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Civic Hackathons: A New Medium for Community Engagement?

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Abstract

This dissertation endeavors to answer the following questions: How do civic hackathon organizers, perceive defining characteristics of their events, view the outcomes of their events, and relate hackathons to community engagement? Ten organizers from three separate cities, one city from Scotland, the United States, and Canada, were recruited for semi-structured interviews. Detail-rich findings identified a unique problem-solving focus inherent to civic hackathons. Organizers discussed how they relate themed hackathons to local issues, and some found that open hackathons instead provide citizens with greater power to solve challenges they find most important. Reflections on hackathon outcomes illuminated a debate between organizers over whether the most important goal of a hackathon is to produce a solution or gather participants from different professional sectors for a creative discussion. While hackathon organizers found that diversity was an important element in their events, the extensive time hackathons require may bar certain populations with less free time from participating. While most hackathon organizers felt their events related to community engagement, others questioned if engagement was the primary goal. Engagement scholars such as Arnstein, Fung, and Zuckerman, were used to frame these findings with an emphasis on power relationships, diversity of participants, and engagement outcomes.

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Author's Declaration

I declare that, except where explicit reference is made to the contributions of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Chapter One: Introduction

1.0 Research Background & Rationale

A growing number of urban governments, oftentimes in partnership with private sector organizations, are hosting civic hackathons (Johnson & Robinson, 2014). Recent scholarship has developed in tandem to critically analyze the civic hackathon's place in modern democracy (Johnson & Robinson, 2014; Nam, 2012; Lodato & DiSalvo, 2016). This dissertation aims to provide another building block for scholars constructing a foundation for civic hackathon study. From the academic perspective as well as the practitioner perspective, it is important to understand how civic hackathons may serve as engagement mechanisms. Determining their value and characteristics may help organizers plan hackathons, while also providing a detailed picture for further study.

1.1 What is a Civic Hackathon?

The origin of the term hackathon can be traced to advancements in the software industry in the early 2000s. The words 'hack' and 'marathon' were merged to describe intense periods of software code editing (Berger, 2017). Rising technology companies such as Facebook popularized the term by scheduling 24 hour hackathons to refine lines of code (Olanoff, 2012). Company growth transformed hackathons from a survival mechanism for a young enterprise into a collaborative problem-solving effort. 'But as Facebook grew, people started organizing hackathons as a way to collaborate with colleagues from different parts of the team to get their ideas working fast' (Olanoff, 2012). Civic hackathons funnel similar energy towards community challenges.

Washington D.C. was one of the first cities to demonstrate how hackathons could apply to the public sector. The 2008, 'Apps for Democracy Challenge', with its open data repository, time limit, and prizes for winners, is often cited as a successful blueprint for other

competitions (Johnson & Robinson, 2014). Similar hackathons followed in New York, Ottawa, and Amsterdam as the model continued to spark innovation at the heart of city governance (Johnson & Robinson, 2014). Despite the idea's spread, few academic articles have been written on civic hackathons (Johnson & Robinson, 2014).

Researchers and government officials have offered preliminary definitions of civic hackathons. Chiefly, they are time-sensitive, produce solutions for civic challenges, are typically bolstered by open data, and are attended by teams competing for a prize (Johnson & Robinson, 2014). According to Lodato and DiSalvo (2016), 'Hackathons are rapid design and development events at which volunteer participants come together to conceptualize, prototype, and make (mostly digital) products and services'. Scholarly definitions tend to echo the parameters voiced by organizers, which, often have a technological edge to them.

Organizations such as the USA's 'Code for America', and the U.K.'s 'Code the City', identify themselves as civic hacking organizations bent on utilizing government data to craft better digital services for constituents (Johnson & Robinson, 2014; Code the City, 2015). Technical hackathons, Washington D.C.'s 'Apps for Democracy' and the 'Canadian Open Data Experience', for example, often center around the provision of open data and trigger an understanding that hackathons are linked to technological literacy (Johnson & Robinson, 2014).

In a U.S. context, President Obama first launched an 'Open Government Initiative' in 2008. Providing public access to government information increased transparency and was also identified as an outlet for citizens to use data for innovative projects (Caldwell, 2014). President Obama signed an additional memorandum on civic innovation in 2011. Government entities were asked to collaborate 'with the use of innovative tools, methods, and systems and to cooperate among themselves, across all levels of government, and with nonprofit organizations, businesses, and individuals in the private sector' (Nath, 2011).

According to Nath (2011), this memo sparked a push towards civic innovation and ‘government 2.0.’ Nath (2011) offers a comparison between the ‘Web 2.0’ movement that pushed internet users away from consumption and towards creation, and the ‘Government 2.0’ movement enabling citizens to actively construct their interactions with government. Open data is thus considered a tool citizens can use to reframe their interactions with government via events like hackathons.

In Canada, the first federal open data portal was launched in 2011 to facilitate the transfer of government data to citizens. In 2013, an improved ‘Open Government Portal’ was developed to spark a national dialogue on open data and advance access to further data sets. Shortly after, the Canadian Open Data Experience, a national hackathon, debuted in February 2013 and led to the development of over 100 apps (TBSC, 2017). The Canadian government frames the movement towards open government similarly to the United States. It offers increased transparency while also providing enterprising citizens a platform – civic hackathons – to use data for social good. ‘Open Government is about greater openness and accountability, strengthening democracy, and driving innovation and economic opportunities for all Canadians—and events like CODE represent amazing opportunities to advance these principles’ (TBSC, 2018).

The progression from open data to hackathons is also challenged by some scholars who perceive its use in hackathons as a manifestation of neoliberal politics. In the United Kingdom’s move towards ‘new public management’, Bates (2014) contends elements of the private sector have reshaped government services: ‘In line with the neoliberal predisposition to enforce the market form in all contexts, NPM aims to impose the competitive logic of the private sector into the governance of the public sector.’ Bates (2014) argues NPM efforts have decentralized government services, focused on privatization, and the improvement of ‘inefficient’ public services by more ‘efficient’ people or organizations. In a 2012

parliamentary white paper, authors highlight data sharing with the private sector as an integral aspect of public service delivery, and posit that local ‘hackdays’ can benefit economic activity (Maude, 2012). This paper does not offer judgement on whether neoliberal governance trends are positive or negative, but finds that regardless, open data and hackathons reframe the roles of governments and hackathon participants.

Despite technological leanings, many hackathons also focus on non-digital solutions in the form of policies, the construction of nonprofits, or entrepreneurial ventures. The European Union Institute of Technology’s annual ‘climathon’ helps cities across the world host themed hackathons to address climate change challenges in their municipalities (Yeomans, 2016). One low-tech solution from a past competition involved establishing a company to refurbish lightly used items and reduce waste (EIT-Climate-KIC, 2018).

Civic hackathons are diverse in nature and design, but they share a collaborative, time-sensitive, socially-minded, innovative, recognition-driven core. Their technological origins may still shape participants’ and organizers’ perceptions, expectations, and may also influence the outcomes of events. However, despite being a product of the open data movement itself, civic hackathons are increasingly branching out into non-technical environments as well.

1.2 Research Objectives

Considering the nascent level of academic inquiry into civic hackathons, this paper aims to address the following research questions:

1. How do civic hackathon organizers perceive defining characteristics of their events?
2. How do civic hackathon organizers view the outcomes of their events?
3. How do civic hackathon organizers relate hackathons to community engagement?

1.3 Dissertation Structure

The following dissertation will offer readers a new perspective on civic hackathons by first guiding them through a literature review in Chapter Two that discusses civic hackathons and their relation to community engagement and participation literature. Grounding civic hackathons in engagement literature will provide a useful structure as the paper moves into a methodology section in Chapter Three that describes the methods used, ethical considerations, and challenges encountered during the study. Chapter Four highlights important quotes and findings while also placing them in conversation with engagement theorists. In conclusion, Chapter Five will reiterate key findings and suggest areas for future study.

Chapter Two: Literature Review

2.0 Chapter Introduction

The rapid rise in popularity civic hackathons have experienced makes it increasingly important to frame them within a body of academic literature. After highlighting a collection of foundational theorists and typologies in engagement scholarship, researchers at the forefront of hackathon study are highlighted for consideration. Concepts and theorists within this literature review will provide readers with a lens to analyze findings shared in Chapter Four.

2.1 Questions of Participation

Myriad technological and sociopolitical influences have led to the rise of civic hackathons. Inherent interdisciplinarity makes the concept difficult to plant within any one scholarly discipline, while also providing fertile ground for further inquiry. This dissertation approaches civic hackathons from a theoretical perspective grounded in community engagement and participation literature. Quick and Feldman (2011) describe scholarly literature on public engagement as, ‘immense, appearing under the umbrellas of citizen participation, civic engagement, collaborative governance, and inclusion and representation in democracy.’ Cornwall (2008) builds on this point by describing participation and engagement as an ‘infinitely malleable concept’ that can relate to any interaction with people. However, focusing on the critical questions engagement scholars frequently posit helps delineate more specific interests. Cornwall (2008) simplifies questions of participation by asking who participates, in what, and how?

A comprehensive overview of all engagement methods is beyond the scope of this paper, however it is helpful to place engagement mechanisms within a historical narrative driving participation. Carpini, Cook, and Jacobs (2004), describe a human tradition that

connects engagement practices to the democracies of Ancient Greece, Parisian salons, and New England town hall meetings. Agger (2012) suggests a strong upward trend in engagement literature and practice has corresponded with a rise in the number of engagement outlets available to citizens. Head (2007) contends that interest in engagement practices stems from an increasing understanding that complex problems are difficult to solve without valuable input from citizens.

General engagement techniques can include public consultations, surveys, citizens' juries, town hall meetings and a wide-spread of other methods such as charrettes and design-workshops (Planning NSW, 2000). Oftentimes these methods carry an implicit bias that engagement, when done in a 'empathetic, egalitarian, open-minded, and reason-centered' fashion will result in a positive outcome (Carpini, Cook, & Jacobs, 2004). Some scholars offer counterpoints to this supposed positivity. Head (2007) argues that engagement practices may help decisionmakers strategically shirk blame if a project fails. Analyzing engagement is a complex task that has been simplified by common typologies such as Arnstein's Ladder (1969), Zuckerman's Axis of Participation (2013), and Fung's Democracy Cube (2006).

