“Social watching” to learn about and discuss a civic issue: How receiving positive social media feedback while watching a broadcast instills a sense of community

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DEDICATION

This dissertation is dedicated to my parents, who encouraged all of my wildest dreams and gave everything they could to help me make them come true.

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ABSTRACT

People increasingly turn to social media to augment their broadcast viewing experience with a parallel stream of information and opinion. Known as "social watching," the practice of integrating broadcast media and social media has become routine for people tracking live events and breaking news. Researchers have studied the phenomenon through content analysis and social network analysis, but few have used experimental methods. This empirical study examines how different levels of interactivity and types of opinions on social media influence the way people think and feel about civic issues.

The findings make several contributions to the literature on social watching. Firstly, the results suggest that receiving positive feedback to social media posts instills a sense of community in the poster. The group of participants who received this validation reported feeling a significantly stronger sense of group membership, mutual influence, needs fulfillment and emotional connection. The second major contribution of the study is a better understanding of conformity during social watching. People who viewed a social media feed containing negative posts developed significantly more negative attitudes toward a civic issue compared to people who viewed posts that were supportive or balanced. The third contribution of this work is a deeper understanding of the types of thoughts and emotions associated with social watching in civic contexts. An inductive analysis of retrospective thought-listing data suggests users thought about Emotion (My Emotions and Their Emotions), Metacognition (Knowledge Level and Questions), Narratives (My Story and Their Story), Judgments (My Future, Their Future, Evaluating Arguments and Action) and Media (Session Media, General Media and Tweeting). The themes emphasized the critical role emotions and stories play in making sense of social media related to civic issues, as well as the way people empathized with the experiences of other citizens. The

research addresses a gap in the media effects literature, which has focused on the effects of receiving a message, rather than the effects of sending a message on the sender. More specifically, it examines how receiving positive feedback when discussing a civic topic influences the way people relate to each other and connect around a civic issue.

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CHAPTER 1 INTRODUCTION

Background and motivation

When a brush fire broke out about 200 yards from the University of Hawai'i at Mānoa on March 28, 2015, just a day after Twitter released a live video streaming mobile application called Periscope, I rushed to the scene with post-doctoral researcher Roxanne Raine. We downloaded the Periscope application and familiarized ourselves with it in as much time as it took us to lock up the Hawaii Computer-Human Interaction Laboratory, speed walk into the elevator and hustle across the street to a vantage point closest to the blaze. The application enables anyone access to transmit a live video broadcast to other users on Periscope and Twitter, without the need for a satellite, newsroom or production staff.

Once Periscope was up and running, we broadcasted orange flames licking the ridge through smoky haze amid the crackle of burning wood. Users joined our stream and we tried our best to answer their questions: "What does it smell like?," "Brush fire?," "Meteor?" and "Did someone call the authorities?" As a former TV broadcaster, I found the new capacity for real-time interaction between broadcaster and viewers intriguing.

While perhaps more usable now, the technology powering Periscope is nothing new. Social TV, or sociable viewing that leverages technology, has attracted attention from human-computer interaction researchers for a decade (Ducheneaut, Moore, Oehlberg, Thornton, & Nickell, 2008). Chuah's (2003) "reality instant messenger" and Alcatel's Amigo TV enabled

viewers to discuss programs with other viewers, even though they were physically alone (Cesar, Chorianopoulos, & Jensen, 2008). Live video streaming services Qik (Deleon, 2008) and Kyte (Schonfeld, 2010) were introduced in 2006. UStream (Tsotsis, 2011) and Livestream (Lawler, 2012) followed in 2007, and all of the companies have since rolled out mobile versions. However, neither social digital "viewing parties" nor streaming live video were popular until platforms such as Twitter provided a space for real-time conversations where people were already spending their time. Mobile ubiquity, networks capable of streaming video, convenient integration with Twitter and a usable interface made Periscope the right application at the right time (Dredge, 2015). Twitter released the application on the tails of the unveiling of a similar application with its own pop-up-and-look-around name: Meerkat. Reporters and bloggers have breathlessly evangelized the technology's potential in reporting breaking news (Perez, 2015) and political campaigning (Byers, 2015; Calderone, 2015; Pfeiffer, 2015). While these scenarios were likely more post-launch hype than real use cases (Miller, 2015), it is hard to deny that the way people collectively participate in broadcast media is evolving.

The evolution of social watching behavior signals the importance of understanding the distributed conversations around live broadcasts and how participating in them influences participants. Given that social watching has been around for more than a decade, it is surprising that few studies have examined how discussing a media event in real-time through technology influences the way people learn from the broadcast. This study is designed to fill this gap by exploring how posting and receiving feedback on a microblogging site and how the context of that interaction influences cognitive elaboration (the way incoming information associates to pre-existing knowledge), a sense of community and attitudes. Only a handful of studies have analyzed the phenomenon from a socio-psychological perspective (Craig, 1999), including my

own research (Maruyama, Robertson, Douglas, Semaan, & Faucett, 2014) and studies by researchers at the University of Missouri (Houston, Hawthorne, & Spialek, 2013; Houston, McKinney, & Hawthorne, 2013; McKinney, Houston, & Hawthorne, 2014). While each epistemological perspective has its tradeoffs, a socio-psychological approach fits the goal of testing causal relationships and aligns with the perspective that through interaction with others, people are influenced cognitively, affectively and behaviorally (Craig, 1999).

The potential contribution of this work is a deeper understanding of how social interaction among actors during social watching and social media context can shape political and civic learning. Specifically, the goal of the study is to understand how these variables influence the contributor's information processing, conformity and connection with other social media users. The questions are presented within the context of "social watching," not only because the activity of using Twitter during live broadcasts has become increasingly popular over the past few years (Pew Research Center, 2012), but also because tweeting about a mass media broadcast has been shown to influence involvement (Houston, Hawthorne, & Spialek, 2013), knowledge (Houston, McKinney, & Hawthorne, 2013), attitudes (Cameron & Geidner, 2014; Houston, Hawthorne, & Spialek, 2013; Maruyama et al., 2014; McKinney et al., 2014) and political participation (Gil de Zúñiga, Garcia-Perdomo, & McGregor, 2015; Vaccari, Chadwick, & O'Loughlin, 2015).

The deep claim of this dissertation is that contributing to a conversation and receiving feedback influences the contributor. While media effects literature has largely focused on how messages influence recipients (Pingree, 2007), this project explores how sending messages and receiving messages from others affects the sender. As more people share their thoughts and opinions online, it becomes increasingly important to investigate how participating and receiving

feedback in a distributed conversation influences the way people learn and feel toward civic issues.

Dissertation outline

The dissertation is organized as follows. Chapter 2 motivates the study by reviewing the evolving role of news in social media and its influence on political deliberation and the virtual "public sphere." The chapter reviews relevant literature about social watching, particularly within political contexts. It also discusses literature on interactivity, self-expression, conformity and a sense of community because these concepts play a pivotal role in the hypotheses and research questions.

Chapter 3 describes the methods. The study's design, materials, setting, sample, procedure and measures are reviewed. The section concludes with a data analysis plan and data screening results. Chapter 4 presents the results of the analysis, starting with quantitative results and ending with qualitative findings based on rigorous inductive coding of participant data. Chapter 5 interprets the findings in regards to shifts in journalism, as the role of news consumers evolves from passive recipient to active contributor. Implications of the results for the theory and practice are discussed in Chapter 6. Finally, limitations of the study, future research and the conclusion are outlined in Chapter 7.

CHAPTER 2 LITERATURE REVIEW

Social media and journalism

On social network sites, interactivity and sociability are baked into the design. This dissertation seeks to add to the literature about how people think and feel about news stories in the context of social watching. Social watching or 'dual screening' is a relatively new phenomenon. It refers to use of social media to learn about or discuss a broadcast (Pew Research Center, 2012), and it has become increasingly popular as people turn to social network sites to make sense of live events (Pew Research Center, 2015). While many studies have explored the phenomenon through frames of networked information diffusion and persuasion, few have explored how collectively experiencing and interacting around mass media engenders a psychological connection with others, which may relate to further elaboration of news and information.

More and more people are getting their news and information from social media. Over the past two years, social network sites such as Facebook and Twitter have played an increasingly important role in the journalism industry. The percent of Facebook users who received news on the platform rose from 47 percent in 2013 to 65 percent in 2015 (Perrin, 2015). At the same time, the share of Twitter users who got their knowledge of current events from the microblogging site increased from 52 percent to 63 percent (Perrin, 2015). Many people now consume news on social network sites in a sea of cat photos and baby videos that are vigorously competing for users' attention.

Facebook and Twitter users go to the site to track news and events (Java, Song, Finin, & Tseng, 2007), share ideas and feelings (Naaman, Boase, & Lai, 2010) and establish and maintain social capital (Ellison, Steinfield, & Lampe, 2007). Standage (2013) argues that media has been

social since Cicero and other upper-class Romans got their news by copying, marking up and distributing papyrus rolls. Twentieth century researchers observed the way opinion leaders passed along information from the mass media to people in their social networks (Katz, 1957), which foreshadowed the way today's informed citizens shares headlines with friends, family and acquaintances on social network sites (Hermida, Fletcher, Korell, & Logan, 2012). Now news consumption is more sociotechnical than ever before.

While the motivations that drive news consumption on social network sites are similar to the way they were during the heyday of broadcast media, new technologies allow co-creation and distribution of meaning in ways that are more visible, spreadable, searchable and persistent (boyd, 2014). Technology externalizes and extends cognition (Scaife & Rogers, 1996) through argument mapping tools (Iandoli, Quinto, De Liddo, & Buckingham Shum, 2014; Shum, 2003), information search interfaces (Robertson, 2005) and, more recently, voting advice applications (Alvarez, Levin, Trechsel, & Vassil, 2013). Many of these tools were designed with the sole purpose of fostering individual political decision-making and discussion.

People also discuss politics in "private spheres" (Papacharissi, 2013). Today's news consumers can flit in and out of public-private information streams from spaces and places that have meaning to them (Papacharissi, 2014). Papacharissi (2014) writes that "new journalism(s)" empower audiences to tell their own stories on their own terms. Collective participation and a shared experience of news events are merging production and consumption of news in ways that redefine what news is. In fact, production and consumption blend so indivisibly that people who post photos, videos and comments become a part of a news narrative. In affectively networked spaces, storytellers share their subjectivities with the world (Papacharissi, 2015). How they

frame the news becomes embedded in the story itself, as articles travel through the social network attached to the comments that surround them.

The line between story-reaction, information-emotion, and public-private has become fluid online. The fluidity is due in large part to social network sites, which are defined as "online services that let people (1) create a public or semi-public account, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others" (boyd & Ellison, 2007). Social network sites have afforded users with agency that allows them to integrate their worldviews into the dissemination of news (Papacharissi, 2014).

People turn to social network sites both for stories and social connection, and social media companies have recently responded with affordances for storytelling and narratives. Within the past year, Twitter unveiled a new feature called Twitter Moments that bundles tweets, images and videos into curated "stories" about a news topic or event. Editors at Twitter curate the tweets for newsworthiness, placing social media on a pedestal that rivals news articles. On Twitter Moments, social media posts are no longer ancillary to the story; they are the story. The feature capitalizes on Twitter's competitive advantage in immediacy. Nearly six-in-ten of Twitter users (59 percent) report using the platform to track breaking news, which is nearly double the rate of Facebook users (31 percent) (Perrin, 2015). Not to be left behind, Facebook has attempted to cater to news consumers by releasing a "trending" sidebar on the right side of users' news feeds, where popular news articles and people's reaction to the stories are intertwined.

Storytelling has also become more collectively live on social media, as features allow people to consume, share and discuss news in real time. Mobile ubiquity, networks capable of handling video and powerful integration with social platforms have allowed people to share their

experiences from their point of view in real time (Dredge, 2015). For example, Twitter's Periscope and Facebook's Livestream enable people to easily and swiftly share a live broadcast with their friends, family and acquaintances. The applications' ease-of-use further enables producer-consumer hybridity and blurs the lines between who holds the ability to share stories with the world and who does not.

Citizen journalists are not new in the United States, but they are increasingly becoming part of the information and news ecology, causing some growing pains as news institutions open up to user-generated content (Dahlgren, 2013a). Dahlgren writes that social network sites have complicated the way news outlets have traditionally presented a cohesive view of the world as journalism becomes "more interactive, collaborative, diverse, partisan and immediate" (2013a, p. 160).

Social media and political deliberation

Dahlgren (2013b) believes civic cultures have six dimensions: knowledge, values, trust and affinity, spaces, practices and skills, and identities. *Knowledge* and communicative skills are considered a prerequisite for participation, as well as shared democratic and normative *values* (Dahlgren, 2005). *Trust and affinity* refer to a sense of commonality among citizens, despite heterogeneous social networks, which is necessary for the functioning of democracy among "adversaries" and the "like-minded" (Dahlgren, 2005). There must be online and offline communicative *spaces* that afford civic and political conversations (Dahlgren, 2013b). Civic *practices* refer to recurring routines such as voting and less frequent practices such as campaigning or writing letters to lawmakers, and new technologies have allowed new practices to emerge (Dahlgren, 2012). *Identities* are people's plural conceptualizations of themselves,

morphing across contexts, enabled or inhibited by environments including online media environments (Dahlgren, 2012).

Dahlgren (2013b) builds on conceptualizations of a rational and open "public sphere" (Chambers, 2003; Delli Carpini, Cook, & Jacobs, 2004; Habermas, 1989), which German philosopher Jürgen Habermas (1989) envisioned as a model for open, reasoned and reflexive interaction. He points to examples of the public sphere in 17th and 18th century European salons and cafés where the bourgeois debated politics. While still a popular lens through which to view deliberative democracy, feminist critics have questioned whether the public sphere was truly open and accessible to all because many 17th and 18th century bourgeois participants were white and male (Fraser, 1990). More recent political science research also questions whether political deliberation can or should be rational—in other words, devoid of emotion (Lau & Redlawsk, 2001).

Researchers have found that emotion complements, rather than threatens, reasoned political decision-making. Lau and Redlawsk (2001) investigated voters' "gut instinct" and found certain rules of thumb can even lead to effective political choices. While people want to hold accurate opinions, they cope with information overload by using cognitive shortcuts or heuristics, for example, by relying on endorsements by trusted others (Lau & Redlawsk, 2001). Sokhey and McClurg (2012) suggest voters who read cues from ideologically similar social networks make the "correct" decisions they would have chosen if they had been fully informed by consulting like-minded others.

Another way in which social network sites differ from the idealized Habermasian public sphere is the intertwining of public and private in what Papacharissi (2013) calls the "private sphere." People serendipitously encounter political information and discussions when friends

share news articles or post on political matters (Douglas, Raine, Maruyama, Semaan, & Robertson, 2015; Semaan, Robertson, Douglas, & Maruyama, 2014). Politics emerges in otherwise non-political spaces, such as hobby and interest message boards (Munson & Resnick, 2011; Wojcieszak & Mutz, 2009). In these spaces, casual political talk can be even more effective than discussion in more formal settings. As Dahlgren writes, "clinging too rigidly to formal deliberation risks losing sight of everyday talk and its potential for relevance for democracy" (Dahlgren, 2006, p. 278). One of the ways in which people engage in political discussion is by talking about live political events through social media, which is discussed in the next section.

Social watching in civic contexts

The Computer-Human Interaction (CHI) and Computer-Supported Cooperative Work (CSCW) communities have dedicated recent research attention to the phenomenon of "social watching," or using social media to learn about or discuss a broadcast (Brooker et al., 2015; Kim et al., 2015; Maruyama et al., 2014; Schirra et al., 2014). The phenomenon is also known as "second screening," "dual screening" (Pew Research Center, 2012) or "back-channeling" (Harrington, Highfield, & Bruns, 2013), although these terms tend to emphasize the use of a mobile device while watching a broadcast. The term social watching will be used in this work because it makes no assumptions about the form factor that is being used. It also does not assume which media are in the foreground or background.

Recent studies on hybrid media behavior suggests that social media discussion around mass media broadcasts is not always happening in a "dual" fashion, and social media use should not necessarily be relegated to "second" place or be viewed as the "backchannel." In fact, a survey of Twitter users who used a hashtag related to a political debate found that nearly half of

the people who posted about the event did not even watch the broadcast as it was happening (Vaccari et al., 2015). Given today's evolving media consumption behavior, the term "social watching" and its neutral stance toward the nature of technology use seems to be the most conservative semantic choice.

Through social watching, social network site users can find out about what others saying, feeling and thinking about a media event as it unfolds live. One platform that has been frequently used to track live events is the microblogging site Twitter, which allows people to post messages in 140 characters or less and "follow" any public account. Hashtags— topical metadata preceded by the "#" symbol— serve as vehicles for "ambient communion" (Zappavigna, 2012), without interrupting the linguistic structure. For instance, hashtags allow people to find information about breaking news (Huang, Starbird, Orand, Stanek, & Pedersen, 2015), sports events (Kim et al., 2015) or natural disasters (Kogan, Palen, & Anderson, 2015). An @reply— the "@" symbol followed by a username at the beginning of a message—enables direct communication that can be seen by users who follow both accounts. A retweet—specified by "RT" prior to a user's Twitter handle and a previously posted tweet—rebroadcasts a message to a person's followers. People use Twitter for a variety of reasons, including to connect socially, get information, find entertainment, express their thoughts and get attention and recognition (Chen, 2011; Johnson & Yang, 2009; Naaman et al., 2010; Ramage, Dumais, & Liebling, 2010; Zhang & Pentina, 2012).

Real-time sharing of information, opinion and emotion on social media have allowed people to collectively experience mass media, despite a lack of physical co-presence. Nearly 6 out of 10 people on Twitter use the site to keep up with a news event as it is happening, compared to about 3 out of 10 people on Facebook, according to a 2015 Pew Research Center study (Pew Research Center, 2015). The intertwining of social media and broadcast media

allows for new forms of engagement that can restructure how people can attend to events and how they voice themselves during periods of massive shared attention. In his theory of shared attention, Shteynberg (2015) argues the psychological phenomenon of shared attention is consequential for cognition, emotion, motivation, behavior and attitudes. As an evolutionary adaptation to improve intragroup coordination, he proposes the human brain is wired to invest more cognitive resources to aspects of the environment simultaneously as a survival mechanism, pointing to experimental studies in which people process information differently when they believe others are attending to the same object (Shteynberg, 2015). His experiments study shared attention among small groups of people watching passively, not large groups of individuals who can broadcast their thoughts (Shteynberg, 2015).

Social media now enables shared attention among countless others at an unprecedented scale, which may have behavioral implications. Many people use social media to collectively attend to events with great political and civic implications, such as political debates and speeches. One in ten people who watched the second presidential debate on TV in 2012 also tracked the broadcast on a mobile device (Pew Research Center, 2012). Recent research on political and civic social watching on the microblogging site Twitter has analyzed user motivations (Gil de Zúñiga et al., 2015), behavioral patterns (Brooker et al., 2015; Lin, Keegan, Margolin, & Lazer, 2014; Vaccari et al., 2015), information diffusion (Freelon & Karpf, 2014), and topic detection (Diakopoulos & Shamma, 2010; Nichols, Mahmud, & Drews, 2012). Lin, Keegan, Margolin and Lazer (2014) analyzed 290 million tweets posted during breaking news events and found that, during periods of shared attention, interpersonal communication declines, while replies and retweets increase, especially content directed toward elite users. Through an analysis of national two-wave panel survey data, Gil de Zuñiga, Garcia-Perdomo and

McGregor (2015) found social watching for news predicted subsequent online political participation. The authors hypothesized that "second screening" built a sense of community and discussions within these communities increased elaborative processing (Gil de Zúñiga et al., 2015). However, no measure of community or elaboration was taken. Therefore, the explanation could not be tested empirically—a gap which this dissertation seeks to explore.

Building on this research, Vaccari, Chadwick and O'Loughlin (2015) identified "bundles" of "lean forward" and "lean back" social watching practices through a survey of 1,634 Twitter users who posted about debates during the 2014 European Parliament elections using a popular hashtag. "Lean forward" practices such as commenting on Twitter significantly predicted political participation, while "lean back" activities such as passively reading messages in one's timeline did not. They suggested that social watching increased political participation only when people actively contributed to the online discussion. However, the exact socio-emotional and cognitive mechanisms through which "lean forward" practices led to participation went unexplored. The studies by Gil de Zúñiga et al. (2015) and Vaccari et al. (2015) suggest a significant relationship between social watching and political participation, but they did not explain the process through which this occurs, which is why the explanatory approach of this dissertation research is a meaningful contribution to the literature.

Several studies on social watching have explored how posting on Twitter while watching a political debate relates to cognitive and affective measures. Experimental and quasi-experimental students have found social watching influences attitudes toward candidates (Houston, Hawthorne, & Spialek, 2013; Maruyama et al., 2014; McKinney et al., 2014), memory (Houston, McKinney, & Hawthorne, 2013), engagement (Houston, Hawthorne, & Spialek, 2013; Houston, McKinney, & Hawthorne, 2013) and conformity (Cameron & Geidner, 2014;

Maruyama et al., 2014). Table 2-1 displays each study's authors, findings, type (experimental or quasi-experimental) and its number of participants.

Table 2-1: Experimental (E) and quasi-experimental studies (Q) on the cognitive and affective effects of social watching in political contexts.

Authors	Findings	Type	# Participants
Houston, Hawthorne, Spialek, Greenwood, and McKinney (2013)	Tweeting was related to change in feelings toward the candidates, debate attention and debate importance.	Q	768
Houston, McKinney, Hawthorne, and Spialek (2013)	Tweet frequency related to debate knowledge, but not debate attention or debate importance.	Q	141
McKinney, Houston and Hawthorne (2014)	Frequency of @mentions used to talk about the candidate was related to gains in approval of the candidate mentioned	Q	94
Cameron and Geidner (2014)	Sentiment of tweets influenced opinion of speaker and performance.	E	227
Maruyama, Robertson, Douglas, Semaan and Faucett (2014)	Twitter participation influenced vote decision (in a local U.S. Senate general election debate, but not in a local primary election or national general election debate).	E	51

A key question in the use of Twitter for social watching has been whether the process of active tweeting versus reading the tweets of others influences how people feel toward what they are watching. Houston, Hawthorne and Spialek (2013) asked 768 undergraduate students to social watch a 2012 U.S. presidential or vice-presidential debate using their public Twitter account and found tweeting was associated with feeling that then-U.S. Sen. Barack Obama won the debate. Tweeting during the debate was related to thinking Obama won the debate, and it was related to a decline in favorability toward Republican presidential candidate Mitt Romney (Houston, Hawthorne, & Spialek, 2013).

McKinney, Houston and Hawthorne (2014) tracked "mentions" (a name preceded by the @ character) posted by participants during the 2012 Republican primary presidential debate. They found that the candidate who was mentioned most by participants received the greatest gains in terms of overall favorability, perceived electability and perceived viability (McKinney et al., 2014). The candidate who was mentioned most by participants— Ron Paul— rose from third place to the "top of the pack in terms of vote choice" (McKinney et al., 2014, p. 569). The candidate who was most talked about received the biggest boost in citizen approval.

Houston, Hawthorne and Spialek (2013) found that tweeting was related to increased attention to and perceived importance of the debate, but not debate enjoyment. The authors interpreted the result as "early evidence" that live tweeting may be related to serious discussion and consideration of the debate, as opposed to entertainment or passing the time (Houston, Hawthorne, & Spialek, 2013). However, when Houston, Hawthorne and Spialek (2013) replicated the study with 141 undergraduates during the second and third U.S. Presidential debate in 2012, they found that tweeting frequency was not associated to attention to the debate or perceived importance of the debate, contradicting the earlier findings (Houston, Hawthorne, &

Spialek, 2013). They also found that high-frequency tweeters demonstrated significantly more debate recall than medium- and low-frequency tweeters (Houston, McKinney, & Hawthorne, 2013). Even though frequent posters didn't report being more engaged in the debate, they seemed to retain certain debate information more than other Twitter users based on a 6-item quiz about candidates' statements (Houston, McKinney, & Hawthorne, 2013).

Cameron et al. (2014) conducted an experiment on how exposure to positive versus negative tweets while watching a broadcast influences conformity. The participants watched Twitter feeds that were manipulated to be positive-leaning, negative-leaning or neutral (no Twitter display), and they did not post tweets themselves. Participants watched a pre-recorded *American Idol* performance or one of two political speeches by members of the U.S. Congress about violence against women or gun control. Cameron et al. (2014) found that participants who viewed the Twitter feed were more likely to conform to the majority Twitter opinion. But, there was one exception. When participants were asked whether a speech about gun control was personally convincing, there was no significant difference between groups (Cameron & Geidner, 2014). The authors concluded that extent to which tweets influenced a viewer's opinions depended on personal investment in the topic, such that conformity effects were limited when the issue was deemed more important and controversial (Cameron & Geidner, 2014). The interpretation falls in line with the Elaboration Likelihood Model, which suggests that when personal relevance is high, the perceived quality rather than the quantity of the arguments is most important (Petty & Cacioppo, 1986).

