Levelling-up: 'Resilientville' as a tool for teaching and building community resilience

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The consequences of our globalized economic, social and ecological crises will be felt most tangibly at the community scale; marginalized neighbourhoods within rapidly urbanizing cities are uniquely vulnerable to disruption (DeSherbin et al, 2007). That said, these communities are far from passive recipients of change – evidence suggests that grassroots action can play a crucial role in building cities that 'bounce back' and 'forward' in response to crisis (Ebi & Semenza, 2008; Kotani, 2016; Lalone, 2012). Research on disaster-responsiveness and adaption to climate change has increasingly focused on developing tools and interventions to support communities across the world in developing resilience. This paper will evaluate 'serious gaming' as a potential intervention for teaching and building resilience, using the 'Resilientville' game as a case study. After briefly making a case for the urgent need to create disaster-ready communities, Resilientville will be assessed based on its potential to teach key concepts of resilience 'at the table' and to develop the social capital required for building resilience 'in the community'.

Communities in crisis: the case for building 'Resilientvilles'

The past few decades are replete with examples of deadly extreme weather: Hurricane Katrina, the Mumbai Floods, and the heatwaves that killed thousands across Europe are have illustrated the destructive consequences of climate change (Hayhoe, 2010; Schmeltz et al., 2013). Recent research suggests this is only likely to get worse – DeSherbin et al (2007) caution that large cities, often located in coastal areas or at the mouth of rivers, are uniquely exposed to environmental hazards and will experience increasingly dangerous weather events in the near future. Vulnerable populations at the bottom of the social and economic ladder are disproportionately in danger (DeSherbin et al., 2007). Climate scientists paint a bleak picture of tomorrow, particularly for the poorest, and our national and supra-national governance structures have failed to implement meaningful solutions (DeSherbin et al, 2007).

That said, communities are far from passive victims of climate change at the mercy of globalized governance systems – in reality, some of the most promising research on resilience has come from marginalized neighbourhoods that have effectively responded and adapted to disaster. Communities that are able to generate and mobilize social capital tend to be significantly more resilient in the face of environmental crisis (DeSherbin et al., 2007; Ebi & Semenza, 2008; Lalone, 2012). While there is a growing field of research and activism on potential interventions to help communities become 'disaster-ready' by learning about the key characteristics of resilience and establishing various types of social capital, further research on practical strategies is needed (Ebi & Semenza, 2008; Tyler & Moench, 2012).

At the table: unpacking and evaluating the theoretical foundations of Resilientville

This section will unpack Resilientville 'at the table' and evaluate its potential for teaching key concepts of resilient cities as defined by Poland (2015). To be clear: the intention is not to assess Resilientville's ability to simply state key concepts in a slightly more engaging format than a lecture; rather, it is to determine the game's ability to *demonstrate* the concepts through gameplay.

Serious gaming as a tool for education, training and empowerment

While multiple definitions exist, ‘serious gaming’ is generally described as “games which are entertaining… used in both education and learning” and “simulate and explore real-life issues… in an interactive environment” (Reckein &Eisenack, 2013, p. 255). Proponents argue that serious gaming, particularly in the context of role-playing, has unique advantages to more traditional, lecture-style formats on three accounts. Firstly, it can communicate complex, abstract and/or multi-stakeholder concepts in an engaging, tangible and urgent way. Secondly, it can create low-risk ‘sandboxes’ where players can intuitively practice and ‘train’ their decision-making abilities based on the parameters established by the game. Finally, gaming can empower players by situating them as active participants in a system rather than passive recipients (Duke, 1995; Reckein &Eisenack, 2013).

Recently, climate change has generated a prolific amount of serious games aiming to educate, train and empower audiences to respond to the current crisis (Reckein &Eisenack, 2013). Climate mitigation, however, is the most popular topic – there are considerably less games focused on adaption and very few explicitly borrowed language or concepts from resilience thinking. Resilientville and other similar disaster response games have begun to emerge to fill this gap. However, the literature is yet to catch up – five years after its development, no publicly available assessment of Resilientville’s potential as a teaching and empowerment tool has been conducted.