2.2 Engagement Frameworks

Arnstein's (1969) 'A Ladder of Citizen Participation', is a foundational engagement framework that codifies questions related to participation and power. Participation increases from manipulation at the bottom of the ladder to citizen control at the top, while the progression is broken into sections of 'nonparticipation', 'tokenism', and 'citizen control' (Arnstein, 1969). The ladder describes a progression in which citizens – typically excluded from decision-making processes – win greater power from elites as they climb towards ultimate authority. Arnstein's portrayal of engagement as a potentially reluctant exercise is

humorously displayed in her quote: ‘The idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you’ (Arnstein, 1969).

Breaking the ladder down further, manipulation is described as ‘engineering support’ from participants. Rather than engaging in any collaborative practices, this form of engagement is a formal illusion. Arnstein describes manifestations of manipulation as, ‘...rubberstamp advisory committees or advisory boards for the express purpose of educating them [participants] or engineering their support’ (Arnstein, 1969). Rather than controlling citizens for support via manipulation, consultation encourages participants to share their perspectives freely.

Simple consultation does not guarantee that citizens’ voices are heard though. ‘But if consulting them is not combined with other modes of participation, this rung of the ladder is still a sham since it offers no assurance that citizen concerns and ideas will be taken into account’ (Arnstein, 1969). Still higher, citizen control stands at the pinnacle of engagement. Arnstein notes that absolute control of all affairs is neither possible nor advisable. Instead, the author states communities and neighborhoods should be able to control their affairs and be empowered to negotiate with ‘outsiders’ attempting to change their living conditions (Arnstein, 1969). An example of citizen control would be if a city council provided funding for a community trust to manage local development projects in an underrepresented area. Crucially, Arnstein’s initial scholarship provided a jumping off point for engagement scholars over the past five decades.

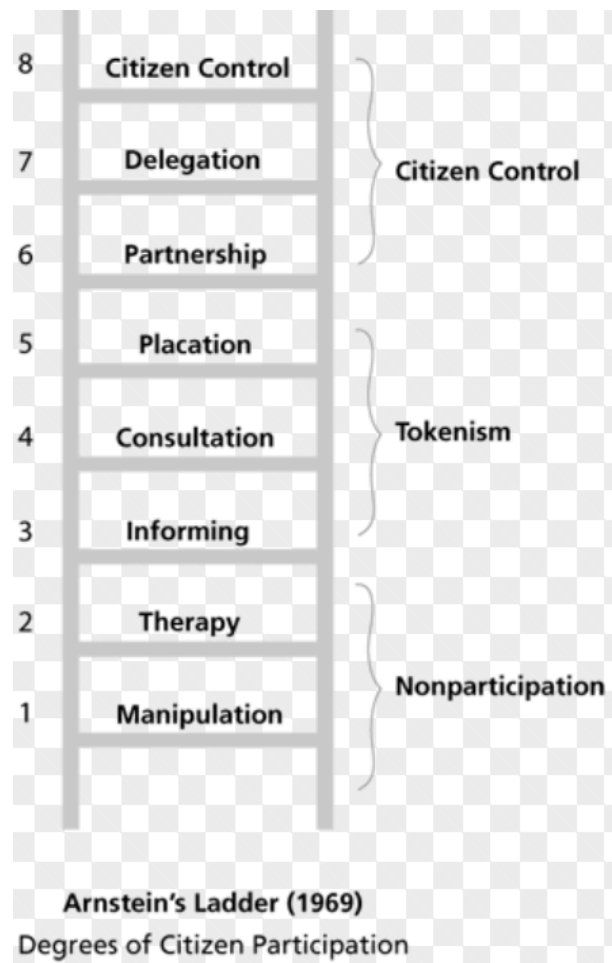


Figure 1 Arnstein's Ladder (1969, Pg. 217)

Fung (2006) synthesizes fundamental questions of participation and engagement in a comprehensive ‘Democracy Cube’. In discussing engagement literature as a whole, Fung (2006) acknowledges the limitations of his framework and sheds light on the difficulties researchers encounter when they attempt to categorize all aspects of engagement: ‘Such a framework is a necessary—if incomplete—part of the answer to a larger question regarding the amounts and kinds of appropriate participation in governance.’ Despite this, Fung begins by asking how the following key questions influence participatory platforms: ‘...who participates, how participants communicate with one another and make decisions together, and how discussions are linked with policy or public action’ (Fung, 2006).

In terms of who participates, Fung (2006) presents a scale that slides from least inclusive to most inclusive and from state governed to the public sphere. His first dimension of the ‘Democracy Cube’ provides a space to measure a participatory platform’s level of representation. Building upon who participates, a scale of communication styles is also used to determine the quality of participation in an event or program. Fung’s communication scale extends from a least intensive section to a most intensive section and from participants ‘listening as spectators’ to ‘deploying technique and expertise’. Finally, in regards to the level of influence, Fung’s spectrum extends from an educative process, least authority, to direct authority, the most authority (Fung, 2006).

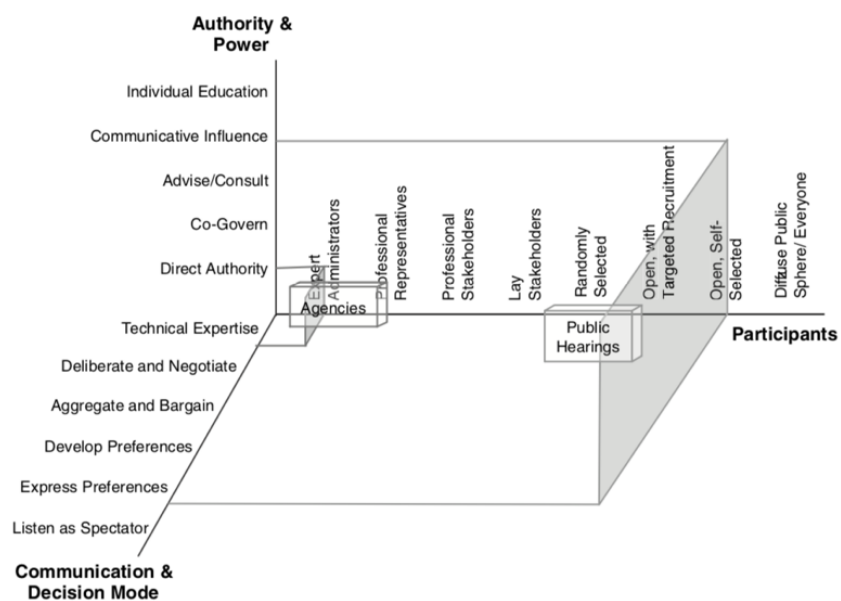


Figure 2 Fung's Democracy Cube (2006, Pg. 71)

Within these dimensions, the who, the how, and the impacts, Fung contends scholars and practitioners alike can frame participatory activities. Moreover, he contends that his framework represents a departure from a simple analysis of power. The Democracy Cube taps into a degree of fluidity and nuance that Fung sees as a key component of modern civic relationships. If future scholars are to progress in their understanding of engagement and participation, Fung (2006) advises they pay careful attention to new emerging frameworks

and the preconceptions that have held the discipline back. He explains that this will require a more dynamic and inclusive approach:

‘Reaping—indeed, perceiving—these pragmatic benefits for democracy, however, requires a footloose analytic approach that jettisons preconceptions about what participatory democracy should look like and what it should do in favor of a searching examination of the actual forms and contributions of participation.’ (Fung, 2006)

Zuckerman (2013) builds on the contributions of previous scholars in the construction of a dual-axis model that helps frame modern advancements in technology and engagement. Zuckerman (2013) explains that a sliding axis helps create space for digital campaigns or online engagement methods: ‘I don’t have the answer to the question of whether digital civics is all that different from older models, or whether it’s more effective, but I’ve been trying to introduce language that makes it easier to have these debates.’ For example, Zuckerman places ‘slacktivism’, the confounding term given to political efforts usually made online, and with little effort, into the engagement framework below.

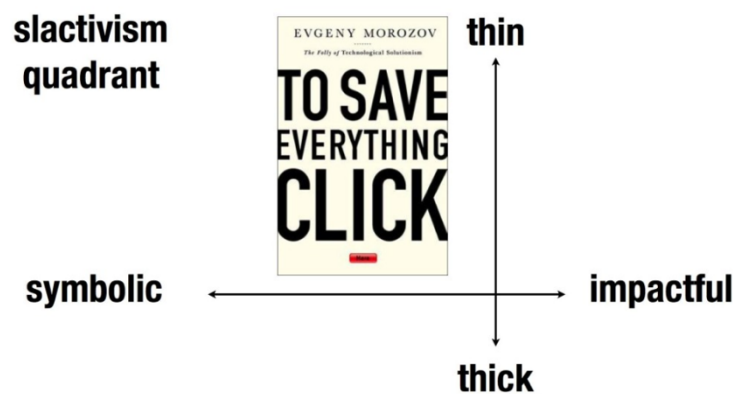


Figure 3 Zuckerman's Axis of Engagement (2013)

Zuckerman’s x-axis runs from symbolic to impactful. Symbolic actions are primarily based on voice and expression. For example, when a citizen shows support or opposition for an initiative by identifying themselves as associated with that cause, all while knowing that

although a single voice may not change the situation, that voice will blend into a chorus for progress (Zuckerman, 2013). Symbolic actions express a degree of solidarity as well.

Zuckerman (2013) describes the establishment of LGBTQ friendly campuses and work environments as effective symbolic actions because they demonstrate publicly that all are welcome. Zuckerman (2013) acknowledges that the other end of the spectrum, 'impactful' may be poorly named, and could potentially be better understood as 'instrumental.'

Impactful or instrumental movements contrast with symbolic measures because they focus on specific, measurable aims. Fighting for legislative change, the establishment of a nonprofit, or the lobbying of elected officials are all examples of impactful or instrumental engagement (Zuckerman, 2013).