Maruyama, Robertson, Douglas, Semaan, and Faucett (2014) found the level of Twitter participation (active tweeting vs. observing tweets vs. no use of Twitter) led to significantly different levels of vote switching. Participants were asked to complete a pre-exposure survey on

their political attitudes an hour before the debate then they were invited to watch a live political debate between two U.S. Senate candidates on October 16, 2012, and follow directions regarding Twitter use (Maruyama et al., 2014). They were asked to (1) view a tweet feed about the debate and post tweets about the debate, (2) view a tweet feed about the debate without posting tweets or (3) not use Twitter at all (Maruyama et al., 2014). Participants watched from their homes, either on television or online, and used their own Twitter account (Maruyama et al., 2014).

Participants in the tweet and observe groups were asked to monitor a highly publicized hashtag feed (#KITVdebate) and tweet using the hashtag in their posts (Maruyama et al., 2014). During the debate, the participants were exposed to real tweets that were naturally occurring on the tweet feed, including posts from the candidates' Twitter accounts, journalists, advocacy groups and citizens (Maruyama et al., 2014). Tweets with the relevant hashtag using Twitter's Streaming API were archived. Immediately after watching the debate, participants were asked to complete a post-exposure survey. Two weeks later participants were asked for a second, delayed recall of debate content and Twitter content. Figure 2-1 summarizes the design of the study, which included a pre-exposure survey, random assignment to a Twitter participation group, exposure to the experimental materials, an immediate post-exposure survey and a post-exposure online survey completed two weeks after the debate.

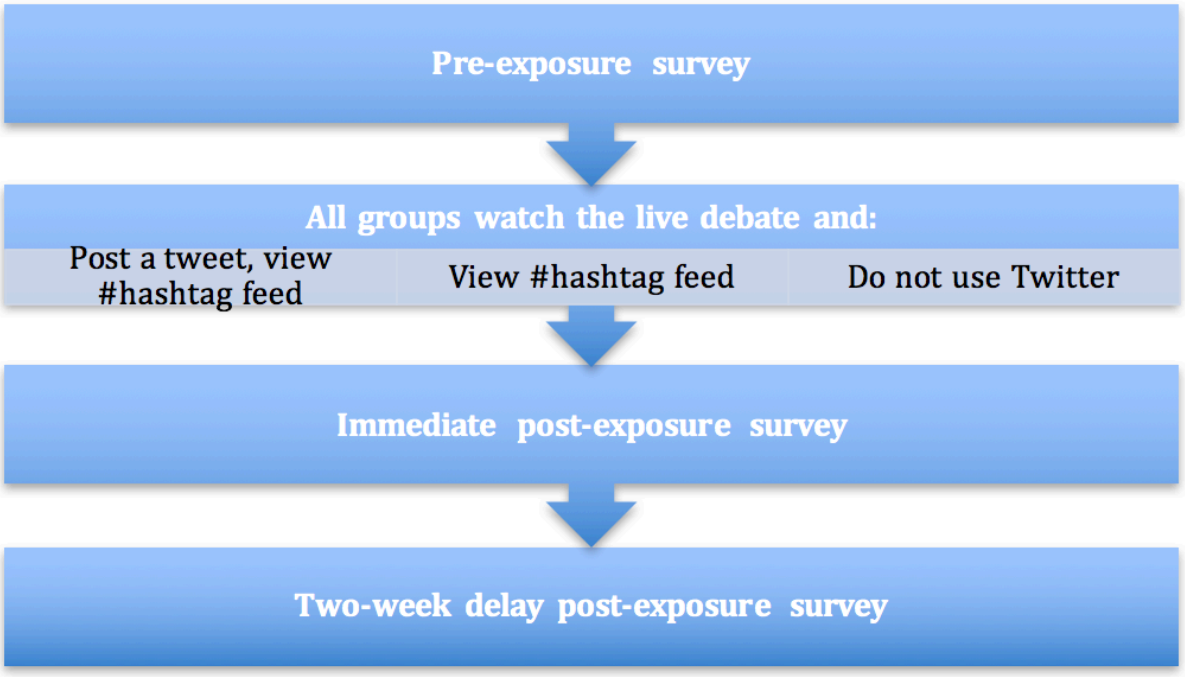

Figure 2-1: The study procedure for a field experiment on social watching during a political debate, which tested the effect of Twitter participation on vote decision in October 2012.

Maruyama et al. (2014) found that the group that tweeted was significantly more likely to change its vote choice, compared to the observe and no Twitter groups. Most of the participants who changed their vote switched in favor with the majority opinion on the Twitter hashtag feed, suggesting a possible conformity effect (Maruyama et al., 2014). The majority opinion was identified by manually coding the 407 tweets posted with the #kitvdebate hashtag during the hour-long debate (Maruyama et al., 2014). Of the tweets, 303 mentioned at least one candidate's name, including 102 tweets that mentioned both candidates (Maruyama et al., 2014). The analysis suggests that tweets that mentioned Republican Linda Lingle were mostly favorable (73 percent positive, 16 percent negative and 11 percent neutral), and tweets about Democrat Mazie Hirono were mostly critical (9 percent positive, 87 percent negative and 4 percent neutral) (Maruyama et al., 2014). However, because participants were viewing Twitter from home using

their own accounts and their own devices, there was no way of knowing exactly what they had seen. This study seeks to build on the 2012 study by monitoring participants' social watching behavior in a laboratory.

Maruyama, Robertson, Douglas, Semaan, & Faucett (2014) also coded responses to an open-ended recall item using a method similar to grounded theory (Corbin & Strauss, 2015). Despite not looking for it in the first place, signs of elaboration were evident in recall about the debate (Maruyama et al., 2014). The themes included memories about the candidates' debate strategy, political views, public speaking skills, character and competence (Maruyama et al., 2014). They also included information that couldn't be classified as memories of the debate, but rather associations to external occurrences beyond the event. These included personal stories, current events, discussions on Twitter and final sweeping judgments about the candidate (Maruyama et al., 2014). The themes underscored the importance of associations to existing memory, suggesting that cognitive elaboration may have been occurring in addition to memorization, which is why the current study has focused on the dependent variable of elaboration. Figure 2-2 displays the code counts in each category across all Twitter Participation groups based on the open and axial coding of responses to the recall survey item.

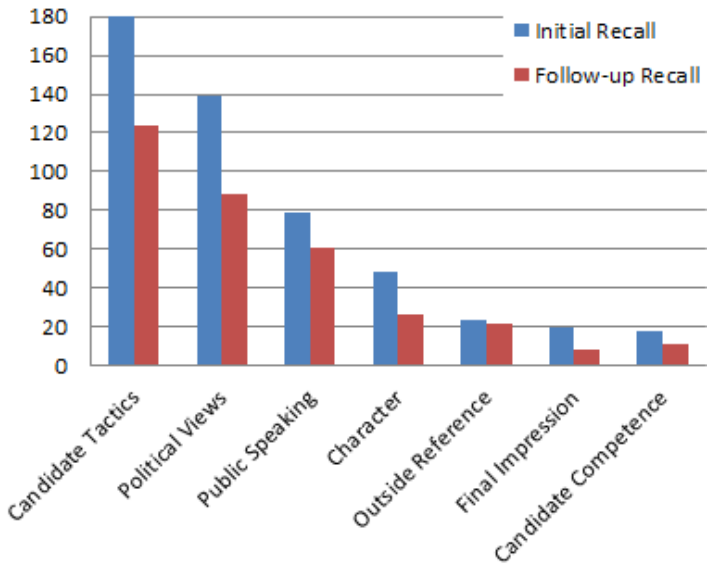

Figure 2-2: The number of recall units in each code category across all participants in a 2012 field experiment on social watching during political debates.

Of the studies that explored cognitive and affective effects of live tweeting, several of them were observational (Houston, Hawthorne, & Spialek, 2013; Houston, McKinney, & Hawthorne, 2013; McKinney et al., 2014). In these studies, participants were not randomly assigned to a Twitter participation group. Instead, they could tweet as much or as little as they liked. The design allowed researchers to identify correlational relationships between tweeting and dependent variables such as candidate preference (Houston, Hawthorne, & Spialek, 2013; McKinney et al., 2014), debate engagement (Houston, Hawthorne, & Spialek, 2013; Houston, McKinney, & Hawthorne, 2013) and debate recall (Houston, McKinney, & Hawthorne, 2013), but did not allow inferences about causality.

An experimental design similar to the one conducted by Maruyama et al. (2014) would permit causal claims about the relationship between communicating with others and thinking about the debate, which have design implications. Several of the studies found posting on the social media may be related to conformity (Cameron & Geidner, 2014; Maruyama et al., 2014),

although the cognitive and affective process behind the attitude remained unclear. Guided by perspectives on cooperative learning from education, the proposed study will explore how information is being processed.

In the cooperative learning literature, Robert Slavin (1996) uses four theoretical perspectives to explain the benefits of thinking together: *cognitive elaboration*, *shared motivation*, *sense of community*, and *developmental*. One perspective is that the anticipation of conversation forces the communicator to restructure and elaborate his or her arguments in what he dubs the *cognitive elaboration perspective* (Slavin, 1996). Research on explainer-listener and tutor-tutee pairs have found the speaker experiences better learning gains than the listener through the cognitive reformulation (van Blankenstein, Dolmans, van der Vleuten, & Schmidt, 2011). Because the benefits occur while crafting speech acts in one's mind, the mere intent to share information improves learning, even if no information is shared (Nestojko, Bui, Kornell, & Bjork, 2014). The *motivational perspective* is based on the idea that cooperative incentive structures increase interdependence and motivation to learn together (Slavin, 1996). The *social cohesion perspective* suggests that people learn more in groups not due to extrinsic rewards, but because they care about their group members (Johnson & Johnson, 2014; Slavin, 1996). The *developmental perspective* refers to the idea it is *only* through peer interaction that learners become acquainted with new perspectives, challenge their own beliefs and develop mastery of concepts (Slavin, 1996). When discussions expose disagreement between members, individuals resolve their own cognitive dissonance through higher reasoning (Tudge & Rogoff, 1999).

Communication research William Eveland (2004) has also explored how discussion influences elaboration. He explored three different explanations: (1) exposure to a discussion partner's ideas about the news leads to learning, which is similar to the two-step flow of

communication (Katz, 1957), (2) anticipating discussion motivates discussants to elaborate on ideas prior to conversation, and learning benefits accrue even if the discussion does not occur (Eveland, 2001), and (3) the act of discussing leads to increased learning as discussants retrieve memories and reprocess them during verbalization (Eveland, 2004). The first and third explanations are similar to Slavin's (1996) developmental perspective, while the second explanation is most similar to the cognitive elaboration perspective. In an analysis of telephone survey data collected prior to the 1996 election, Eveland (2004) found support for the second and third explanations, suggesting that expecting discussion and actually discussing increases elaboration.

It's important to point out that these rationales for conversational learning benefits are not mutually exclusive, according to Slavin (1996). He writes, "All [theoretical perspectives] apply in some circumstances, but none are probably both necessary and sufficient in all circumstances" (Slavin, 1996, p. 51).

Interactivity

Information communication technologies have restructured the way people can interact with other people, machines and content. Users can discuss ideas across time and distance to wider audiences via the Internet. They can interact with computers and networks, and they can create and consume content in new ways. While researchers tend to agree that information communication technologies provide new opportunities for interactivity, operationalizing interactivity has proven difficult. There is no scholarly consensus on how to define interactivity. Researchers have debated the extent to which it is a perceived quality or an actual feature of the technology, as well as whether that the construct has a single dimension or multiple dimensions (McMillan, 2006).

Rafaeli proposed one of the earliest and most highly cited definitions of interactivity, conceptualizing it as "an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmission" (1988, p.111). In other words, Rafaeli (1988) writes that interactivity depends on how much messages are contingent on previous messages that relate to even earlier messages (Rafaeli, 1988). In his conceptualization, the contingencies among messages constitute interactivity. For instance, a politician broadcasting a monologue on Twitter without responding to citizen feedback would not be considered a form of interactivity, while a mutual exchange that builds on previous discussions would qualify.

Other researchers have argued that interactivity can also be a characteristic of the medium (Stromer-Galley, 2004). Stromer-Galley's (2004) conceptualization differs from Rafaeli (1988) because she defines interactivity as occurring between people (interactivity as a process), as well as between people and computers or networks (interactivity as product). Whereas person-to-person interactivity aligns with computer-mediated communication (CMC), person-to-network interaction is more consistent with the discipline of human-computer interaction (HCI). She writes that it is critical not to conflate the two types.

McMillan (2006) operationalizes interactivity as have three dimensions: user-to-user, user-to-system and user-to-document interaction. Based on his categorization, user-to-user interactivity refers to how people interact with each other through media and is rooted in human communication research. The second form of interactivity—user-to-system— refers to how humans interact with machines. User-to-document interaction refers to interaction with document creators (e.g., users writing to journalists) or interaction with documents (e.g., users reading or creating news content). In other words, the third type refers to how active audiences

make meaning of mass media messages (McMillan, 2006), although with the advent of social media, the distinction between user-to-document and user-to-user interactivity has become increasingly blurred.

Social network sites have enabled more user-to-user interactivity. Contingent interactions among users are afforded through features such as comments, replies, "likes" and "favorites." Positive feedback such as "likes" are common responses, especially among young people, according to a study comparing behavior of teens and adults on Instagram (Jang, Han, Shih, & Lee, 2015). Based on an analysis of nearly 27,000 accounts, the study found that teenagers received a significantly higher number of comments and likes per Instagram post compared to adults. Reciprocity on social network sites can act as a virtuous cycle, where reciprocal acts beget more reciprocal acts in a network, as Surma found in an analysis of nearly 400 undergraduates' Facebook data in Poland (Surma, 2016). Expecation of reciprocity may even change behavior. A large-scale study that analyzed the behavior of 2.4 million Facebook user found that, after posting, users checked the site more often and interacted with friends – possibly because they were seeking feedback to their posts (Grinberg, Dow, Adamic, & Naaman, 2016). This study explores the effects of user-to-user interactivity, or feedback that is contingent on a previous message.

Self-expression and conformity

Self-expression on social network sites can enable and complicate deliberation. Prior to the Internet, political conversations have occurred in offline social spaces such as the cafes and salons of the Habermasian public sphere (Habermas, 1989), where eavesdropping could be more easily monitored. However, when people discuss their political opinions on social media, they suddenly thrust themselves into a networked public where they must negotiate multiple selves

before “imagined audiences”—including friends, family, coworkers, employers and acquaintances (Marwick & boyd, 2011). When contexts collide in ways that are difficult to detect on social network sites, users must decide how to simultaneously express themselves as friends, daughters, colleagues, employees and so on (Marwick & boyd, 2011). Making their personal opinions known also makes them vulnerable to public scrutiny and possible social consequences.

To understand who is reading or viewing their content, people “take clues from the social media environment to imagine who is in their audience” (Marwick & boyd, 2011, p. 2). Not only do people tailor their self-presentation based on who they perceive to be in their audience, research suggests communicators take on the perceived perspectives of their audience through their communication. Researchers have found that the intent to communicate can make speakers more empathetic to their audience’s attitude— not only reflected in the message they deliver but also in their subsequent memories (Higgins & Rholes, 1978; Zimmerman & Bauer, 1956). Zimmerman and Bauer (1956) found that communicators better remembered information that was consonant with their audience’s opinions. Higgins and Rholes (1978) found speakers tailored their message to their audience (e.g., speaking positively about a person if the audience felt positively toward the person and vice versa). When asked to recall a description of the person they talked about two weeks later, their memories skewed in favor of the audience’s perspective (Higgins & Rholes, 1978).

The effect is related to perspective taking which is crucial to effective communication (Goffman, 1956), and has been described as a key component of the “public sphere” (Habermas, 1989). Semaan and his colleagues (Semaan, Faucett, Robertson, Maruyama, & Douglas, 2015) conducted a longitudinal study of social media use for political deliberation and found that some

people assume alternate identities via "dummy accounts" to engage with dissimilar others and broaden their political perspectives. Studies suggest this perspective taking can lead to empathy for an audience's views. In one study, people speaking to a liberal audience thought more about liberal perspectives, while those addressing a conservative group thought more conservatively (Tetlock, Skitka, & Boettger, 1989). From the cognitive view, this roleplaying can lead to elaboration (Magnifico, 2010). From the social perspective, people who communicate to a particular audience may identify with the group and build a psychological relationship with its members (Magnifico, 2010). Adopting the perspective of the audience can at once shape the way a person structures knowledge and develop the connection they have with their audience (Magnifico, 2010).

A sensitivity to others' views also lead to conformity. The inclination to go along with the crowd taps into two types of conformity: informational and normative (Deutsch & Gerard, 1955). The former is based on a desire to hold correct views and behave appropriately according to a shared reality (Hardin & Higgins, 1996), while the latter happens because people want to gain social approval (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Both accuracy and social affiliation motivations can serve to protect a person's self-concept and self-esteem (Cialdini et al., 1997), and untangling the two can be difficult (David & Turner, 2001).

People may adopt the majority view in an online community because they feel the group is correct (information conformity), or they may adopt the view because they care about the group and want to be accepted (normative conformity). In the 1950s Asch line studies, people were asked to choose two lines of the same length, and the participants went along with confederates who chose the wrong choice, clearly going against what they were seeing (Asch, 1956). While this seems to be a clear case of normative conformity, post-study interviews

suggest that some participants actually questioned whether everyone else was right and their eyesight had betrayed them (Asch, 1956). The studies suggest that both types of conformity led participants to go along with the group (Asch, 1956).

Because participants in the Asch line studies (1956) were interacting face-to-face, all audience members' opinions were known. However, communication on social network sites can be more complicated because people do not know who is in their audience (Litt, 2012; Marwick & boyd, 2011). Clues must be interpreted to understand who is listening in. An experimental study that manipulated attitudes expressed on a social media feed by Cameron and Geidner (2014) found that people conformed to the majority opinion on the feed while social watching—a finding which this study seeks to confirm.

Online community

Community has been defined in various ways. The definition of community was typically defined by proximity until the 1970s, when technology and transportation enabled people to better maintain connections across distance (Wellman & Leighton, 1979). With the advent of the Internet, many researchers thought the technology would allow interest-based communities to form beyond neighborhoods; however, studies found that offline and online communities overlap, rather than compete. For instance, a study on Facebook use by college students by Ellison, Steinfield and Lampe (2007) suggested that many undergraduates use the social network site to maintain ties with old friends and interact with people who they see offline, such as students in their dormitories or classes.

People join online communities for various reasons. Ren, Kraut and Kiesler (2006) categorize these motivations based on common bond and common identity theory (Prentice & Miller, 1994), writing that some people are more drawn to the group than its members (common

identity), whereas other people are attached to group members as well as the group (common bond). Based on a review of 22 studies, Ren et al. (2006) found predictors of common identity groups include social categorization, interdependence and out-group presence. Antecedents of common bond groups include sharing personal information, interpersonal similarity and social interaction (Ren et al., 2006). Frequency of interaction plays a larger role in common bond groups than in common identity groups, and both can be found online.

Virtual groups have increasingly been recognized as sites of possible communities. Scholars have defined communities in terms of relationships, while others focus on the software and spaces for interaction such as email threads, bulletin boards and chat forums (Preece, 2001). At least one definition of community emphasizes a psychological sense of community perceived in the mind of the individual, rather than interaction or proximity.

Benedict Anderson studied nationalism among citizens who are unlikely to interact but share a sense of unity and identity—using the term "imagined community" to describe the way people living in modern civilizations imagine a connection to other citizens, despite the impossibility of interacting with everyone in their society. More recently, scholars have used the concept of "imagined community" as an analytical lens to study the microblogging site Twitter (Gruzd, Wellman, & Takhteyev, 2011). Gruzd, Wellman and Takhteyev (2011) analyzed the second author's Twitter network to explore whether it was an imagined community, according to Anderson's (Anderson, 1983) three prerequisites for the concept: a common language, temporality (or moving through history together) and "high centers" (elite opinion leaders). They concluded Twitter users in the network were communicating through "Twitterspeak" (a common language), had an imagined consciousness that moved across time together (temporality) and were structurally arranged around elite users who had many connections and

served as connectors among others (high centers) (Gruzd et al., 2011). Therefore, the authors determined the network was an imagined community (Gruzd et al., 2011).

Communities that are imagined rely on a perception of connection. McMillan and Chavis (1986) propose a highly cited definition of community that captures the psychological connection among people. They defined a sense of community as feeling group membership, needs fulfillment, the potential to sway other members and be influenced, and emotional connection (McMillan & Chavis, 1986). In other words, the definition by McMillan and Chavis (1986) does not necessitate proximity nor frequent interaction. For this reason, this conceptualization of community will be used in this study to understand whether social media users feel a sense of community while social watching.

Hypotheses and Research Questions

The purpose of the study is to better understand how user-to-user interactivity (Social Media Interaction) and opinions expressed on a social media feed (Social Media Context) influence the way people elaborate, form attitudes and feel toward other users. User-to-user interactivity—called Social Media Interaction— is operationalized as the extent to which participants are randomly assigned to post on social media and receive positive feedback to their posts via a Twitter-like "favorite." Twitter favorites are similar to "likes" on Facebook, and they typically express positive affect and/or the intention to bookmark a post. Opinions expressed on the social media feed—henceforth referred to as Social Media Context—are manipulated by exposing participants to social media posts with varying attitudes toward a civic issue (support, oppose or balanced). The goal of the study is to understand how Social Media Interaction and Social Media Context influence the way people elaborate on and hold attitudes about the topic, as well as how they connect with other social media users.

Based on studies conducted on social watching in political contexts (Houston, Hawthorne, & Spialek, 2013; Maruyama et al., 2014), the first hypotheses proposes that the level of user-to-user interactivity on social media, or Social Media Interaction, will influence cognitive elaboration. Research on discussing the news suggests that talking about current events increases elaboration (Eveland, 2004), aligning with cooperative learning that suggests that anticipating discussion and the actual act of talking leads to learning benefits (Slavin, 1996). However, researchers studying media multitasking found that attending to a video while reading inhibits comprehension and counterarguing to persuasive appeals (Jeong & Hwang, 2012; Van Cauwenberge, Schaap, & van Roy, 2014), so posting and receiving feedback may also distract participants from the broadcast and inhibit elaboration of the content. In this study, perceived interactivity between participants and others (Social Media Interaction) may improve or distract from elaboration. Based on this prior research, the first next hypothesis is proposed:

H1a. Social Media Interaction influences cognitive elaboration during social watching, after controlling for pre-exposure knowledge and pre-exposure interest.

Tetlock's (1989) social contingency model of judgment suggests that accountability—for example, expecting to justify an opinion to another person — can influence people in very different ways. According to the model, people are cognitive misers who will choose the most obviously defensible position that would be acceptable to others, which he calls the "acceptability heuristic" (Tetlock, 1985). However, people only use this efficient and socially adaptable strategy when the views of people to whom they are accountable are known (Tetlock, 1985). When an audience's views are unknown, people are motivated to process information more deeply by considering multiple viewpoints, become more aware of their decision-making processes and are less reliant on rules and more interested in data-driven processing (Tetlock,

1985). An experiment confirmed that when people knew about the political views of a discussion partner prior to expressing their own judgments, they tended to use the acceptability heuristic as a cognitively economical way to make a decision (Tetlock et al., 1989). When people did not know their audience's views in advance, they made more cognitively complex judgments and engaged in more "preemptive self criticism" (Tetlock et al., 1989). Based on the social contingency model of judgment (Tetlock et al., 1989), an audience's attitude toward a topic would be expected to influence the communicator's elaboration on the topic. In this study, Social Media Context is operationalized as the expressed attitude toward a civic issue in a social media feed. The social contingency model of judgment motivates the next hypothesis.

H1b. Social Media Context influences cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

The following hypothesis proposes that the influence of Social Media Interaction on cognitive elaboration depends upon the attitudes expressed on the social media feed, or Social Media Context, such that people who post on social media would be expected to elaborate more when attitudes on the social media feed were balanced rather than strongly in support or opposition.

H1c. Social Media Interaction and Social Media Context interact to influence cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

Speakers rely on their imagination to envision their audience, especially on social network sites when it is unclear who is listening in (Marwick & boyd, 2011). When people post on social network sites, they make themselves accountable to their opinions by placing them into

the public eye. According to the social contingency model of judgment, people who expect to be accountable to an audience are more likely to conform than people who do not expect to be accountable, if they have not already made their opinion known (Tetlock et al., 1989). Tetlock's (1989) experimental research suggests that people who anticipate speaking to a liberal partner are more likely to express liberal views, and people who expect to speak with a conservative express more conservative views—but only if they have not already expressed their opinion. These findings suggest that being asked to post on social media and receiving positive feedback via a Twitter-like "favorite" (Social Media interaction) will lead participants to consider and internalize views of their audience, leading to the next hypothesis pertaining to conformity.

