy and advocacy tool for change, and as a viable platform for the increase of a community's consensus building capabilities. Experimentation through game play helps players to establish core beliefs about an issue; and in a collaborative multiplayer context, multiple users can form these opinions individually and then connect to share their opinions. Since the cost of failure in games is low, players may be emotionally willing to examine ideologies that are different than those to which they would usually be accustomed. Games not only have

the ability to deliver messages, but also to simulate experiences that can be transformative, because participants can be absorbed in the games' environments and therefore often interpret game events as personal experiences [1].

Recent approaches to serious games in the realm of participatory urban design processes or "city gaming" have attempted to take advantage of simulation, engagement and communicative aspects of gaming. UN-Habitat's Block by Block programme (which uses Minecraft for participatory planning) and Cities: Skylines are examples of approaches to city gaming that endeavour to generate civic engagement from stakeholders centred on realistic projects [2]. Typically in the city gaming approach, real world sites are modelled as accurately as possible in the chosen game and participants or players are required to respond to these environments based on the provocation of the workshop coordinators – usually at the direction of some form of project brief. This has distinct parallels to both traditional participatory design, as well as to conventional table top city gaming approaches. This form of city gaming encourages participant negotiation centred on "realistic" design propositions, which results in pragmatic design responses that can be fleshed out further by design professionals. However this approach also often generates a number of problems such as confusion regarding pragmatic viability of workshop participants' speculative design outcomes. This may lead to disappointment and tension amongst players and participants.

While engaging, city gaming approaches often draw criticism for "gamifying" participatory processes and not having scope for the discussion of the "soft city" or intangible aspects of a community. In this way participatory city gaming works well for exploring ideas regarding well-defined, spatial propositions where the project is clear and the level of diversity within the participant group is low. But in communities where diversity of opinion is high, such as in informal migratory settlements, this approach can often be impeded by pragmatic impasses. Other difficulties include: the city gaming approach is not generally used as an analytical or discursive tool to find out about the problems that a community has and what they can do about those problems; the approach is not useful for discovering if individual preferences for solutions align with the rest of the community members; and due to the pragmatic approach to many city games, existing socio-cultural structures are usually retained and therefore, do not create an ideal environment for the creation of consensus through discussion on a level playing field.

Research shows that when communities are empowered through collective action, they see significant increases in "social status and self-esteem, along with incomes and working conditions" [3]. Alsop, Bertelsen and Holland define "empowerment" as a group's capacity to make effective decisions and then to transform those choices into desired actions and outcomes [4]. However, even if a group has the capacity to choose options, it may not be able to use agency effectively. Many marginalised communities are comprised of members from diverse backgrounds, who therefore enter the group setting with different assumptions, viewpoints, and interpretations of situations [5]. Although group members may have similar goals (i.e. reaching the best decision for the group), their views based on their diverse social backgrounds may interfere with the ability of the group to cognitively view issues in similar ways [6]. Through interaction and discussion, members are confronted with conflicting perspectives and must seek to reconcile dissimilar assumptions. Group member understanding (especially concerning

the reasons regarding decision preferences, accepting others' viewpoints as valid, and integrating each other's perspectives into their own understandings of issues) positively relates to fostering greater cognitive consensus, facilitating better decision making and ultimately empowerment.

## 2 Fictional Inquiry and the Perceptual Bridge

### 2.1 Fictional Inquiry

In order to evaluate how city games might be better designed to allow communities to foster higher levels of consensus through discussion, this investigation looks at how city gaming can incorporate 'Fictional Inquiry' through a 'perceptual bridge'. Fictional Inquiry is a participatory design technique that uses partially fictional settings, artefacts, and circumstances to construct a shared narrative as a space for conducting collaborative design workshops. Through use of simple physical "props" to play out a scenario, participants are encouraged to imagine desirable/alternative futures to explore real world issues through a fictional lens. Fictional Inquiry differs from traditional participatory design practice as it temporarily changes or bypasses existing socio-cultural structures. Through a general narrative or novel conceptual framing of real-world ideas and problems, the physical and social settings of the participants are reconfigured. This allows designers to reframe the structures of meaning in a context, creating a filter to pragmatic impasses which can often thwart consensus building processes.