Demonstrating key concepts of resilience through the ‘Resilientville’ game

Again, Resilientville’s value as a tool for teaching and empowering players at the table will be evaluated using three criteria from Poland’s (2015) framework for building resilient cities: the game’s ability to communicate the high-level definition of resilience; the ways in which the game succeeds (or fails) in demonstrating the value of the nine enabling conditions of resilient cities; and whether or not it achieves this with an equity lens.

Poland’s (2015) defines resilience as: “the capacity of individuals, organizations, and social-ecological systems to adapt or transform in response to unfamiliar, unexpected and extreme shocks. It is about the capacity to ‘bounce back’ from adversity but also to embrace change and ‘bounce forward’ into new ways of thinking and doing” (p. 5). This captures several key concepts in the resilience literature and warrants a brief unpacking. First and foremost, it identifies the ability of resilient cities (and all the human and non-human components of those cities) to respond to unforeseen crisis. Cities have historically planned for specific crises endemic to their region (e.g. earthquakes in San Francisco) but as disasters increase in severity, frequency and unpredictability, a more ‘general resilience’ that allows communities to ‘bounce back’ from complex disasters is needed (Poland, 2015; Rhodin, 2015). On a community level, this immediate ‘bounce back’ response is only the first step – they must also strive to ‘bounce forward’ after a crisis, using momentum from the disruption to build more sustainable and resilient ways of being such as localizing food production or seeking to transition to greener energy sources. Rhodin (2015) describes this as capitalizing on the ‘resilience dividend’ that can be born out of such disasters.

How successful is Resilientville in communicating the key ‘bounce forward’ and ‘bounce back’ dynamic that defines ‘general resilience’ in cities and communities? While the game is more explicitly focused on mapping and mobilizing community resources to manage a ‘bounce back’ response to crisis, variants can incorporate ‘bounce forward’ elements. For example, the San Francisco Neighbourhood Empowerment Network (NEN) asked players to develop strategies for immediate shelter and medical treatment, but also for improving community food security (e.g. by localizing production) and providing better support to vulnerable community members (e.g. by housing the homeless). By integrating these concepts into a role-playing game, players are given the ‘sandbox’ necessary to imagine and practice concrete ways of responding to an unforeseen disaster and building a better community afterwards in a low-risk environment.

That said, intuitively communicating the high-level bounce back / bounce forward dynamic of community resilience does not necessarily help players understand the specific components of building resilient cities. Here, we turn to Poland’s (2015) definition of the nine enabling conditions of ‘general resilience’: diversity, modularity, openness, reserves, feedbacks, nestedness, monitoring, trust, and leadership. When all conditions are present in a city or community, they are well-positioned to ‘bounce back’ from disruptions and ‘bounce forward’ into newer, more resilient ways of being.

In terms of a nuanced demonstration of key the factors that enable resilience, the game succeeds in some respects and falls short in others. Firstly, Resilientville’s scope limits opportunities for players to explore dynamics at different scales and over longer time periods. For example, the game does not demonstrate the tension between creating modular systems that can isolate components from shocks and openness that can ensure a flow of resources and information – the community is not part of a network in the ‘sandbox’. This limited scale also makes it challenging to demonstrate the value of nestedness – in the scenario, the ‘community leaders’ (i.e. players) are cut-off from city officials for the duration of the disaster, and community members that are not at the planning table are not engaged beyond being told what course of action to take. Nor does it effectively communicate the value of establishing feedback loops and monitoring systems – in all variants of the game, the community is has not prepared for the disaster in advance. Reserves and redundancy, a critical component of ecological resilience theories, are also mostly absent – while the community networks prior to the disaster, it does not stockpile resources in preparation.