H2a. Social Media Interaction influences post-exposure attitude extremity during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

Studies on social conformity during face-to-face interactions (Asch, 1956) and during social watching (Cameron & Geidner, 2014; Maruyama et al., 2014) suggest that people are likely to conform when there is a clear majority. The larger the size of the majority, the more likely the speaker is to conform (Asch, 1956). Based on empirical support for offline and online conformity, the following hypothesis is that people who view posts supportive of a position toward a civic issue become more favorable toward the issue, and people who view opposing posts will become more critical of the issue, even after taking into account their pre-existing attitudes, their knowledge of the topic and their interest in it.

H2b. Social Media Context influences post-exposure attitude extremity during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

The next hypothesis proposes that the extent to which posting and receiving a favorite (Social Media Interaction) influences attitude extremity may vary depending upon the attitudes expressed on the social media feed, or Social Media Context.

H2c. Social Media Interaction and Social Media Context interact to influence post-exposure attitude extremity during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

The benefits of cooperative learning have been well established, although the reasons why discussion improves elaboration vary (Slavin, 1996). Some studies suggest speaking holds benefits above and beyond listening. Studies on tutor-tutee pairs suggest teaching improve recall more than being taught due to the process of synthesizing and explaining (van Blankenstein et al., 2011). In one experiment by Nestojko, Bui and Kornell (2014), students were either told they were studying to prepare for a test or they would teach another student, but in actuality all students were tested, and no one taught. In the study, students who believed they would be teaching remembered the passage more accurately and comprehensively (Nestojko et al., 2014). In other words, the study suggests learning benefits accrue when merely expecting to discuss, even if no talk actually occurs (Nestojko et al., 2014). Robert Slavin (1996) describes this as the cognitive elaboration explanation for the benefits of cooperative learning. He also proposes that learning benefits also occur during discussion, as diverse opinions are exchanged and cognitive dissonance is resolved through higher reasoning, which he calls the developmental perspective (Slavin, 1996; Tudge & Rogoff, 1999). The first research question explores whether levels of user-to-user interactivity (Social Media Interaction) and the opinions expressed on social media (Social Media Context) influence elaboration related to discussion, such as formulating arguments and reflecting on others' comments.

RQ1. How does Social Media Interaction and Social Media Context influence elaboration of discussion during social watching, after controlling for pre-exposure interest and pre-exposure attitude extremity?

While there is no agreed upon definition for online communities, McMillan and Chavis (1986) propose that a psychological sense of community felt by an individual comprises group membership, needs fulfillment, influence and emotional connection. Studies on social watching suggest that using social media to monitor a broadcast increases political engagement (Gil de Zúñiga et al., 2015; Vaccari et al., 2015), but it's unclear why this occurs, particularly whether the interactivity on the feed instills a sense of connection with other users. Based on this definition, the second research question asks how user-to-user interactivity—posting and receiving a favorite (Social Media Context)— while social watching increases a sense of community.

RQ2: How does Social Media Interaction and Social Media Context influence sense of community in the social media feed during social watching?

Much of the literature on social watching has explored the effects of social media content or level of participation on users using quantitative measures of interest, attitude and knowledge, without exploring the cognitive and affective mechanisms related to these effects. To the author's knowledge, the only previous study that has taken a qualitative approach to the effects of social watching was a field study by Maruyama et al. (2014). The third research question explores the users' thoughts during social watching.

RQ3: What do people think while social watching?

Table 2-2 summarizes the null hypotheses and alternative hypotheses, as well as the research questions, for this study.

Table 2-2: A summary of the null and alternative hypotheses and research questions

Hypotheses Number	Null Hypotheses (H_o)	Alternative Hypotheses (H_a) Research Questions
H1a	Social Media Interaction does not influence cognitive elaboration during social watching, after controlling for pre-exposure knowledge and pre-exposure interest.	Social Media Interaction influences cognitive elaboration during social watching, after controlling for pre-exposure knowledge and pre-exposure interest.
H1b	Social Media Context does not influence cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.	Social Media Context influences cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.
H1c	Social Media Interaction and Social Media Context do not interact to influence cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.	Social Media Interaction and Social Media Context interact to influence cognitive elaboration during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.
H2a	Social Media Interaction does not influence post-exposure attitude extremity during social watching, after controlling for pre-exposure attitude extremity, pre-exposure knowledge and pre-exposure	Social Media Interaction influences post-exposure attitude extremity during social watching, after controlling for pre-exposure attitude extremity, pre-exposure knowledge and pre-exposure interest.

	interest.	
H2b	Social Media Context influences post-exposure attitude extremity during social watching, after controlling for pre-exposure attitude extremity, pre-exposure knowledge and pre-exposure interest.	Social Media Context influences post-exposure attitude extremity during social watching, after controlling for pre-exposure attitude extremity, pre-exposure knowledge and pre-exposure interest.
H2c	Social Media Interaction and Social Media Context do not interact to influence post-exposure attitude extremity during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.	Social Media Interaction and Social Media Context interact to influence post-exposure attitude extremity during social watching, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.
RQ1	N/A	How does Social Media Interaction and Social Media Context influence elaboration of discussion during social watching?
RQ2	N/A	How does Social Media Interaction and Social Media Context influence sense of community in the social media feed during social watching?
RQ3	N/A	What do people think while social watching?

CHAPTER 3 METHOD

Rationale for a Controlled Experiment

Testing the effects of Social Media Interaction and Social Media Context required the use of an experimental sandbox where participants' experiences could be controlled. The Hawaii Human-Computer Interaction Laboratory designed a tool that would show a pre-recorded televised broadcast next to a microblogging feed similar to Twitter[1]. The experimenter told participants they were watching and participating in a live discussion with participants in their group and another group elsewhere on campus. In actuality, there was no other group of participants, and none of the participants interacted with each other. The story about another group on campus was designed to explain why participants saw posts on the feed, even when no one in the room was posting. All of the posts were written and tested in advance. Everyone in each group saw the same exact same posts at the same exact time. When a participant posted, only the author of the post could see it in his or her feed.

This carefully controlled laboratory experimental design served two purposes. Firstly, it prevented participants from influencing each other in a way that would threaten internal validity. A talkative participant could elicit more posting from others he or she is speaking to, thereby increasing the level of Social Media Interaction in the session. If one participant's treatment level affects another, this would threaten the independence of responses. The "spillover effect" would violate the Stable Unit Treatment Value Assumption (SUTVA), which assumes each unit is unaffected by the assignment of another unit (Rubin, 2005). One of the assumptions of SUTVA

[1] UH Mānoa Information and Computer Sciences undergraduate Josh Weldon developed the tool in collaboration with the author of this dissertation.

is that each unit (e.g., participant) is independent, meaning that the amount of treatment for one unit does not spill into the experiment of another unit (Rubin, 2005).

Secondly, the design controlled for confounding variables that emerge in live conversations, such as the number of posts, the pace of interaction and the identities of sources. When Maruyama et al. (2014) conducted a field experiment on Twitter use during political debates in 2012, participant used their own Twitter accounts and could access tweets from their own network. In other words, while they were asked to view tweets on a particular hashtag feed, it is possible that each of their experiences during the debate was unique. In the study, participants who tweeted were more likely to switch their vote opinion. However, because participants were using their own devices from their own homes, it was impossible to know exactly what they viewed during the debate. To address this concern, this experiment carefully controls the posts in the feed and who appears to be posting them.

Study Design

The study design contrasted different levels of user-to-user interactivity on social media (Social Media Interaction). It also contrasted exposure to varying levels of favorable and unfavorable opinions toward a civic issue in social media posts as another factor. The Social Media Interaction factor had three levels: posting on social media and receiving positive feedback, posting on social media and receiving no response, and observing the social media feed without posting. The Social Media Context factor also had three levels: social media material that supported a position toward a civic issue, social media material that opposed a position toward a civic issue and social media material that was balanced in support and opposition.

Therefore, the Social Media Interaction factor was crossed with the Social Media Context factor in a 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) x 3 (Social Media Context: support vs. oppose vs. balanced) factorial design, where one factor manipulates the user's level of interactivity, while the second factor varies the context in which they are interacting. The participants were randomly assigned to their condition after completing the pre-exposure survey.

Participants were asked to either post three times on the social media feed or view the social media feed without posting. Both the post and receive feedback and post without feedback groups were asked to post three original messages, meaning "retweets" (rebroadcasts) would not count toward the minimum amount. After the post and receive feedback group members submitted two posts, their second post received a favorite. After the post without feedback group members submitted their posts, they received no response from the system. The observe group was asked to press a button to refresh their feed and view posts, but not to submit any messages to the social media feed.

The posts in the feed were designed to look like messages on the microblogging site Twitter. The valence of the posts in the feed depended on a participant's random assignment to a Social Media Context group. Participants in the "support" group viewed posts that mostly supported development in the area (70 percent support, 15 percent oppose and 15 percent neutral). Participants in the "oppose" group mostly viewed posts that opposed construction in the neighborhood (70 percent oppose, 15 percent support and 15 percent neutral). Partcipants in the "balanced" group perused posts evenly divided in opinion (42.5 percent support, 42.5 percent oppose and 15 percent neutral). Valence of posts were modeled after a previous study on the attitudinal influence of Twitter use during TV broadcasts (Cameron et al., 2014).

A pilot study was conducted in late June 2015 to examine and refine study procedures, experimental stimuli and measurements. After a round of iteration, the full study was conducted in September and October of 2015.

Materials

Broadcast

All of the participants, regardless of their random group assignment, watched the same broadcast. Finding a broadcast that elicits a similar psychological response is wrought with complexity (Brashers & Jackson, 1999). To try to minimize the differences in the way participants would respond to the broadcast, the first goal was to find a broadcast that participants were unlikely to have seen to prevent their previous viewing experiences from coloring their interpretations and influencing the dependent measures. The second goal was to choose a broadcast that most participants did not have strong pre-existing opinions about.

Participants would be unlikely to have watched a broadcast on a topic such as property development. The rate of home ownership is lower among college students than the general population; therefore, it would be unlikely to be a salient personal concern. Moreover, it wasn't an issue that had been covered frequently in local newspapers or the campus newspaper. Yet, tucked away in an ʻOahu neighborhood less than three miles away from campus was a controversial story about exorbitant wealth flooding and luxury high-rises emerging in a once industrial neighborhood called Kakaʻako. The geographical proximity and tension in the story would be likely to pique their interest, once they heard about the issue. Moreover, the neighborhood was known for its street art and food truck events, which tended to attract young attendees. Finding a story that would be deemed relevant and interesting was a priority, since our

previous studies on social media and deliberation suggest participants are more engaged in political contests and civic issues closer to home.

A show called PBS Insights was chosen because its panel discussion provided more contextual information than other local news broadcasts. The episode aired on April 3, 2014. In the broadcast, a panel of four experts and advocates discussed the question, "Is Kakaʻako moving in the right direction?" The panelists represented government stakeholders and a civic activist: (1) Hawaiʻi Community Development Authority Executive Director Anthony Ching, who oversees permitting in Kakaʻako, (2) Director of the City and County of Honolulu Department of Planning and Permitting George Atta, (3) Hawaiʻi's Thousand Friends Executive Director Donna Wong, and (4) Office of Hawaiian Affairs Trustee Peter Apo. A transcript of the 30-minute broadcast is available in Appendix A.

Social Media

Each post in the feed was vetted by multiple raters for believability, comprehensibility, and valence toward the way Kakaʻako is being developed. The valence scores were used to manipulate the levels of favorability toward development Kakaʻako for each Social Media Context group.

Twitter posts—or tweets—about the broadcast when it aired in April 3, 2014, were collected. These tweets were findable because they included a hashtag promoted by the moderator during the broadcast: #PBSInsights. Also in the corpus were tweets that included the #Kakaako hashtag. Tweets were lightly edited to seem as if they were posted synchronously during the broadcast. To augment the corpus, posts were written that fell into categories that emerged from an analysis of 50,000 tweets about a UK documentary TV show about a social

issues, including tweets about how the topic was framed, tweets about panelists' responses and tweets that reflected on societal issues (Brooker et al., 2015).

Five raters assessed each of the posts for realism, understandability and favorability toward development in Kakaʻako. Raters included one undergraduate, two Ph.D. students, a post-doctoral researcher and a professor. Researchers have used similar methods to evaluate the suitability of experimental stimuli in persuasion studies (Petty & Cacioppo, 1986). Each post was reviewed by four to five raters. The following questions were asked about each post:

- Believability: "How believable is this tweet?" (where 1 = not at all believable and 5 = very believable)
- Comprehensibility: "How comprehensible is this tweet?" (where 1 = not at all comprehensible and 5 = very comprehensible)
- Valence: "How much does this tweet support the way Kakaʻako is being developed right now?" (where 1 = oppose strongly and 5 = support strongly)

Only posts receiving high agreement among raters—measured by a standard deviation of .58 or less in ratings—were chosen. Posts with an average believability or comprehensibility score of 4.75 or greater were kept, meaning they were on average closer to "very believable" than "somewhat believable," and closer to "very comprehensible" than "somewhat comprehensible," respectively. Neutral posts received a 3 rating ("neutral") and had a standard deviation of 0, meaning all raters agreed. Posts with average rating of 4.75 or higher (closer to "support strongly" than "support somewhat") were defined as supportive of development in Kakaʻako. Posts with average ratings of 1.75 or less (closer to "oppose strongly" than "oppose somewhat") on the valence scale were defined as oppositional to development in Kakaʻako. Table 3-1 shows average ratings and standard deviations for posts in each social media context

group (support, oppose and balanced), which suggest the posts were realistic, understandable and properly manipulated for attitude toward the topic.

Table 3-1: Average ratings of believability, comprehensibility and favorability, as well as standard deviations for posts in each Social Media Context group.

	Believability		Comprehensibility		Favorability	
	Avg. Rating	Std. Dev.	Avg. Rating	Std. Dev.	Avg. Rating	Std. Dev.
Neutral	= 5	= 0	= 5	= 0	= 3	= 0
Support	>= 4.75	<= .58	>= 4.75	<= .58	>= 4	<= .58
Oppose	= 5	= 0	= 5	= 0	< = 1.75	<= .58

An online random name generator[2] was used to select names and surnames common in multiple ethnicities for create source names for each post. The following user handles were used: @jadenl, @alexj, @kellyshiori, @andiem, @steph, @kai55, @leilani, @vickyp, @kaulareyes and @julez. The user handles are held constant across conditions to minimize the influence of the source's name. No additional profile information or photos were displayed to the users. The social media posts used for each condition in the experiment are listed in Appendix B.

Interface

The design of the interface was similar to the microblogging site Twitter, which is an online social networking and microblogging service where users can express themselves in 140 characters or fewer. However, participants did not "follow" other users to view their content on a timeline. Instead, they viewed content about a particular topic to simulate tracking a conversation on a hashtag feed.

[2] http://www.behindthename.com/random/

The Hawaii Computer-Human Interaction Laboratory modified the interface to create an integrated social watching experience in which a person watches a broadcast while microblogging on the same application. A log-in page allowed users to enter their UH username and create a new username for the session. After logging in, users viewed a page that showed the PBS Insights Broadcast and a feed similar to the microblogging site Twitter. The user's username for the session and a count of the user's favorites and retweets were displayed in the upper left corner above the video.

All of the users logged in at the same time. As soon as users logged in, the video began playing automatically. Users refreshed their feed to show social media posts, which were timed to appear to respond to what is being said in the video. Users could favorite, retweet and reply to posts. Replies were displayed in a threaded conversation beneath the original post. If a post was retweeted or favorited, its retweet or favorite count under the text of the tweet would increase.

Participants in the post and receive feedback condition also received automated favorites to their posts. To increase realism, not every tweet posted by participants in the condition received a favorite. The first post received zero favorites. The second post received one favorite. The third and fourth posts received no favorites, then the fifth post received three favorites. The pattern then repeated. A pilot study tested the interface with undergraduates in the School of Communications at UH Mānoa (n = 17). After the pilot, the study protocol was modified to extend the length of the video from 20 minutes to 30 minutes because participants said they wanted to spend more time viewing the broadcast. Focus group interviews revealed no usability problems with the tool. Figure 3-1 shows the interface of the mock Twitter tool during the pilot study, which displayed the user's profile information and a video on the left and social media feed on the right.

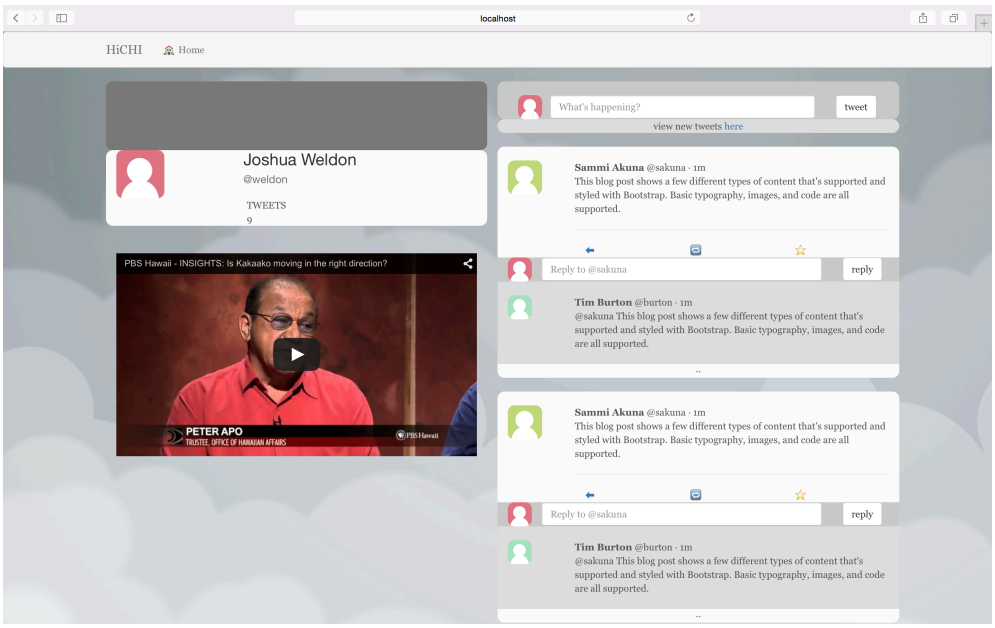

Figure 3-1: The interface of a microblogging tool used by participants in a June 2015 pilot study.

Setting

During the experimental session, participants viewed social media posts and a broadcast of a panel discussion about a controversial topic: recent development in the Honolulu neighborhood of Kaka‘ako. Once a cradle of agriculture and a home to Native Hawaiian royalty during ancient times (Wu, 2007), the community developed into an immigrant camp, then later a gridded district of industrial low-rise buildings known for its automobile repair shops, wholesaling and warehouses. This once-quiet industrial neighborhood has recently drawn developers’ attention and rapidly transformed into one of the fastest growing communities on the island. Squeezed between upscale shopping near Ala Moana Center and towering skyscrapers of downtown Honolulu, the 600-acre Kaka‘ako district[3] has been touted by developers and government leaders as a potentially vibrant cultural and residential core of luxury and affordable housing, retail, restaurants and new rail stops.

[3] http://dbedt.hawaii.gov/hcda/discover-kakaako/

Whereas most property development on the island of ʻOahu is approved by the Honolulu City Council and the State Land Use Commission, state legislation passed in 1976 gave a state agency called the Hawaii Community Development Authority the dual missions of incentivizing redevelopment and regulating it. Construction in the area—bounded by Piʻikoi, King, Punchbowl Streets and coastline along Ala Moana Boulevard— has drawn controversy. Surfers and fishermen rallied against a proposal to build residential towers near a waterfront called Kakaʻako Makai, which led state lawmakers to nix the project. More recently, nonprofits such as Hawaii's Thousand Friends backed legislation in 2014 that would abolish the HCDA, accusing the agency of allowing developers to build required affordable housing reserves outside of the neighborhood, holding public hearings but ignoring dissenting voices and approving developments without sufficient review[4].

Sample

One hundred thirty-one undergraduate students were recruited from psychology, computer science, business and communications courses at the University of Hawaiʻi at Mānoa in Honolulu, Hawaiʻi. Recruitment methods included in-class sign ups and an online system where students can sign up for pre-approved studies to fulfill their research participation requirement. Students earned participation points or extra credit as compensation for their involvement. Of the 131 undergraduates who participated in the study, nine were excluded from the analysis for the reasons listed in Table 3-2. This left 122 participants with usable data.

[4] The full text of HB 18664 is available at http://capitol.hawaii.gov/Archives/measure_indiv_Archives.aspx?billtype=HB&billnumber=1864&year=2014.

Table 3-2: Reasons why data belonging to nine of 131 participants were removed from the analysis.

Participant Number	Reason for removal
P48	Believed no one was seeing her tweets
P71, P93, P115	Participated in the pilot study
P77	Video buffered for several minutes, leading him to miss a part of the broadcast.
P83	Believed he was not viewing real tweets
P103, P104	Did not refresh their tweet feeds
P111	Tweeted once despite being asked not to tweet

The remaining sample included 77 women and 43 men (two non-responses). Each group of participants was randomly assigned to a Social Media Interaction and Social Media Context condition. Table 3-3 shows the number of participants in each combination of the Social Media Interaction and Social Media Context factors, after removing data for the nine participants who were disqualified for the reasons listed in Table 3-2.

Table 3-3: The number of participants in each combination of Social Media Interaction and Social Media Context factors, after removing data from participants who were disqualified for various reasons.

	Support	Oppose	Balanced
Tweet with Feedback Group	15	12	15
Tweet without Feedback Group	12	13	13
Observe Twitter Group	13	17	12

All of the respondents were undergraduates. Almost the entire sample (97 percent) was younger than 30, and nearly three-quarters were 20 years old or younger. About 80 percent of participants reported being "social watchers"—who used social media while watching TV to

learn about what they were viewing—and many reported doing so regularly. Nearly half of all participants reported social watching a few times per week or more. Many of them also posted during the activity. About three-quarters of participants reported posting on social media while watching TV to talk about what they are viewing, and a quarter did so a few times per week or more.

When asked what media they use to social watch, the top online platform was Facebook with about two-thirds of participants, followed by YouTube and Instagram. The fourth platform was Twitter, with about 42 percent of participants using the microblogging platform to track what they watch on TV. In terms of general Twitter use, nearly three-quarters reported using the microblogging platform at least a few times per month. Figure 3-2 displays the percentage of participants who reported using each social media platform to learn about or discuss a broadcast they were watching. Participants could select multiple options, if they accessed various social media platforms to social watch.

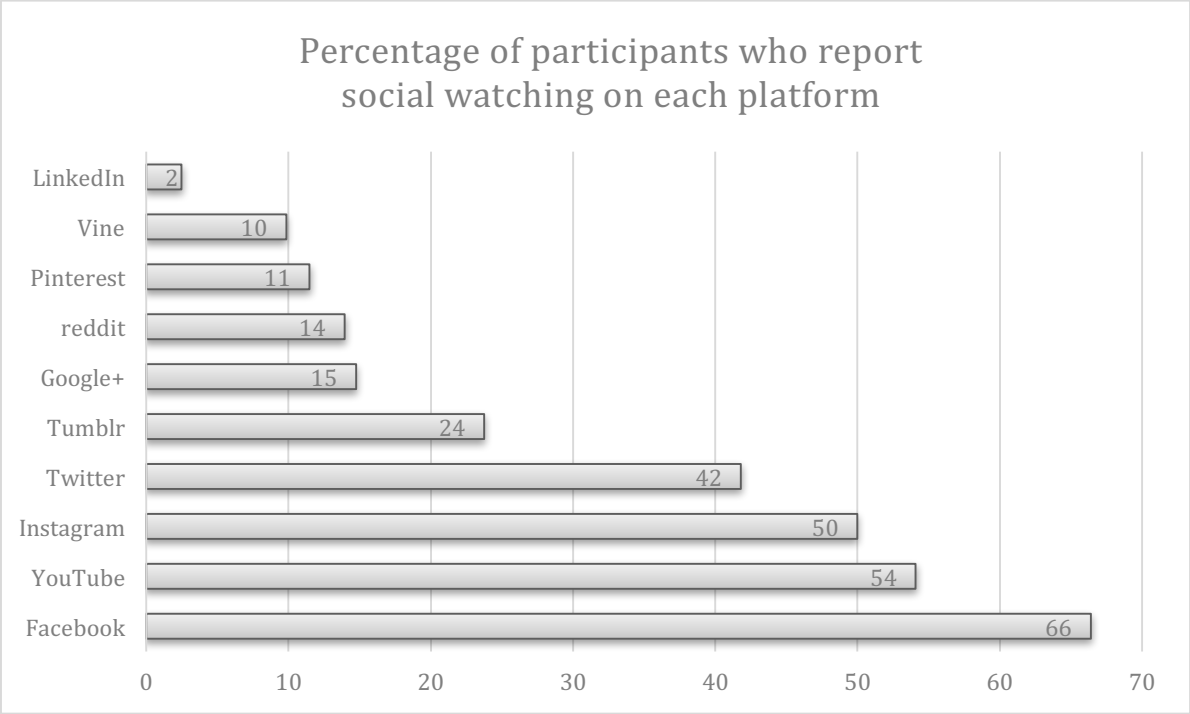

Figure 3-2: The percentage of participants who reported using each social media platform to learn about or discuss a broadcast they were watching.

