Abstract:

Traditional attempts at improving participation in civic life often focus on increasing the number of citizens engaged rather than improving the quality of engagement. As digital interventions flood the civic space, investigating the mediating interfaces that provide opportunities for deeper engagement becomes necessary. This paper engages in design-based research that assesses the affordances and effects of one such platform: an interactive online game for local engagement called CPI. Drawing on an analysis of game mechanics, in-game actions, and interviews and focus groups with players, we ask if and how CPI can move citizen participation beyond isolated transactions. We draw two conclusions: CPI creates and strengthens trust among individuals and local community groups that is linked to confidence in the process of engaging, and it encourages interactive practices of engagement that we define as *civic learning*.

Keywords:
Civic media, civic engagement, local government, game studies, urban planning, design-based research

Playful Civic Learning:
Creating opportunities for local engagement through digital games

Participating in local life can be difficult. Voicing an opinion on a local ordinance; connecting with like-minded neighbors; learning about a planning project: these actions are not typically well supported by government or local organizations. Information is hard to obtain, meetings are difficult to attend, and consequently, local networks are challenging to build. The problem is not lack of resources; each year, municipal governments and planning consultants in the United States spend millions of dollars to "engage" the public. The problem is that engagement is too often conceived as simply making available opportunities for official transactions, such as town hall meetings or information sessions, rather than enabling citizen-to-citizen connections or opportunities for meaningful feedback. Meanwhile, many governments and organizations are looking to digital tools to expand their engagement strategies. There is a growing body of research in the area of digital media and civic participation, from fields as diverse as urban planning (Evans-Cowley, 2010; Gordon, Schirra & Hollander, 2011), public policy (Leighninger, 2011), sociology (Hampton, Sessions & Her, 2011), communications (Dewey, 1938), and urban informatics (Foth & Hearn, 2011). This research has focused on how digital media can affect one's sense of citizenship and the ways in which digital tools can augment civic actions. More than simply increasing the amount of civic participation, access to mediated information shapes a "mediated public consciousness" or orientation to the world beyond the individual's immediate concerns (Couldry, Livingston, & Markham, 2007). In other words, digital media do

not merely add to the efficiency of government and civic actions, they can create significant changes in how people engage and understand their actions. This paper continues this investigation by considering a specific intervention to qualitatively improve and deepen civic engagement.

We consider how a digital game can mediate isolated acts of participation to produce what we call *civic learning,* a form of engagement that combines participation with the act of reflection. Attending a town hall meeting about a local planning initiative represents civic participation; learning happens when the participant speaks out, when they tell a friend or neighbor about the meeting, when they write about it, argue about it, or share it online. In an effort to highlight possibilities for this form of deep engagement, we investigate how the design and implementation of an interactive online game called CPI can encourage and foster civic learning in a local geographic context. Specifically, we ask two questions: What is CPI's capacity for building trust amongst players? And, can CPI encourage civic learning that extends beyond isolated moments of transaction? In this assessment, we look at two implementations of the game: its use within a district planning process in the Boston Public Schools (BPS), and as part of the master planning process in the city of Detroit. In each case, we evaluate the effectiveness of structuring these processes of local engagement primarily within a game-based online learning environment. We demonstrate that there are important possibilities for creating a viable alternative to trust in civic institutions via lateral relationships, and we highlight emerging practices of civic learning that occur through self and social reflection.

Civic Learning in a Digital Landscape

Traditional ways of measuring civic engagement center upon assessing individuals' level of knowledge of political events or government practices (e.g. knowing the names of politicians or the branches of government), and frequency with which they take political actions (e.g. attending a town hall meeting or donating money to a political or philanthropic cause). With the rapid evolution of digital media, actions such as "signing" electronic petitions, commenting on an online news story, or posting a political message in a social media platform make up a significant portion of what contemporary civic engagement looks like (Chadwick, 2009, Gainous & Wagner, 2011). Even with this expanded purview of civic participation, little attention is paid to how citizens understand the relationship between their political opinions, positions and policies and the greater communities within which they exist. This understanding takes place through what Dahlgren (2009) calls "interactive practices" – not isolated events, but those which "include how [mediated information] is received, discussed, made sense of, re-interpreted, circulated among, and utilized by publics" (p. 74). We are particularly interested in how this results in *civic learning*, where interactive practices establish a baseline for future practices through the manufacture of informal learning environments.

