Introduction

In the pilot episode of the comedy television series *Parks and Recreation*, protagonist and mid-level government bureaucrat Leslie Knope (Amy Poehler) approaches a young girl playing in a sandbox. Wielding a clipboard, Knope begins asking a series of survey questions: “Would you say you are enjoying yourself and having fun, having a moderate amount of fun and somewhat enjoying yourself, or having no fun and no enjoyment?” Clearly uninterested, the young girl continues playing with her much more engaging animal figurines (Schur & Daniels, 2009).

While satire, this scene illustrates common perceptions about efforts to involve the public in visioning, planning, and developing their communities—put another way, the disconnect between urban planners and the people their projects aim to serve. Perception isn't far from reality. Traditional outreach strategies (e.g., public hearings, surveys, etc.) in the U.S. often fail to produce information that affects outcomes, lack broad representation, and discourage the informality necessary for collaboration (Innes & Booher, 2000).

As planners struggle to provide meaningful engagement opportunities, citizens are withdrawing from the most fundamental civic participation outlet: the voting box. To cite a local example, during the 2013 Los Angeles mayoral runoff, winner-elect Eric Garcetti garnered just 12.4 percent of registered voters and turnout (23.3 percent), marking a historical low point for the city (Welsh, 2013). Exacerbating declining civic participation is the perception that public input has little impact on government actions. When public involvement becomes a disingenuous exercise of “checking the box”
and fails to incorporate citizen concerns, it alienates people and contributes to the long-term trend of public disengagement from civic life (Putnam, 2000).

Despite these discouraging trends, individuals are defying Robert Putnam's foretelling of civic America's disappearance (1996) through the accelerated growth of participatory cultures (Delwiche & Henderson, 2012). Participatory networks abound in our cities, connecting and mobilizing people through technology to take collective action. This could range from organizing a protest in Tahrir Square to creating a crowdsourced tribute to Johnny Cash. In contrast to perceptions (and often realities) of traditional outreach strategies, members of participatory cultures “believe their contributions matter” (Jenkins, 2006).

New media offers urban planners promising complements to status quo participation methods, enabling citizens and practitioners to build participatory networks and create new visions of the city. In a planning context, “new media” includes an evolving suite of digital tools that facilitate communication, collaboration, and co-production of content between planners and participants.

The first section of this paper provides an overview of new media tools used in urban planning, highlighting case studies and discussing their implications for planners. The second section introduces NoVacancy, a prototype game designed by the author that crowdsources urban design and helps municipalities catalogue vacant land. Drawing on research and project precedents from section one, this paper concludes by discussing NoVacancy's practical and scholarly implications.
New Media Precedents in Urban Planning

Today's urban planners have an opportunity—perhaps even a responsibility—to shift the paradigm of public participation and embrace new media in their professional practice. While well-intentioned, the outreach strategies that emerged from post-WWII modernist tradition and the environmental movements of the 1960s and 70s are growing outmoded in an era of “ubiquitous connections” (Delwiche & Henderson, 2012). That's not to say face-to-face encounters no longer have a place in today's society—they do, possibly more than ever. However, emerging communications and urban modeling applications reveal new media's potential to meaningfully engage citizenry in the coproduction of cities beyond legally mandated public hearings.

Participatory Geographic Information Systems

One area where new media has already made inroads in public involvement is participatory geographic information systems (PGIS) (Dunn, 2007). GIS is a digital technology that enables users to capture, manage, analyze, and display geographically referenced data (What is GIS, 2013). In a participatory context, users manipulate geographic information within a PGIS interface and receive feedback. In 2003, the Northeastern Illinois Planning Commission (now the Chicago Metropolitan Agency for Planning) developed Paint the Town, an early example of an interactive PGIS tool. Paint the Town enabled citizens to draw growth boundaries and adjust land uses on a digital map, affecting housing and job growth projections in real-time (Dieber, 2003).