Participants were also asked which device they used to access social media during social watching. A majority of the participants (84 percent) accessed social media on their smartphones while social watching, while more than half (58 percent) accessed social media on laptops. Figure 3-3 shows the percentage of participants who reported using each type of device (desktop, laptop, tablet or smartphone) to simultaneously learn about or talk about a broadcast they were watching.

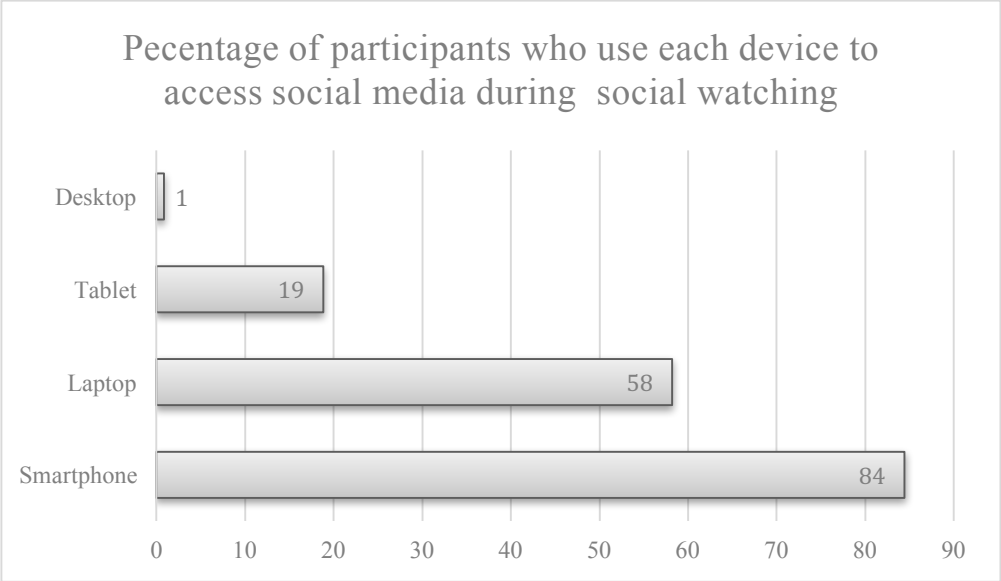

Figure 3-3: The percentage of participants who reported using each type of device to log on to social media to learn about or discuss a broadcast they were watching.

Participants also reported which device they used to view broadcasts while social watching (TV, desktop, laptop, tablet, smartphone). Figure 3-4 displays the percentage of participants who reported using each type of device to view a broadcast they were also tracking or talking about on social media. They could report more than one device if they used multiple devices to view broadcasts while social watching.

Most participants accessed broadcast while social watching on TVs or laptops. About 69 percent viewed broadcasts on TV, while 61 percent of participants viewed broadcasts on laptops in their everyday lives. In the experimental session, participants viewed the broadcast and accessed social media on a laptop, a behavior that in sync with much of the sample's normal social watching behavior.

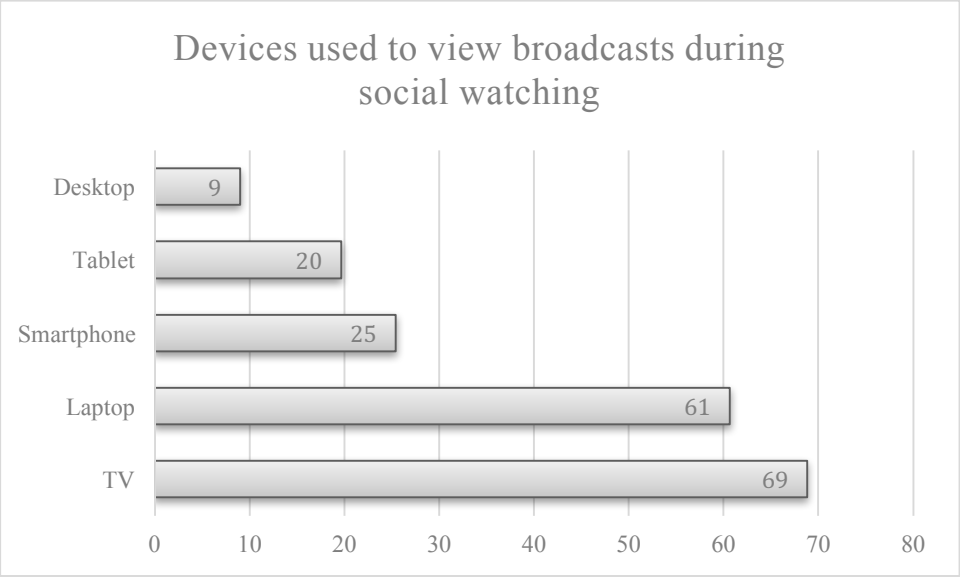

Figure 3-4: The percentage of participants who reported using each type of device to view a broadcast they were also learn about or discussing on social media.

The selection of the topic and broadcast was effective. Only one participant of 122 had seen the show prior to the session. Two-thirds of participants (67.7 percent, with one non-response) reported being "undecided" about the way Kaka'ako was being developed, which suggests that few people were staunchly in support or opposition of the issue. All of the 122 participants were included in the analysis, even those who had an opinion about the issue.

Procedure

Participants signed up for a study session in a laboratory on UH Mānoa's campus in groups of seven people or fewer. The experimenter read the consent form to participants (Appendix C). The form included a checkbox to indicate that participants consented to their laptop screens being recorded. The students were told they would be using a closed platform similar to Twitter, and the interface would display a social media feed and a pre-recorded broadcast. They were also informed that their posts would be seen by participants in their session, as well as participants in another session being conducted synchronously in another

room on campus. In actuality, none of their posts could be seen by other participants, and all of the social media content they viewed was programmed in advance. All of the questionnaires were administered on laptop computers using SurveyMonkey.com.

Participants began with a 10- to 20-minute questionnaire on SurveyMonkey (Appendix D). After completing the questionnaire, an experimenter told participants what they would be doing based on their random assignment to a Social Media Interaction group. They also read the following reminder on their laptop screens after completing the questionnaire.

- **Tweet with Feedback and Tweet without Feedback groups:** You will now watch a 30-minute broadcast about development in the ʻOahu neighborhood of Kakaʻako. We would like for you to post at least three times using a Twitter-like microblogging platform. You can post anything you want within the 500-character limit. You can retweet, reply to and favorite posts. Your tweets can also be retweeted, replied to and favorited.
- **Observe Twitter group:** You will now watch a 30-minute broadcast about development in the ʻOahu neighborhood of Kakaʻako. We would like for you to observe a Twitter-like microblogging platform and **NOT** post.

All participants in each group were assigned to the same condition to ensure participants could discuss a shared experience during the post-exposure group interview. After participants read the directions, the moderator provided a tutorial on how to use the interface, from logging in and creating an account to interacting with the feed using the available features. After the tutorial, the experimenter appeared to sync the broadcast with another classroom, and participants were asked to click on a link to access the system in a web browser on the laptop computer.

When the broadcast concluded, the experimenter asked participants to click a hyperlink to complete a 20-minute post-exposure questionnaire (Appendix D). After completing it, participants were asked to participate in a brief group discussion and were recorded if they consented in the consent form.

Measures

Overview

Measurements were derived from previous studies on the effect of online interaction or mediated messages on dependent variables of cognitive elaboration, post-exposure attitude extremity, discussion elaboration and sense of community. Instruments had been used in previous studies (Abelson, 1995; Eveland & Thomson, 2006; D. W. McMillan & Chavis, 1986), increasing reliability; however, measures were checked for understandability and validity during focus groups with participants in the pilot study. After a careful review and iteration of the items, they were tested for reliability using data from the full study.

In the pre-exposure questionnaire, participants answered questions about demographic information and technology use. Covariates of pre-exposure interest, pre-exposure knowledge and pre-exposure attitude extremity were included in analyses. Selection of covariates was based on theory. Cognitive elaboration would be expected to be influenced by personal relevance of and interest in the topic, according to dual-processing theories such as the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model of Information Processing (HSM) (Chaiken, 1987). The literature on dual-processing and persuasion suggests personal relevance and ability to process the message are positively correlated with elaboration (Chaiken, 1987; Petty & Cacioppo, 1986). The covariates of pre-exposure interest in development in Kakaʻako and pre-exposure knowledge of Kakaʻako were

used as proxies for personal relevance of the message and information processing ability, respectively. Pre-exposure attitude extremity was also used as a covariate when post-exposure attitude extremity was used as a dependent measure. The covariates were entered into the model to control for pre-existing differences between individuals that may not have been accounted for through random assignment.

The dependent measure of post-exposure attitude extremity (H2a, H2b, H2c) was collected in the post-exposure questionnaire. The dependent measures of cognitive elaboration (H1a, H1b, H1c), discussion elaboration (RQ1), Brief Sense of Community (RQ2) and open-ended thought-listing (RQ3) were taken after exposure because there was nothing to report on before the experiment.

Cognitive elaboration (H1a, H1b and H1c)

In a study on cognitive processing related to political discussion and media exposure, Eveland and Thomson (2006) averaged four items to measure cognitive processing of TV and newspaper content. Participants reported their agreement with the following statements on a 6-point scale, where 1 = I definitely disagree and 6 = I definitely agree:

- I often try to relate what I see on TV to my own personal experiences.
- I often think about how what I see on TV relates to other things I know.
- I often try to relate what I read in newspapers to my own personal experiences.
- I often think about how what I read in newspapers relates to other things I know.

These items were used to operationalize cognitive processing of news content, what Eveland and Thomson (2006) called "news elaboration." According to Eveland and Thomson (Eveland & Thomson, 2006), the original 4-item news elaboration scale had high reliability (M = 3.52 , SD = .98, α = .79). In the current study, items were reworded to reflect the experimental stimuli. The

6-point scale was changed to a 7-point scale, where 1 = strongly disagree and 7 = strongly agree, to provide a midpoint category of "Neutral" to participants who were ambivalent, indifferent or uncertain. After refining the wording after the pilot study focus groups (n=17), the following two items were used:

- I tried to relate what I saw to my own personal experiences
- I tried to think about how what I saw related to other things I know

Post-exposure Attitude extremity (H2a, H2b and H2c)

Attitude strength has been conceptualized as a multi-dimensional construct comprising many dimensions: extremity, affective consistency, certainty, importance, interest in relevant information, knowledge, accessibility, direct behavioral experience, latitudes of rejection and non-commitment and affective-cognitive consistency (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). This study focuses on the dimension of attitude extremity, which refers to how favorable a person feels toward something (Abelson, 1995).

While extremity has been measured using multiple semantic differentials such as good – bad, wise-foolish, beneficial-harmful or favor-oppose (Krosnick et al., 1993), it has also been measured with a single feeling thermometer scale (Wojcieszak, 2011). Participants were asked to self-report their feelings toward a topic on a numeric scale, where the polar ends are labeled extremely unfavorable and extremely favorable (Abelson, 1995). A 7-point scale similar to the feeling thermometer asked participants to rate how favorably they feel toward the way Kaka'ako is being developed, where 1 = extremely unfavorable and 7 = extremely favorable. The following question was asked in the pre-exposure survey to statistically control for pre-existing attitudes and in the post-exposure survey as a dependent measure for Hypotheses 2a, 2b and 2c:

- How favorably or unfavorably do you feel toward the way Kakaʻako is being developed?

Discussion elaboration (RQ1)

In a study on the influence of discussion on political learning, discussion has been shown to improve learning (Eveland, 2004; Slavin, 1996), although explanations for the effect vary. Eveland and Thomson (2006) averaged six items related to three types of elaboration—anticipatory discussion elaboration, actual discussion elaboration and reflective discussion elaboration—in a study on cognitive processing related to political discussion and media exposure. Participants were asked to rate their agreement to the following statements on a 6-point scale, where 1 = I definitely disagree and 6 = I definitely agree:

- When I know I'm going to talk to someone about local issues, I'll often try to think of things to say in advance.
- When I know I'm going to talk to someone about politics, I'll try to think of good arguments ahead of time.
- After I've talked to someone about local issues, I'll often continue to think about what they've said later.
- When I talk to someone about politics, it often makes me think more about my own opinions and beliefs.
- When I talk to someone about local issues, I often think about how what they are saying relates to my own personal experiences.
- Talking with someone about politics usually makes me think about that topic after the conversation is over.

In the current study, items were reworded to reflect the experimental stimuli and the Social Media Interaction group. The post and receive feedback and post without feedback groups were asked whether they were elaborating while anticipating posting, formulating their post or reflecting on what they posted, whereas the observe group was asked to reflect on elaboration related to viewing the posts. The 6-point scale was changed to a 7-point scale, where 1 = strongly disagree and 7 = strongly agree, to provide a mid-point category of "Neutral" to participants who were ambivalent, indifferent or uncertain. Respondents indicated their agreement to the following statements on a 7-point scale, where 1=strongly disagree and 7 =strongly agree:

- Item 1: When I knew I was going to post on social media just now, I tried to think of things to say in advance (for participants asked to actively post) vs. When I knew I was going to view posts on social media just now, I tried to think of things I might say in advance (for participants asked to only read posts).
- Item 2: When I knew I was going to post on social media just now, I tried to think of good arguments ahead of time (for participants asked to actively post) vs. When I knew I was going to view posts on social media just now, I tried to think of good arguments ahead of time (for participants asked to only read posts).
- Item 3: When I posted on social media just now, it made me think more about my own opinions and beliefs (for participants asked to actively post) vs. When I viewed posts on social media just now, it made me think more about my own opinions and beliefs (for participants asked to only read posts).
- Item 4: When I posted on social media just now, I thought about how other posts relate to my own personal experiences (for participants asked to actively post) vs. When I viewed posts on social media just now, I thought about how other

posts relate to my own personal experiences (for participants asked to only read posts).

- Item 5: After I posted on social media just now, I continued to think about what other people posted later (for participants asked to actively post) vs. After I viewed posts on social media just now, I continued to think about what other people posted later (for participants asked to actively read posts).
- Item 6: Posting on social media just now made me think about that topic after the posting was over (for participants asked to actively post) vs. Viewing posts on social media just now made me think about that topic after the posting was over (for participants asked to only read posts).

Brief Sense of Community Scale (RQ2)

The original Sense of Community was designed to operationalize group membership, needs fulfillment, influence and emotional connection (McMillan & Chavis, 1986). It was later revised to be more concise and straightforward in the Brief Sense of Community Scale (Peterson, Speer, & McMillan, 2008), which references respondents' connection to their neighborhood on a 5-point scale, from strongly disagree to strongly agree. A previous study on connection to an online/offline community modified the Brief Sense of Community and had high reliability (Rosen, Lafontaine, & Hendrickson, 2011). Similarly, these items were modified to relate to their connection to social media feed on a 7-point scale, where 1 = strongly disagree and 7 = strongly agree:

- SoC Item 1: I could get what I needed on this social media feed.
- SoC Item 2: This social media feed helped me fulfill my needs.
- SoC Item 3: I felt like a member of this group on the social media feed.

- SoC Item 4: I belonged in this social media feed.
- SoC Item 5: I had a say about what went on in this social media feed.
- SoC Item 6: People on this social media feed were good at influencing each other.
- SoC Item 7: I felt connected to this social media feed.
- SoC Item 8: I had a good bond with others on this social media feed.

Thought-listing (RQ 3)

The thought-listing technique is a type of cognitive assessment that can be useful when researchers have "untested hunches" about the cognitive dimensions that are most salient (Cacioppo, Hippel, & Ernst, 1997). The idea is that a person's cognitive processes can be understood through thoughts reported retrospectively (Cacioppo et al., 1997). The thought-listing procedure has been shown to be understandable to participants (Cacioppo, Glass, & Merluzzi, 1979). Each entry field was 100 characters wide and 20 vertical lines, although participants were able to type as much as they would like. A modified version of the thought-listing directions from Cacioppo, Glass, & Merluzzi (1979) was used:

- We are now interested in everything that went through your mind while watching the broadcast and viewing the social media feed. Please list these thoughts, whether they were about yourself, the situation, and/or others. They can also be positive, neutral and/or negative. Any case is fine. Ignore spelling, grammar, and punctuation. You will have five minutes to write. We have deliberately provided more space than we think people will need to ensure that everyone would have plenty of room. Please be completely honest. Your responses will be confidential. You can record your thoughts and ideas in the box below.

Pre-exposure Interest (covariate)

Participants indicated how much they agreed with the following statements, where 1 = strongly disagree and 7 = strongly agree (Oeldorf-Hirsch & Sundar, 2015).

- I am interested in the way Kakaʻako is being developed.
- I would like to know more about the way Kakaʻako is being developed.

Pre-exposure Knowledge (covariate)

Participants responded to a series of items about their level of knowledge about the urban neighborhood of Kakaʻako on ʻOahu, which is about 2 miles away from the University of Hawaiʻi at Mānoa, using the following 5-point item, where 1 = No knowledge and 5 = Very high knowledge:

- Please indicate your general knowledge about development in Kakaʻako.

Attitudinal Dissimilarity (covariate)

Attitudinal dissimilarity measures the difference between participants' pre-existing opinions about development in Kakaʻako and their perception of the popular opinion on the social media feed. It was calculated by subtracting the pre-existing attitude extremity score from the item below, which measures the perception of valence of the social media posts. The difference measured perceived dissimilarity between the participant and others on the social media feed. The following question was asked in a post-exposure survey to measure perception of other users' attitude toward the issue on a 7-point scale, where 1 = extremely unfavorable and 7 = extremely favorable:

- Overall, how favorable were the tweets you saw in today's study toward the way Kakaʻako is being developed?

The absolute value of the difference between this rating and the pre-existing Attitude Extremity score was calculated to create the Attitudinal Dissimilarity score, which was used as a covariate in Research Question 2 regarding Sense of Community.

Data Analysis Rationale

The goal of this research is to explore the influence of different levels of interactivity (observing vs. posting and receiving no feedback vs. posting and receiving positive feedback) and exposure to different levels of support for a civic issue (supporting a civic issue vs. opposing a civic issue vs. balanced in support and opposition) on cognitive elaboration, elaboration related to discussion, attitudes and sense of community.

Hypotheses 1a, 1b and 1c explore the effects of the independent variables on cognitive elaboration. In Hypothesis 1a, the effect of the independent variable of Social Media Interaction on cognitive elaboration was tested by comparing elaboration responses from a group that posted and received feedback, a group that posted and received no feedback and a group of observers that viewed the social media feed without posting. To test Hypothesis 1b, the cognitive elaboration scores of three groups that viewed different social media material was compared, including a group that viewed posts that mostly supports development in Kakaʻako, a group exposed to posts that largely opposed it and a group that saw posts that were fairly balanced. Hypothesis 1c examined the joint effect of Social Media Interaction and Social Media Context on cognitive elaboration. Covariates of pre-exposure interest and pre-exposure knowledge were used in the analysis. Therefore, a one-way analysis of covariance was used to test the 'main effects' of Social Media Interaction and Social Media Context (H1a and H1b), then a two-way 3 x 3 analysis of covariance was used to test the possibility of an interaction effect (H1c).

Differences between groups on cognitive elaboration scores would suggest a causal effect of interaction and context of interaction on cognitive elaboration.

Hypotheses 2a, 2b and 2c examined the effect of Social Media Interaction and Social Media Context on post-exposure attitude extremity. Hypothesis 2a proposes that different levels of social media interaction— posting and receiving positive feedback, posting and being ignored and not posting—influences post-exposure attitudes. For Hypothesis 2b, participants' attitudes were measured after they viewed supportive, oppositional or balanced social media posts. Hypothesis 3a explores the effect of the combination of Social Media Interaction and Social Media Context on post-exposure attitudes. Covariates of pre-exposure attitude, pre-exposure interest and pre-exposure knowledge were used in the analysis. A one-way analysis of covariance was used to test the main effects of Social Media Interaction and Social Media Context (H2a and H2b), and a 3 x 3 two-way analysis of covariance was used to test the interaction effect (H2c). If the group comparison showed significant differences in post-exposure attitude scores, the results would suggest the factors of Social Media Interaction and Social Media Context influenced post-exposure attitude.

In addition to testing these hypotheses, Research Question 1 explored the construct of discussion-related elaboration, which is conceptually different from cognitive elaboration (Eveland & Thomson, 2006). Communication studies and education literature suggests that the act of discussing leads to reformulation and elaboration of ideas beyond the benefits of merely listening to a discussion, leading to cognitive, affective and behavioral benefits (Slavin, 1996). To examine the construct, an exploratory factor analysis was used to better understand components in a 6-item discussion elaboration scale (Eveland & Thomson, 2006). Once coherent subscales were identified, the influence of Social Media Interaction and Social Media

Context—and their possible interaction—was examined by comparing the average discussion elaboration scores among groups in a 3 x 3 two-way analysis of covariance. Covariates include pre-exposure interest, knowledge and attitude extremity. A significant difference between groups on discussion elaboration scores would suggest the factor(s) influenced the extent to which people processed what they would say or did say in a discussion.

Research Question 2 compared Social Media Interaction and Social Media Context groups on the dependent measure of Sense of Community, which has been defined as group membership, needs fulfillment, influence and emotional connection (McMillan & Chavis, 1986). Similarity in opinions would be expected to increase Sense of Community (Newcomb, 1953). To control for the effect of perceived interpersonal similarity, a covariate was included in the analysis that measured the absolute value of the difference between the participant's attitude toward development in Kaka'ako and the attitude they perceived others in the social media feed. If a participant rated his or her pre-existing attitude extremity as "extremely unfavorable" (or a 1) and rated the attitude of other users in the social media feed to be "extremely favorable (or a 7), then the difference score would be 6, and this value would be used as a covariate. A 3 x 3 two-way analysis of covariance was used to test the main effects of factors and their interaction. If a significant difference in the Social Media Interaction or Social Media Context groups were found for Sense of Community, then the result could be attributed to the factor rather than perceived interpersonal similarity.

Research Question 3 explores "why" and "how" questions behind the previous hypotheses and research questions. Open-ended thought-listing data was analyzed to better understand what participants were thinking during the session and their affective and cognitive

processing. The primary goal was to understand what was going through the minds of participants during the session.

It was important to view the qualitative responses in context, so profiles were created for each participant. These profiles combined thought-listing data with participant's reported demographic information, social watching behavior, social media use, familiarity with the topic of development in Kakaʻako, attitude toward the topic (including attitude extremity, attitude certainty and attitude importance) and interest in the topic. These data providing the analyst with a richer contextualization of thoughts than if the thought responses were analyzed alone. Their tweets and the number of favorites they received were also included in the profiles, which helped to provide useful insight into the setting, particularly when interpreting ruminations about their experience of crafting a tweet for their audience and anticipating a response. The profile data corpus was about 250 pages in length.

Thought-listing data were coded in two rounds. The first round identified the beginning and end of each coding unit. A coding unit was defined as it has been defined in other studies: facts, opinions, personal stories and even inaccurate memories (Hyman, 1994). Generally, a unit comprised an independent clause, or a subject, verb and object, although coders went beyond grammatical distinctions to also consider semantics. The length of a coding unit varied. Sometimes a thought unit was as short as a fragment or multiple-clause run-on sentence. In this study, the verbalized data serves as a proxy for participants' thoughts, as it has been operationalized in studies on persuasion (Petty & Cacioppo, 1986).

Three raters coded thought-listing data from 12 randomly sampled participants (10 percent). Coder A identified 191 thought units, Coder B identified 196 thought units, and Coder C identified 163 thought units. Disagreements were reconciled through conversations among

raters. Where two of three of the raters agreed on a break in the unit, the majority opinion was used as the final decision. Generally, disagreements occurred at the conjunctions "and," "but" and "so," where it was less clear about whether the thought unit stopped or continued. Through discussions among coders it was concluded that consistently separating units at these conjunctions would sustain higher reliability in the coding process, and this method was used.