Our approach to civic learning draws on John Dewey's notion of experiential learning (Dewey, 1938). Experience, he argues, is the basis of learning, but only when it is reflected upon. When a child accidently smashes her hand with a hammer, the experience leads to learning only when she takes the time to evaluate what has happened to her. When she says, "I will move my hand out of the way before

attempting to hit another nail," she has learned something about the act of hammering. Likewise, civic learning takes place when citizens have the ability to reflect upon and process participation in order to apply it to a larger context. Civic learning is created from the act of reflecting, playing, and acting on information within a civic context. Dewey compares the learning process to the scientific method wherein hypotheses "must be continuously tested and revised" (87). Learning requires a structure of interaction that facilitates the learner's actions and directs them to a greater purpose. "A purpose is an end-view," he says. "It involves foresight of the consequences which will result from acting upon impulse" (67). Everyday civic actions mostly lack any sort of end-view. Or if one exists, it is rarely clear to the learner. When a person votes, they might have a larger sense or purpose (the outcome of the election); but when someone participates in a local meeting or complains to city government, there is very little feedback. Instead, these processes tend to rely on *pro forma* feedback mechanisms such as automatic email responses and canned responses from politicians.

We argue that civic learning is not simply a product of isolated interactions, but takes place within a well-designed environment (digital or otherwise) that connects citizens to processes. A city website that enables the payment of parking tickets online redefines a specific interaction with government, or a local neighborhood organization that connects via Facebook can redefine the possibilities of local social connections. Like any user interface, technology-enhanced environments used to connect with government or local communities establish a framework for interaction with built in limitations and affordances. Poorly designed

user interfaces can succeed in motivating user action, but they can discourage future interaction. For example, when a user gets frustrated with a poorly designed website, they don't think about the possibilities of the site, they think about how to avoid it in the future. Good user interface, on the other hand, can reorient the user to possibilities of which they were not previously aware, and well-designed civic interfaces can create opportunities for reflection and articulation of sense of purpose.

In this context, a game is simply another aspect of an interface. It provides specific mechanics that dictate how users interact with process and content. As structured systems, games motivate interaction with a set of rules that are, in most cases, transparent to the player through instructions or feedback. As such, playing a game enforces a generalized understanding of systems reinforced through exploration, story, and challenge (Zimmerman, 2009). What results is what Salen and Zimmerman (2004) have called "meaningful play," a conceptual relative of experiential learning that "emerges from the relationship between player action and system outcome." They explain that it "is the process by which a player takes action within the designed system of a game and the system responds to the action" (p. 34). Games can provide sense of purpose through stated goals; they can enable reflection through a player's assessment of progress and they can allow for playful exploration of content within structured systems of interaction (Polin, n.d.). How a game can create a productive user interface by increasing trust and efficacy within geographic communities is the focus of the present research.

Game Design and Methods

This study is centered on the design and implementation of the game CPI. We analyze the implementation of the game in two unique contexts: planning for education policy in the Boston Public Schools and planning for urban development in Detroit. The common goals of the implementations were two-fold: to engage as many stakeholders as possible in providing meaningful input to decision-makers, and to provide opportunities for stakeholders to learn about the planning process through creation and sharing. Unlike much design-based research, our study examined the implementation of an experimental prototype project "in the wild.[1]" Each instance of the game was part of a planning process that was already in progress, and produced data that was used by decision-makers.

CPI is an online mission-based game platform designed specifically for use in local planning processes. The basic structure of the game is a series of missions, each with a start and end date, where players are prompted to complete a series of challenges or questions. Players receive points for most game actions, and certain actions such as commenting, liking, and sharing are reinforced through badges. Points function to rank players' performance in the game, and also serve as a currency that can be spent on "planning values," which are big-picture concepts that frame the public discussion, such as "walkability," or "student attendance." The more points one accumulates, the louder their voice can be in defining the community's values, and competition is fostered through leader boards, badges, and weekly emails to players. At the end of the game, the distribution of points to planning values is meant to represent the community's general sentiment.