The technique has the same advantages of city gaming, as it is playful and engaging – allowing participants to tackle real world issues through an entertaining process – and also creates an environment that is well suited to imagining ideas for the future due to the low cost of failure. However, it departs from existing city gaming processes by introducing clearly fictional "props" and scenarios that enable participant groups to refocus their socio-cultural dynamics. Participants are confronted with their own existing practices and propensities, through discussion of questions or situations of conflict that might otherwise seem inappropriate; through this, the technique shifts focus from fixing existing problems to conceptualising desirable futures, and thereby opening up new lines of discourse and inquiry. Finally the technique creates space for reflecting on the content presented – space intended to provide "food for thought" to be discussed with the wider community and increasing the likelihood of initiating social change.

Dindler divides the Fictional Inquiry technique into three implementation phases: Preparation, Workshop and Analysis. This paper focuses on the Preparation Phase, which can be broken down into three categories: (1) identification of the purpose of the game, (2) development of the narrative and (3) definition of the plot [7]. The purpose of the game might be about prospecting/enacting ideas for the future, provoking discourse around specific and multiple contextual issues, investigating alternative presents or instigating social change. This differs from conventional pragmatic city gaming processes by trying to focus the game on less tangible realms of discourse. For example a conventional city game might be focussed on the location and design of a new building

within a game world, while a Fictional Inquiry approach might try to explicitly open up discussions about the intricacies of community dynamics that necessitate the intervention in the first place. Fictional Inquiry then tightly couples this purpose to a general narrative to provide a backdrop for play activities. In order for this to be effective, participants need to be familiar with the narrative, universe and semantics. However, conceptual distance between the narrative world and the real world/current practice must be ensured, as distancing the narrative is the cornerstone in bypassing existing socio-cultural structures [8]. Plot sets the stage for action within the narrative by building tension, conflict and contradiction to which participants must respond. In order for participants to respond to situations in a realistic manner, participants are generally not given fictitious characters to portray. This ensures the inquiry can be focussed on the participants' own ideas, not those of fictitious characters, thus bypassing existing socio-cultural structures of the context, while preserving the motivations, skills, and knowledge of the participants.

While the approach establishes a foundation for consensus building within city gaming, a number of issues remain unresolved. One of the key factors responsible for the success of a fictional design project is the careful management of the fiction; if it strays too far into the impossible, i.e. presenting implausible concepts, the audience will not relate to the proposal, resulting in a lack of engagement or connection. Conversely if it is too familiar the fiction is too easily assimilated into the normative. In order for this to be effective, the first key factor is that Fictional Inquiry requires a 'perceptual bridge' to exist between the audience's perception of their world and the fictional element of the concept [8]. The second key factor is that the technique focuses on the framing of the fiction through narrative and simple props and not on the embedding of narrative within the design of the props or stages upon which the action (plot) can be staged. To this end there is often a lack of design criteria that may be used to design these props, and therefore game assets, and a lack of mechanics to scaffold the fiction or imply a 'world' within a participatory digital city game.

## 2.2   Design Fiction and the Perceptual Bridge

In order to design city games that enable players to increase levels of cognitive consensus through discourse centred on the temporality of a game environment and its mechanics, it is important to consider what type of futures or alternative presents the game will represent. Games might not only be asking players to consider "how things might be, but also why things are the way they are" [9]. Many practitioners often conceptualise what are termed propositions of "Design Fiction" within Voros's Foresight framework in order to position their design outcomes in relation to an audience [10][1]. This framework allows designers to locate their designs on a continuum of likelihood – beginning with the probable, or what is most likely to become reality and ending in the impossible, representing the designs hardest to perceive becoming reality in the future. Design Fictions are usually positioned between the plausible and the possible in order to break outside the realm of reality and pragmatics so they may ask