Two coders unitized data from another 17 participants (14 percent of participants) to assess inter-rater reliability using the clarified coding scheme. Coder A identified 214 thought units across 17 participants' responses, while Coder B identified 221 in the same data set. Inter-rater reliability was analyzed using Guetzkow's U, which is a measure of how reliably two coders break up qualitative data into the same number of units (Guetzkow, 1950). The formula for Guetzkow's U is calculated by calculating the difference between the total units identify by each coder divided by the sum of the number of units obtained by each coder (Guetzkow, 1950):

$$U = (0_1 - 0_2)/ (0_1 + 0_2)$$

Because Guetzkow's U is a measure of disagreement, the lower Guetzkow's U, the higher the agreement (Guetzkow, 1950). In the first sample, Guetzkow's U ranged from .013 to .092, as shown in Table 3-4, suggesting agreement was moderate. In the second round, Guetzkow's U was .0045, indicating extremely high agreement (Guetzkow, 1950).

Table 3-4: Results from Guetzkow's agreement statistic for unitization of thought-listing data.

	First sample of 10 percent	Second sample of 14 percent
Coders	Guetzkow's U	Guetzkow's U
A:B	0.013	0.0045
A:C	0.079	
B:C	0.092	

Based on the inter-rater reliability assessed while coding nearly a quarter of participants' data (24 percent), the unitization process seemed sufficiently reliable to move forward with coding the rest of the data. The remaining thought-listing data were unitized by the primary researcher. The average coding unit counts for each condition are shown in Table 3-5.

Table 3-5: Average coding units counts in each Social Media Interaction and Social Media Context group

Group	*n*	Mean	*SD*
Post and receive feedback	39	12.9	7.96
Post without feedback	42	13.9	6.92
Observe	40	14.3	7.36
Support	42	12.6	5.93
Balanced	42	13.6	6.82
Oppose	37	15	9.23
Overall	121	13.69	7.37

Guetzkow's U is considered a practical way to measure (dis)agreement in identifying units in qualitative data. However, it only measures how reliably two raters break up the data in the same number of units, without accounting for where the separations between units occur. For instance, Coder A may see one more unit than Coder B in one case, but one less unit in another case, and these differences could cancel each other out in the final calculation. For this reason, the coders went through each and every unit to see where they disagreed on the beginning and end of thought units. Discussions revealed high unit-by-unit agreement between coders, meaning raters not only had a similar number of units, but also the same beginning and end of each unit.

After the thought-listing data were parsed into coding units, inductive and axial coding was conducted to determine which themes applied to the thought units. An open coding approach assists the analyst in gaining "new insights into the data by breaking through standard ways of thinking about (interpreting) phenomena reflected in the data" (Corbin & Strauss, 1990). I coded

all of the data to identify emergent themes using the qualitative data analysis software Atlas.ti for Mac (v. 1.0.43). Initial themes were merged and labeled through axial coding. Two raters wrote down their own definitions for the code list and discussed each other's interpretations to develop a shared of each code and refine its conceptualization. From this discussion, a coding manual was developed to systemically organize text related to cognitive elaboration and assist in its interpretation (Crabtree & Miller, 1992; Fereday & Muir-Cochrane, 2006). The method was similar to template analysis, which starts with a researcher's engagement with the research concept of interest, but also allows for additional codes to inductively emerge from the data (Fereday & Muir-Cochrane, 2006).

Two raters independently coded a random sample of six participants' data to identify where the codes overlapped and to distinguish similar codes. The goal was to refine the coding scheme and to identify where it did not fit the data, rather than to arrive at final coding decisions. The discussion led to hierarchical structuring, merging, modifying, adding and deleting codes as needed to fit the data. These changes helped to conceptualize how the codes in the qualitative analysis were operationalized to measure different or related constructs.

Next, the raters applied the codes to another randomly sampled subset of data from 15 participants (12 percent of participants), not for final coding decisions but to identify situations where the new coding scheme did not fit. Several points of confusion were identified, particularly in the "Judgment" category, when the codes My Future, Their Future, Evaluating Arguments and Action overlapped. The codebook was revised to provide more specific directions about how to apply these codes.

After clarifying the coding scheme subsequent to the second round of coding, another 10 percent of the data (12 participants) was randomly sampled. An assessment of inter-rater

reliability was conducted on independent results from the coders using Krippendorff's alpha (Krippendorff, 2004) via the web tool ReCal (Freelon, 2010). Krippendorff's alpha values of at least $\alpha \geq .667$ are considered acceptable for tentative conclusions, while values of $\alpha \geq .8$ is generally interpreted as high reliability (Krippendorff, 2004). Krippendorff's alpha values for each code ranged from .662 (Knowledge Level) to 1 (General Media) with the exception of My Future, which had a low alpha of .394. However, the My Future category frequently overlapped with other codes in the Judgment category, which perhaps means that judgments are made with future implications in mind. Due to the low alpha, interpretations of the My Future category will be made tentatively. After calculating Krippendorf's alpha, disagreements were reconciled to arrive at final coding decisions. The primary researcher coded the remaining thought units. Descriptions of each code and their frequency in the data are discussed in the Results section.

Data Screening

Prior to conducting Analyses of Covariance, data were screened for missing values, internal consistency, normality, collinearity and homogeneity of regression slopes. No value was missing for dependent variables cognitive elaboration, post-exposure attitude extremity, post-exposure interest and post-exposure attitude certainty. Discussion elaboration Items 3 and 4 were missing for one participant. For the 8-item measure of Brief Sense of Community, each item was missing no more than four data points, and most were missing only one or two cases. Among the covariates, two cases were missing for pre-exposure interest, and one response was missing for all of the remaining covariates. Absent data are a less critical concern if a small percentage – 5 percent or less – is missing, which was the case in this study, and methods of dealing with missing data will likely yield similar results, if the amount of missing data are under this

threshold (Tabachnick & Fidell, 2013). Group mean substitution was used to replace missing data (Tabachnick & Fidell, 2013).

Data were screened for internal consistency after substituting missing values with group means. According to Eveland and Thomson (2006), the original 4-item news elaboration scale had high reliability (M = 3.52 , SD = .98, α = .79). For this study, the 2-item cognitive elaboration had comparable internal consistency (M = 5.43, SD = 1.01, α = .79). A cognitive elaboration measure was computed by averaging the two items, which was similar to the way it was computed in the original study (Eveland & Thomson, 2006).

The operationalization was not only examined in terms of its face validity and content validity—through a comparison to existing operationalization of cognitive elaboration in the literature (Eveland & Thomson, 2006; Perse, 1990; van Blankenstein et al., 2011) —but also its concurrent validity. The personal relevance of a message (e.g., interest) and the ability to process a message (e.g., pre-existing knowledge of the topic) would be expected to correlate with cognitive elaboration, as would be expected based on ELM and HSM theories (Chaiken, 1987; Petty & Cacioppo, 1986). . The average score was significantly correlated to knowledge and interest. A Pearson product-moment correlation analysis found a positive correlation between knowledge and cognitive elaboration, $r = .25$, $n = 122$, $p < .01$, and between interest and cognitive elaboration, $r = .21$, $n = 122$, $p < .05$.

The 8-item Brief Sense of Community scale appeared to measure one construct (Peterson et al., 2008). A correlation matrix suggested the items significantly correlate with each other, with the exception of the sixth item (a measure of agreement to the statement, “People on this social media feed were good at influencing each other”). Principal components analysis using SPSS was conducted, and all of the items loaded on the first component except the sixth item.

However, the item was retained to allow for comparisons to other studies that used the measure. With all eight items, the measure had acceptable internal consistency (M = 3.95, SD = 1.07, α = .869).

Pre-exposure interest (M = 4.95, SD = .84, α = .672) and post-exposure interest (M = 5.21, SD = .90, α = .657) also had acceptable internal consistency. All other covariates and dependent variables were measured with a single item. Table 3-6 displays descriptive statistics for all continuous independent variables, covariates and dependent variables.

Table 3-6: Descriptive statistics for covariates and dependent variables after group mean substitution.

	Mean	*SD*	α	Skew	Skew *SE*	Kurtosis	Kurtosis *SE*	Missing cases
COVARIATES								
Pre-exposure knowledge	1.79	.84	N/A	.67	.219	-.59	.435	1 (.8%)
Pre-exposure attitude extremity	3.99	.97	N/A	-.09	.219	3.05	.435	1 (.8%)
Pre-exposure interest	4.95	.84	.672	-.55	.219	1.27	.435	2 (1.6%)
DEPENDENT VARIABLES								
Cognitive Elaboration	5.43	1.01	.785	-1.56	.219	5.02	.435	0 (0%)
Post-exposure attitude extremity	4.07	1.36	N/A	.36	.219	-.80	.435	0 (0%)
Anticipation of discussion elaboration (1,2)	3.93	1.50	.792	-.231	.219	-.867	.435	0
Reflection on discussion elaboration (3-6)	5.33	.83	.741	-1.38	.219	4.19	.435	1 (.8%)
Brief Sense of Community	3.97	1.05	.869	-.36	.219	-.05	.435	7 (5.7%)

Screening data for normality is crucial, especially when inference is the goal of the analysis (Tabachnick & Fidell, 2013). Most of the dependent variables and covariates were

normally distributed, with skewness and kurtosis between -1 to +1.5, with the exception of positive kurtosis for pre-exposure favorability, cognitive elaboration and discussion elaboration. Samples with non-normal kurtosis— peaked or flat distributions— underestimate variance of a variable; however, underestimates of variance related to positive kurtosis diminish with samples of 100 or more, according to Tabachnick and Fidell (2013). Nonetheless, the distribution is worth analyzing further. Pre-exposure attitude extremity had slightly high kurtosis of 3.02 because many participants initially reported they were "Undecided." The histogram in Figure 3-5 shows a peak at the mid-point of 4—representing "Undecided" on development in Kakaʻako — and fewer responses on either end of the scale. In choosing experimental stimuli, the goal was to find a topic the sample were undecided about, so the kurtosis represents an achievement of this objective.

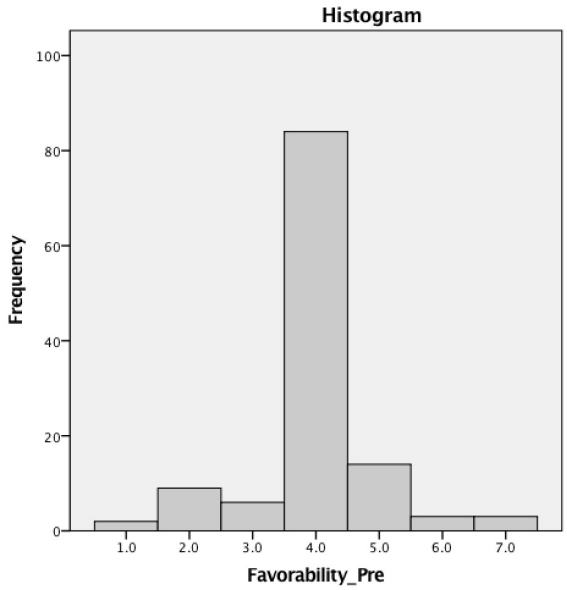

Figure 3-5: The distribution of pre-exposure attitude extremity responses.

Cognitive elaboration—the average of two elaboration-related items— was non-normally distributed, with skewness of -1.562 (*SE* = .219) and kurtosis of 5.019 (*SE* = .435). The shape of

the distribution in a frequency histogram shown in Figure 3-6 suggests cognitive elaboration peaked around 5 and 6, meaning many participants tended to “Somewhat Agree” and “Agree” that they tried to relate what they saw to their personal experiences and other things they know.

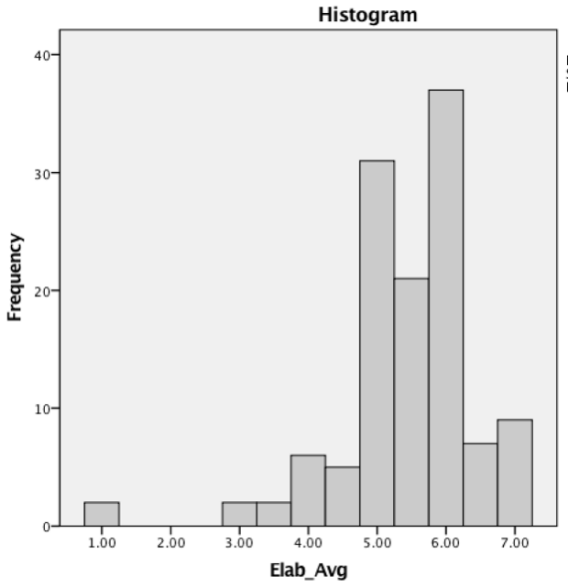

Figure 3-6: The distribution of the average of two cognitive elaboration items in a post-exposure survey.

A review of the shape of the distribution of average cognitive elaboration scores in an expected normal probability plot in Figure 3-7 and detrended normal probability plot in Figure 3-8 suggests the cognitive elaboration residuals are fairly normally distributed. In the normal probability plot, an expected normal value at each score—or the z score that a case with that rank would have in a normal distribution— is compared to the z score in the actual distribution (Tabachnick & Fidell, 2013). If the distribution is normal, points should fall along the diagonal, with some minor deviations scattered above and below the line due to randomness (Tabachnick & Fidell, 2013). The farther the points are from the diagonal, the less normal the data are. The detrended normal probability plot displays deviations from the diagonal in the normal probability plot. If distribution is normal, the cases are evenly scattered above and below the line of zero

deviation from expected normal values, or y=0 (Tabachnick & Fidell, 2013), as they are with the cognitive elaboration variable shown in Figure 3-8.

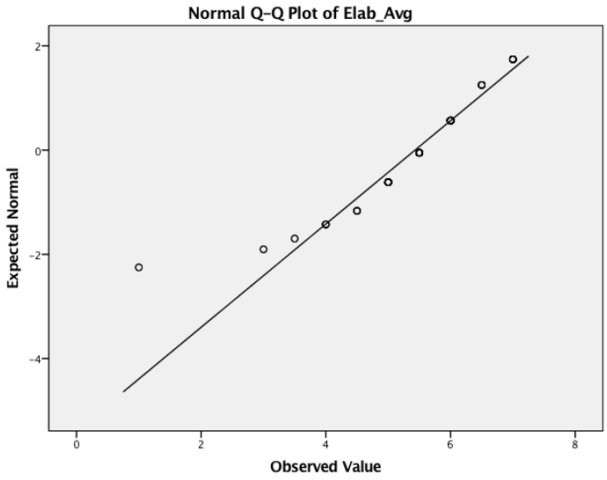

Figure 3-7: P-P plot of average cognitive elaboration scores

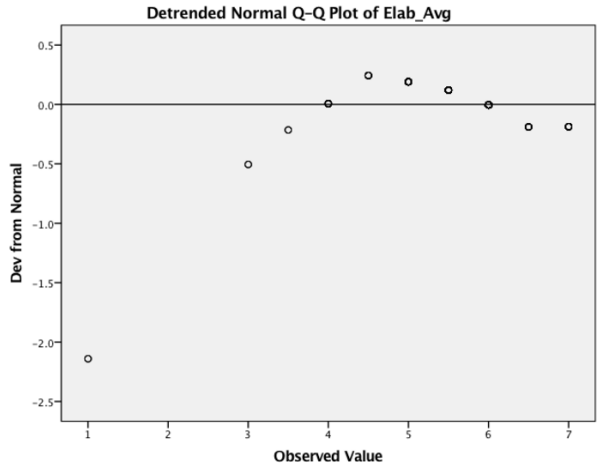

Figure 3-8: Detrended Q-Q plot of average cognitive elaboration scores

A review of a frequency histogram and the shape of the distribution in an expected normal probability and detrended normal probability plots for discussion elaboration residuals reveal a similar distribution to cognitive elaboration. In the normal probability plot, points roughly fall along the diagonal, with the exception of an outlier on the lower end of the scale. The detrended normal probability plot shows cases are fairly evenly scattered above and below

the line of zero deviation from expected normal values, with the exception of the outlier, which suggest fairly normal distribution (Tabachnick & Fidell, 2013).

Covariates should not correlate substantially with each other because collinearity can be detrimental to the interpretation of the model (Tabachnick & Fidell, 2013). Correlations among covariates of knowledge, interest and attitude extremity were explored using Pearson product-moment correlation coefficient. Correlations among covariates are either non-existent or small, with coefficients of .345 or less, as shown in Table 3-7.

Table 3-7: Pearson product-moment correlations between covariates measured during a pre-exposure survey.

Covariate x Covariate Correlation				
		Knowledge	Attitude Extremity	Interest
Knowledge	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	122		
Attitude Extremity	Pearson Correlation	0.019	1	
	Sig. (2-tailed)	0.832		
	N	122	122	
Interest	Pearson Correlation	0.075	.345**	1
	Sig. (2-tailed)	0.412	0	
	N	122	122	122

For analysis of covariance, "the slope of the regression between the DV and the CV(s) within each cell is an estimate of the same population regression coefficient, that is, that the slopes are equal for all cells" (Tabachnick & Fidell, 2013, p. 204). In other words, the independent variables and covariates should not interact on the dependent variable. If they do, this constitutes a violation of the homogeneity of regression assumption, meaning the relationship between the covariate and dependent variable is different for each group of the

independent variable. The homogeneity of regression slopes assumption was met for dependent variables of cognitive elaboration (H1a, H1b,12c) and attitude extremity (H2a, H2b, H2c). A review of homogeneity of regression slopes indicates a significant interaction ($p <. 05$) between SM Content and pre-exposure knowledge for anticipatory discussion elaboration (RQ1a). To avoid violating an assumption of the analysis, knowledge will not be used as a covariate in the analysis of anticipatory cognitive elaboration. Similarly, for RQ2, a significant interaction ($p < .05$) was found between SM Content and attitude extremity. Therefore, attitude extremity will not be used as a covariate in analysis of Brief Sense of Community for RQ2.

CHAPTER 4 RESULTS: HYPOTHESES

Results related to each hypothesis and conclusions about whether they were confirmed or not will be provided in the following section.

H1a.

A one-way analysis of covariance was conducted to compare the effect of Social Media Interaction (post and receive feedback vs. post without feedback vs. observe*)* on the dependent measure of cognitive elaboration. Pre-exposure knowledge and interest were used as covariates in this analysis. After adjusting for pre-exposure scores, there was no significant difference between the three Social Media Interaction groups on cognitive elaboration scores, F (1, 117) = .65, p = .52, partial eta squared = .01. There was a weak relationship between pre-exposure knowledge and cognitive elaboration, and pre-exposure interest cognitive elaboration, as indicated by partial eta squared vales of .06 and .04, respectively. The null hypothesis could not be rejected.

H1b.

A one-way analysis of covariance was conducted to compare the effect of Social Media Context (support vs. oppose vs. balanced) on cognitive elaboration. Covariates of pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity were used. After adjusting for these scores, there was no significant difference between the three Social Media Context groups on cognitive elaboration scores, F (1, 116) = 1.57, p = .21, partial eta squared = .03. There was a weak relationship between pre-exposure knowledge and cognitive elaboration, and pre-exposure interest cognitive elaboration, as indicated by partial eta squared vales of .06 and .05, respectively. The null hypothesis could not be rejected.

H1c.

A 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) by 3 (Social Media Context: support vs. oppose vs. balanced) independent groups factorial analysis of covariance was used on the dependent measure of cognitive elaboration. Covariates of pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity were included in this analysis. After adjusting for these scores, there was no significant interaction effect, F (1, 110) = .37, p = .83, partial eta squared = .01. There was a weak relationship between pre-exposure knowledge and cognitive elaboration, and pre-exposure interest cognitive elaboration, as indicated by partial eta squared vales of .06 and .06, respectively. The null hypothesis could not be rejected.

H2a.

A one-way analysis of covariance was conducted to compare the effect of Social Media Interaction on post-exposure attitude extremity. Covariates used in the analysis included pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity were used as covariates. After adjusting for these scores, there was no significant difference between the three Social Media Interaction groups on post-exposure attitude extremity scores, F (1, 115) = .68, p = .51, partial eta squared = .01. There was a relationship between pre-exposure attitude extremity and post-exposure attitude extremity, as indicated by a partial eta squared vale of .28. The null hypothesis could not be rejected.

H2b.

A one-way analysis of covariance was conducted to compare the effect of Social Media Context on the dependent measure of post-exposure attitude extremity. Covariates of pre-exposure

interest, pre-exposure knowledge and pre-exposure attitude extremity were used. After adjusting for these scores, there was a significant difference between the three Social Media Context groups on post-exposure attitude extremity, F (1, 115) = 10.39, p <.001. The effect size, calculated using partial eta squared, was .15. Post-hoc comparisons using Bonferroni correction indicated the mean score for the oppose group was significantly less than the balanced group and support group. The Balanced and support groups did not differ significantly from each other. There was a moderate relationship between pre-exposure attitude extremity and post-exposure attitude extremity, as indicated by a partial eta squared value of .32. The null hypothesis could be rejected. Table 4-1 shows the unadjusted means for each Social Media Context groups' post-exposure attitude extremity scores and the adjusted mean after controlling for pre-exposure interest, pre-exposure knowledge and pre-exposure attitude extremity.

Table 4-1: The Social Media Context groups' unadjusted means for post-exposure attitude extremity and adjusted means, after controlling for pre-exposure interest, pre-exposure knowledge and pre-exposure attitude extremity.

						Bonferroni Comparisons	
Group	*n*	Unadjusted Mean	*SD*	Adjusted Mean	Std. Error	Support	Balanced
Support	42	4.31	1.39	4.47	.17		
Balanced	42	4.31	1.32	4.29	.17	1	
Oppose	37	3.57	1.24	3.40	.18	<.001	.001

H2c.

A 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) by 3 (Social Media Context: support vs. oppose vs. balanced) independent groups factorial analysis of covariance was used on the dependent measure of post-exposure attitude extremity. Similarly, covariates of pre-exposure interest, pre-exposure knowledge and pre-

exposure attitude extremity were included. After adjusting for these scores, there was no significant interaction, F (1, 109) = .36, p = .83, partial eta squared = .01. There was a relationship between pre-exposure attitude extremity and post-exposure attitude extremity, as indicated by a partial eta squared vale of .32. The null hypothesis could not be rejected.

CHAPTER 5 RESULTS: RESEARCH QUESTIONS

Results related to each research question and interpretation of their implications will be reviewed in the next section.

RQ1a.

Elaboration related to discussion was measured using a 6-item scale based on Eveland and Thomson (2006). From the scale emerged two components with eigenvalues exceeding 1, explaining 41.1 percent and 24.5 percent of the variance, respectively. The scale (Eveland & Thomson, 2006) was subjected to principal components analysis using SPSS version 23 after the suitability of data for factor analysis were assessed. Inspection of the correlation matrix revealed discussion elaboration Items 1 and 2 (anticipation of discussion items) were significantly correlated to each other, but besides a weak correlation between Item 2 and Item 3, the first two items were not correlated with the rest. Items 3, 4, 5 and 6 were significantly correlated to each other with coefficients of .3 or more. The Kaiser-Meyer-Olkin value was .62, exceeding the recommended value of .6 (Kaiser, 1974), and Bartlett's Tests of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix. Both components showed strong loadings, and there was a weak correlation between the two factors (r= .197). Despite being used as one scale in Eveland and Thomson (2006), this analysis suggests two separate constructs in this data: elaboration related to anticipation of discussion as measured by Items 1 and 2 ($M = 3.93$, $SD = 1.50$, $\alpha = .792$) and elaboration due to reflection on discussion as measured by Items 3, 4, 5 and 6 ($M = 5.33$, $SD = .83$, $\alpha = .741$). Therefore, the resulting components—anticipatory discussion elaboration (Items 1-2) and reflection on discussion elaboration (Items 3-6) —emerged from the analysis.

A 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) by 3 (Social Media Context: support vs. oppose vs. balanced) independent groups factorial analysis of covariance was used on the dependent measure of anticipatory discussion elaboration. Pre-exposure measures of interest and attitude extremity were included as covariates. After adjusting for these scores, there was a significant difference between the three Social Media Context groups on anticipatory discussion elaboration scores, F (1, 117) = 3.91, p = .02, partial eta squared = .06. Post-hoc comparisons using Bonferroni correction indicated the mean score for the support group was significantly greater than the oppose group. The Balanced group did not differ significantly from either the oppose or support groups. Table 5-1 shows the unadjusted means for each Social Media Context groups' anticipatory discussion elaboration scores and the adjusted means after controlling for pre-exposure interest and pre-exposure attitude extremity.

Table 5-1: The Social Media Context groups' unadjusted means for post-exposure anticipatory discussion and adjusted means, after controlling for pre-exposure interest and pre-exposure attitude extremity.