While Paint the Town relied on planning officials to facilitate, other initiatives sought to decentralize and democratize GIS information through participatory mapping (Dunn, 2007). A recent example is the
HyperCities platform jointly developed by USC and UCLA. HyperCities enables users to overlay geotemporal information on basemaps of several world cities, with content ranging from oral histories to 3-D reconstructions (HyperCities, 2013). Urban planners can use information from participatory maps to better understand local context and craft solutions that reflect both the spatial and historical narratives of a place.

Web-Based Crowdsourcing

Increasingly, applications like HyperCities are tapping the “wisdom of the crowd” (Surowiecki, 2004) to address urban planning issues. As defined by Brabham (2012), “crowdsourcing is an emerging problem-solving model that leverages the collective intelligence of online communities for specific purposes.” Crowdsourcing strives to achieve what Plato described in The Republic as “phronesis,” or practical wisdom, by harnessing broad-based, local knowledge. Planners can draw upon crowdsourcing platforms to better understand social context and ground-truth project ideas through the iterative process of peer-vetted creation (Brabham, 2012).

In a Federal Transit Administration-sponsored test project, Brabham's team developed an online platform called Next Stop Design where interested participants could submit designs for a bus stop shelter in Salt Lake City, Utah. Despite no guarantee of compensation or adoption, users actively participated in the online community, submitting designs that the community ranked and sorted to determine a winner (Brabham, 2012). The author's NoVacancy prototype, discussed later in this paper, draws on this research, motivating player participation through the game's point system and ratings from its online community.
Virtual and Augmented Realities

Virtual reality (VR) and augmented reality (AR) move beyond traditional two-dimensional plan view representations of spatial information to immerse participants in a 3-D vision of the city. The primary difference between virtual and augmented realities is VR replaces the physical world with a virtual world, whereas AR augments the physical world with virtual elements. VR and AR both overcome the challenge of intuitively visualizing non-existing physical elements. These applications use 3-D modeling to represent spatial information, as opposed to more commonly used—and less intuitive—methods like plans, sketches, and maps (Gordon & Manosevitch, 2010). In a participatory context, planners can use VR and AR to visually communicate and motivate deliberation.

One application with high potential is “augmented deliberation,” which Gordon and Manosevitch (2010) define as a “process whereby a group of people deliberates in a face-to-face setting while they are simultaneously immersed in a virtual environment.” Their project, Hub2, asked participants to meet in a real-world workshop environment to design a park in Second Life, an online virtual world. This method made it easier for participants to understand spatial scenarios and meaningfully contribute their visions (Gordon & Manosevitch, 2010).

Tangible Computing Interfaces

Tangible computing interfaces (TUIs) bring visions of the city into the physical world, providing form to digital information (Ishii, 2008). An early example is Urp, Hiroshi Ishii's TUI developed in 1999 that used scaled models of buildings to simulate shadow, light reflection, and wind flow effects. Users could change the location and orientation of buildings by physically moving them on an interactive
A more recent example is Maquil, et al's (2012) ColorTable, a TUI designed to enhance deliberation and collaboration for economic development projects. Using colored tokens on an interactive table, users can manipulate buildings, streets, pedestrian flows, and landscape textures. Applied to public participation processes, TUIs lend themselves to collaboration, encouraging participants to explore alternatives in a low-risk environment and work together to craft optimal outcomes. Like AR and VR, TUIs offer spatial representations that are more intuitive than traditional visualizations of urban planning initiatives.

**Serious Games**

Gameplay is emerging as an innovative way to encourage stakeholders to participate in project development and take civic action. As articulated by Stokes (2012), “the choice to be part of something bigger than ourselves is both an attribute of civic life...and a reason people play games.” Serious games move beyond entertainment to address real-world issues and educate participants by harnessing the power of immersive storytelling, often through a virtual world (Poplin, 2011).