On the second axis, Zuckerman describes thin engagement as those actions requiring the least amount of effort, signing a petition for example. 'In a campaign that uses thin engagement, the campaign's organizers know what they want you to do and simply need you to show up and do it' (Zuckerman, 2013). Collaborating creatively alongside participants is not as important as simply achieving the task laid out by organizers. Alternatively, thick engagement is defined by a greater sense of collaboration and a more egalitarian power distribution. 'Campaigners ask you for your creativity, your strategic sensibilities, your ability to make media, research, deliberate or find solutions – the campaigners know they want to do something, but ask you what you think they should do' (Zuckerman, 2013).

Engagement frameworks are helpful because they isolate important aspects of social reality. However, simplifying interactions may not always be the best option. Cornwall (2008) suggests that while engagement typologies certainly have their place in literature and practice, they are not a definitive answer to engagement challenges. Cornwall reminds researchers that the clear distinctions built by engagement frameworks are often blurred in practice. Likewise, they assume a certain perspective on engagement that may not be shared

by real-life participants (Cornwall, 2008). The number of engagement frameworks is vast; for further information on engagement typologies not included in this review readers could search for Pretty's 'Typology of Participation' (1995), White's 'Typology of Interests' (1996), the International Association for Public Participation's 'Spectrum of Public Participation' (2014), or Rowe and Frewer's 'A Typology of Mechanisms' (2005)

2.3 Civic Hackathons & Engagement

A wide-variety of scholars have focused on developing engagement frameworks to bolster understanding of community engagement and participation. A similar body of work dedicated to civic hackathons and engagement does not yet exist. The paragraphs below will highlight researchers and their contributions to this nascent field of study.

Much of what makes civic hackathons compelling to researchers is the hackathon's recent rise in popularity (Pamela & Robinson, 2014; Baccarne, Compennolle, & Mechant, 2015; Gregg, 2015). According to Johnson and Robinson (2014), civic hackathons fall squarely within the 'current zeitgeist of social innovation and entrepreneurship.'

Furthermore, scholars contend civic hackathons are not a regional fad but are considered part of a global movement in governance and technology (Pamela & Robinson, 2014; Baccarne, Compennolle, & Mechant, 2015). Irani's (2015) participation in a civic hackathon in India, and Johnson and Robinson's (2014) description of civic hackathons in Chile and Pakistan demonstrate the model's spread.

The few authors producing research on hackathons are quickly advancing the discipline by building and honing their own theories. Dr. Robinson of Ryerson University, and Dr. Johnson of the University of Waterloo (2014) are an example. In 2014, they produced an article outlining three major questions for engagement researchers: Are civic hackathons a new medium for government procurement? How do hackathon ideas impact government services? How is citizen engagement either enhanced or restricted through

hackathons? Furthermore, in a 2016 research study, Johnson and Robinson explore how civic hackathons foster new forms of engagement between government officials and hackathon participants (Johnson & Robinson, 2016). Whereas scholars are approaching civic hackathons with a degree of skepticism, practitioners are some of their biggest advocates. Thoreson (2013) and Leclair (2015) explain that civic hackathons provide citizens with positive opportunities to develop new relationships with their governments and increase ‘community connectivity’.

Rather than stopping at the examination of new social relationships, Johnson and Robinson (2014) ask, if a technological solution is crafted, is the developer justly remunerated? They suggest research must approach this question in terms of reciprocity and whether the process acts as a government run ‘virtual sweatshop’. Although the Washington D.C. Apps for Democracy competition produced \$2,300,00 in software for the city government, only \$50,000 in prize money was awarded to participants (Johnson & Robinson, 2014). Gregg (2015) further critiques the type of volunteering that civic hackathons foster by questioning if participants are fairly remunerated and if individuals who can afford to spend time volunteering are the population governments should actually be engaging with.

Contrarily, Jake Levitas, founder of ‘Our City’, a nonprofit working to help city governments and citizens work together to ‘imagine and build the future of their communities’, contends that rather than procurement, civic hackathons are the ‘new civic engagement’ (Levitas, 2013). Civic hackathons provide governments with an opportunity to host a ‘participatory event’ and collaboratively develop services with constituents (Levitas, 2013). ‘What began as a niche theory about the potential to improve government using technology has quickly expanded to focus more on changing the culture of government to work more effectively and creatively with its citizens’ (Levitas, 2013). Levitas (2013),

argues civic hacking is increasing in popularity as citizens begin to see typical methods of engagement, surveys and public meetings, are not the only mediums for interaction.

Critical practitioners have also weighed in on the civic hackathon debate. Jake Porway, CEO of DataKind, a nonprofit that leverages data for positive social impact, has strong doubts. Porway (2013) identifies data as a tool that can certainly be used for good, but advises that the hype building around hackathons must be handled cautiously. Issues of remuneration aside, data literacy presents hackathon organizers with potentially confounding problems. Porway (2013) explains that without a clear problem, hackathons can develop false solutions and waste valuable time and resources. Unfortunately, if a tight focus is not set, Porway (2013) suggests participants may solve problems that they feel acutely, but are unrepresentative of the plights of other community members.

Inquiry into the nature of hackathons can also occur on an ultra-local level and drive community-focused research seeking to discern how individual hackathons have impacted communities. Carruthers (2014) published an in-depth analysis of a civic hackathon held at Edmonton Public Library that illuminated important findings about event participants and outcomes. The case study found that the majority of participants were between the ages of 18 and 45 and had never attended a hackathon before (Carruthers, 2014). Moreover, of 9 respondents, 2 had expressed they were still working on hackathon projects five months after the event's conclusion (Carruthers, 2014). Case studies produce important insights that can be leveraged at a city level. They also demonstrate how questions on civic hackathons can fall on a spectrum beginning with, what is a civic hackathon, and progressing to what do civic hackathons produce and how should we design them?

A growing number of guidebooks provide hackathon advice. They outline suggestions on how to assemble teams, choose sponsors, and curate event atmosphere (Code for America, 2018; Tauberer, 2018; McArthur, Lainchbury, & Horn, 2012). As civic

hackathon research continues to advance, it will be beneficial for practitioners and scholars to continue to keep abreast of best practices and principles. If the goal of a civic hackathon is to benefit communities, it will be important to ensure that hackathons are well organized to do so.

2.4 Scholarly Contribution

This dissertation will serve as another building block in the early development of civic hackathon studies by sharing organizers' perspectives on the characteristics of hackathons, their outcomes, and potential for engagement. Johnson and Robinson are perhaps the two researchers with articles tied most closely to the concerns of community engagement scholars. Their 2016 study, 'Civic Hackathons: New Terrain for Local Government-Citizen Interaction' serves as a research model and is the source of an integral question in my study: 'Do civic hackathons provide a new forum for local government-citizen interaction?'

Although Cornwall (2003) advises against relying too heavily on engagement frameworks, they also help deconstruct nuanced social interactions. Civic hackathons are complex events that produce complex outcomes and interactions. Therefore, the intent of this dissertation is to use cornerstone frameworks such as Arnstein's Ladder (1969), Fung's Democracy Cube (2006), Zuckerman's Axis of Engagement (2013), and other popular theorists, to bring greater clarity to civic hackathon study and practice. The methodological approach I utilized will be described in detail in the next chapter.

2.5 Chapter Summary

Although the number of researchers focusing on civic hackathons is still relatively small, community engagement and participation literature may function as a formidable theoretical anchor. Typologies such as Zuckerman's Axis of Engagement (2013), Fung's Democracy Cube (2006), and Arnstein's Ladder (1969), synthesize the major questions of

community engagement including, who participates, why, and what are the outcomes of the exercise? By studying the perspectives of hackathon organizers and learning how they perceive the characteristics of hackathons, hackathon outcomes, and potential as an engagement medium, civic hackathons are brought further into the field of community engagement and participation. By blending practitioner reflections and theoretical frameworks, this dissertation connects civic hackathons to theoretical points that will advance further scholarly inquiry while also aiding hackathon planners.

Chapter Three: Methodology

3.0 Chapter Introduction

This chapter outlines the research framework and epistemological leanings which influenced my methods and analysis. A reflection on participant selection outlines the criteria used to select hackathons and interviewees. Semi-structured interviews are highlighted as this project's method of choice and are presented in relation to thematic analysis. Finally, ethical considerations and reflexive declarations are highlighted to capture the nuances and responsibilities of qualitative research.

3.1 Research Framework

This research project seeks to contribute to the early development of scholarly literature on civic hackathons. The primary questions as identified in the introduction are:

1. How do civic hackathon organizers perceive defining characteristics of their events?
2. How do civic hackathon organizers view the outcomes of their events?
3. How do civic hackathon organizers relate hackathons to community engagement?

Given the questions' strong focus on the personal experiences of hackathon organizers, qualitative inquiry was selected as the most suitable approach for this project.

Qualitative methods are grounded in an interpretivist epistemology that values language and experience, empowering the views of participants, and contributing to theory rather than testing preconceived hypotheses (Bryman 2001; Silverman, 2017). Rather than pursuing causal relationships, or positivist concepts of objective truth, qualitative methods focus on discovering the meaning of interactions and experiences for those involved (Bendassolli, 2013). A qualitative approach allows researchers to unpack complex situations

and glean meaning from difficult to understand environments (May, 2002). The researcher is perceived as the primary instrument of data collection and analysis while the observer or participant is placed at the center of inquiry as a means to understand their worldview and experiences (Flick, 2007).

In addition to qualitative inquiry's ability to shed light on the nuanced perspectives of organizers, it is also viewed as generative, contextual, explanatory, and evaluative (Ritchie & Lewis, 2014). In many qualitative projects, the overarching goal is to further develop knowledge on the research topic (Caelli, Ray, & Mill, 2003). Furthermore, Flick (2007) reflects on the practical implications of qualitative research: 'Often, the intention is to change the issue under study or to produce knowledge that is practically relevant – which means relevant for producing or promoting solutions to practical problems.' With these strengths in mind, qualitative inquiry is ideally suited to establish a base for future study and practice.

3.2 Participant Selection

Civic hackathon organizers were the primary population considered for interviews during this research project. In order to frame participant selection within scholarly best practices, this research approached selection utilizing Arcury and Quandt's (1999) 'site-based' method for recruitment.