CPI is more than an online game. Each implementation is coupled with a face-to-face game finale meeting, where players are invited to debrief on game results and plan for next steps. Debriefing is a demonstrated mechanism of enforcing reflection into a game experience (Lederman, 1992, Crookall, 2010). While it was not intended to replace the need for reflection within the game itself, the game finale meeting (which attracted about 10% of the players) serves an important rhetorical function to integrate reflection into the overall game experience.

The two game implementations took place nine months apart.[2] The Boston game was facilitated within BPS to inform the production of the "School Performance Index" – an instrument used by the district to evaluate school quality.[3] Overall, the game included seven missions, each lasting five days, for a total of 35 days of gameplay, 451 registered players, and over 4600 comments. In Detroit, the game was composed of three missions, seven days each, for a total of 21 days of gameplay, and resulted in 1043 registered players with over 8400 comments. The game was developed in partnership with Detroit Works Project Long Term Planning, a quasi-public planning organization tasked with engaging Detroit residents in the city's master plan.[4] The data from the game were analyzed by planners, shared with all stakeholders, made widely available to players in visualizations and raw form, and incorporated into the plan presented to residents.[5] In both games, the demographic breakdown of players differed from that which occurs within traditional engagement practices, with 31% of players identifying as students (largely high school age) in Boston. In Detroit, 74% of players were 35 or under.

Participants in both games were also diverse in race and socioeconomic background.[6]

The present study is based on the analysis of in-game interactions, as well as player interviews and focus groups, and observations of in-person game meetings. Ten semi-structured interviews were conducted with adult players in Boston in November of 2011, and seventeen semi-structured interviews were conducted with adult players in Detroit during May and June of 2012. In total, interviews averaged just over 35 minutes each, and participants were roughly 75% female in both cases. Additionally, two focus groups were conducted in Detroit with youth, one with approximately 20 middle school students and the other with approximately 30 high school students, all of whom were active players in the game. In Boston, in lieu of formal focus groups, we observed a core group of six high school students contribute to making content, promoting the game, and playing the game over the course of twelve weeks. This involved "hanging out" with the students a few times a week in an after school program where they discussed and planned for the game and interacted with other students to promote the game. Additionally, we observed the in-person game finale meetings in each city. As this design-based research represents an initial step toward understanding how to best encourage practices of civic learning, we enlisted an inductive, grounded theory approach in which categories and thematic conventions were applied to the data in an ongoing and iterative manner. In the following analysis, we discuss how CPI enabled alternative avenues for trust in civic processes and encouraged civic learning via the recognition of alternative perspectives and shared publics within a community.

Alternative spaces for developing trust

Interfacing with government requires some level of trust that participation will not go completely ignored or that extra-institutional mechanisms of participation can be productive. But it does not hinge entirely on vertical trust in institutions that public polls most often track or on which research concerning political participation often focuses.[7] Instead, we discuss an alternative, lateral trust that is similar to social trust and can be seen in reciprocal relationships with other individuals and local community groups.[8] Studies have revealed social trust as positively correlated with civic participation (Kaufhold, Valenzuela & Gil de Zuñiga, 2010; Norris, 2001). Building on this work, we explore how more interactive civic processes (or civic learning) correlate with social trust, as these practices demand citizens consider the impact of their opinions or actions and trust in the context in which these interactions take place. In civic contexts where trust is often low and counterproductive to taking action, such as local planning, we seek to understand how to establish alternative trustworthy spaces in order to increase both transactive participation and interactive civic learning.

In both Detroit and Boston, there was considerable distrust amongst players in the institutions sponsoring the games. A common critique of online participatory planning tools is that they merely provide planners with more opinions to ignore (Peng, 2001), and the contexts within which CPI was played were no different. Few people trusted the Boston Public Schools or the City of Detroit to take action once the process concluded. However, through playing the game, players developed

lateral trust relationships that would affect their social framing of issues and willingness to engage in civic learning practices. So while CPI requires that players have a certain amount of trust in institutions and decision-makers to "listen" to their input, we found that this expectation was mediated by the mechanics of the game. Players begin and continue to play because of the desire to be heard, but their perception of who is listening (and who it is important to be heard by) changes. They find substantive benefit from the social interactions and resulting data created during game play, and tend to trust in the efficacy of emergent publics illuminated through the game.