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[1] For a detailed discussion about Design Fiction practices see [11].

provocative questions through design. If a design strays too far into the future or deviates too far when constructing an alternative present to depict a clearly improbable or impossible artefact, the design audience will not be able to relate to the proposition, thus resulting in a lack of engagement or connection. Auger argues that the designer has to create a "perceptual bridge" to fill the gap between the viewer's present state of mind – technical knowledge, psychological perception and cultural background – and the foreign proposition and its position within Voros's framework [11]. The plausibility of such fictions comes by achieving the right blend of factual authenticity from the present when scaffolding provocative diegetic visions [12]. To successfully achieve this, it is often useful to draw upon the familiar and mundane elements and typologies of everyday life, since due to a lack of knowledge of the future, people's expectations are typically grounded in what they understand today [13]. This approach is often discussed as designing the Uncanny, which seeks to contextualise a design within an existing typology, yet departs from it in very subtle ways to generate reflection and discourse [11]. There are a number of other aspects that help in the creation of a "perceptual bridge" – including narration to the audience about the designed object's fiction and its context (rhythm, plot, style) and framing the design within an aesthetic or spatial experience to communicate to the audience its place and relationship to real world systems [14].

A number of Design Fiction strategies may be adapted into the creation of a fictional enquiry approach to city gaming to scaffold cognitive consensus-generating discussion. To this end, 3d assets, spaces and game mechanics can be designed to:

1. consider the design's connection and position to temporality – from probable to impossible;
2. present players with alternative presents, futures, systems or worlds as a discursive provocateur;
3. engage the players through typological familiarity;
4. narrate the world in which players are situated through their design language;
5. raise questions instead of solve problems;
6. remove typical pragmatic contextual attributes that might normally constrain the design process or discussion about the design.

## 3   Building Consensus: A Framework for the Design of Fictional Inquiry in City Games

These six strategies can be conceptualised into a framework to guide the design of consensus building city games that incorporate both Fictional Inquiry techniques and the design fiction criteria developed for the design of digital 3d props to scaffold the fiction within the game environment. Figure 1 illustrates the perceptual bridge function as a two-way mechanism in which cultural structures are reinterpreted through a Fictional Inquiry approach to city gaming. It also embodies a number of important design considerations:

1. the target community for the fictional game is investigated/analysed in order to identify and understand its physical context and issues for the game to target, that directly feed into the purpose of the game, the narrative that frames the action in the familiar, and the plot design that encompasses the actions and discursive aspects of the game to set the stage for Fictonal Inquiry;
2. game environment, props, and mechanics are designed in order to encompass the various perceptual bridging techniques;
3. existing socio-cultural structures are left as the bridge is crossed into the fictional game world and are reinterpreted through the framing of the game;
4. interactive, multiplayer gameplay generates discussion and reflection around the real world issues embodied within the fictional world; and
5. discussions and ideas generated through the play of the game are taken back through the perceptual bridge via the functions of typological familiarity, narration and framing to be applied/conceptualised in the real world.
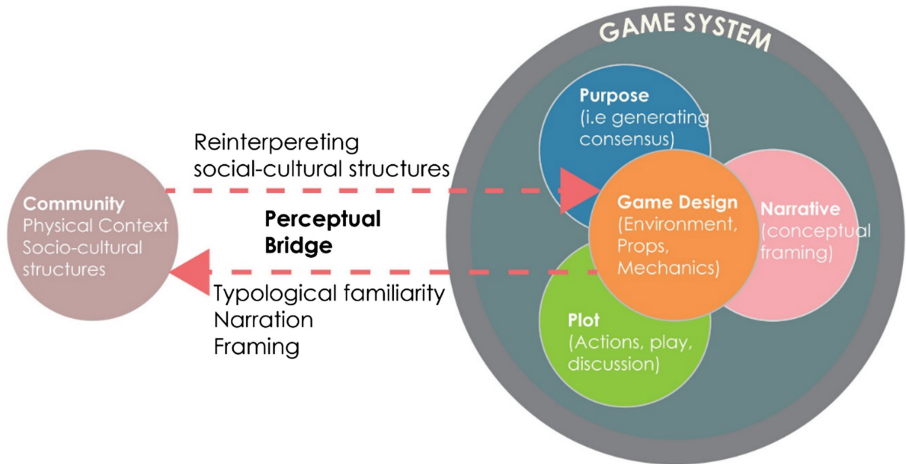