The first step in a site-based approach is to establish characteristic guidelines for recruitment (Arcury & Quandt, 1999). In regards to the events themselves, a civic hackathon must have met the following criteria to be considered for selection:

1. A start date between September 2017 – September 2018
2. Held in either the United Kingdom, Canada, or the United States.
3. Organized in partnership with, or led by a city government.

Focusing on civic hackathons that have occurred since August 2017 helped ensure interviewees could still accurately recall details of their events. Additionally, civic hackathons that occurred within the past year were considered to have the highest likelihood of still being politically significant. Limiting research to hackathons from the United Kingdom, Canada, and the United States was another important selection factor because it allowed research and interviews to progress at a comfortable level of English fluency.

It was essential to highlight civic hackathons led by or in partnership with city governments because this study focuses on their role in community engagement. Furthermore, although national hackathons may also have suiting characteristics, city-wide hackathons offer a more community-centric focus. Organizing interviews with elite, national officials also proved a daunting task within the time constraints of this project: 3 months. City-level events provided an optimal solution; engagement practices could be analyzed while elite interviews were also easier to organize.

Preliminary characteristics for recruiting hackathon organizers were less specific in comparison. If an individual held a facilitative or organizational role in their community hackathon they were considered for an interview. This research did not focus on how organizers from various demographic or professional backgrounds may perceive hackathons differently, but instead sought to distill commonalities from their experiences. Nor did my analysis focus on comparing the cultural differences of hosts and hackathons from separate countries.

Step two in Arcury and Quandt's (1999) 'site-based' approach is to generate a list of sites. After searching for hackathons that fit my criteria, I developed a spreadsheet of cities to contact. To successfully complete this research project within the timescales allotted, I chose to interview hackathon organizers in cities that responded to my queries fastest. The third step in site-based recruitment is to develop a relationship with a gatekeeper in the

research location in order to learn more about the site or object of study (Arcury & Quandt, 1999). This was particularly helpful when recruiting hackathon organizers. The tight-knit groups of people dedicated to running the events were happy to recommend colleagues who might be interested in participating in an interview.

The fourth and fifth steps important to site-based recruitment are respectively, the initial recruitment of participants and the management of participant diversity and group size (Arcury & Quandt, 1999). I attempted to recruit an equivalent number of interviewees from each city hackathon to balance competing perspectives. This was an iterative process which required that I continuously contact organizers in each city to ensure I achieved the numbers and characteristics I planned for. Arcury & Quandt (1999) explain this step is helpful for researchers deciding whether they should open new ‘sites’ in light of time or resource constraints.

3.3 Methods

Semi-structured interviews were this project’s primary research method. Ten civic hackathon organizers were recruited to participate in 30-60 minute interviews. Four organizers from Scottish-City were interviewed, with two interviewees participating in a group interview, three organizers from Canadian-City were interviewed, with two interviewees participating in a group interview, and three organizers from U.S.-City were interviewed. Both group interviews were scheduled for the convenience of interviewees. Hackathon organizers in Scottish-City were interviewed in person, whereas discussions with hackathon organizers from U.S.-City and Canadian-City were held over Skype.

Semi-structured interviews established an outlet for intentional, but relatively free-flowing conversation while easing the potential barrier between ‘researcher’ and ‘participant’ (Bryman, 2012). In a helpful distinction, DiCicco-Bloom and Crabtree (2006) clarify that while unstructured interviews are typically coupled with participant observation studies,

semi-structured interviews are often the sole technique used in their projects. Semi-structured interviews are considered a useful qualitative tool as they highlight common experiences among interviewees (Mason, 2002). Furthermore, interviews are thought to provide what Geertz (1973) termed ‘thick description’; a type of detail rich data that provides insight into both behavior and situational contexts. Semi-structured interviews are described by Knight and Arksey (1999 Pg. 15) as, ‘one method by which the human world may be explored, although it is the world of beliefs and meanings, not of actions that is clarified by interview research.’ Finally, an interview guide was also created to support conversation and outline background questions (Kallio et al., 2016).

3.4 Analysis

After interviews were completed, I followed Gillham’s (2005) guidelines for effective transcription. Interviews were typically fully or partially transcribed the day after the interview had taken place and were conducted periodically to ensure proper time for reflection. Analyzing qualitative data involves carefully classifying material across interviews to discern common themes, meaning and emergent patterns (Rubin & Rubin, 2005). Thematic analysis was thus employed to distill interview data into valuable findings.

Braun and Clarke (2006) suggest thematic analysis is a cornerstone of qualitative methods because it organizes large amounts of data into common themes for discussion and description. Likewise, it is a flexible form of analysis that can fit a wide variety of research designs, while still providing heavily detailed data (Nowell et. al, 2017). It is also thought to be a useful tool for establishing frameworks for early emergent data and communicating that data across different communities (Boyatzis, 2009). Ensuring results are relatable is very important for research on civic hackathons because they impact a wide-variety of academic and professional sectors.

An essential step in thematic analysis is the coding process. I conducted multiple rounds of critical review following Rubin and Rubin's (2005) suggested timeline for coding: *recognition* of concepts, *clarification* and *synthesis* of themes, and the creation of new concepts and themes via *elaboration*. Finally, I sorted common thematic codes into color coordinated briefings and deconstructed them into thematic findings reported in Chapter Four.

3.5 Ethical Considerations

Ethical concern was of paramount importance throughout this research project. In accordance with University of Glasgow guidelines, a research application including a description of my intent, methods, plain language statement, and consent form, was submitted to the School of Social Sciences for review. This application was produced in collaboration with my supervisor and in line with the European Union Economic and Social Research Council's guidelines. Full ethical approval was received on May 16th, 2018.

Qualitative inquiry poses formidable ethical dilemmas for researchers. Rich descriptions and details that provide context for scholars and readers may be troubling to release publicly because they leave interviewees susceptible to identification (Rubin & Rubin 2005; Miller, 2012). Careful attention was given to the careers of those individuals who participated in interviews. Organizers were city officials, private sector leaders, and academics who may not have wanted to be connected to quotes in this paper. Therefore, personal identifiers, names, and any allusions to gender were removed. The location of city hackathons have also been referred to by their country of origin rather than the specific city that hosted the event: Scottish-City, Canadian-City, and U.S.-City are used respectively.

Ethics extend beyond anonymity and confidentiality and are tied to individual actions as well (Rubin & Rubin, 2005). Considering interviewees chose to volunteer their time to offer their thoughts, interviews were kept as succinct and comfortable as possible.

Interviewees were reminded of the time they were spending in discussion as a way to offer a conclusion to the interview. Only if the interviewee offered another thought would the discussion continue. Furthermore, if an interview occurred in person, that interview was always held in the interviewee's place of work as to mitigate any personal inconvenience. Following the submission of this paper, all recordings, transcripts, and contact forms were destroyed to protect interviewees' personal information.

3.6 Reflexivity & Bias

Reflexivity is an essential aspect of qualitative research. Research biases and assumptions are natural to all scholarly inquiry and are important to declare to readers (Brinkmann, 2018). I am a young person who is rather dissatisfied with current civic engagement methods. Therefore, an important personal bias I had to be aware of throughout this study was my potential predisposition to view civic hackathons positively. To combat this bias, this paper seeks a more nuanced understanding of not simply the strengths and weaknesses of hackathons, but to offer a greater understanding of their role in civic engagement. It takes no definitive stance on whether hackathons are 'good' or 'bad'.

My citizenship could have been another source of bias. As a citizen of the United States, it could have been more comfortable to strictly highlight case studies from my home country. By doing so, I would arguably have had a better understanding of engagement practices, and could have leveraged personal connections to assist in interview scheduling. Instead, I chose to negate this bias by studying cases in a city of the United States I have never visited, and selecting cases in internationally. This may also be seen as 'easy' because Scotland is home to my current university. On this front, I chose to interview organizers in a Canadian city as well. Therefore, in effect, addressing both opportunities to simply study what would have been easy.

3.7 Chapter Summary

A firm grounding in interpretivist epistemology helped shape the use of qualitative methods in this study on civic hackathons. Ethical concerns guided all research interactions and were strictly adhered to. My personal bias to potentially perceive hackathons as a positive experience was documented. The fluidity and subjectivity inherent in social experiences were drawn out via semi-structured interviews and iterative rounds of thematic analysis. Inductive reasoning produced common themes and concepts included in the following chapter.

Chapter Four: Thematic Findings

4.0 Chapter Introduction

In interviews with organizers of the Scottish-City 2017 Climathon, the Canadian-City 2018 Pedestrian Safety Hackathon, and the U.S.-City 2018 Hackathon, three major themes repeatedly arose in conversation. Discussions focused on what defines the hackathon model itself, what the outcomes of a hackathon should be, and how hackathons could potentially serve as an engagement medium. Importantly, analysis of each theme provides increasingly illuminating insights into what it still a nascent field of academic inquiry. Theoretical implications and questions for further study were also highlighted and may provide a useful starting point for additional scholarly projects and city initiatives.

4.1 The Hackathon Model: Defining Characteristics & Design

What exactly makes a civic hackathon a civic hackathon? Interviews unearthed important themes and questions that are helpful to consider: A characteristic problem solving ethos, and whether or not a hackathon should be themed. Scholars and future practitioners can utilize the insights provided to frame future inquiry and plan hackathon events.

4.1.1 Problem-Solving Ethos

At the heart of the hackathon platform lies a distinct problem-solving ethos. Civic hackathons provide organizers and participants an opportunity to collaboratively address issues of community importance in a carefully designed, time-sensitive, and challenge oriented environment. A dominant theme that often arose in conversation with organizers was how hackathons create an environment dedicated to ideation and creation. Moreover, organizers also reflected on how their events reframed complex and often overwhelming community challenges into positive, problem-solving opportunities.

Hackathons for me are part of a positive psychological approach because it's saying yes, yes there's a problem, yes it's a potentially existential threat that we have here, but, this is something positive we can do to actually take it apart and look at the constituent parts. [Scottish-City]

They're [participants] there to make something happen. They've got skills and they want to do something...I think the people who show up self-select into somebody who wants, or the segment of the population that wants an entrepreneurial experience. [U.S.-City]

We saw that throughout the event, people were really passionate about making a difference, and that's what came through in their presentations... they're not interested necessarily in profiting off this, but making the city a better place, a more walkable city, a safer city and more playful city too [Canadian-City].