The players we interviewed reported that they started playing because they were referred by a trusted organization (community group, church, school, etc.), rarely because of the large-scale decision-making institution (city government or school district). In fact, many voiced frustration with what they saw as an institutional failure to properly provide information and press coverage for the game. Explaining what he saw as the usual problem in Detroit, a planner who works for a government agency said:

> "There's a deep history that goes back decades in the city of Detroit particularly with community planning issues of people being told this is what it's going to be or having a community planning input session as just a formality because the law says we have to take community input. So we'll write people's input down on a piece of paper and then put it on a shelf somewhere. […] (2012, personal communication)

Still, he enjoyed CPI because it provided an alternative to information sitting on a shelf by sharing information among players. As a player who works and volunteers in Detroit said: "I felt like at least I know this isn't going down like an empty well;

somebody is reading it." (2012, personal communication) Additionally, many reported that they continued playing because of the access to others' ideas or satisfaction of having other players acknowledge their ideas. Because of a general skepticism of civic institutions' ability to directly apply CPI's feedback to policy decisions (Gupta, Bouvier & Gordon, 2012), the audience for the engagement process was not the "official listener," but a distributed network of players that shared interest. One player living in Detroit said she played because "somebody's reading these posts and possibly getting some ideas" (2011, personal communication). The interpersonal connections, even without any direct communication, generated a human context with which people could relate. This happened through simple mechanisms like avatar pictures. "There is one guy," remembers a player who lives outside the city but works within it, "I liked how he was introspective talking about the way things were when he was growing up and I appreciated that. I can't remember his name. I see his face as clear as day, he had a blue shirt on" (2011, personal communication).

These interpersonal relationships were memorable for players, and were often invoked as the reason CPI produced better information than traditional public engagement processes. Describing how there was "no comparison" between CPI and traditional town hall meetings, a BPS parent who often went to meetings held by the district explained, "[CPI] was very interactive. They were searching for information. They were trying to learn about what your thoughts were. […] Whereas, most events that I've been to are like, you don't have a chance to be heard" (2011, personal communication). Not only did the game itself ask and collect people's responses on a

scale that is not generally reached in community meetings, but it produced the types of interactions that were more deliberative. Explaining the value of an extended conversation she had with another player, one player who had been active in her child's school's parent council asserted, "it's the back and forth that you don't get in a town hall meeting" (2011, personal communication). Another BPS player described CPI not as a game, but as a "vehicle for interacting with each other." (2011, personal communication). With experience working with BPS via a nonprofit organization, he voiced a lack of trust in institutions alongside his trust that CPI led to better answers: "I don't know whether they'll see the creative nature of some of the questions and their potential answers or not." The in-game data also held the possibility of being used by community groups themselves. One Detroit player discussed her hope that her own community organization would make productive use of the data: "This is something that you're able to take as hard proof of the opinions of the people who are in the city and share it with people in positions of power. […] That kind of thing can come out of this data gathering" (2012, personal communication).

These trust relationships established in the game are predicated on the game's ability to provide a meaningful answer to the question of "who's listening?" No longer limited to the traditional parameters of a public participation process, wherein decision-makers are the only audience of relevance, CPI involves a listening public that tends to be other players or player groups. In CPI, players exhibited trust in many of these alternative audiences. One of the unique affordances of online social networking is that it enables the creation of multiple publics (boyd, 2008).

When posting to Facebook, for example, people tend to have a very particular sense of who is listening, which may or may not be accurate, and the conception can change over time to allow for different behaviors or outcomes. In CPI, players had a very diverse sense of publics – encompassing both strangers and acquaintances, decision-makers and friends. The ability for players to understand their actions within the game as being "listened to" by various publics seemed to reinforce a sense of trust in the system and its outcomes. For example, youth players in Detroit and Boston spoke about the presence of adults as a legitimizing factor in the process. Even though they tended not to interact directly with adult players, youth knew adults were there and often performed for that public. It made them feel as though they were participating in a "real civic process." "It felt like we were doing something real," said a 16-year old player in Boston (2011, personal communication). Likewise, because there were so many youth players in both games, adult players tended to perform for them. One BPS player described watching her grammar because she wanted to model behavior for youth. Adult players rarely interacted directly with the youth, but youth presence created a sense of purpose that went beyond official listening.