Poplin's (2011) NextCampus project is an illustrative example of how games can be used to enhance public participation in planning. This project asked “players”—i.e., citizen stakeholders—to find the optimal solution for a proposed relocation of a university campus in Hamburg, Germany. Within the game, optimality was based on stakeholder satisfaction levels and budget availability. Researchers
The new media applications mentioned to this point require a high degree of customization and tend to be capital and resource intensive. As a result, these tools will often be cost-prohibitive for smaller agencies and municipalities, and overkill for less complex projects. Planners must weigh the implementation costs of these methods against a project's scale, risk, and potential for significant impacts. Also, there is a high degree of learning required for participants to effectively use these tools, which could affect project schedules and deter stakeholders from participating. Technology will almost certainly become cheaper and more intuitive in the future, but for now these obstacles inhibit widespread adoption.

Web 2.0 is one area where agencies and urban planning firms are regularly using new media to encourage public participation. Web 2.0 applications (e.g., social media, blogs, wikis, interactive webpages, etc.) move beyond static webpages to provide users with interactive and collaborative experiences, creating network effects through an “architecture of participation” (O'Reilly, 2005). While most major projects in the U.S. have static webpages, planners are finding that Web 2.0 tools more effectively engage stakeholders in open, two-way communication, especially if done as part of a transparent communication philosophy (Cole, 2013).
It should be noted that each new media tool is just that, a tool. As articulated best by Stokes (2012), “we cannot simply design more civic tools, without offering participants more meaningful choices.” Planning processes that consider public input trivial or “a box to be checked” will always fail to produce collaborative outcomes, regardless of medium—meaningful participation must be the goal. Also, while these applications expand access and enhance comprehension, they do not ensure equity. It is still the planner's responsibility to develop processes that provide all stakeholders opportunities for meaningful involvement.

Despite these considerations, new media tools offer planners the ability to foster collaboration and leverage participatory networks in ways not possible with traditional outreach methods. Drawing on the research and case studies detailed above, the following section introduces NoVacancy, a mobile game prototype that links new media with urban planning to more effectively engage citizens in the coproduction of place.

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NoVacancy

Overview

NoVacancy is a game that harnesses the collective creativity of the public to reimagine urban environments and identify vacant land. Prototyped for mobile devices, NoVacancy enables players to visually express their visions for what land in their communities could be through its interactive site planning interface. Players earn points for their site plans based on peer vetting from the NoVacancy
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community, and can also collaborate on site plans with other users. More points are awarded for site plans that target vacant parcels and conform with existing land use regulations.

NoVacancy's primary purpose is to build a participatory network around urban design and site planning, encouraging players to design, share, and receive feedback on their designs. Crowdsourced player data also helps communities catalogue vacant land and assess demand for new development. For detailed documentation on NoVacancy, please see Appendix A: NoVacancy Documentation.

When first opening the game, users choose one of three paths:

- **Create**: design a site plan from scratch
- **Imagine**: express visions for a parcel through a short narrative
- **Collaborate**: connect with other players to design a collaborative site plan

NoVacancy uses automated geolocation to determine the parcel's location, and retrieves a parcel wireframe from the County Assessor's database that serves as the site plan's base layer. The game prompts players to photograph the parcel before designing, which serves two primary purposes: (1) to determine mobile device orientation to pinpoint the parcel's address; and (2) to visually verify the parcel's occupancy status (i.e., vacant or developed).

NoVacancy is designed for collaboration and sharing, providing links to social media APIs so players can display and receive feedback on their site plans through existing social media accounts. Also, the
game's interface enables players to browse, provide input, and vote on site plans created by other player's in the NoVacancy community.

With NoVacancy's code check feature, players can toggle design elements based on their conformance with a parcel's permitted uses. For example, if a player chooses to create a site plan for a parcel zoned for single-family housing, design elements like the factory or coffee shop would be unavailable. Designs that use code check receive more points, encouraging players to explore the possibilities and limitations of planning regulations.