Hackathon organizers also explained that attracting a wide-variety of professionals with different skills to their events helped reinforce a problem-solving atmosphere. Civic hackathons provide a setting where business professionals, government department leads, software developers, students, and community members can gather together to take action on civic challenges.

I really loved that vision of just not developers, but actually bringing in some of the mentors, bringing some of the regulatory people, bringing, just, multidisciplinary stakeholders to the table to enrich the conversation and so we were kind of chatting

about wanting to do this themed hackathon to really bring passionate people together. [Canadian-City]

And whether you care about data or you care about web development or you care about policy or design or any of those things it all can converge on some of the city work. So from a meetup perspective and from just a general interest perspective it's pretty fertile ground to get people of all these different backgrounds to come together around loving where they live. [U.S.-City]

I think it's a really powerful opportunity actually to break down some of the barriers across different sectors. To get people face to face with people they wouldn't normally be, on a peer to peer level. [Scottish-City]

Additionally, organizers highlighted that facilitating cross-sector collaboration does not come without difficulties. Expectations of what a hackathon should include and should address may be difficult to manage with a diverse array of participants and backgrounds. Two individuals actually left the Climathon early because it didn't fit their understanding of what a hackathon should be. They had expected a more 'technological' environment and instead had entered into a more policy-oriented setting. Organizers cited mismatched expectations as a point of concern. This led to a popular point of discussion among organizers – would the word 'hackathon' itself trigger certain expectations from participants?

What we've learned from this hackathon I think too, is that, we're calling it a hackathon... Well, is that the right word to use to use for something like this? A hackathon generally attracts developer-minded folks, and so some people, when they

start seeing that your end product doesn't necessarily have to be an app, that kind of throws the focus of it. [Canadian-City]

There's obviously people turning up expecting to spend the day coding, and there's other people who turn up expecting to workshop and brainstorm, and so this was a learning curve for us. [Scottish-City]

Perceptions tied to open data may hold the key to technologically-leaning expectations. For a brief description on the role open data has played in the rise of civic hackathons please see Introduction 1.1. Organizers reflected on the role open data played in their hackathons and highlighted that while it may not be necessary, it is helpful to have on hand to answer questions from participants. Furthermore, allocating open data for the event was also seen as a way to validate the utility of ideas and proposals.

'So, you know, is open data integral? I don't know that it is necessary from our experience's standpoint. But, I think that, because your brainstorming, because you're not, you don't want to have people sit down to do something and say oh I really wish we had X, you kind of have to do all this groundwork to get data open so that if someone wants it on the day, they can work with it... So it can be a failure if you don't provide it. [Canadian-City]

'You know, one of the projects created a bunch of dummy data and they ended up winning and so now we're having to scale their expectations because the data doesn't exist the way they pitched it. And so there's a risk there. But, you know, it's kind of,

the idea is what is more valuable than the data, so I think that you know, it's definitely possible, it's just not ideal.' [U.S.-City]

4.1.2 Theoretical Implications

By focusing strongly on the creative power of a diverse and dedicated collection of community problem-solvers, civic hackathon organizers provide clues as to where the events could fall on Zuckerman's Axis of Participation. Zuckerman describes a specific contrast between 'thick' and 'thin' engagement. Activities that are thin require little effort or brainpower, signing a petition for example. In contrast, thick activities require a degree of creativity and thought (Zuckerman, 2013). From the perspective of an organizer, a thick engagement activity implies that you are seeking an answer that you yourself cannot necessarily find (Zuckerman, 2013).

Civic hackathons fit well with Zuckerman's understanding of thick engagement because organizers invite skilled and passionate participants to creatively address challenges. Importantly, Zuckerman (2013) also highlights that many examples of thick engagement are held at a community level. In order to achieve results from thick engagement practices, Zuckerman (2013) offers the following advice: 'We need to understand that thick participation at scale means devolving control away from the center and trusting that the people we are inviting into our movements will shape them going forwards.' In each hackathon, organizers explained that participants had come to build, to create, and to help improve their city. They were empowered by organizers and were given agency to craft solutions to community challenges.

4.1.3 To Theme or Not to Theme?

Of the three cities selected for this study, Canadian-City and Scottish-City identified specific themes for their challenges. Hackathon participants focused on pedestrian safety

improvements and local efforts to address climate change respectively. In contrast, the U.S.-City hackathon was an 'open' hackathon of sorts. Teams shared a venue space and resources but chose to pursue separate projects throughout the event. Deciding to theme or not to theme a hackathon proved to be a multifaceted decision reliant on factors such as political relevance or stakeholder support.

That seems to be the pattern, of people going towards more themed hackathons in order to solve some of those society issues. For us, I still think, although we want to do themed hackathons in the future, I think it's still a question that we have, to theme or not to theme? That's the big question for us. [Canadian-City]

Socio-political relevance was identified as an underlying influence shared by organizers in Scottish-City and Canadian-City. Hackathons were connected with community priorities shared by local governments, and citizens alike. In Scottish-City, Climathon organizers also connected their hackathon with ambitions set by the national government.

To theme or not to theme really depends on the circumstances, the business and community leaders, the environment, definitely I think if you have some, if you can focus on some issues that are really relevant in that society and that city, or some themes, then you have a great product because more people are interested in it. You can't just pick a random theme out of the air that people are like oh, so what?

[Canadian-City]

We did have a pedestrian strategy that was approved a couple of years ago, but the world of walking and biking is really in evolution currently. [Canadian-City]

But what came out more strongly was that we should focus on how the policy side of things and how we as a city would achieve Scotland's ambition to become carbon neutral by 2037. [Scottish-City]

Organizers in Scottish-City also specifically explained themed hackathons could provide participants with an opportunity to relate their local challenges to broader regional or international contexts. Scottish-City's Climathon was part of the European Institute of Technology's Climate KIC program, sponsoring Climathons in dozens of cities across the world on the same day. An official in Canadian-City also commented on the Climathon and its ability to connect cities with shared values and challenges.

[It] makes it easier for participants to access information and share with other cities in the world who are doing this, so it has an appeal in itself to get a group in [Scottish-City] to speak to a group in, I don't know, Toronto, and somewhere else in the world, Sydney, and discuss different or similar challenges and how they might be approaching the solutions in different ways. [Scottish-City]

I'd like to see something in the future where we have a hackathon here in the City of [Canadian-City] but we open it up to outside of the [Canadian-City], and something like the Climathon could potentially be more than just a topic within a local municipality. [Canadian-City]

In contrast to the themed hackathons orchestrated by Scottish-City and Canadian-City, the U.S.-City 2018 hackathon maintained an open focus. In discussing why organizers

decided to opt for a non-themed or open hackathon, local leaders stated that open hackathons allow participants greater autonomy in deciding what local issue they would like to work on.

*I think that for our hackathon, the one we put on each year, we like to have an open model because part of our philosophy is that you know, our community, we want people to learn and we want people to follow their interests and so when people say: what should I work on? The first question I ask them is: What are you interested in?
[U.S.-City]*

I think it's, the projects that are generated organically from the community are the ones that seem to get the most traction. And we're not going to force, if we force a theme on somebody I think that we're, we wouldn't get the breadth of ideas that we're really looking for. [U.S.-City]

Organizers also explained that having an open focus may attract a more diverse crowd of participants.

If you have a healthcare hackathon you're attracting healthcare people and that might bring out different folks than your normal civic hackathon but for us we're able to bring a diverse cross-section of interests together by have it be so open. [U.S.-City]

4.1.4 Theoretical Implications

In any participatory exercise it is important to reflect on the constraints that a preconceived agenda may place on participants (Taylor, 2007; Head 2007). Deciding whether to assign a theme to a hackathon relates to questions of agenda setting and power.

Nam (2012) advises that challenges may arise if government staff set procedures and agendas without citizen consultation. Furthermore, Cornwall (2008) explains that researchers should carefully analyze which issues citizens are invited to address and which they are not.

Inclusion on one matter may mean exclusion on another.

Open hackathons may provide participants with greater freedom to address issues important to their teams. Participants can form themselves into teams of mini-publics with specific interests to develop solutions to challenges they face in their everyday lives.

Conversely, participants in themed hackathons can do almost the exact same thing, except they do not get to choose the precise theme of the event they are participating in. Hackathon participants are thus able to decide on their teammates, their project focus, but may or may not have the power to decide the overarching theme of the event.

As indicated by their reflections, organizers of themed hackathons paid careful attention to the sociopolitical contexts of their themes. They acknowledged that the issue was of particular local importance and that it related to the concerns of citizens. Likewise, they indicated that pairing hackathon themes with local concerns was an important element of any hackathon. Organizers of open hackathons acknowledged that it may be more effective to allow the public to choose their own projects. In both cases, hackathons allow participants to be creative largely on their own terms. Perhaps this edges closer to what Cornwall (2008) suggests is a participatory environment fostered mostly by participants: ‘Most commonly, they consist of people who come together because they have something in common, rather than because they represent different stakeholders or different points of view.’

4.2 Hackathon Outcomes

Hackathon leaders share a common interest in ensuring their events address local challenges productively. Understanding how winning ideas were selected, and who selected them, provides insight into how hackathons produce their outcomes. Furthermore, analyzing how hackathon organizers continue to support winning ideas following the conclusion of their events helps begin a conversation on whether or not civic hackathons bring about lasting impacts.

4.2.1 Indirect or Direct Outcomes?

Hackathon organizers shared descriptions of winning ideas from their recent events. To incentivize public transportation use in Scottish-City, the winning team produced plans to create a transit card and linked-app allowing users to collect rewards for using public systems. In U.S.-City, a winner developed an online system that helps civic organizations take advantage of a ‘mow-down’ program that pays nonprofits for maintaining vacant community land. Winners in Canadian-City developed an idea called ‘Near Here’, that encourages residents to decorate their communities with signs detailing favorite destinations in their neighborhoods. Winning ideas are the most visible outcomes of their respective hackathons, but indirect outcomes such as community building and positive discussion should be highlighted as well.