In addition to the creation of imagined intergenerational publics, many players constructed and trusted in an audience of potential collaborators. They hoped the in-game relationships forged between individuals and among communities would benefit future civic efforts. A self-proclaimed lifelong Detroit resident who played the game hoped to use the final, in-person game event to meet other community members who could become civic collaborators: "I'm hoping to

link and get with other people actually tomorrow. […]It's going to take organizations and groups to come together and unite to make the positive change in Detroit" (2012, personal communication). Echoing the hope that CPI would be a catalyst for community collaboration, a player whose job focuses on redeveloping Detroit explained, "we get to know each other online and then branch out that maybe that can help move some of that dialog for how we get those lifestyle options in those neighborhoods" (2012, personal communication).

The presence of decision-makers was important in both games. Planners were recognizable players in Detroit, and district employees were present in Boston, and it was made clear to people that decision-makers would be present at the game finale meetings. This structure did generate legitimacy for the process—lateral trust in local organizations convinced players to register, and players' belief that decision-makers were willing to listen was important for their perseverance in the game. In Boston, the superintendent and her executive council invited youth who were highly involved in the game to present the game's findings at an official meeting. This demonstrated to youth and adults alike that a real world impact of their in-game actions and showed them that the adult public was in fact paying attention. But outside these limited official overtures, this study demonstrates that the civic feedback system, specifically the mechanisms through which citizens trust in civic processes, was altered. Players wanted to "have a voice," but through game play, there emerged many, often unanticipated audiences for those voices.

Fostering civic learning through reflecting on alternative perspectives.

At its core, learning is a person's reflection and recognition of their relationship to individuals and groups around them (Raphael, Bachen & Hernandez-Ramos, n.d.; Bennett & Wells, 2009). Likewise, civic learning happens when the civic actor has the opportunity to reflect upon how their actions affect or are affected by social ties. Even lauded actions such as attending local meetings can occur without reflecting on the perspectives or role of other individuals and groups within a local community. In CPI, players not only reflect on their own opinions about civic issues, but also focus on the connections between themselves and other individuals and groups within a defined community. The recognition of individuals and publics that carry alternative perspectives on civic issues creates the necessary conditions for reflecting on such alternative perspectives.

CPI creates a context that enables and rewards reflection on ones' own thoughts and recognition of alternative perspectives. To play the game, players respond to what are called "challenges," question types including multiple choice, interactive maps, image or video submission, and others. Only after they have submitted their response do all other player responses appear in an overview screen. According to players, this process of withholding others' answers was very helpful in encouraging reflection on their own perspectives and those of others. A Detroit player who founded a local civic organization reported that, more than points, her desire to see other responses fueled her participation: "Honestly, it was curiosity—to see everyone's view of things because they had these different situations and stuff" (2012, personal communication). The mechanic of revealing other comments only after players gave their own answer not only motivated the

practice of answering each question, but also aided in provoking more reflection about answers. “I think it forced you to really think about what you wanted to say in order to see other people’s opinions,” said BPS player and teacher in the district (2011, personal communication). Another player with a child in a BPS school had this to say:

> “I really like that you can't see other people's answers until you answer. You know, I really think that was great because too often [in other online systems] you could read everyone else's answers and then you could answer, but it wouldn't be what you really first thought […] and it sometimes has made me think, “oh, gosh, that's true.” [It made] me think about that in a new way. (2011, personal communication).

While the game has no way to force players to reflect on or analyze their perspectives, these mechanics enable and encourage such behavior. As a player in Detroit described to the importance of youth engaging in potentially reflective practices, “even though they may have just gave a pretty quick answer you hope that just the fact that they are on there and they are reading this stuff maybe something will catch hold.” (2012, personal communication).

Beyond reflecting on one’s own position, the process of revealing other players’ answers led many to reflect on positions they had not previously considered and recognize validity in opposing viewpoints. A player who lives outside Detroit’s city limits but has attended the city’s planning meetings, said: “Whenever I found out that I was like the minority […] it just made me think of why do people think the other idea is better. I started to think maybe sometimes you have misconceptions and maybe the other suggestions or the other answers were better than the one I thought was good” (2012, personal communication). A teacher playing in Boston

agreed, saying "It opened my mind to other ideas" (2011, personal communication), as did a planner in Detoit who noted that "it helped me to understand where some folks' thinking was on certain things. [..] It helps you remember that, hey – that's where people are" (2012, personal communication). Or as another Detroit player and community organizer so poignantly stated: "There are things that I don't like about [Detroit], but [the game] really did make me look at what I like. Why I haven't moved yet" (2012, personal communication)