**Fig. 1.** A framework for fictional inquiry in participatory city gaming

## 4  Case Study Background: Maslow's Palace

This research investigation has incorporated this framework into the design of a new city game called Maslow's Palace, which is a turns-based multiplayer game intended to facilitate group discussions within the marginalised waste picker communities of Ghazipur (Delhi) and Shanti Nagar (Mumbai). Waste disposal sites with large waste picker communities, like Ghazipur and Shanti Nagar, are subject to massive rural urban migration that makes them culturally extremely diverse; they therefore struggle to gain political traction towards community development due to a lack of consensus and empowerment [3] (Fig. 2).

**Fig. 2.** The Shivaji nagar informal community at Shanti nagar landfill, Mumbai, India (2017).

## 5    Design of Game: Maslow's Palace

Maslow's Palace focuses on the problems and disparities of views within the Shanti Nagar and Ghazipur communities, to help them move toward a common vision. The game seeks to expose these differences to increase levels of consensus surrounding urban scale community issues and to foster empowerment by enabling groups to better understand each other's points of view regarding a range of problems to help them collaborate better in the future.

Maslow's Palace unfolds through gameplay situated on fictional islands that can be thought of as urban microcosms. Players are confronted with the challenges of built-in game logic (such as, all players must move their game character to a common area in order to open a door or place a specific module) and strategic discussion between players (such as, where to place modules based on personal importance to each player). Players are initially introduced to an open play level (Fig. 3), where they may experiment with "world building" and familiarise themselves with player movement, door opening and module placement. This level is visually designed to be situated at the less plausible end of the temporality spectrum, representing a significant departure from reality with the goal of levelling socio-cultural structures.

In subsequent levels, players are required to respond to the composition of modules they are placing. Through visual instructions, players are asked to build a tower five floors high in the centre of a fictional island community (Fig. 4). An inventory of modules is provided to the players comprising elements such as water tanks, houses, schools, medical facilities and public space elements (trees, cricket pitches, etc. that can

**Fig. 3.** Level one – open play that requires players to depart from reality.



**Fig. 4.** The introduction of familiar environmental components.

be placed at any time at any position). Players are instructed to place modules that are most important to the community at the first floor and the least important on the fifth floor. However in order to unlock the potential to place a new floor level module, all players must move their character to a "discussion zone" indicating that each player is happy with the current level. When all players are located in this zone the floor module may be placed. Game testing has shown that this mechanic is effective at generating a

high level of discussion where players are required to reach a state of consensus on five occasions. Compositional feedback is provided to players in the form of a UI graph that tracks numbers of modules in the game grouped as public space, infrastructure, public amenities, residential and commercial modules. Players have been observed negotiating their "wants" in terms of module placement in relationship to creating a tower with an even compositional split in order to gain access to the next level.