An organizer from U.S.-City juxtaposed concrete outcomes such as apps, with the softer more relationship-centric outcomes hackathons may also produce.

I think I would divide outcomes into a couple of different ways. One is like, did you have a good time? Did you meet good people? Were you inspired? Is this a memory that you can take with you?... Another outcome is are you building long-lasting partnerships and relationships with the people that you've worked with? We've

watched startups form out of our hackathons, we've, it's kind of amazing you know, how people will tell me stories about how they first met their business partner or their life partner whatever at a hackathon. [U.S.-City]

Discussions with leaders from Scottish-City continued to highlight a subtle debate over what exactly the outcomes of a hackathon should be. Climate change is a global challenge made local by the focus of the Climathon, but as organizers detailed, perhaps their greatest accomplishment was simply gathering people together to fight the negativity that climate change fosters.

The objective was to get a solution, but our focus wasn't so much on the solution it was more on getting the people in the room talking about climate change and inspiring people to act. Because often climate change is, may seem as a big issue but people don't feel they have control over it as individuals so it was more to get people to talk about specific issues like transport, housing, and flooding, ya know, things they can do and can learn to improve their lives, but also make a difference...[Scottish-City]

In contrast, cleaving towards a more concrete outcome perspective, another Climathon leader explained:

I would like something that's going to have potential for impact, so whether that's a proposal for a policy that's got a realistic chance of getting something done about, or whether it's a product, or whether it's an initiative, or a scheme, or something that's

got potential impact to create change, to me, that's what I feel it should be.

[Scottish-City]

The discussion over hackathon outcomes extends to further indirect results as well. For example, organizers in Canadian-City reflected on the fact that although their event focused on pedestrian safety, the general pooling of open data was also a positive outcome for the city.

It's not intended just for the hackathon, but we're looking at datasets that we can make available after the hackathon, either to help supplement the apps or ideas these groups are working on, or even, you know just to benefit the public at large.

[Canadian-City]

The increase in publicly available open data could thus be considered a net benefit of the hackathon process. Additionally, a Canadian-City official described the hackathon as an opportunity for city employees to develop professionally.

So putting our city staff into a design hothouse kind of situation is good for those city staff in their day-to-day jobs. Like the people who support or participate in the hackathon come away from it with, a sort of, it's almost a professional development of innovation thinking and looking at problems in different ways and perspectives. So the next time they sit down to challenge a problem that they're facing, they can think in those different ways as well. [Canadian-City]

In an interesting case from U.S.-City, a representative also outlined that government employees may choose to participate in hackathons because it allows them to gain new perspectives on their current projects.

*You know, if inside of a department you are faced with a lot of people who just say no, I don't think that's going to work. I don't, let's not invest resources there, this is risky... Well you come out here and test out an idea in this very low-risk environment, low risk and if it fails, low exposure, no one is going to cry about it. You know, you're not going to lose your job over it. And you're just getting to test out this idea in a completely experimental and open setting. And the people working on the project with you are okay with that. That's a pretty rare circumstance so I think, you know, a lot of organizations aspire to create that level of like safety and confidence in people with experimentation, but a lot of like, bureaucratic institutions do not...
[U.S.-City]*

4.2.2 Theoretical Implications

What are the impacts of engagement activities? What are the impacts of civic hackathons specifically? Engagement exercises bring about a variety of potential benefits for participants that may not necessarily be visible in hard outcomes. They may help citizens develop empowering skills and social networks (Burton et. Al, 2004), while also reinforcing a sense of community (Taylor, 2007). Organizers indicate that civic hackathons can produce actionable ideas, and may lead to increased dialogue, open data growth, professional development, a sense of positivity, and an opportunity to build relationships. Hackathons may appear to have a simple goal and process, a competition and winner, but the journey through the event is more complex.

Civic hackathons provide an opportunity for citizens and government officials to share information and innovate community solutions in a collaborative manner. Nam (2012) describes this shift in government-citizen relationships as a phenomenon called ‘citizen-sourcing’ which flips a traditional understanding of civic relationships. ‘Citizen-sourcing, therefore, may change the government's perspective on the public from an understanding of citizens as users and choosers of government programs and services to makers and shapers of policies and decisions’ (Nam, 2012). Changing how citizens are perceived may be important, but the language of ‘citizen-sourcing’ itself carries a heavy transactional tone. Some scholars advocate for a new understanding of engagement and outcomes.

Collins and Ison (2009) suggest that researchers may focus too intently on concrete outcomes and power relationships in engagement exercises. Arnstein’s ladder has proved a hinderance in this way because it focuses too heavily on a linear progression towards citizen control that doesn’t take into account truly nuanced social environments (Collins & Ison, 2009). Instead, Collins and Ison (2009) advise scholars to view engagement through the lens of ‘social learning’, where participants naturally undergo rounds of iteration and consensus building as part of a ‘co-evolutionary process’. Building off comments shared by organizers in Scottish-City, particularly complex issues like climate change are well suited for social learning approaches because they require a diversity of perspectives and stakeholders to develop adoptable solutions (Collins & Ison, 2009). Oftentimes, periods of social learning build gradual change as a consensus is crafted (Collins & Ison, 2009). Therefore, regardless of the final winning idea produced, if participants learned from each other in a way that pushed their community closer to a shared solution, they achieved a degree of success.

Hackathon impacts are difficult to measure. While gathering for a productive conversation and learning experience may count as a success for some scholars and organizers, it may fall short of the mark for others. Regardless, by nature of their design,

hackathons produce winners and those winners must be selected by someone. Ideas reflect the passions and concerns of participants, but what happens to the ideas they create?

4.2.3 Hackathon Ideas and How to Support Them

Hackathons are time-limited. The Scottish-City Climathon spanned 12 hours, while the U.S.-City hackathon and Canadian-City hackathon spanned a single weekend. Civic leaders are interested in supporting solutions and building an outlet for winning teams to extend their impact well beyond the temporal parameters of their events. Hackathons, therefore, are time-limited events with impacts that are hopefully not temporally bound.

Representatives from Scottish-City and U.S.-City reflected on how they organized judging panels to select winning teams and ideas. They focused on organizational diversity as well as demographic diversity. Equal gender representation was also mentioned by representatives from both cities.

We pick the judges group based on a couple of things. One is subject matter expertise. So usually there's a couple of either department directors from the city or high-level – maybe not directors – but people who own a particular program that's of interest. We usually have people from the community who are either well known in our startup community, so maybe they're investors or successful entrepreneurs, or they run a coworking space, or they organize a meetup that's particularly popular, and we reserve a seat or two at the judges table for our main sponsors. [U.S.-City]

*We tried to have a, we deliberately had a 50/50 split between female and male.
[Scottish-City]*

We tried to have a representative from each different organization. [Scottish-City]

We try to make sure that there's a balance between all of the, you know, just trying to make sure there's gender balance and diversity across the board. [U.S.-City]

Hackathon leaders from Canadian-City explained they had decided not to leave the final decision to a judging panel because of past experiences where participants didn't necessarily agree with the final outcomes.

In the past hackathons that was actually an area of controversy, that people didn't agree with judge's decision. And I think it left a bad taste with the participants, and like this one, the winning wasn't as important as getting good ideas, and so we just, yeah we handed that over to the audience. [Canadian-City]

An interesting area of overlap arose between Canadian-City and U.S.-City when organizers discussed the role of cash prizes in hackathons. A representative from U.S.-City described a past experience in which a cash prize resulted in some difficulty when a contestant expressed extreme dissatisfaction that s/he had not been awarded money. A city official from Canadian-City offered comments from a related experience.

We're not going to do cash prizes. Because you don't know where people are at and you don't know, you know, even 100 dollars, 50 dollars, 20 dollars, if somebody's struggling to pay rent or their in debt, like, they're in it to win it. And that's not the type of competition we want to have. [U.S.-City]

I think what we saw from the feedback is there's no perfect formula for judging and awarding prizes. Yeah, in the last hackathon we had there was quite a lot of flack and negativity around the judging process and I think a lot, or some of it, was linked to the monetary things. Because when you have big money at stake people are more competitive and are like, why not me? [Calgary]

In order to frame how teams had progressed since their hackathons, organizers described how they had crafted, or were attempting to craft post-hackathon pipelines. Citing the city's sheer size, in population and number of government employees, U.S.-City representatives have found that gaining mayoral support helps provide successful hackathon participants – who may not have previous experience with city procedures – a way to solidify further traction for their ideas.

In order to get anything done in an organization like that, where you don't have a longstanding tenure or even relationships with these directors and bureaucrats, you really do have to make a really strong case to the Mayor that you've done your job bureaucratically to get everyone's buy in. So you make it easy for him to say, 'let's back this because...' And then you make sure that if there's any institutional resistance to it, that he can help work it through. [U.S.-City]

A U.S.-City organizer also explained that part of the post-hackathon pipeline involved meeting with teams and mentoring them to determine their project ambitions.

Part of the month between the hackathon and presenting to the Mayor, the month to two months, is really working the teams to calibrate their ambitions and to better understand what they want to do next after they've won. [U.S.-City]

The U.S.-City method prepares winning teams to make their case before influential local stakeholders; a purposeful path forward helps ensure the event's promising ideas don't sit idle. However, maintenance challenges still present city officials and hackathon organizers with distinct challenges. For example, U.S.-City representatives are currently working to maintain a city-themed app with massive adoption that is run by a volunteer.

So I mean, it gets complicated when you know, it's a city app that's supported externally by a volunteer. We actually have to make it into a relationship. And so, that's kind of been a difficulty, but we're working through it and I think all cities kind of have the same issue with technology that's volunteer developed. [U.S.-City]

A Canadian-City official further delved into the differences between a successful idea built at a hackathon, an actionable solution, and who is responsible for that solution.

Because probably one of the most difficult parts for us is not creating an environment for these initial ideas and these sort of you know, proof of concept level implementations, as in, they do a small amount of programming, they can show you vaguely what something is, and they give you a presentation. And you know, okay I can see how that technology could work. But between there and a fully realized solution is a huge empty space. Right? Who is gonna own that solution? Is that the

city? Is that some business entity? Is that just an advocacy entity that carries that on?' [Canadian-City]

Organizers in Canadian-City discussed continuing to support hackathon ideas after the event's conclusion as well. According to one leader, fostering post-hackathon momentum is a common concern.