While the goal in the game is to accumulate points that can be directed to "community values," the primary learning goal is to engage in deliberative dialogue with people that share interest in the planning process. Following now standard protocols for online social networks, players can comment on and "like" the responses of others. Email notifications alert players when this happens, encouraging those who were not originally inclined to search out others' ideas to return to the game. A BPS parent who was new to engaging directly with the district was one such player: "[O]ccasionally I read other comments. Mainly if someone commented, liked my comment, or something. Then I would go back and kind of see what people were saying" (2011, personal communication). To encourage player exchange, popular interactions (determined by likes and replies) turned a bright shade of yellow within the challenge overview screen as a means of drawing players' attention and emphasizing the importance of in-game discussion.[9]

Most adult players came to CPI not because they wanted to play a game, *per se*, but because they were interested in the planning issue that framed the game. In Boston, they were interested in providing feedback to the district about school

quality, and in Detroit, they wanted an official forum to provide feedback on the city's master plan. Even though most players had intrinsic motivations to participate, simple game mechanics constructed extrinsic motivators that reinforced the initial drive to participate in ways that encouraged learning. A teacher in BPS who played the game reported that she was interested in the issues, but the game kept her interested in the process. "I got caught up with the points—like, "Oh my God, who is beating me?" Then the points thing kept me going" (2011, personal communication). A community organizer described her realization that points were given for the specific act of commenting and how that motivated her to interact with others: "I would have been commenting all along if I had known that you could earn extra points that way" (2012, personal communication). Additionally, she was very clear that points encouraged her to reflect on the content. "[They] encouraged me to go back and look at other people's responses and make what I thought were kind of engaged questions and answers to what people had said."

In total, players in both games provided 3,088 responses to other players initial answers and "liked" comments and responses 3,517 times, showing that interaction in the game was not merely about putting one's own ideas forward, but also involved reflecting on the contributions of others. The reciprocal communication enabled and fostered by the game was specifically highlighted by players as an improvement on traditional modes of engagement. In some cases, the effects of these acts of reflection seemed to stick with players. Interviews were conducted relatively soon after game play, but players still reported that in-game reflection from previous weeks still had them debating issues. "I put my comment

and someone disagreed with it," describes a BPS employee who played the game. "It made me really think, 'Wait. Maybe they are right.' Even now I don't really know who's right, but I feel like it made me really think about what I thought prior" (2011, personal communication). By engaging with the ideas of others, players were not simply providing feedback on a planning issue. Rather, their participation was scaffolded within a clear content framework and within a context of social interaction. This deviates from an individualistic mode of interaction that many democratic forums embody, and moves toward both a communitarian and deliberative mode of engaging (Freelon, 2010). Beyond simply enabling and encouraging reflection at the interpersonal level, CPI creates spaces in which groups can reflect on their collective impact, responsibilities, and relationships, and players can understand their relationships to multiple publics. This reflection is highlighted in players' ability to form groups within the system. One of the features of CPI is the ability to form "affiliations." These are groups bound by an interest or connection to organizations, locations, causes, and other "real life" affinities. They include things like schools, neighborhoods, churches, non-profits, etc. Affiliations can be formed at any time during a game. In Boston, there were 120 and in Detroit 304. By highlighting the shared interests and connections among players, affiliations display the variety of interest groups and coalitions in existence within the community and draw attention to the diversity of perspectives among publics. Differences in perspectives across publics are especially important to draw out, as they would often otherwise be completely unknown.

Similarities are also important. A player of the BPS game who had much experience working with education in the nonprofit sector, explains a surprising realization of shared goals:

> "What came out of it was that the school, a lot of the administration, teachers and so forth, and the students realized they were all on the same page. Rather than turning their back to it, they became much more united against that kind of behavior in and around the school" (2011, personal communication)

Discussing the importance of groups, a BPS parent discussed the ability for students and parents to intersect, saying it allowed groups to ask, "Do we have a consensus? Do the [opinions] meet anywhere? If so, can we get together on those areas and work together to figure them out? Yes" (2011, personal communication).