That said, the game tangibly illustrates the value of the other enabling conditions, particularly those that are specific to social systems. Relationships built on trust underlie all the game’s mechanics – the players must be willing to cooperate and share resources to successfully complete the game. The game demonstrates the value of diversity by requiring players to combine their unique resources to respond to the crisis. Finally, the game demonstrates the value of leadership, by empowering players within the ‘sandbox’ of the game – everyone has ideas to share, resources to contribute, and a role to play in the recovery.

Beyond the enabling conditions of resilience, Poland (2015) emphasizes that all resilience building must be grounded in equity. While many resilience frameworks focus on the importance of community participation, very few “explicitly address considerations of equity, diversity, race and class, and unequal power relations” (p. 19). Similarly, the Urban Resilience Project (2015) urges ‘resilience thinkers’ to appreciate that building resilience is not a neutral process – privilege (or lack of) can influence who we are building resilience ‘for’, and what we are building it ‘from’. For all its emphasis on community empowerment, Resilientville does not explicitly acknowledge power dynamics between the actors at the table and misses out on a valuable opportunity for players to practice navigating these dynamics in low-risk ‘sandbox’ environment.

In summary, Resilientville succeeds in communicating the crux of resilience thinking by creating a ‘sandbox’ where players can practice ‘bouncing back’ and ‘forward’ from a disaster in a grounded, tangible context. Key enabling conditions of resilient communities identified by Poland (2015) such as trust, diversity and leadership are built into the mechanics of the game. Certainly, Resilientville is not without its limitations – Poland’s (2015) enabling conditions relevant to scale (openness, modularity, nestedness) and advance preparation (reserves, feedback, monitoring) are not demonstrated as clearly in the game’s current iteration, and it would benefit greatly from an equity lens. Creative adaptions to the game’s mechanics might begin to address these issues, such as adding a more comprehensive preparation phase or introducing power dynamics between roles. Facilitators could also include a more extensive debrief period to discuss resilience concepts not captured in gameplay.

In the community: practically applying Resilientville

In the previous section, we discussed the theoretical foundations of Resilientville and its potential to communicate core concepts of resilient cities as described by Poland (2015). This section will consider the potential contributions of Resilientville 'away from the table' and in an engaged community (2008). Specifically, we will borrow from Ebi & Semenza's (2008) theoretical framework of 'social capital' in resilience building to understand: firstly, how Resilientville (and serious gaming more broadly) might create a space for developing and strengthening the initial connections required for social capital; and secondly, how communities might strategically apply Resilientville to build different types of social capital within and between community groups and stakeholders. We will conclude with a brief but important assessment of limitations and cautions for community activists applying the game in various contexts.

Resilientville as a stepping stone to building connections

Social capital in the context of building resilience can be broadly defined as "the potential embedded in social relationships that enables residents to coordinate community action to achieve shared goals" (Ebi & Semenza, 2008, p.502). In the community resilience literature, strong social capital is frequently cited as a necessary enabler in 'bouncing back' and 'bouncing forward' from crisis (DeSherbin et al., 2007; Ebi & Semenza, 2008; Lalone, 2012).

While we are *not suggesting by any means* that a single game of Resilientville can develop a critical mass of community organizing in the event of a crisis, the unique characteristics of 'serious gaming' discussed in the previous section may prove to be an effective first step towards meaningful community interaction. As discussed earlier, serious games like Resilientville place players in low-risk 'sandbox' scenarios with clearly defined boundaries in which they must problem-solve and co-create in order to 'win'. Thus, serious gaming can successfully create spaces where intensive collaboration occurs, but stakes are very low. The serious gaming literature suggests this unique environment can enable a type of connection that is not typically possible in similarly short periods of group discussion (Duke, 1995; Reckein &Eisenack, 2013). Thus, Resilientville can be understood as a promising 'conversation starter' to initiate the interaction required for developing social capital.