						Bonferroni Comparisons	
Group	*n*	Unadjusted Mean	*SD*	Adjusted Mean	Std. Error	Support	Balanced
Support	42	4.43	1.62	4.42	.23		
Balanced	42	3.76	1.40	3.85	.23	.23	
Oppose	38	3.58	1.36	3.52	.24	<.05	.99

There was also a significant difference between the three Social Media Interaction groups on anticipatory discussion elaboration scores, F (1, 111) = 3.97, p = .02, partial eta squared = .07. Post-hoc comparisons for the three Social Media Interaction groups suggest the mean score for the group that observed was significantly higher than the mean score for the group that posted and received a favorite. The post and receive feedback group did not differ significantly from

either the post without feedback and observe groups. Table 5-2 displays the unadjusted means for the Social Media Interaction groups' (post and receive feedback vs. post without feedback vs. observe) anticipatory discussion scores and adjusted means after controlling for pre-exposure interest, pre-exposure knowledge and pre-exposure attitude extremity. Results of the Bonferroni comparisons are also shown.

Table 5-2: The Social Media Interaction groups' unadjusted means for post-exposure anticipatory discussion and adjusted means, after controlling for pre-exposure interest and pre-exposure attitude extremity.

						Bonferroni Comparisons	
Group	*n*	Unadjusted Mean	*SD*	Adjusted Mean	Std. Error	Post and receive feedback	Post without feedback
Post and receive feedback	40	3.75	1.53	3.72	.23		
Post without feedback	42	3.58	1.70	3.61	.23	1	
Observe	40	4.49	1.07	4.45	.23	.085	<.05

RQ1b.

A 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) by 3 (Social Media Context: support vs. oppose vs. balanced) independent groups factorial analysis of covariance was used on the dependent measure of reflective discussion elaboration. Pre-exposure measures of knowledge, interest and attitude extremity were included as covariates. After adjusting for these scores, there was a significant difference between the three Social Media Context groups on post-exposure reflective discussion elaboration scores, F (1, 116) = 3.55, p = .03, partial eta squared = .06. Post-hoc comparisons using Bonferroni correction indicated the mean score for the support group was greater than the oppose and balanced groups. Table 5-3 displays the unadjusted means and adjusted means for the Social Media Context

groups' (support vs. balanced vs. oppose) anticipatory discussion scores, after controlling for pre-exposure interest, pre-exposure knowledge and pre-exposure attitude extremity. Results of the Bonferroni comparisons are also shown.

Table 5-3: The Social Media Context groups' unadjusted means for post-exposure reflective discussion and adjusted means, after controlling for pre-exposure knowledge, pre-exposure interest and pre-exposure attitude extremity.

						Bonferroni Comparisons	
Group	*n*	Unadjusted Mean	*SD*	Adjusted Mean	Std. Error	Support	Balanced
Support	42	5.56	.73	5.59	.12		
Balanced	42	5.14	1.04	5.18	.12	.06	
Oppose	38	5.28	.60	5.20	.13	.09	1

RQ2.

A 3 (Social Media Interaction: post and receive feedback vs. post without feedback vs. observe) by 3 (Social Media Context: support vs. oppose vs. balanced) independent groups factorial analysis of covariance was used on the dependent measure of Sense of Community. Pre-exposure measures of knowledge and interest were included as covariates, as well as attitude dissimilarity, which equals pre-exposure attitude extremity minus a manipulation check of perceived attitude extremity on the social media feed (how different a person feels his or her attitude is compared to the attitudes of other users on the social media feed). After adjusting for the covariates, there was a significant difference between Social Media Interaction groups on Sense of Community scores, F (1, 116) = 4.508, p = .013, partial eta squared = .072. Post-hoc comparisons using Bonferroni correction, shown in Table 5-4, indicated the mean score for the group that posted and received a favorite was significantly greater than the mean score for the group that observed. Table 5-4 displays the unadjusted means for the Social Media Interaction

groups' (post and receive feedback vs. post without feedback vs. observe) sense of community scores and adjusted mean after controlling for pre-exposure interest, pre-exposure knowledge and attitude dissimilarity.

Table 5-4: The Social Media Interaction groups' unadjusted means for post-exposure sense of community and adjusted means, after controlling for pre-exposure knowledge, pre-exposure interest and attitude dissimilarity.

						Bonferroni Comparisons	
Group	*n*	Unadjusted Mean	*SD*	Adjusted Mean	Std. Error	Post and receive feedback	Post without feedback
Post and receive feedback	40	4.16	.99	4.20	.16		
Post without feedback	42	4.05	1.05	4.04	.16	1.00	
Observe	40	3.59	1.02	3.55	.16	.02	.08

Sense of Community measures group membership, needs fulfillment, influence and emotional connection. A Pearson product-moment correlation coefficient was used to test the construct's relationship to cognitive elaboration, anticipatory discussion elaboration and reflective discussion elaboration. Sense of Community was significantly correlated to cognitive elaboration, $r = .29$, $n = 122$, $p < .01$. Sense of Community was also correlated to anticipatory discussion elaboration, $r = .18$, $n = 122$, $p < .05$, and reflective discussion elaboration, $r = .29$, $n = 122$, $p < .01$.

RQ3.

A rigorous process open and inductive coding of thought-listing data that included identifying coding units and categorizing each unit resulted in 13 codes. From these codes, five overarching themes emerged: Emotions (My Emotion and Their Emotion), Metacognition (Knowledge Level and Question), Narratives (My Story and Their Story), Media and

Evaluations. All of the codes had sufficient alphas enabling tentative conclusions, besides My Future, which was difficult to code because it overlapped with the other judgment categories. The coding guide is provided in Appendix E. Table 5-5 displays each theme, the codes that belong in each theme and the inter-rater agreement based on two raters' coding of a random sample of 10 percent of participants' data via Krippendorff's alpha (Krippendorff, 2004). After inter-reliability was checked and disagreement was reconciled, the remaining data were coded.

Table 5-5: Thirteen codes emerged from the thought-listing data and were merged into five overarching themes: Emotion, Metacognition, Narratives, Media and Judgments.

Code	Description	Krippendorff's αs
Emotion		
My Emotion	My emotions, moods and feelings	0.755
Their Emotion	Someone else's emotions, moods and feelings	0.939
Metacognition		
Knowledge Level	How much I know or do not know	0.662
Question	What I want to know	0.939
Narratives		
My Story	My personal experiences	0.858
Their Story	Someone else's personal experiences	0.969
Judgments		
My Future	Future implications for my life	0.394
Their Future	Future implications for someone else's life	0.825
Evaluating Arguments	Assessing the worth of someone else's argument	0.720
Action	What should be done regarding the topic	0.842
Media		
General Media	Everyday use of media and technology	1.000
Session Media	Media and technology use during the session	0.891
Posting	Self-presentation on social media	0.907

My Emotion

Affect is believed to be an influential part of political decision-making (Marcus, Neuman, & MacKuen, 2000) and persuasion (Petty & Briñol, 2015). Participants frequently shared cognitions about their own affect and emotions, but only emotional words were included in the code My Emotion. Affect is considered to be a broader construct than emotion; while all emotions are affective, but not all affect is emotional (Ortony, Clore, & Foss, 1987). Any opinion with positive or negative valence would be considered affective. However, emotion words are distinctly feeling states (Ortony et al., 1987). Participants in the study used explicit emotional language to label their own emotions, moods and feelings.

Emotion words were coded based on literature on emotional expressiveness (Bantum & Owen, 2009; Ortony et al., 1987). Ortony, Clore and Foss (1987) write that emotional words include internal or mental conditions, rather than physical or external ones (Ortony et al., 1987). For instance, they write that words like "abandoned" are not affective (Ortony et al., 1987). While a person can feel a number of emotions after being abandoned (such as resentment or fear), being abandoned is not necessarily an emotional experience (Ortony et al., 1987). A similar approach when coding for emotion in this study. Even when participants used the words "I feel," the coding unit was only considered an example of emotion when affective words followed. For instance, one participant wrote, "I feel like they're just saying that it is affordable housing and affordable high rises just so that the locals don't get politically involved." While this cognition may have been intertwined with emotions that resulted from feeling manipulated (such as anger), it's difficult to know the extent to which the thought has triggered these kinds of feelings. Therefore, this cognition was not coded with My Emotion.

Ortony and colleagues (1987) found that emotion words often had cognitive and behavioral connotations (Ortony et al., 1987). For example, in this study, P112 wrote, "but at some points I did get a bit confused." While the word "confused" primarily deals with "an aspect of knowing," it also has emotional undercurrents (Ortony et al., 1987). Similarly, the words "bored" and "curious" are rooted in a cognitive condition, but also have traces of affect; therefore, they were included in the My Emotion code (Ortony et al., 1987). Emotion words intertwined with behaviors were also included in this code, which Ortony et al. (Ortony et al., 1987) described as "affective-behavioral conditions." For instance, feeling "tired" was coded in the My Emotion category. Feeling tired is a physiological state, but it was included based on literature that arousal is a key dimension in the construct of emotion, along with pleasure and dominance (Mehrabian, 1996).

Ortony and colleagues (Ortony et al., 1987) found that emotion words generally described states (e.g., angry), rather than traits (e.g., aggressive). Coding units related to My Emotion primarily described states experienced during the mediated experience, such as "worried," "annoyed" or "happy," rather than more permanent traits. However, this was likely due to the wording of the thought-listing item, which suggested experimenters were only interested in thoughts experienced during the experimental session. The thought-listing item began with the following sentence: "We are interested in everything that went through your mind while watching the broadcast and viewing the social media feed." Therefore, the fact that many emotion words described states rather than traits may be a consequence of the thought-listing protocol, rather than the type of affect experienced.

The coding process did not include labeling what type of emotion was expressed. However, speaking anecdotally, emotions were negative, positive and neutral. Often, participants

expressed feeling emotions empathetically, after considering how others would be affected by the development in Kakaʻako. For example, P3 wrote that he would not be affected by the news story, but he considered the implications for people who lived in a homeless encampment in the neighborhood. He responded to a modified tweet collected from the Twitter API— "I feel so bad when I drive pass [sic] the back roads over at Kakaako & see the lil kids coming out of the tents, playing"— by writing:

> It is true there are little kids that do come out of tents and it is sad to think about because they live in the United States but their lifestyle seems to be something closer the [sic] a 3rd world country lifestyle.

P3 suggests people should be "thinking about the homeless" when deliberating development in Kakaʻako, but they are not. In other words, P3 expressed empathy, which led to cognitive reasoning about relevant information. Empathy in political discourse has been defined as being affected by others' emotional states and situations (Morrell, 2010). According to Morrell (2010), deliberative theorist Jürgen Habermas felt empathy was an antecedent for a cognitive process of "ideal role taking" (Habermas, 1989; 1991; Pallant, 2013). Ideal role taking refers to citizens putting themselves in the position of all people who could be influenced by the issue under consideration, giving other citizens' interests equal weight to their own (Habermas, 1990; McCarthy, 1992, p. 54). McCarthy (1992) writes that Habermas felt role taking was critical to discourse ethics because it enabled people to engage in discussion not to manipulate decision-making, but to be open and sensitive to all the positions of all stakeholders in hopes of furthering the "common interest."

While Habermas acknowledged the affective dimensions of empathy, Morrell writes that "the primary reason empathy is important is that it allows the cognitive function of ideal role

taking, without which participants could never guarantee that the moral norm under discussion is acceptable to all" (2010, p. 77) . In other words, Morrell (2010) felt Habermas believed empathy had only a limited role as a precursor to the cognitive process of ideal role taking.

However, the coding of the thought-listing data suggest that emotions play multiple roles in deliberation beyond empathy for the situations of others. Participants also reported feeling emotions toward written arguments on the social media feed. In other words, their emotions were salient inputs into their deliberative process. After being exposed to mostly supportive tweets, P119 reported feeling vulnerable to persuasion, writing, "While watching this I went through a lot of emotions. I felt as if I was being persuaded when each person was talking almost as if I were one of the people they were trying to appeal to." P119's deliberative process was colored by "a lot of emotions" as she navigated the torrent of persuasive arguments in the social media feed. Rather than play a subconscious role in her deliberative process, her comments suggest that she was aware of her emotions as she was reading and listening to various messages.

P7 also viewed mostly supportive tweets and reported feeling "frustrated" during the session:

> As I read what other people felt about the development of Kakaako it made me slightly upset. Every time developers talk about affordable housing I can't help but wonder what is considered affordable, 1 million dollars is not considered affordable. Yet that is what they consider affordable.

Interestingly, P7 expressed an emotional reaction to the extent to which developers expressed sincerity, which Dahlberg (2004), a scholar who studies Habermas's work, considers to be one of six prerequisites for the public sphere. The other prerequisites include reasoned exchange of problematic validity claims, reflexivity, ideal role taking, formal inclusion and

discursive equality, and autonomy (Dahlberg, 2004). The anecdote in P7's data suggests the complex intertwining between reasoning and emotion that occurs in the minds of deliberating citizens.

Participants were not only aware of the emotions they felt toward other actors, they were also cognizant of feelings toward the medium itself. As one example, participants reported that the broadcast was "boring." For instance, P49 wrote, "Honestly the first thing I thought about watching this is they are not very easy to watch or hear. It was very boring and not as interesting as I thought it would be." While there is no way of knowing to what extent P49's feeling toward the broadcast spilled into his interest in the news topic of Kaka'ako development, it is interesting to note that his interest in the news topic declined after watching the PBS Insights show. Prior research suggests that the increased availability of hard news content does not increase political knowledge and turnout for everyone because people who are avid news consumers will capitalize on the wealth of political information, while people who prefer entertainment will veer away from news and become less likely to increase political knowledge and vote (Prior, 2005). In other words, the increasing availability of media content does not always translate to an increase in political and civic issues, depending on the person. As shown in the small anecdote above, exposure to "boring" hard news content may also coincide with a decline in civic interest, although it's unclear how common this phenomenon might be.

Participants not only expressed emotions toward consuming media content, but also producing messages. For instance, P1 was among several participants who reported feeling anxious about contributing to the social media feed. Frequently, the reason for concern was a perceived lack of knowledge about the issue or a lack of experience with Twitter. P1 wrote,

> At first I was a little worried, cause [sic] I haven't used Twitter a great deal nor do I know much about Kaka'ako's plans for development. However I got more comfortable and occasionally posted my thoughts. There were times when I couldn't really find the "right way" to say what I was thinking and I ended up giving up cause I wanted to pay attention to what was being shown in the video.

Being asked to post using the social watching tool made the participant feel "worried," which is an emotional and cognitive response, according to Ortony et al. (1987). P1 struggled to finding the "right" words while crafting tweets and attending to the broadcast and finally abandoned her attempt to participate in the discussion. While there is no way of knowing whether her multi-tasking experience and her feelings toward the issue were related, it is important to note that the importance of the issue to her and her certainty about her attitude declined during the session (as measured in pre- and post-exposure surveys). While juggling the dual responsibilities of posting and watching, she was aware of the emotional response she had to the social watching task. Emotion (operationalized as anxiety related to using technology, or "computer anxiety") has been shown to play a role in people's likelihood to accept technology (Venkatesh, 2000). While it's unclear whether emotions triggered by the process of communicating through social media transfers to the topic of discussion, this would be a fruitful area of future research.

Participants were aware of their emotions as they empathized with the perspectives of others being impacted by the issue, read persuasive arguments and used the technology. The finding that participants were aware of their emotions during deliberation is in line with research about the role of emotions in persuasion based on the Elaboration Likelihood Model, which suggests that emotion can play multiple roles in changing attitudes (Petty & Briñol, 2015).

Emotion can be a simple cue (feeling fear may lead to someone to dislike the subject of the persuasive message), predictor of how much a person elaborates on an issue (feeling fear may increase elaboration), an argument (fear may be scrutinized for its cause) or a source of bias (feeling fear may make other fear-related thoughts more salient) (Petty & Briñol, 2015). While this study makes no claims about which role emotion plays during social watching, the salience of emotion during social watching suggests it has some influence on the deliberative process.

Their Emotion

The "Their Emotion" code is similar to "My Emotion," except participants explicitly mentioned *someone else's* emotion, mood and feeling, rather than their *own*. Whereas the previous code included personal internal feeling states, cognitions in this code referred to external feeling states described as others' emotions. In some cases, participants took note of how different stakeholders were feeling in objective, distant terms and did not internalize these emotions at all. For instance, P84 suggested that critics and proponents of the high rises in Kaka'ako gather to share their perspectives and find common ground:

> There should be a city meeting or holding where both sides can meet, share their views and plans, and then compromise their issues. Obviously some people will still be stubborn and unhappy, but if more people understood then it will radiate onto the others in due time.

The participant considered that some participants would still be "unhappy" but makes short shrift of the emotion in consideration of the greater good over the long term. The description is primarily cognitive and closely resembles Habermas's ideal role-taking in discourses of argumentation, where people have an "ability or predisposition to feel *with* others, which is not the same as feeling *for* them" (Morrell, 2010). In other words, having the affective

ability or predisposition of empathy enables consideration of all viewpoints to occur, rather than being overcome with emotions for one individual or group (Morrell, 2010).

The thought-listing data suggest that the ideal of well-reasoned process of role-taking does not always happen in practice. Not everyone approached emotions on the social media feed and broadcast empathetically. Some participants had strong opposite affective reactions to the emotions they witnessed. For instance, P44 viewed mostly supportive tweets, and the emotions expressed on the social media feed repelled her:

> Some people's enthusiasm for the building of the high-rise made me somewhat annoyed.. I am sure that if tourists and 'foreigners' took over my land and then years later decided that a nice apartment building with non-native stores at the bottom was a good idea they would hear some choice words from me.

While the data do not provide conclusive evidence about whether P44's attitude was directly related to her emotional reaction to the valence on the social media feed, it is interesting to note that her attitude toward development in Kaka'ako declined by three points from neutral (4) to the extremely unfavorable (1), which was the most negative position available in the 7-point scale. In this case, her annoyance was linked to an empathetic cognition for Native Hawaiians, rather than empathy for social media users expressing unfettered "enthusiasm." The prevalence of the Their Emotion code suggests that people were considering other citizens' mood, feelings and emotion. They factored others' emotions into their deliberation process while using social media and watching a civic broadcast, although these emotions had varying persuasive power, depending on the extent to which these perspectives aligned with the participant's own interests and experiences.

Metacognition

Knowledge level

Metacognition— or cognition about one's own cognition— is a popular research topic in cognitive psychology, particularly regarding memory. Metacognition is related to metamemory, Feeling of Knowing and Judgment of Learning (Veenman, Van Hout-Wolters, & Afflerbach, 2006). Metamemory is defined as a person's "knowledge of and awareness of memories" (Flavell & Wellman, 1975), while Feeling of Knowing refers to a participant's sense that they will be able to recall a memory (Metcalfe, 1986). Judgments of Learning are evaluations of how much a person thinks he or she learned, or assessments of how well the person can recall information when given a hint (Son & Metcalfe, 2005).

Participants frequently remarked on how much or how little they felt they knew about development in Kaka'ako. Participants had varying degrees of "previous knowledge" about the topic (P44), with most participants saying they had no to "minimal knowledge" (P95), although a few said they had "previous knowledge regarding the issue" (P105). Taking a mental inventory of what was known or not known about the topic or the tool, P34 started her thought-listing response with the following:

> Well, when I first watched the broadcast, I have no clue who those people are in the video (I don't know any of their names). I also don't have a clue what Kakaako has been up to and the past few years other than the large number of homeless people there by the waterfront park. I'm also aware of one of the condos that was prepared to be built by 2017 since one of my family member decides to rent/live there once it's been built.

Her metacognition about how much she knew suggests she was having "second-order thoughts," or thoughts about her thoughts and thought processes (Petty, Brinol, Tormala, &

Wegener, 2007). She didn't receive a favorite to her posts during the session, and interestingly her perception of her own knowledge of construction of high-rise condominiums in the area decreased from moderate knowledge before watching the broadcast (3) to low knowledge after watching the broadcast (2), despite being related to someone who planned to move into the neighborhood, as described in her thought-listing data. She viewed social media posts that opposed construction in the area, and her attitude toward development in Kaka'ako also declined by one point, shifting from neutral (4) to somewhat unfavorable (3). It's not clear how much her random assignment to a Social Media Interaction group influenced her metacognition, although it is interesting to note that when asked how she felt when she received a favorite or not, she noted that she did not receive a favorite, saying, "I WOULD have feel A LOT better. That means someone understands what I meant and agree with it."

Some participants reflected on their experience processing the information, writing that they had "difficulty understanding" (P82) or felt "confused" (P122). Several felt they were exposed to diverse opinions on the social media feed and people who were more knowledgeable about the topic than they were, and in some cases these "upward comparisons" improved their confidence about their own knowledge (Collins, 1996). Research on social comparison theory suggests that self-comparisons to someone with more knowledge can lead a person to see interpersonal similarities, enhancing self-evaluations and increasing motivation to improve (Collins, 1996). In the following quote, metacognition related to self-evaluations of knowledge are clear (P45):

> Before watching the broadcast, I had no idea about the development happening in Kakaako. Many people who posted tweets seemed like they somewhat all have knowledge about what is happening in Kakaako. By looking through other the posts by

other people, I could gain a lot of information, pros and cons of development, and even information about nice places in kakaako. I personally think social media is useful in a way of learning current issues and sharing thoughts with different people.

Similar to P45, P96 reported in her thought-listing that she became more "aware" of issues related to the issue:

> While watching the broadcast I did not have a lot of knowledge about the Kaka'ako development process within the community … Overall I think the broadcast was helpful to me because now I am aware of what is going on in the area, how it's going to be a new up and coming area and could it affect locals and Waikiki another major tourist destination.

Some participants felt their understanding improved so much they could "educate someone else" (P122). The metacognition could be described as metamemories (knowledge about one's own memory), Feeling of Knowing (a sense of what is remembered or not) and Judgment of Learning (a sense of what has been learned) (Veenman et al., 2006). Many participants said they felt more informed after viewing the social media feed and watching the broadcast, although it's unclear how long the boost in confidence would last or whether it would lead them to act on their new perceived knowledge.

The thought-listing data suggests self-knowledge about how much one knows about the issue seemed to play an important role in deliberation during social watching, although more research in this area needs to be conducted to determine whether their metacognition influenced behavior. Kaid, McKinney and Tedesco (2007) advanced the theory of political information efficacy, in which they propose that a voter's confidence in their own political knowledge increases their likelihood to vote. In a study, they found that young citizens have lower political

information efficacy, and exposure to campaign messages increases their confidence in their knowledge and their likelihood to cast a ballot (Kaid et al., 2007). Research on the influence of second screening (Gil de Zúñiga et al., 2015) and dual screening (Vaccari et al., 2015) suggest that monitoring a broadcast via social media tends to increase political participation. A potential area of future research would be exploring whether social watching increases confidence in political knowledge and whether the newfound efficacy plays a role in increasing political participation.

Question

Many participants wanted to know more. When asked to list their thoughts, they listed questions coursing through their mind during the session. The code comprised comments about what participants "wished" would have covered (P13) or the types of sources they "wished" would have been available (P22). At times, participants wanted very specific information. One participant wanted "a picture of what Kaka'ako looks like now and what they want it to look like in the future" (P31), while another had hoped for "pictures or maps that acted as a guideline on what they were talking about" (P25). Sometimes participants even went so far as to say they would have called in questions if the broadcast was live. For instance, P38 wrote, "There were a lot of questions I wish that I could've asked to the panel as well."

Occasionally, participants expressed a desire to know more about the future implications of the plan for development, often picking up on salient issues that went unanswered during the broadcasts, suggesting broad processing of the information. For instance, P27 asked a series of questions when asked to share what he thought while social watching:

> Who is going to buy the units? Are they rich people who will use it as a vacation home and be rarely there or are they people who will be a part of the community. What about all the shops there now that are frequented by locals, where will they go?

Some participants felt unsatisfied with amount of information provided in the broadcast and wanted to know more about the costs of improving infrastructure and its impact on local taxpayers, the potential impact of the development on homeless people who live in the area and whether the neighborhood will provide affordable housing for middle class families, as one of the panelists suggested.

Other participants were so curious that they felt inspired to research to "do some research about this topic later on to see the developments and whether it is feasible" (P18). Dual processing literature suggest that people attempt to hold accurate judgments, and when people have the motivation and ability to think about an issue, they will try to resolve their questions through more careful cognitive processing (Petty & Briñol, 2015). Questioning a text—in this case, the broadcast and the social media feed—has been shown to benefit learning (King, 1992). King (1992) found that self-questioning was a more effective strategy for long-term retention compared to summarizing information. The thought-listing data suggests participants engaged in this metacognitive activity during social watching.

Narratives

My Story

Participants often recounted life stories from their personal experiences. These thoughts were labeled with the code My Story. As Papacharissi (2014) writes, "Telling stories, about ourselves and others, has always formed the core of our socializing habitus." Indeed, social

watchers' cognitions surrounding the event included vivid stories about themselves and others. These narratives generally were told in the past or present tense.