In addition to enabling deliberation among relevant publics, CPI illuminates relationships that often go unnoticed or ignored in everyday civic life. For instance, the ability for players to imagine intergenerational publics—spaces where youth and adults discuss civic issues—was a key affordance of CPI. While the age diversity of players was real (in Boston, 31% of players were 18 and under, and in Detroit, it was 43%), direct interactions between groups were light. Still, it was clear that imagined publics were uniquely powerful in constructing individual player attitudes and strategies. Because it is normal to not include youth in a planning process, their absence is not typically noted. When participating, however, their collective presence was valued due to the way it changed the quality of overall discussion. According to a frequent attender of city meetings who played CPI in Detroit:

> "I think there were kids in 8th grade doing this. I think like, oh my god, even kids can be involved. I do think kids have to be involved because they're the next

> generation […] We're just ignoring them all the time. Some [of their ideas] are probably better than a grownup person could have" (2012, personal communication)

Players from both Boston and Detroit agreed that one reason their answers were better was that they were more truthful. "One of the questions was why do students miss school, and one of the students wrote drugs, falling in with the wrong crowd—we all want our kids to be in the right crowd, whatever, but she wrote drugs, friends, and so on, and I'm like, wow," (2012, personal communication) explained a parent of a BPS elementary school student. And a Detroit player said: "They sound so fresh, so honest, so unbiased" (2012, personal communication). In addition to youth's specific input, their participation in the game became a symbol of hope that forced adults to reflect on their own thoughts. This reflection did not require any direct interaction between the groups; adults reflected on their own responses in light of the symbolic block of youth players.

Youth also acknowledged the benefit of participating in intergenerational publics. First and foremost, they tended to characterize the adult public as "official" or "real" and therefore credible. They similarly spoke about the importance of being in the game with adults, but were not interested in speaking to any adult in particular. One youth in Detroit reported that he would speak to his parents about what was happening in the game, but had no interest in inviting his parents to play. The adult public was a positive abstraction that decidedly did not include his parents. The only direct connection between youth and adults were in situations where the game was played as part of a school assignment. In Detroit, one middle school teacher assigned the game as homework for the duration of the three-week

period. In this case, both students and the teacher spoke about the benefits of being in the space together. The teacher described how much she learned about her students by following their responses in the game; and the students, while less interested in learning about their teacher, reported that having their teacher participate in a school assignment made it seem very real to them and forced them to consider how their answers contributed to a larger out-of-school process.

The creation of multiple, simultaneous publics is a clear affordance of the CPI game environment. In addition to being integral to establishing productive relationships in which to build and place trust, it was also an important component of players' ability to reflect on their own participatory acts. By providing a platform that youth found appealing and that adults were willing to explore, CPI created a common ground that enforced reflection and awareness of unique subject positions essential to civic learning.

Conclusion

As government agencies and community organization attempt to leverage digital media to enhance civic engagement, solutions that qualitatively improve the form of engagement are vital. Media that encourage practices of civic learning rather than isolated moments of transaction ensure that citizens reflect on their role within a community and hold potential for ongoing civic action. CPI is one such tool. It provides a civic interface that leverages game mechanics to encourage deliberation and debate and emphasizes simultaneous online and offline processes. This study

demonstrates that CPI encourages reflective attitudes and mediates relationships of trust that are needed for functional and continued civic engagement.

CPI's ability to foster alternative avenues of trust does more than simply contribute to methods of increasing the kind of social trust that has been correlated to improvements in institutional trust and political participation (Newton & Norris, 1999). In the face of trends pointing to diminished levels of democracy (Skocpol, 2003), it represents "new models of association building, blending the best of the old and the new civic America" (p. 265). These associations simultaneously provide a context within which citizens believe in the importance of their actions, and create associations among individuals and between publics that have the potential for future productive use.

Moreover, CPI demonstrates that well designed digital tools can not only encourage people to reflect on specific policy or planning decisions, but also reflect on the role they and other members of a community play within the overall civic process. CPI enabled players to understand the civic process as greater than individual community meetings or one-off acts of participation. As Ian Bogost claims, games cultivate a kind of procedural literacy in players that make them aware of systems and how they can act within them (Bogost, 2007). Accordingly, an active volunteer who lives outside of Detroit described how CPI expanded her view of what engagement meant: "I learned to build a city is not just building with material things – buildings and houses with a place that has no life. But building a city is building the citizens, the people – that's even more important than anything else" (2012, personal communication).