Strategic applications of serious gaming for building social capital

Ebi and Semenza (2008) provide an instructive theoretical lens for understanding the different types of social capital and how each broad category might be leveraged. They suggest that social capital can be subdivided into three different categories based on the social relationships that sustain it. Briefly, they differentiate between 'bonding' capital (relationships *within* a given community), 'bridging' capital (relationships *between* two different communities) and 'linking' capital (relationships between community members and *stakeholders with institutional / systemic power*) – since established community groups already have strong 'bonding' capital, the latter two categories are of interest.

An organizer within the community can strategically apply Resilientville as a 'conversation starter' to establish the initial connections required to build these different types of social capital depending on the unique context within their community. Resilience research demonstrates that different groups within a broader community or between two communities benefit greatly by combining their resources, experience and expertise to build 'bridging' capital. Resilientville can also be played between community members and local leadership, academics, activists, and other stakeholders that have considerable economic / political/symbolic power to help create a foundation for critical 'linking' capital in the community.

Key limitations and the critical importance of community context

While we believe Resilientville and other serious games are uniquely positioned to act as effective ‘conversation starters’ in laying the groundwork for bridging and linking capital, we are careful to not overemphasize its potential – it should be understood as a single tool in a broader suite of strategies pushing towards the development of social capital and community resilience more broadly. Ultimately, the success of Resilientville is entirely dependent upon the context in which the game is being played. Factors such as the level of support for this movement within the community, the embeddedness of the organizers, the physical / economic / social constraints the community may face, and (critically) the bridging and linking capital that has already been established will all greatly impact whether ‘Resilientville’ is an appropriate tool.

Final Thoughts and Recommendations

As discussed in the analysis above, we believe Resilientville, and serious gaming more broadly, could prove to be a useful tool for demonstrating high-level concepts of resilience and assisting to lay the groundwork for bridging and linking social capital in a community. We also reviewed some of the limitations of this approach – the ‘sandbox’ created by Resilientville does not capture all of the enabling conditions in Poland’s (2015) framework for resilient cities and would benefit greatly from an equity lens. Away from the table, Resilientville’s success in building resilience will vary greatly depending on the specific context of the community and the broader organizing initiatives happening concurrently.

That said, we strongly believe that serious games like Resilientville have great potential and should absolutely be further tested in the field. In our current context of global change, serious gaming appears to be one tenable strategy for effectively communicating key concepts of community resilience and supporting the development of social capital. We recommend that Resilientville be locally adapted and rapidly iterated in communities that might stand to benefit. We encourage activists to record and broadly share their results afterwards so that a more rigorous understanding of the concrete impact of serious gaming on community resilience can be developed.

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Appendix A: Core Mechanics of ‘Resilientville’

A brief overview of ‘Resilientville’

The ‘Resilientville’ serious role-play game has been hosted by organizations across North America since it was developed by the Canadian Community for Dialogue and Deliberation (C2D2) in 2013, including San Francisco’s Neighbourhood Empowerment Network (NEN), the City of Vancouver, and Toronto’s Community Response to Extreme Weather (CREW). While each group has played different variants of the game, the core mechanics are as follows (see appendix A for an example of one variant in greater detail):

- Purpose: players must collaboratively respond to an environmental disaster in their communities by sharing resources to meet short-term and long-term recovery goals.
- Audience: 5-10 players per group with one facilitator (multiple groups can be hosted in one event)
- Materials: map of a city with key landmarks and ‘character’ sheets for each player
- Context and key instructions: participants each role-play a different community leader (e.g. the school principle, a restaurant owner, a faith leader) in a given neighbourhood.
    - Phase 1: Players are called into a meeting to develop a plan for managing an ongoing community challenge (e.g. growing rates of homelessness), and each have different motives they use to guide their decisions.
    - Phase 2: After an emergency weather-related disaster (e.g. earthquake, flood), players must collaborate to achieve short-term recovery (e.g. providing hot food and shelter to community members) and long-term recovery (e.g. localizing food production, decreasing inequality, or building more weather-resilient homes).
- Conclusion: After the key long-term and short-term goals have been met, players collectively debrief on their experience, highlighting key learnings and discussing how these concepts can be applied outside of the game.