Participants sometimes recounted their experiences in Kaka'ako and, when they didn't have memories from the area, they shared stories from their hometowns. They told stories of gentrification and fast-paced development in areas such as Santa Barbara, Maui and San Francisco. For instance, P38 wrote that he associated the issue to his experiences growing up on the California coast:

> I'm from Santa Barbara, and we've recently been having a similar problem with regards to land development and affordable housing. We've also recently been having a lot of trouble with housing costs rising and neighborhoods being destroyed because of people buying second homes to use as vacation rentals. Since those issues were the ones I have experience with, I tried to relate them to the issue here and see how it was discussed. I'm sure I would feel very differently or have different concerns if I had been raised here and been more familiar with the subject before watching the clip.

P38 displayed high cognitive elaboration of the topic, which has been previously operationalized as associating news to prior experiences (Eveland & Thomson, 2006). Similarly, P68 related what she saw to her experiences on Maui, writing,

> As i was first watching i was very unsure about how i felt about development in Kaka'ako because i haven't lived here long enough to know a lot about the issue. However, i've seen similar issues on my home in Maui.

Another participant (P108) was reminded of San Francisco, whose allure comes with a cost:

> What I was thinking about was from personal experience living in San Francisco. There are a lot of new modern high rise condos and apartments being built in the middle of the city. These buildings are extremely expensive due to the convenience that surrounds it along with the price people are willing to pay.

Sometimes participants recalled specific incidences in Kakaʻako. For instance, P91 shared a story about attending an art and food festival in the gritty neighborhood, which has been the epicenter for street art, food trucks and a hipster scene. The trendy scene sits adjacent to one of the largest homeless encampments in the state, which P91experienced firsthand:

> Speaking form [sic] experience, the homeless did make several problems. Their tents were very cluttered and were right by the parking meter. So when I tried to park their [sic] for the night market, I was very skeptical to leave my car by them.

His memories triangulate his cognitive elaboration responses on the survey, where he strongly agreed with the statement that he associated the broadcast and social media to his personal experiences. He also agreed that he thought about how the information associated to his pre-existing knowledge. As the prevalence of this code suggests, social watchers associated their own personal experience in vivid detail as they tried to make sense of the information from the broadcast and social media feed.

Their Story

Participants also reported other people's personal experiences, not just their own. Thoughts were coded as being Their Story if they seemed to recall what someone else's lived experience. Participants remembered stories from the social media feed and from friends, family and acquaintances. For example, P84 shared a story about a conversation she had with another

commuter while riding on the bus, comparing the woman to one of the panelists on the PBS Insights broadcast:

> What first went through my mind was how I heard this local Hawaiian lady on the bus coming back from Ala Moana this past weekend talking about this. She was very passionate and her stance mostly resembled that of the woman from the interview I just watched. She was upset how they were developing Kaka'ako … I understand the point of view in which the locals are unhappy with the increasingly fast pace of the development of Kaka'ako and I agree that most citizens will not be able to afford these high luxury condos.

Research on narrative persuasion suggests that being absorbed in a story can suspend disbelief in ways that more straightforward persuasive appeals do not (Slater & Rouner, 2002). The fact that participants incorporated others' personal experiences and their own narratives into their cognitive elaboration demonstrates how stories can play a powerful role in information processing.

Judgments

My Future

Participants frequently considered the future implications of the issue on their lives. These cognitions were coded with My Future. Many participants reported thinking about how the news story would impact them or their families, in what persuasion researchers call "self-referencing" (Johnson, 1994; Petty, Cacioppo, & Goldman, 1981). According to the Elaboration Likelihood Model, self-referencing is the process of associating incoming information with future goals, thereby increasing the perceived relevance of the information (Petty & Cacioppo, 1986). Perceiving high personal relevance is expected to increase scrutiny of a message. When

messages are processed through this central route, attitudes are expected to be more resilient, long-lasting and predictive of behavior (Petty & Cacioppo, 1986).

The thought-listing data suggested that participants considered the consequences of Kakaʻako development to the participants' own lives. As one example, P51 wrote,

> But still, after watching this video, I am concerned with the pricing of living there. It does affect me because I will be a homeowner within the next five years so I'm imagining and looking into possible neighborhoods and living situations.

P51 was elaborating on how property prices in the neighborhood of Kakaʻako would influence her goal of buying a home. Triangulating her response with her survey data, P51 also agreed that she associated the news story to her personal experiences and prior knowledge.

However, not all participants felt the issue was relevant to their lives. P3 reflected on its germaneness and concluded it would have no bearing on his future, saying, "I guess I did not really care because I was not born and raised here and probably by the time Kakaako's construction would be complete I would be gone so it would not affect me."

P3 only "agreed somewhat" that he tried to relate what he saw to his personal experiences. When asked whether the way Kakaʻako is being developed was personally important to him, he reported he was "Neutral." Based on this triangulation between the quantitative and qualitative data, it seems the perceived lack of relevance may have spilled into the degree to which he elaborated on the story. Regardless of whether participants ultimately decided the news story was pertinent to their future goals, their consideration of its implications suggests that the social watchers were sensitized to the potential implications of the story on their lives.

Their Future

Participants not only considered whether the news story was important to their own future, they also thought whether it was important to others' future goals. They considered how the development would impact people living in a homeless encampment, tourists visiting Hawai‘i, small business owners, people moving into the high-rises and locals who wanted to preserve their way of life. They generated rather specific imaginings and expressions of empathy for people who could potentially be impacted by development in Kaka‘ako. For example, P98 responded to a comment made by a panelist who argued that big development was driving out "small businesses that made Kaka‘ako." The participant writes, "I remember something being about how small and local stores would not benefit from the production of Kaka'ako. This is very disappointing to hear, local stores are owned by the people who live in the community."

While P98 ruminated about how small business owners would be affected by the entry of upscale mainland companies into an area once dominated by mom-and-pop shops, other participants were concerned with how local infrastructure would be impacted by the anticipated population boom. The following quote was coded as My Future and Their Future because the participant (P49) considered how development would necessitate improving the sewer system, which could place a financial burden on all taxpayers, including himself, writing, "My question is when they were talking about the sewer system that everyone needs to pay not just the community, does that mean our taxes going higher than it already is?"

Thoughts that were concerned with how future development would influence the surrounding community often fell into both the My Future and Their Future categories, even if no specific individual or group was named, because the cognitions implied consideration of the self and others. In these cases, the participant seemed to be thinking about the universal good,

rather than any particular person's perspective. Just as the Their Emotion and Their Story codes connoted empathy, the prevalence of the Their Future category suggests participants were aware of others' states and situations. It also implied that participants' information processing involved seeing the situation from others' perspectives and imaging what the development would mean for citizens beyond themselves.

Evaluating Arguments

Participants frequently judged *others'* stances, ideas, plans or logic. To be coded in this category, participants must have critiqued someone else's reasoning, not their own. Thoughts in this category sounded like agreement or disagreement (e.g., "It makes sense to me*"*). They often used words such as "I agree," "I understand" or "I don't think." In general, many participants went beyond regurgitating arguments from the broadcast and social media feed, and critically examined the intent behind and accuracy of the messages.

Sometimes they felt panelists and social media users "did a good job addressing the problem" (P96), while in other cases they felt people "stuck too much" to a particular stance rather than "coming at it from different angles." Interestingly, the finding that participants critically scrutinized arguments panelists and social media users aligns with a previous study on social watching during a debate between two U.S. Senate candidates in Hawaii, which found that the most pervasive type of recall code was "candidate tactics" or analysis of the debating politicians' logic and rhetorical strategies during the debate (Maruyama et al., 2014).

The participants critically assessed statements made on the mock Twitter feed. For instance, P21 writes, "Some of the posts on social media seems like a good argument. For example, with more development and people living in Kakaako, it will cause more traffic."

This participant's critical evaluation of social media aligns with research that suggests social media can provide a "sprawling public sphere" where people can encounter diverse opinions and weigh the merits of arguments (Semaan et al., 2014; 2015). While participants' thoughts registered strong undercurrents of emotion, as demonstrated by the My Emotion and Their Emotion codes, the data also suggest that cognitive reasoning shaped their view of the issue.

At least one participant (P114) who viewed posts that mostly opposed development said she was "skeptical" of the argument that high rises in the Honolulu neighborhood of Kaka'ako will be affordable, writing, "The high rises are supposed to be meant to be affordable, but I'm kind of skeptical about it because the location is ideal. Kaka'ako is not that far from town, and maybe buses pass by that area."

To make her case, she associated the information from the broadcast to her prior knowledge about Kaka'ako's urban location and access to public transportation. While there is no way of knowing whether her evaluative stance was related to her level of elaboration, it is interesting to note that she began her response by describing her childhood memories in the neighborhood. A participant (P91) who viewed mostly supportive posts about Kaka'ako development echoed P114's concerns about affordability of residential properties in the area, writing, "Although they mentioned that they would build affordable housing, I don't think that would be a possibility. That is because that area is near many sites in town and is at an expensive location."

Interestingly, this participant's opinion contradicted the majority attitude on the social media feed he viewed using his pre-existing knowledge about Kaka'ako's location and cost of living as evidence. The anecdotal evidence of critical thinking provides a contrast to the

quantitative results for Hypothesis 2b, which suggested that participants conform to the majority opinion on the social media feed. Participants who viewed tweets that opposed development in Kakaʻako were significantly less favorable toward construction in the area than participants who viewed posts that were supportive or balanced. The qualitative data suggests some people doubted the information they learned in the broadcast and social media feed, while others agreed.

For instance, P23 evaluated the arguments made by the sole dissenting voice on the PBS Insights broadcast, Donna Wong, who felt the development would have negative implications for Honolulu.

> I was thinking to myself that there is always one person who has to ask a bunch of questions that go against the main view, but at the same time she made sense in what she asked. The sewers would have to be re-sized to deal with the overflow, traffic would have to be rerouted, grocery stores would have to be established, and so on. These were very valid points.

In this quote, he evaluated the validity of Wong's arguments ("very valid" and "made sense") and her intentions ("has to ask questions that go against the main view"). Just as the My Emotion and Their Emotion codes emphasized the affective dimensions of political deliberation during social watching, the frequency of this code suggests that emotion is intertwined with cognitive reasoning about the logic of people's positions and arguments.

Action

Participants also thought about actions that should be taken in Kakaʻako. These thoughts were future-oriented in nature, with participants evaluating and advancing possible solutions. Whereas the My Future and Their Future codes were focused on future implications given a particular plan, the Action code was focused on prescribing future action. Thoughts ranged from

letting the development proceed as planned to making the decision-making process more open to slowing or stopping the influx of high-rise condominiums. The codes of My Action and Evaluating Arguments were double-coded whenever participants evaluated others' proposed plans for the neighborhood.

For example, P91 criticized the state's plan for further development and put into question whether the area could support an influx of thousands of residents in the next few years and maintain affordable housing in an increasingly upscale neighborhood, writing, "I don't think that the development of Kakaako should be increased too much because that area is already decently populated."

P21 felt more "planning and research*"* should be conducted. Similarly, P39 suggested the environmental impact of construction should be further explored, writing, "They need to figure out the impacts there might be if the large crowd of people are trying to move toward kaka'ako."

Participants also suggested opening up the decision-making process for more citizen input. P84 wrote, "I feel as if the developmentors [sic] should call for the views of the people in the city, and find a compromise where they can develop according to the peoIple's [sic] needs."

As these examples demonstrate, participants' elaboration extended beyond merely understanding a plan of action. They also scrutinized them and came up with their own solutions, demonstrating a higher form of reasoning than mere recall and comprehension (Krathwohl, 2002).

Media

Session Media

Participants not only evaluated arguments and plans of action, they also evaluated the mediated experience itself. Thoughts that commented on the broadcast, social media or interface

were coded with Session Media. The pervasiveness of these thoughts suggests participants were hyper-aware of the media they were being exposed to, which is not extremely surprising given the mediated environment of the experiment.

Some participants recalled specific posts from the social media feed, recalling in great detail the message characteristics that led to cognitive elaboration and affective responses. One fairly long response is shown in context to demonstrate how particular message attributes influenced information processing and emotion for P24:

> Reading tweets while watching the show definitely increased my level of engagement - reading tweets bordering on social activism (such as those about the homeless people) got me fired up. Other tweets (such as those with excessive hashtags or about random, inconsequential topics) just resulted in distraction and/or irritation.

P24 also remembered when PBS Insights panelist Tony Ching, the executive director of the agency that oversees development in the neighborhood, started the panel discussion by promoting an affordable high-rise in Kaka‘ako. A pre-scripted tweet followed his comments: “Right off the bat, Ching is plugging an affordable rental high-rise. But it's just one high rise, compared to lots of luxury condos.” This post emerged as a distinct memory in P24’s thought-listing data:

> One influential point that was brought up in a tweet was the ratio of ‘affordable’ housing to luxury condos. Ching opened up his pitch with the great plans to establish affordable housing, in an obvious attempt to swing the masses watching the show to the pro-development side off the bat. The tweet opened my eyes to the possible sales tactic being used on the audience, leading me to think much more critically about what the pro-developer side was saying.

These memories from the social watching experiences exemplify how a single post can remain salient in a user's memory and color their attitude toward a civic topic. However, while it was possible to draw relationships between specific social media posts and participants' memories, it was more common for participants to report an overall impression of the sentiment on the social media feed. They seemed to aggregate the opinions to arrive at an overall "temperature" reading of the opinions expressed in the posts.

For example, P45 in the support condition wrote she was able to glean the "pros and cons of development*."* In other words, despite other users' overall lean toward supporting development, she felt satisfied with the distribution of opinions on the feed. Other participants were not so generous with their appraisal of balance. For instance, P8 in the Balanced condition felt the posts on the feed were favorable, writing, "i thought it needed a little more of the views on the good and bad side."

Participants noted not only the distribution of support and opposition on the feed, but also the tone of the social media and broadcast. Participants often used the word "boring" to describe the panel discussion, and these units were double-coded with My Emotion and Session Media. For instance, P97 wrote, "The broadcast was also insanely boring because the host or the interviewer tried to keep the broadcast as plain as possible and didn't really care about how each person answered."

P65 echoed the sentiment, saying, "It was hard staying focused on what the people were talking about because I didn't know much about the topic so it was pretty boring and just the way they were talking was pretty boring to me."

When the broadcast failed to keep participants' attention, they occasionally turned to the social media feed for arousal and to buoy their flagging interest. P107 writes, "I was mainly

bored. The ideas of what they are planning on doing is an interesting topic but I kept refreshing the feed due to the lack of entertainment."

Similarly, P49 wrote, "I was bored and saw that you could vote favorite multiple times."

Participants also thought about the tool itself. For instance, P105 was asked to watching the feed without posting, and she was "bothered" about refraining from self-expression. P105 wrote, "I was also bothered by the fact that I couldn't customize my profile as it was really boring to just sit and watch a bunch of anonymous profiles interact with each other."

However, another participant who was asked to observe (P61) felt differently. P61 reported social watching a few times per week, but only posts a few times per month. He wrote that he would like to see a similar interface on Twitter:

> I also believe that interface of the social media feed was really cool, and think that twitter, or some other social media sites should have the capability to watch a program while have a live stream of 'tweets' to interact with other people who are watching.

The Session Media code was one of the most diverse categories, ranging from memories of specific tweets, aggregated opinion on the social media feed, the tone on the broadcast and social media feed and the mock Twitter interface and functionality.

General Media

Not only did participants think about the media they viewed during the session, but they also reflected on their general media consumption in their thought-listing responses.

In the thought-listing data, participants provided rich insights into media use in their day-to-day lives and the potential of social media to augment a broadcast media viewing experience. Whereas the Session Media code applied to thoughts about the PBS Insights broadcast and mock

Twitter feed, the General Media code applied to reflections on media and news consumption outside of the study session.

One participant weighed the pros of using social media while viewing a broadcast with the cons (P113):

> The good thing about viewing social media while watching tv is that you are able to get a lot more facts and opinions than you ever would just watching the broadcast. While the people discussing on tv were focused on sewage and land capacity, there were some posts that also brought up traffic, education, and there were even some personal experiences shared that made me more interested in this issue than anything the broadcast brought up.

The young man (P113) who observed the social media feed without posting also generalized his observations of his own cognitive overload while monitoring a broadcast and social media feed:

> On the other hand, simultaneously viewing the broadcast and reading social media posts often resulted in missing a few details here and there. There were times where I find myself reading several postings and then finding out that I have missed a potentially huge point in the broadcast. Overall, while viewing the broadcast and social media posts about the same topic does allow a person to see more points of view, it also does require a person to divide his/her focus, which in certain cases can result in a more harm than good.

Participants also compared the tweets they usually see in their timelines to what they observed during the experiment. As P122 (an 18- to 20-year-old woman) writes, she was used to a more negative, casual, interactive and exclamatory Twitter style:

> Usually on social media, people have many different perspective, but it seemed as though Kaka'ako, did not have any arguments against it ... Many of my personal twitter tweets look like the one that one user wrote just now in the mock twitter of all caps of a fragment.

Another participant who reported being 21 to 29 years old (P82) also felt the tweets shown during the broadcast were out of the norm because they were more on-topic than she would normally expect, writing, "Most times when I tweet I just write about my mood, and what I'm doing. No one really tweeted about things other than Kakaako."

A participant who uses Twitter a few times per month and social watching about once per day (P45) ruminated on the benefits of using social media when learning about an unfamiliar topic:

> I personally think social media is useful in a way of learning current issues and sharing thoughts with different people. For example, I now at least know what is going on by tweeting with people. Social media is definitely helpful for people having hard time understanding professional debate/ discussion. I did not understand some parts of the broadcast, but by looking at other people's tweet, I was able to figure out what it was about.

She wasn't alone. Other participants reported appreciating the potential of using social network sites to augment a live viewing experience. However, like any technology, it is neither good, bad nor neutral. At least one participant (P90) said her own opinions shifted as she viewed the mock Twitter feed, acknowledging the conformity effects that can occur on social media beyond the confines of the conformity, writing, "While watching and viewing the comments, the

comment kind of altered my opinion for the issue, which is why people on social media these days have certain opinion without critically thinking about it."

Generally, people had mixed opinions about the potential of social media to augment or distract from the political deliberation process. While some participants believed the social media feed augmented the viewing experience, others felt the dual streams of information caused cognitive overload and felt vulnerable to conformity.

Posting

Self-presentation on social networking sites is complex, as social contexts "collide" (Marwick & boyd, 2011) and people actively navigate their imagined audiences to suit their deliberative goals (Semaan et al., 2015). A longitudinal interview and observational study suggests that politically interested individuals navigate to multiple social media platforms based on their motivations, the platform's affordances and a sense of the audience in each social space (Semaan et al., 2015).

In this study, the participants virtually parachuted into an unknown social context where technological affordances were not completely clear and their imagined audience was virtually unknown. Posts were anonymous because they appeared to come from pseudonyms. While participants arrived in groups and, therefore, were not completely anonymous to each other, they did not who was posting what.

Due to their concerns about unfamiliarity with the tool, the topic and their audience, some participants experienced anxiety related to posting comments. Just as young citizens with a lower sense of efficacy related to their political knowledge were less prone to vote (Kaid et al., 2007), the thought-listing data provide anecdotal evidence that participants who felt less knowledgeable about the topic were hesitant about making their opinions known on social media.

Participants reported being acutely aware of how they presented themselves, even within the semi-anonymous context. For instance, despite reporting she had "moderate knowledge" about development in Kakaʻako, P82 didn't have confidence when posting her thoughts:

> When watching the broadcast and live tweeting in a room with a bunch of other people, it kind of made me self-conscious about what I tweeted. Looking at other people's tweets put a lot of pressure on me to not "say anything stupid." I didn't really have any strong opinions about the Kakaako development. I just really didn't know what to say.

P82 explained that she typically tweets about her mood and everyday activities, and her survey response suggests she never posts about civic topics, which may explain her discomfort with posting in an interest-based conversation about a civic issue. Like many other young citizens, she did not seem comfortable posting about politics on the social networking site (Douglas et al., 2015).

Some participants confessed feeling anxiety after posting and before receive positive validation. For instance, one young woman (P100) reported feeling "worried about favorites or retweets and how many I would get" and anxiety about "people not enjoying my tweets or trying to argue with me." Like many other users, she said the refreshed the feed frequently to monitor how others were feeling about the topic, especially because she felt she "didn't know much about it." Much of her worry seemed to stem from a lack of perceived knowledge. As she puts it, "I didn't know if what I was saying was right or wrong or if someone would judge me for it."

People were intensely cognizant of the feedback they were receiving on the feed, even though they had no way of knowing its source. Since a "favorite" is a form of phatic communication, people were forced to make up explanations for why people liked their contributions. They felt the posts "made a good point" or had "entertainment value." Others felt

their audience "agreed" and shared "common interest" in the topic. But when their posts were favorited, and they couldn't explain why, participants tried to unpack what people were thinking. For instance, P117 was aware of how many favorites he was getting and wondered, "I was actually trying to figure out how I was getting Favorited, not only that but how does someone decide when they are going to favorite something."

Recent research by Grinberg, Dow, Adamic and Naaman (2016) suggests that Facebook users visit the site more often after posting even without notifications, possibly due to an expectation of feedback (Grinberg, Dow, Adamic, & Naaman, 2016). Contributors also selectively engaged with friends' content more after posting, and they engaged more often with friends who responded to their post more than friends who did not respond, suggesting reciprocation on the site (Grinberg, Dow, Adamic, & Naaman, 2016). In this study, anecdotes in the thought-listing data suggest several people were anticipating feedback, and survey data suggest people who received a favorite felt more connected to the social media feed. Moving on from the results, the next section presents a discussion on the influence of user-to-user interactivity (Social Media Interaction) and opinions on a civic topic displayed in the social media feed (Social Media Context).

CHAPTER 6 DISCUSSION

The Influence of Social Media Interaction and Social Media Context

This primary goal of this research project was to explore how user-to-user interactivity on social media and the context of interaction during social watching influences people's cognitive elaboration and attitudes toward a civic issue. The null hypotheses related to the influence of Social Media Interaction and Social Media Context on cognitive elaboration (1a, 1b and 1c) were not rejected. These results suggest that posting and receiving a favorite does not directly influence the way people associate new information to pre-existing knowledge and prior experiences. They also suggest that being exposed to posts mostly supportive, balanced or neutral toward a civic issue does not influence cognitive elaboration. Hypotheses H2a was not confirmed, suggesting that Social Media Interaction did not influence post-exposure attitudes toward development in Kaka'ako. In other words, posting and receiving a favorite did not make people more supportive or critical of development, even after controlling for their prior attitudes. A related hypothesis, H2c, was also not supported, meaning there was no interaction between Social Media Interaction and Social Media Context.

Results did support Hypothesis 2b, which suggested that Social Media Context influences post-exposure attitude extremity, after controlling for prior attitudes, prior knowledge and prior interest. The finding supports Maruyama et al.'s (2014) observation of possible conformity on the social media feed. It also supports another laboratory experiment on conformity during social watching by Cameron and Geidner (2014). Researchers have long believed conformity occurs offline and online even among strangers, especially when anonymity de-emphasizes a person's individual identity and promotes identification with the group (Festinger, Pepitone, & Newcomb, 1952; Postmes, Spears, & Lea, 1998). In this study, participants did not know who was who on

the feed, since all of the posts were attributed to pseudonyms. Because their pre-existing attitudes were controlled, the significant differences in post-exposure attitude represent changes in attitude that emerged during the 30-minute session. This study's contribution is a look into the possible mechanisms through which conformity could occur.

Research Questions 1a and 1b explored the extent to which Social Media Context influences Anticipatory Discussion Elaboration and Reflective Discussion Elaboration. Participants who viewed posts favorable toward development in Kakaʻako reported higher levels of thinking about their arguments in advance and reflecting on others' posts, the topic and how it relates to their personal experiences and prior knowledge—when compared to people who viewed posts that opposed changes in the neighborhood.

Why would people who viewed supportive posts elaborate more on discussion? The answer isn't clear; however, several of our studies suggest that social media users feel a general aversion to flaming on their social media feeds (Douglas et al., 2015; Semaan et al., 2015). One study found some Millenials are so averse to negativity, they do not seek out political discussion on social network sites and stumble upon content in their feeds instead (Douglas et al., 2015). For instance, in an interview I conducted in a previous study on how Millenials feel about using Facebook to seek political information, one explained (Douglas et al., 2015):

S37: People get into arguments over Facebook, too. I don't like to see that happen. Facebook isn't supposed to be for arguments.

Moderator: Oh, okay. What is Facebook supposed to be for?

S37: I think just connecting with. . . like. . . I think it's more of like a positive place. I don't think it should be as negative as some people on Facebook are.

Turning toward this particular study, situational norms (Postmes et al., 1998) and personal expectations of the platform may have influenced participants' willingness to cognitively engage with the material. While this study took no measure of participants' affect nor did it measure the level of affect in posts, posts in the support condition were generally more positive and optimistic than posts in the oppose condition, which were more negative and skeptical. Exposure to emotional content can make similar affective thoughts more accessible (2015). Viewing positive posts may have created associations to positive thoughts, which may have made people more comfortable while thinking about discussion; however, since this was not the focus of the study, the explanation is not addressed empirically.