The 3d game environment of Maslow's Palace has been developed with reference to an existing site context. As the game unfolds more familiar elements, such as typologically similar buildings and other environmental artefacts such as tuk tuks, are evident within the game environment. These game components are designed to parallel those in the existing research sites of Shanti Nagar and Ghazipur to provoke players to begin to think about their interactions in the fictional game environment with reference to their real world experiences, facilitating the formation of a perceptual bridge (Fig. 5).
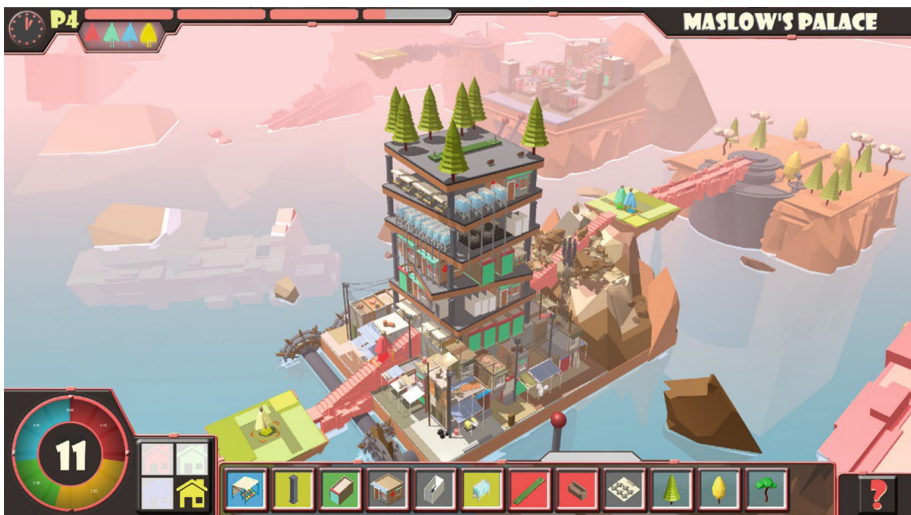


**Fig. 5.** Players constructing a tower in Maslow's Palace.

## 6   Generating Consensus: The Real World Feedback Loop

Play testing has shown that through collaborative gameplay within the fictional scenario, players engage in significant discussion in order to build consensus around a number of issues. Players often learnt to act collectively in order to make large changes swiftly. It was noted that through play, the game provoked players to define mediation strategies, as well as an overall "design" strategy. As more typologically familiar attributes such as familiar buildings were added, many players became concerned with the spatial planning aspects of placing modules. In one test, one player became fixated with having access ways for players to be able to readily move to a level exit door, while another player argued for a greater number of housing modules. This resulted in a

discussion of values. In another test, a group of players were concerned with placing certain modules near building elements of the game environment that had no bearing on the game mechanic, but had compositional value to the players. This type of conversation became more apparent in later stages of the game in correlation with the introduction of more realistic environmental components.

Additionally, as the game attempts to represent urban scale systems at the building scale in order to make them more tangible, players noted and drew connections between different pieces of urban environment. Players were noted, for example, discussing the proximity of a water source to a player's in-game house. These observations show that players are conceptualising real world systems through a fictional lens – providing evidence of a perceptual bridge (Fig. 6).



**Fig. 6.** Players discussing gameplay in Maslow's Palace.

## 7 Conclusion

This constructed framework, and Maslow's Palace, is intended to be used as a catalyst to enable stakeholders in marginalised communities to foster a common vision through fictional inquiry as a prefix to pragmatic community design processes where consensus is required. It is acknowledged that the game framework cannot make a difference to people's situations in isolation. However this research has shown that the technique of applying a fictional approach to city gaming can generate a high level of discussion and build consensus amongst participant groups. Observations have shown that discussion can be bridged from the fictional game environment to embody real world issues and values of the game players. The approach has also seen players define discursive mediation strategies, which are invaluable for participants' active involvement in future real world development processes.

It must be remembered that the designer, when framing the design, needs to take into account the situation of the community that will be playing the game. A future or alternative present for a marginalised community will be very different from those living in a developed city. It is important that the designer not bias this.

The aim of the conceptualised design framework is to create a design system, foster debate amongst designers and facilitate productive participatory design processes through which designers can develop games that encourage user reflection, by enabling players and communities to reflect upon the multifaceted difficulties they face and empower them toward future action. Maslow's Palace embodies our reflections in the design framework and through the design of the game by providing a frame for the utilisation of fictional approaches to tackle real world issues. By designing city games in this way, a space for Fictional Inquiry players to consider a wide range of complex issues can be scaffolded – creating a space that can be explored fully within the safety of the elaborate worlds that games can create.

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