This research, as it is exploratory and design-based in nature, has limitations. While the specific nature of the game platform is not generalizable to all other digital media tools, we want to highlight the specific affordances of the game demonstrated across two distinct case studies, and point to the importance of civic learning in the design of future civic processes. But more research is needed to understand the social benefits of these sorts of learning environments. It would be desirable to empirically test occurrences of civic learning against traditional methods of engagement. Additionally, while our findings indicate positive short-term results, further research is needed to understand the long-term effects of digital interventions on civic life more generally. For example: Do those who exhibit civic learning show signs of increased efficacy? Greater interest in civic issues over time? Increases in additional forms of engagement in local and/or national politics?

Still, we see our work as theory building in two ways: 1) providing a strong concept of civic learning as an action that goes beyond traditional definitions of participation and engagement; and, 2) providing insight into strategic design choices that can and must be made by those creating digital media with the goal of improving civic engagement. Additionally, we see this inductive research into civic learning and how it can be fostered as a necessary step to expanding research in civic engagement. By highlighting these spaces of reflective civic learning, we hope to encourage those designing civic tools to employ mechanics that encourage civic learning, and urge those researching in the space of political communication and civic media to test forms of engagement that are deeper than the standard transactive moments of participation.

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[1] For an example of a technological system deployed in a community development process, see (Hirsch & Liu, 2004).

[2]There were minor changes in game mechanics and user interface between the two implementations. But the changes were small enough where the two case studies still represent the same system.

[3] The missions were organized around planning themes. They included: 1) The Path to Graduation and Beyond, 2) Learning and Academic Growth, 3) Closing Achievement Gaps, 4) Improving Attendance, 5) A Better and Safer School Environment, 6) Engaging Families and Communities, and 7) Creating Opportunities to Learn.

[4] The missions were more broadly constructed in Detroit. They were: 1) Share Your Detroit, 2) Living in Detroit, and 3) Getting Around Detroit.

[5] The Detroit Future City report was released in January 2013. The report mentioned the game 22 times and featured the results of a city-wide survey administered by Detroit Works Project Long Term Planning that ranked CPI as the most "hopeful" engagement strategy. When asked to assess general feelings about the planning process on a scale between 1-5, 5 being hopeful and 1 being negative, CPI received a score of 4.6, well above any other tactic, with town hall meetings receiving only 3.76.

[6]In Detroit, players were 32.5% White, 30.7% Black or African-American, 24.2% Hispanic with Asian, Native America, multiracial and "other" populations in single digits. 37.5% of Detroit players also made less than $25,000 a year. In BPS, 44.2% of players were White, 24.9% are Black or African-American, and 17.1% are Hispanic. 33.8% earn less than 25,000 per year. While these numbers are not direct reflections of the local demographics, they do reflect significant input from often-underrepresented populations. A common criticism of digital interventions is that they fail to reach a diverse population, and this is not the case for these implementations of CPI. Additionally, adults under the age of 35 are less likely to participate in traditional outreach efforts by the city, yet made up a majority in Detroit.

[7] While the causal relationship between institutional trust and participation has been debated, much space has been devoted to discussing its correlation with declining levels of participation (Craig, 1996, Hetherington, 1998, Norris, 2001). Fundamentally, institutional trust is seen as a necessary component of a functioning and legitimate democracy (Donovan & Bowler, 2004, Dryzek, 1990, Habermas, 1975, Putnam, 1995, Nye, Zelikow & King, 1997), and has repeatedly been shown to be in decline (Kohut, Doherty, Dimock, et al., 2010).

[8] Our view of lateral or social trust is similar to Putnam's (Putnam, 2000)understanding of trust as part of the "virtuous circle" of social capital that is positively associated with civic engagement hinges on trust of others within the community, not just those in power. Additionally, it is tied to Bourdieu's emphasis on power and relationships that improve efficacy.

[9] In future iterations of the game, many interface choices have been made to amplify this, such as highlighting in bright colors comments that were recently replied to or the site of much interaction and setting up a space to aggregate these discussions, called The Buzz. Additionally, there is a specific place where people can go to advocate for and debate causes at any time, called The Soapbox.