**Precedents**

In addition to the case studies presented in section one of this paper, several existing new media applications have succeeded in offering citizens tools to manipulate virtual urban environments. The most well known is SimCity, a city-building game designed for computers and consoles in which users construct infrastructure and establish Euclidean zoning districts. Blockee (blockee.org) is a mobile and web application that allows users to “pimp their block” by decorating an uploaded image or Google Streetview with “urban bling” (e.g., park bench, trash can, bike path, etc.). Streetmix (streetmix.net), another streetscape-oriented mobile and web application, presents users with a cross section of an empty street, which can be augmented with automobile and transit lanes, parklets, sidewalks, and other design elements. SimCity, Blockee, and Streetmix offer users opportunities to reimagine their urban environments and share their visions with friends; however, all are limited in their ability to affect real world outcomes.
In contrast, Popularise (popularise.com) is an online crowdsourcing platform that enables “builders”—i.e., real estate developers—to post proposed projects, which are then vetted by the Popularise community. Members of the community submit their ideas to the “builders” and vote on projects, with real-world ramifications for what gets built and what doesn't. Similar to NoVacancy, the Popularise platform attempts to create a participatory network around urban development and empower citizens to meaningfully influence land use decisions.

**Discussion**

Designed to bridge the gap between new media and participatory planning, NoVacancy draws inspiration from Henry Jenkins' (2006) research on participatory cultures, Daren Brabham's (2012) work on crowdsourcing, and Alenka Poplin's (2011) investigation of playful public participation. It strives to enhance interaction between citizens and planners through play, while crowdsourcing land occupancy information and community demand for urban development.

As a game, NoVacancy is designed to entertain; however, it's a “serious game” (Michael & Chen, 2005) in that its goal is to affect real-world outcomes—i.e., urban land-use decisions. As Poplin discovered in implementing the NextCampus project, serious games often struggle to provide motivating rewards and opportunities for meaningful participation (Poplin, 2011). NoVacancy is no exception.

Members of the NoVacancy community do not receive compensation for their designs and their site plans are not guaranteed adoption. Instead, players garner recognition from peers within the game's
online community. Peer feedback and enjoyment from participating are consistent motivators for participants in crowdsourced platforms (Brabham, 2012). Jenkins (2006) posits that members of participatory cultures feel connected to one another and are motivated to produce and share content because their contributions matter. Consequently, NoVacancy's success depends on its ability to build a robust network of participants that actively provides feedback and peer recognition. Fortunately, few topics that motivate conversation and controversy more than place, and NoVacancy creates a ready forum for critiquing and iterating visions of the city.

The success of NoVacancy—and any mobile gaming platform that seeks to crowdsource urban planning solutions—will be premised on its ability to balance enjoyment with meaning. While enjoyment from gameplay and feedback from participatory networks may be sufficiently motivating for some players, the potential for player-generated content to affect real-world development outcomes offers even greater incentive to participate. NoVacancy's repository of visually based development demand information and its active participatory network offers governments, non-profit organizations, and private developers valuable information to help them design better urban environments. Content sharing and feedback loops will be particularly important for these entities, since players will want to know how their contributions affect development decisions.

**Conclusion**

Traditional outreach methods for urban planners often fall short of the public participation and collaboration they are meant to evoke. Despite indications that citizens are withdrawing from civic life, robust participatory networks are emerging online. Through new media tools, urban planners can
leverage these networks to enhance public participation and crowdsource solutions to urban planning challenges.

NoVacancy, a mobile prototype designed by the author, attempts to engage citizens in the co-production of their cities through gameplay. While grounded in theory, further research and development is needed to support the formation of a robust participatory network and offer players meaningful participatory experiences. Conceptually, NoVacancy sets a precedent by using a mobile gaming platform to crowdsource solutions to urban planning challenges. If urban planners are able to properly balance enjoyment and meaning, gameplay could become a valuable new media tool that enhances public engagement and offers a promising complement to status quo participation methods.

References


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