I mean that is one of the challenges for most hackathons, is how do you keep the momentum? How do you, for these teams and ideas moving forward, how do you point them in the right direction? [Canadian-City]

Pairing with city businesses and officials following the hackathon was identified as an important step. As part of Canadian-City's 2018 hackathon, organizers are currently working with their provincial government to secure grant funding for winning teams. They explained that connecting business concepts with relevant mentors can be extremely helpful.

In the past we've linked up these groups with [Canadian-City] Economic Development with different startups organizations that help sort of train and provide advice and provide resources for these people to draft a business plan to learn how to market their product how to differentiate themselves from everything else that's out there. [Canadian-City]

While Scottish-City's organizers were interested in supporting ideas after the Climathon's completion, it was their first year running the Climathon and a clear post-hackathon pathway had not yet been established. They did agree with leaders in U.S.-City

and Canadian-City on the importance of mentorship, and expanded the post-hackathon discussion by identifying that participants may expect change outside the hackathon to occur as fast as change inside the hackathon; an expectation that could lead to disillusionment.

We all welcome all the ideas, but obviously a lot of them might not be implemented straight away, but hopefully they'll be listened to and they'll be added to a critical mass that will drive change, but they might not all happen tomorrow after this Climathon... Some people expect there to be change much more quickly, much quicker than we can drive it. [Scottish-City]

I think it could be quite disillusioning or disengaging for people to be in a space where, it's really, I don't know, you've got lots of inspiration and you meet a lot of cool people who are really wanting to good things. And then you take that idea and you put it in a real world setting and especially if you're not used to working in like public bodies, or even, I'm sure the private sector is also slow, but things happen really slowly. [Scottish-City]

4.2.4 Theoretical Implications

By following the trail of a successful hackathon idea from its judgement to its evolution post-hackathon, researchers are better able to glean an understanding of who exactly holds power in civic hackathons. The third component of Fung's (2006) Democracy Cube builds on notions of power and authority by asking: 'How is what participants say linked to what public authorities or participants themselves do?' (Fung, 2006).

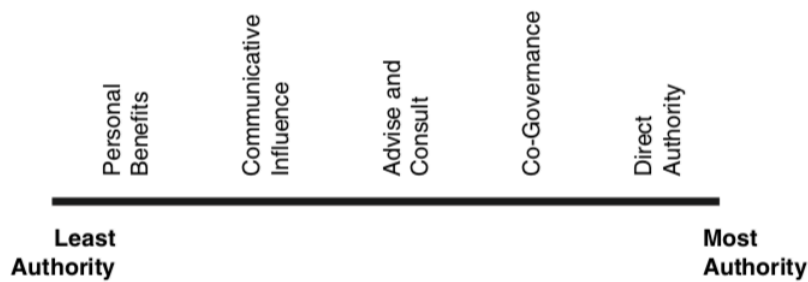


Figure 4 Fung's Spectrum of Authority (2006, Pg. 70)

Fung's query applies to how hackathon participants and their ideas eventually impact their community. Idealistically, hackathons would fall within the fifth segment of Fung's (2006) authority and power spectrum: 'co-governance', in which citizens collaborate with officials to craft plans and strategies for their communities. The heavily collaborative nature of hackathons and the mix of government officials, nonprofit leaders and professionals working together to solve shared challenges suggests that a degree of partnership and co-governance could be fostered. In situations where fellow participants select winners this co-governance relationship may be solidified. However, just below Fung's 'co-governance' range, 'advise and consult' may also seem fitting for civic hackathons where city officials maintain the right to select winners. In an 'advise and consult' environment, citizens provide their expertise, but the government reserves the authority to decide what is done with the ideas and input they receive (Fung, 2006).

Organizers shared distinct concerns over how to support and maintain successful hackathon ideas. Importantly, they also recognized that if ideas were not implemented it may disillusion participants. Managing expectations and outcomes of engagement exercises is vital to their success. Cornwall (2008) describes this impetus to act as a complex challenge influenced by institutional characteristics: 'From within the authorities, responsiveness is contingent on wider institutional changes and the political will to convert professed

commitment to participation into tangible action.’ However, as interviewees recognized, the speed of hackathons may frustrate participants who don’t want to wait for ‘wider institutional changes’. Frustrating participants, especially successful teams, may not only lead to a massive loss as potentially beneficial ideas sit idle, but may also hinder the attendance of future hackathons as participants realize their actions won’t translate to results (Johnson & Robinson, 2014).

With implementation challenges abound, it may appear easier for hackathon organizers to simply hold events that stir up excitement, energy, and ideas, and then relieve themselves of the responsibility to carry forward winning concepts. Doing so would push hackathons farther down Fung’s spectrum of power and place participants firmly in segments where they are not governing or developing much of anything. Organizers would then risk potentially losing participants, talent, and beneficial ideas as participants realize that the promise of creation, what may have attracted them to the event, was hollow.

4.3 Hackathons: Engagement for All?

Throughout interviews with hackathon organizers from U.S.-City, Scottish-City, and Canadian-City, references to community engagement methods and strategies coalesced into two broad categories: the nature of hackathon design and its impacts on citizen-government interactions, and diversity. Discussions provided a window into how organizers view hackathons and how they relate to engagement practices. Understanding the intertwined nature of civic hackathons, community engagement, and subsequent community improvement, is a strong jumping-off-point for future scholarly work and for successful practitioner implementation.

4.3.1 The Nature of Hackathon Design: New Environments & Relationships

During reflections on civic hackathons and community engagement strategies, organizers first offered remarks on the nature of hackathon design and the style of their

events. Representatives described civic hackathons in relation to other engagement outlets. They focused on the tone of hackathons, a distinct ‘entrepreneurial’ element, the hierarchical nature of public meetings, and how hackathon participants alter the ‘doctor-patient’ relationship typically associated with engagement methods. Moreover, organizers also raised points related to hackathon ideas and how they could influence policy development.

I think it's more entrepreneurial than say a town hall meeting or a design workshop or a charrette. I think that there's elements of all of those things and we certainly have design-thinking volunteers who bring the post-its and are ready to map, these things happen at the hackathon. [U.S.-City]

Public meetings are fine, but you've only got the same weirdos turning up - like me - to the public meetings. You know, there's only so many people who turn up to a public meeting. There's other things to do on a Friday night, you know? Why bother? And someone standing up and talking is a bit patriarchal for me. It's usually a bloke telling everyone else what to do; so we need new ways of engagement. [Scottish-City]

Most of our engagement medium is more like a doctor patient relationship. You know, we're talking to people and asking for symptoms so that we can diagnose and change, and try and treat those symptoms. People might think they have some ideas about what will address their symptoms but they're not really interested in becoming engineers and taking that on... The hackathon is interesting because it's sort of community involvement on things that would be city-wide or accessible for a much broader audience. And you know, I don't often work with people that want to solve problems. I'm mostly working with people that have the problem. [Canadian-City]

A difference in tone seems to craft hackathons a unique space in community engagement. However, some organizers may not necessarily see community engagement as the primary reason for developing a hackathon, but a supplementary benefit of a technology-themed problem-solving event.

'It's a good way to solicit external help. I think that's how we look at it more.

There's ancillary benefits. Community engagement being one, transparency with open data is one, and just motivating or growing our technology ecosystem...'

[U.S.-City]

Hackathon leaders became even more specific in their discussion on citizen-government interaction when they began to describe how hackathons change the role of city officials.

I think hackathons, I think what's super powerful is when the City is stepping out of, like letting go a little bit, and just facilitating these community conversations... We're actually genuinely trying to get feedback, but it's almost never perceived that way. Or it really has the risk that we're just writing down what we want to hear because we already know what we want to build. So I think hackathons are really, can be transparent and they're way more fun... [Canadian-City]

I think that outcomes are great, having cool projects that take on a life of their own after the hackathon is great, but something I've seen that's universal is that everybody gets welcomed into a new level of interaction with the government. So you

know, it's like they're opening the door for you to come in and try something, to try an idea. And that's something that I think is novel. I don't think, you know, you have things like city halls where you can come and talk at somebody and you know you get like a short session. Here, it's like you actually come in and instead of sharing a complaint or a problem, you share your idea for a solution. [U.S.-City]

In addition to overall reflections on citizen-government relationships, a Climathon leader from Scottish-City discussed how hackathons could provide input for politicians who may benefit from receiving innovative proposals.

'So hackathons are really useful for giving politicians a broader feedback, background, or policy approach, and I feel it could potentially close a real gap in the policy funnel... But politicians need that input. So I think where a hack can happen, is it can produce useful policy input that's outside of the broken democratic agenda.'
[Scottish-City]

Building on this point, a U.S.-City organizer explained how winning projects may also relate to the city's policy priorities.

'A lot of the projects that are developed by the public, or you know, the ideas that are generated by the public, they're aligned with whatever the issue-du jour is, which is also kind of where the Mayor's mindset is... So the Mayor's priorities show up in the projects that we end up pitching. But very loosely. So you know, it's just stuff that we're working on, and since we're working on the Mayor's priorities, and we spot an

opportunity for it and therefore it becomes aligned with the Mayor's priorities.'

[U.S.-City]

4.3.2 Theoretical Implications

Hackathons provide a new space for government-citizen interaction. This new relationship is defined by a burgeoning collaborative spirit and a nod to the problem-solving ethos that perhaps brings all parties together in search of shared solutions. Most interestingly, hackathons may also create a new platform for community members to influence politicians' policy ideas and agendas.

Organizer's reflections highlighted how hackathons could relate to relevant community issues and thereby tie to the concerns of local politicians. In a British context, the United Kingdom's civil service reform efforts since 2012 have helped mainstream public engagement in policymaking (PASC, 2013). The plan itself describes two major steps forward: 'open policy-making', where citizens are consulted on policy matters before policies have been developed, and 'contestable policy-making', where experts outside of government are given the opportunity to develop policies for consideration by the government (PASC, 2013). Civic hackathons in effect combine elements of both 'open' and 'contestable' policymaking as they empower experts to craft solutions to community challenges while also allowing governments the ability to consult with constituents.

Another theoretical framework that offers an interesting parallel to how civic hackathons may influence government actions is Kingdon's (1984) Multiple Stream Framework (MSF). The three components of the MSF are:

1. Problem stream window
2. Policy stream window
3. Politics stream window

Simply put, when the three windows align a policy is moved to the front of a political agenda (Kingdon, 1984). Another critical component to understanding Kingdon's (1984) approach to agenda setting is his concept of the 'policy entrepreneur', who actively seeks an opportunity to advance a cause on the public agenda.

Civic hackathons and MSF theory collide because, as identified by interviewees, in themed hackathons the problem is set based on local relevance. In essence, a government could intentionally open the 'problem window'. Once that window is open, an ad-hoc group of 'policy entrepreneurs' may gather to solve an issue such as climate change or pedestrian safety based on their passion for that particular issue. These entrepreneurs could then develop solutions to the problem posed, and thus address the demands of the 'policy stream window'. Finally, the 'politics stream' may prove most elusive because it relies on a proper opportunity to turn ideas into official policy. As previously highlighted, the temporal realities outside of hackathons may not align with the expectations of hackathon participants. Therefore, waiting for the 'politics window' to open without a guarantee that it ever will, may prove challenging.

4.3.3 Diversity

Diversity was marked as an important element of civic hackathons by all organizers. Not simply professional diversity as highlighted in section 4.1.1, but demographic diversity as well. Particular attention was given to young professionals and students. Organizers reflected on why students and young people may prefer civic hackathons as an outlet for community engagement as opposed to other mediums.

U.S.-City representatives discussed the great diversity in their city and how they prioritize outreach to underrepresented communities.

I think that we've made a conscious effort to focus on diversity and outreach out to underrepresented communities both within the tech community and outside the tech community. So [U.S.-City] is a very diverse city. Some have said it's the most diverse city in the United States...And so we're just conscious of that and we try to make sure that we measure that and understand the composition of our community. [U.S.-City]

Canadian-City organizers raised questions related to hackathons as a whole and their ability to attract a diverse collection of participants.

I'm excited about community-focused kind of hackathons cause yeah, I see, traditionally who do you attract to hackathons? Yes, it's the younger generation. You do attract the 25-35 year crowd. What about the kids? What about the seniors and things like that? So I think bringing it the community level in the future, it would be really exciting in terms of broadening it and having developers there with ideas, but exactly,, bringing other stakeholders, seniors, the young people, to further augment that idea and turn into more something useful. [Canadian-City]

Discussions on diversity also highlighted points regarding hackathons and general accessibility. Scottish-City organizers mentioned the time-sensitive nature of hackathons as a potential barrier to participation.

We didn't go for a 24 hour one, which I actually think was a wise choice. And that, it was 12 hours, which itself is still very long, and I think for people who've got families, who've got kids, who've got dinner to make, stuff like that. There's not

going to be many, you're not going to attract many demographics for that.

[Scottish-City]

With these barriers in mind, hackathon leaders reflected on the ability of hackathons to attract young people, especially university students, who have the free time and knowledge background to comfortably participate.

I think it's a way of engaging with young people in a way that a community safety meeting just doesn't because their expectation is not that they're going to come and talk with some city employees about some problems and see those things fixed.

They're you know, more interested in things where they can be involved and do some problem solving. So it taps into a different group of people. [Canadian-City]

Similar sentiments were expressed by organizers in Scottish-City who highlighted that young people are often overlooked in city policy-making. Hackathons may provide them with a fitting outlet to participate.

I think young people in general, working with students who've got some really ideas and they're not, it's not that they're not listened to, but people are kinda like ahh, you know... Whereas they're actually going to be the people who are going to be implementing that stuff in 20 - 30 years' time.

Engaging young people through hackathons may also provide needed creativity and optimism in organizations or departments that are reluctant to change.

Students are more able to be idealists and dream, dream about what's possible without thinking about the constraints. People who are in the world of work are very good at saying no, but you can't do that, you can't do this. And so they're less likely to take part – and I'm generalizing – but they're less likely to maybe take part in a process like a Climathon because maybe they think – oh what's going to happen? It's going to be a waste of time. Not everyone will. And maybe students are more able to think, we can do something, we can produce something that will change something, maybe they're more able to think in those terms. And therefore are more likely to participate in something new, and also they have more time. [Scottish-City]

4.3.4 Theoretical Implications

Arnstein's (1969) 'Ladder of Citizen Participation' advocates heavily for engagement with the have-not populations of society. Chiefly, it is constructed as a framework detailing how have-nots may regain power and agency (Arnstein, 1969). Although organizers expressed interest in attracting individuals from underrepresented populations, hackathons themselves throw up limiting factors. The amount of time required to effectively participate may exclude families and individuals with jobs that either don't align with the event or don't permit employees to leave work for community events – a large percentage of the workforce. This omission by design has led some theorists to question whether hackathons should be used to influence community policies or priorities at all. 'The question raised by civic hacking's version of voluntarism is: who can afford the time to give away their labour? Additionally, we might ask, should those who can afford to give away labour really be setting the priorities for civic infrastructure?' (Gregg, 2015).

Fung (2006) outlines deeper nuances in his spectrum of participation. He contends that passive 'selective recruitment' may also occur if the design of an event makes

‘participation more attractive to those who are ordinarily less likely to participate in politics.’ Hackathons do not seem to deviate quite far from traditional engagement recruiting measures – they are often open to all. However, the event’s design may attract certain individuals such as students and professionals eager to make a change in their community by engineering solutions themselves. This may seem positive, but practitioners like Jake Porway of Data Kind, remind practitioners that the participants who show up to hackathons may show up to solve their own problems. This bias may end up helping the hacker, but not necessarily the community. ‘They solve the participants’ problems because as a young affluent hacker, my problem isn’t improving the city’s recycling programs, it’s finding kale on Saturdays’ (Porway, 2013).

4.3.5 Chapter Summary

Interviewees shared insights on defining hackathon characteristics such as a unique problem-solving ethos, while also questioning whether a hackathon should be themed. Different perspectives on hackathon outcomes displayed that engagement events also produce both hard and soft outcomes that may be difficult to measure. However, if winning ideas are the most obvious outcome, organizers also expressed concern over how to support their development after a hackathon’s conclusion. Finally, although hackathons could be perceived as a medium for engagement, cities may see them as an opportunity to bolster local technological ecosystems as well. Placing these findings in conversation with engagement theorists may help frame future scholarly inquiry.

Chapter Five: Conclusion

5.0 Final Thoughts

The modern world is filled with complex problems that require every ounce of creativity and collaboration humanity can muster to craft solutions. Civic hackathons are a new phenomenon at the intersection of growing scholarly and practitioner interest because they seemingly provide a space for these processes to occur. This research project sought a deeper understanding of how civic hackathon organizers view defining characteristics of their events, the outcomes of their events, and how civic hackathons could relate to community engagement.

Interviewees identified a unique problem-solving ethos that defines civic hackathons. Moreover, they highlighted that deciding whether or not to theme a hackathon is a critical question in event planning. A heavy focus on problem-solving is built into the design of civic hackathons. The cross-sector collaboration that they inspire is meant to harness a wide-variety of perspectives in pursuit of innovative solutions to community challenges. However, organizers explained that a diverse group of passionate professionals may have differing expectations. More technologically inclined participants may grow frustrated if a hackathon lacks open data or fellow participants with technical skills. Importantly, organizers explained that it was critical to relate themed hackathons to issues of local importance, but that open hackathons may also provide participants with more power to address issues they specifically care about.

The outcomes of civic hackathons are difficult to define. Whereas some organizers explained that they were seeking an actionable solution to a community challenge, others expressed that gathering to discuss a problem and sharing ideas was the most impactful aspect of their events. These perspectives were largely complementary and were essentially centered around the same goal of addressing a community challenge, but offered slightly

different perspectives on the goal of a hackathon specifically. Post-hackathon pipelines were identified as a helpful tool to continue supporting successful teams and their ideas following a hackathon's conclusion. Organizers explained that they were still working to determine how cities and civic hackers would implement winning ideas. They highlighted challenges stemming from a lack of clarity on who assumes final responsibility for the idea.

The majority of civic hackathon organizers identified their events as potential mediums for community engagement. Some also explained that while engagement may be a benefit that arises from civic hackathons, it is not necessarily the primary goal. Cities may be interested in primarily bolstering their entrepreneurial and technology ecosystems while also participating in community events. Although exact statistics related to participant demographics were not included in this study, organizers explained that civic hackathons have the potential to attract a diverse cross-section of participants, but often attract young professionals and students. These populations tend to have more disposable time than others and the background knowledge necessary to effectively participate. This raises a concern that civic hackathons may not be the most representative form of engagement. True have-nots in society may not feel comfortable participating, may not have the time to participate, or the skills to do so.

Conversations with hackathon organizers illuminated questions for further research as well. Although problem-solving and collaboration seem to lie at the center of civic hackathons, it is difficult to determine what the long-term impacts of a hackathon are. It would be helpful to gauge how winning teams and ideas progress beyond the supportive environment of a hackathon. Longitudinal interviews with participants and organizers during the months following a hackathon would better illuminate final outcomes.

It would also be helpful for researchers to analyze the demographics of hackathon participants. A mixed-methods approach detailing the perspectives of participants as well as

their demographic backgrounds would be groundbreaking. It would provide practitioners and scholars with a detailed picture of who attends hackathons and why they participate. Few research projects on civic hackathons have delved into the experiences of participants. If researchers continue to focus heavily on organizers, we will only capture half of the story.

Identifying civic hackathons as a subject of research is one step in the right direction. Understanding civic hackathons is crucial because as more cities host their own events, it's important that a diverse body of literature can help guide their design and use. With much further work still to be done, and with greater clarity needed on various hackathon-related questions, I hope the scholarly community can use this research as a foundation for future inquiry. I hope practitioners find it useful in planning their own events, and I truly hope that civic hackathon participants find themselves part of a larger movement towards new engagement methods.

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