Perhaps the most interesting finding emerged via Research Question 2. People who received a favorite felt a stronger sense of community on the social media feed compared to people who observed. Despite having only interacted semi-anonymously for 30 minutes, participants whose posts were favorited by the system felt a stronger sense of group membership, needs fulfillment, mutural influence and emotional connects—all of which comprise the construct Sense of Community (McMillan & Chavis, 1986).

The discovery that a fleeting phatic expression—nothing more than a click of a star icon— from a semi-anonymous source strengthened a sense of belonging on the feed seems to stretch even the most optimistic of hopes for a weak-tie's evolution into a strong tie (Granovetter, 1973). Very few participants knew each other by name. Yet receiving favorites on a Twitter feed was enough to develop a stronger sense of community compared to people who posted without getting feedback or observed the social media feed without posting.

What about the favorite led them to feel a sense of connection? An open-ended question asked, "How did you feel when your posts were favorited, if at all?" Just a few of the response from participants in the post and receive feedback group included:

- "Happy"
- "Good, because people liked what I was saying. I think people look for approval when they tweet"
- "I felt like I shared a common opinion that others either liked or agreed with"
- "Felt like my opinions mattered and that people related with me."
- "i felt good and like someone was actually listening to me and hearing me out"

Participants who did not realize they were favorited or had not been favorited responded with more ambivalence. Some even admitted to feeling disappointed.

- "Sad because no one faved any of my posts :("
- "If my posts were favored, I would feel connected because at least I know that someone out there agrees with me."
- "we werent on the same level"
- "It doesn't really effect me either way"
- "I didn't really mind, as long as I can get my thoughts out."

The data were not coded systematically, but the anecdotes provide valuable insight into why the group that received a favorite may have felt greater connection to the social media feed. Taken together, the results suggest that receiving positive feedback may instill a connection to the community, which in turn, is positively related to cognitive elaboration.

The proposed model shown in Figure 6-1 serves an analytical lens through which to interpret the findings from this research. The thick arrow represents a causal relationship between receiving a favorite and an increase in Sense of Community (McMillan & Chavis, 1986). The results suggest Social Media Interaction influenced Sense of Community, even after controlling for attitudinal dissimilarity between the user and others in the online group. In other words, group members whose posts received a favorite felt a stronger connection to the feed, even after controlling for their level of agreement with the people on the social media feed.

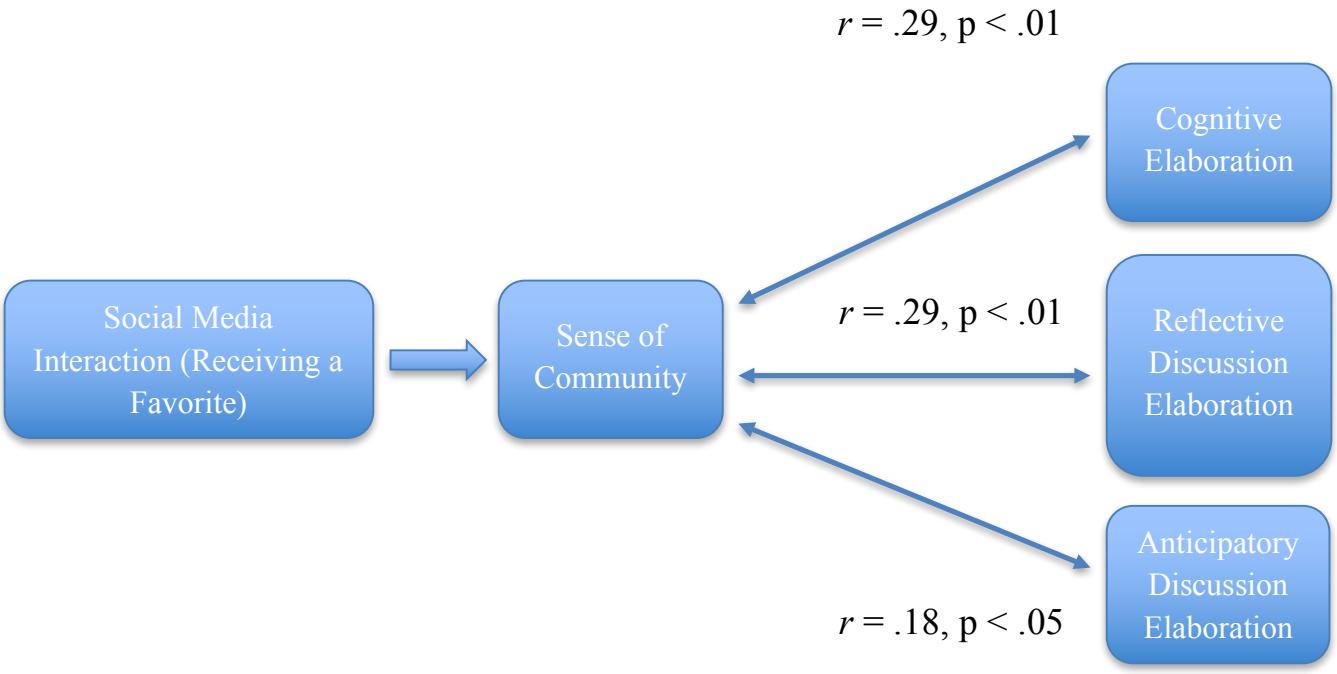

Figure 6-1: A proposed model for the influence of receiving social media feedback on a sense of community.

A Pearson-product moment correlation analysis found significant correlations between Sense of Community and three elaboration-related variables, which are visualized on the right side of Figure 6-1. Table 6-1 shows that people who felt a higher sense of community in the feed had significantly higher levels of trying to come up with good arguments (Anticipatory Discussion Elaboration), thinking about others' posts and the topic (Reflective Discussion

Elaboration) and reflecting on how the topic related to their personal experiences and prior knowledge (Cognitive Elaboration).

Table 6-1: Pearson product-moment correlations between self-reported measures of sense of community, cognitive elaboration, anticipatory discussion elaboration and reflective discussion elaboration.

	1	2	3	4
1. Sense of Community	-			
2. Cognitive Elaboration	.29***	-		
3. Anticipatory Discussion Elaboration	.18*	0.17	-	
4. Reflective Discussion Elaboration	.30***	.58***	.21*	-

*** Correlation is significant at the 0.001 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

What is not shown in the proposed model is also important. If Hypothesis 1a had been supported, an arrow would have been drawn between Social Media Interaction and Cognitive Elaboration. But the groups did not significantly differ on the dependent measure. The hypothesis was based on the idea that posting on social media and interpreting feedback would require cognitive work as the user drafts and rehearses the message, imagines an audience (Litt, 2012; Marwick & boyd, 2011), tailors the message accordingly and anticipates and interprets feedback. However, the data did not suggest these activities directly influenced cognitive elaboration. If Social Media Interaction influences elaboration, a socio-emotional process may also be at play.

Slavin's (1996) theoretical perspective on the benefits of cooperative learning provide insight into the complex process through which social and emotional motivations may influence elaboration. He suggests group cohesion—incited by shared incentive structures— increases

caring among members, and the socio-emotional connection can lead to cognitive elaboration that enhances learning (Slavin, 1996). This research demonstrates that even fleeting interaction among semi-anonymous sources online can increase social cohesion, which can be positively associated to learning outcomes.

Complicating the proposed model is a significant result is a significant difference between Social Media Interaction groups on their score of Anticipatory Discussion Elaboration (Research Question 1a). The observe group reported elaborated on what they *would* post more than the people who actually posted. One possible explanation for the counterintuitive result is that people who do not post— or lurkers—are much more cognitively engaged than initially assumed (Nonnecke, Preece, & Andrews, 2004). Even though lurkers shy away from voicing questions online, a study by Nonnecke, Preece and Andrews (2004) suggests lurkers still want answers.

Cognitive Processes while Social Watching

To provide some insight into the users' information processing, thought-listing data were analyzed in Research Question 3. During social watching, participants reported many types of thoughts, including their feelings, metacognition, stories, evaluations and plans and the nature of the media. The thought-listing categories included Emotion (My Emotions and Their Emotions), Metacognition (Knowledge Level and Questions), Narratives (My Story and Their Story), Judgments (My Future, Their Future, Evaluating Arguments and Action) and Media (Session Media, General Media and Tweeting). The categories that emerged from the data suggest people were elaborating on various levels on the hierarchy of cognitive processing based on the Anderson and Krathwohl (2002) revision of Bloom's Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). The lower half of the taxonomy (Krathwohl, 2002) refers to recalling,

comprehending and implementing knowledge. On the most basic level, "remembering" means to recognize and recall information from long-term memory. On the second level, "understanding" refers to comprehending the information through interpretation, finding examples, classifying, summarizing and making inferences, comparisons and explanations. The third level is "applying," which goes beyond recalling and comprehending to implementing procedural knowledge (Krathwohl, 2002).

The more complex forms of reasoning in Bloom's Taxonomy (Krathwohl, 2002) refer to analyzing, evaluating and creating. On the fourth level, "analyzing" refers to decomposing ideas into their parts and examining how the components fit together in an overall structure. Next is "evaluating," which refers to making judgments about information. The highest level of learning— "creating" — builds on other levels of information processing to generate, plan and produce a new product (Krathwohl, 2002).

Narratives (My Story and Their Story) are based on experiences understood personally and vicariously, which align with the lower half of the Anderson-Krathwohl (Krathwohl, 2002) taxonomy on cognitive reasoning. People vividly recalled personal experiences and the experiences of others (Remember). They interpreted new conceptual knowledge and compared the development in their hometowns to the changes happening in Kakaʻako (Understand). Vicariously experiencing and remembering stories from others required searching their long-term memory and making inferences about how the civic topic has influenced people's lives—for instance, by imagining its impact on homeless people or small business owners (Understand).

Thoughts about Media (Session Media, General Media and Tweeting) varied in complexity, from remembering what was said in the broadcast or social media (Remember) to comparing the media during the session to day-to-day practices (Understand). Participants also

scrutinized the overall sentiment on the social media feed (Analyze) and evaluated social networking sites' potential to augment the mass media viewing experience (Evaluate). When participants expressed thoughts in the Posting category, they often expressed anxiety about generating original content (Create), despite a lack of cognitive reasoning on the lower levels of the Anderson and Krathwohl taxonomy (Krathwohl, 2002).

Cognitions that can best be described as Judgments about the topic (My Future, Their Future, Evaluating Arguments, Action) often began with comprehension and moved into the upper half of the reasoning taxonomy (Krathwohl, 2002). Participants began by making inferences about the issue's future impact on their lives or the lives of others (Understand) and considered whether these impacts were positive or negative (Evaluate). When assessing arguments, participants first sought to comprehend them (Understand) and unpack how they integrated with other streams of information (Analyze) prior to assessing their logical and affective value (Evaluate). Evaluations of plans for the neighborhood were essentially judgments about their worthiness and occasionally led to participants to generate their own original solutions (Create), which would represent the apex of learning, according to the Anderson and Krathwohl taxonomy (2002).

Emotion was pervasive throughout the thought-listing data, which aligns with literature suggesting affect may complement reasoning about politics (Marcus et al., 2000). It also aligns with the Elaboration Likelihood Model, which proposes emotions can play several roles, depending on how deeply people are motivated and able to think about a topic (Petty & Briñol, 2015). Emotions can serve as "simple cues" (a heuristic for decision-making) when motivation and ability to process information are low, "arguments" when motivation and ability to think are high, sources of bias when emotions are less salient and go unanalyzed, and predictors of how

much thinking is done when people don't know how much cognitive energy to expend (Petty & Briñol, 2015). Emotions were often mentioned explicitly in the thought-listing data, suggesting people were cognizant of how they were feeling (Petty & Briñol, 2015).

Metacognitive thoughts have a special place in the Anderson and Krathwohl taxonomy (Krathwohl, 2002). Whereas thus far cognitive processes from the taxonomy have been discussed, the model has a second dimension related to the type of cognitions processed. (Krathwohl, 2002). Metacognitive knowledge was added to the original Bloom's taxonomy typology of knowledge—factual, conceptual and procedural—several decades after its introduction. It refers to "awareness and knowledge of one's own cognition," and incorporates self-awareness about the extent of one's own knowledge (Pintrich, 2002). The thought-listing data suggest social watchers engaged in metacognition by assessing their knowledge level on the topic, their knowledge of Twitter and their ability to simultaneously process information from the broadcast and the social media feed. Thoughts in the Knowledge Level category suggest self-awareness of the amount of thought dedicated to the topic. The Questions category implies participants developed targets and strategies to improve cognition, both of which are metacognitive functions.

Together, this understanding of social watchers' cognitions suggest multiple levels of information processing occur while using social media to learn about or discuss mass media (Krathwohl, 2002), similar to the cognitive processing that can occur in traditional classrooms. The data also suggest collectively viewing on social networks sites can be a deeply cognitive and affective experience imbued with emotions, stories and judgments.

This work delved into understanding the way people integrate new information from social network sites with what they already know and have experienced, which is known as

cognitive elaboration. Generating these associations is considered a form of "higher-order thinking" (van Blankenstein et al., 2011, p. 190); in a journalistic context, it is described as "the use of news information to make cognitive connections to past experience and prior knowledge and to derive new implications from news content" (van Blankenstein et al., 2011, p. 190). Sometimes conceptualized as "involvement" with the news media, at least one study also operationalized the construct as thinking about what should be done, thinking about what the topic will mean to the person's family, thinking about what it will mean to other people and thinking about the story over and over again.

The study contributes to the literature on elaboration of news stories by suggesting that within the context of social watching several types of elaboration occur. People elaborated on emotions experienced personally and vicariously, as well as thought about narratives from their own lives and the lives of others. Moreover, they reflected on the medium itself, considering the content, tone, tool functionality, social media network and interactions—and paid special attention to whether or not they received feedback. The preliminary analysis of thought categories suggests future research unpack how people elaboration on stories, emotion and technology during social watching. Perhaps most interestingly, participants not only referenced themselves when elaborating, but also considered the lives of others in a form of empathy that intertwined emotion with reason.

Implications for civic deliberation

The main objective of this dissertation was to explore how participating and receiving feedback on social media influenced political deliberation, as well as whether the context of interaction mattered. Recent survey research has explored why and how social watching

influences online political participation, finding that second screening is positively related to online political engagement (Gil de Zúñiga et al., 2015) and that "lean-forward" practices such as commenting on debates using Twitter hashtags were correlated to political engagement, while "lean-back" lurking behavior was not (Vaccari et al., 2015).

However, the mechanisms through which social watching influences learning about an issue have gone relatively unexplored (Houston, Hawthorne, & Spialek, 2013; Houston, McKinney, & Hawthorne, 2013; Maruyama et al., 2014). This particular study focused on how contributing posts and receiving positive feedback while social watching relates to what people are thinking and feeling. The study found that posting and receiving a favorite instilled a sense of community in the social media feed, and the feeling of connectedness was related to cognitive elaboration and thinking about the social media discussion. Inductive analysis of qualitative data collected through a thought-listing exercise suggests that participants elaborated directly and vicariously about narratives, emotions, metacognition, social and broadcast media and evaluative judgments about the issue.

This work provides a foundation for theory development regarding the effects of self-expression and feedback on elaboration and conformity in social watching environments. While the goal of study was not to make explicit recommendations for design, insights about cognitive and affective processes can lead to further research on which sociotechnical affordances encourage people to elaborate on civic information and consider how news and information affect their lives.

One area in which future research might contribute is the design and use of bots in civic discourse. The mock Twitter feed was, in essence, a bot-like system. Twitter robots are semi-automated programs that can post tweets in a human's absence (Chu, Gianvecchio, Wang, &

Jajodia, 2012). While some bots spread noise that obfuscates informational signals, others are benign and even helpful in sharing information and sensing others, functioning as a "civic prosthetic" (Woolley et al., 2016). Bots can be programmed to respond to real users, similar to the way the mock Twitter feed was programmed to automatically favorite certain posts.

The current study suggests being on the receiving end of a bot on a social network site can have affective and potentially cognitive consequences. If receiving an automated favorite increases a sense of community, this raises questions about how much favoriting activity would be tolerated. More importantly, it raises ethical questions. Does automating social behavior— such as "liking" or "favoriting" posts that meet certain criteria— qualify as deception? What if the automation led to learning outcomes? The current study paves the way from more research on the cognitive and affective ramifications of Twitter bots and raises important ethical questions regarding nefarious versus prosocial automation.

The study also provided insight into the complex nature of online communities, which Ren, Kraut and Kiesler (2006) categorized into two types based on common bond and common identity theory (Prentice & Miller, 1994). In common identity communities, people are attracted to the community's purpose. In common bond communities, people are drawn together by relationships within the group. It is possible that the distinction between the two types is blurry and shifting. The study suggests that fleeting phatic interaction in a common identity group can instill a psychological sense of community that is more characteristic of a common bond group. Receiving a favorite was meaningful to users, despite not knowing who favorited their tweet. Users made up for a lack in precise meaning by creating their own interpretations for why they received the favorite.

Moreover, the experiment found that being exposed to like-minded opinions on a social media feed during social watching can lead conformity. It has become increasingly important to how being exposed to a near consensus on social media influences attitudes, especially since people increasingly participate in online spaces marked by homophily (Adamic & Glance, 2005; McPherson, Smith-Lovin, & Cook, 2001; Sunstein, 2007). Nearly everywhere users turn on the Internet, user-generated content provides context for their choices. From book reviews on Amazon.com to restaurant ratings on Yelp.com, these crowd-sourced opinions help people make decisions through the "bandwagon heuristic" (Sundar & Limperos, 2013). People in this study conformed even when exposed to semi-anonymous opinions during a 30-minute broadcast, which supports other studies on social conformity during social watching (Cameron & Geidner, 2014; Maruyama et al., 2014). The findings suggest that within the context of social watching about a civic issue, people rely on popular opinion to form their attitudes, even when the opinions are from semi-anonymous sources.

CHAPTER 7 LIMITATIONS, FUTURE WORK AND CONCLUSION

Limitations

The dissertation research has several limitations that are not unique to this work, but rather reflect the tradeoffs inherent in experimental research. Participants were not in their naturalistic setting and did not use their own devices or social media accounts. They also were not interacting with their follower-followee network. However, the study was designed to induce the feeling of posting and reading posts during shared attention to mass media, such as when people who are tracking a Twitter hashtag or Twitter Moment to observe an event unfold in real time. Therefore, the fact that users were not interacting with their typical follower-followee network was not a downfall, but rather a deliberate decision in the study design to reflect interaction in as semi-anonymous environment where users may not know each other very well.

Because the convenience sample comprised 122 undergraduates who were attending the University of Hawai‘i at Mānoa, the generalizability of the findings are limited to educated young people living in this diverse cultural milieu. While the findings cannot be generalized, and there is no way of knowing whether the sample is representative, the participants reflected trends in social watching and civic attitudes among young people.

Participants were familiar with social media and less knowledgeable and interested in the civic topic being discussed, which reflects young voters relationship with social network sites (Perrin, 2015) and politics (Kaid et al., 2007). Participants also occasionally engaged in dual screening. A study of 800 Millenials and 200 non-Millenials by Verizon Digital Media Services in November 2013 suggests that Millenials are more likely to social watch than older adults, and 65 percent of Millenial respondents use a second device while watching TV at least some of the

time (Verizon, 2014). Generalizability was not the goal of the study, although future work may explore the extensibility of the findings across a population through random sampling.

Future Research

Like most experimental studies, the goal of the research was to maintain high internal validity, rather than to pursue high external validity. Ideally, future research would increase external validity by studying how posting and receiving positive feedback influences sense of community in a more naturalistic setting. For instance, a content analysis of social media data could provide insight into whether receiving favorites increased the use of social words in subsequent posts. A survey or diary study could assess users' feelings and cognitions before and after receiving feedback to better understand how the anticipation of feedback influences thoughts, emotions, judgments and behavior.

Another avenue for future research would be to study exactly what kind of feedback influences sense of community or cognitive elaboration. Social media feedback to user-generated content can take many forms, from a typed reply to a packaged expression of affect such as a Facebook "like" or Twitter "favorite." A study by Oeldorf-Hirsch and Sundar (2015) suggests the perceived quality of the responses matters; participants who publicly shared a news story and received valuable feedback felt greater interest in the topic, felt more informed, and wanted to know more, than when they perceived feedback as being less valuable. Emotional congruence in feedback also seems to matter. de los Santos (2015) studied news sharing on social media and found that news consumers sought validation of their emotions. Users who were experiencing anger wanted affirmation of their heated feelings, people experiencing hope desired optimistic comments about the future, and those who were feeling fear wanted reassurance or advice (de los

Santos, 2014). A ripe area for future research would be to study how different types of feedback influences the sender's information processing and emotions.

Finally, future research could manipulate the users' imagined audience (Litt, 2012; Marwick & boyd, 2011) to better understand how this perception influences cognition and emotions. Some interesting questions might include: Does posting content to an anonymous versus identified audience influence cognitive elaboration? Does the complexity of the perceived audience (e.g., including family, friends, and employers vs. only friends) influence cognitive elaboration? How do different perceptions of the imagined audience influence empathy and persuasion? To what extent is audience awareness trumped by the desire to "authentically" perform identity? And how might this affect learning about civic or political issues? As mentioned earlier, answering these types of questions would require a more naturalistic method such as a diary study, interviews or observation.

Conclusion

This research makes several meaningful contributions to the literature on social watching in civic contexts. The first major contribution was an expanded understanding of how receiving feedback to social media posts instills a psychological sense of community. Despite receiving feedback that was anonymous and phatic during only a 30-minute window, fleeting positive feedback led participants to feel group membership, needs fulfillment, mutual influence and an emotional connection.

This sense of community was positively related to cognitive elaboration, anticipatory discussion elaboration and reflective discussion elaboration. In other words, the more people felt they belonged on the social media feed, the more they thought about how incoming information associated to their personal experiences and prior knowledge, which improves learning. People

who felt a higher sense of community on the social media feed also elaborated more about their own tweets and the tweets of others. The lack of a direct relationship between receiving a favorite on social media and cognitive elaboration suggests that the influence of positive feedback on thoughts may not be purely cognitive, although more research needs to be conducted on the socio-emotional mechanisms of learning during social watching to understand how a sense of community may relate to elaborative processing.

The second major contribution of the study is an empirical investigation into conformity during social watching. People were randomly assigned to groups that viewed posts that were positive, negative or balanced in opinions about development in an ʻOahu neighborhood. The results suggest that people conform during social watching. People who viewed negative posts were significantly more negative toward the issue after viewing the social media feed, compared to people who viewed posts that were supportive or balanced, even after controlling for their pre-existing attitudes, knowledge and interest. Findings are discussed in terms of conformity during social watching.

The third major contribution of this work is a deeper understanding of the types of thoughts and emotions associated with social watching in civic contexts. Whereas previous studies on social watching have explored the associations between "second screening" and political participation (Gil de Zúñiga, Jung, & Valenzuela, 2012; Vaccari et al., 2015), this work explored the process through which people process information. Users thoughts about Emotion (My Emotions and Their Emotions), Metacognition (Knowledge Level and Questions), Narratives (My Story and Their Story), Judgments (My Future, Their Future, Evaluating Arguments and Action) and Media (Session Media, General Media and Tweeting). The qualitative analysis emphasized the critical role emotions and stories play in making sense of the

public sphere during social watching. Several codes refer to empathetic emotions and "ideal role-taking" (Their Emotions, Their Story and Their Future), which Habermas felt was critical to discourse ethics because it enabled people to engage in discussion not to manipulate decision-making, but to be open and sensitive to all the positions of all stakeholders in hopes of furthering the "common interest."

CHAPTER 8 APPENDICES

Appendix A

Study Material: Broadcast Transcript

PBS Insights – April 3, 2014

Link to video: https://www.youtube.com/watch?v=sYOC8I8E-9U

Time code is in brackets <minutes:seconds>. Only the first 30 minutes will be shown.

Source is indicated by last name and a colon (e.g., Huff:)

<00:00>

Huff: Coming up next on Insights on PBS Hawaii: Is Kakaʻako moving in the right direction?

<music>

Huff: Aloha, and welcome to Insights on PBS Hawaii. I'm Daryl Huff.

Kakaʻako is being billed as the new social epicenter of Honolulu. The plan is for a community where people can live, work and play — with transit stops, luxury and affordable housing, retail and green open spaces for recreation. But are the people who are actually making the decisions really keeping that dream in mind? Is Kakaʻako moving in the right direction? We invite you to join our conversation tonight by calling, emailing or tweeting your questions and comments.

Now to our panel.

<00:54>

Huff: Donna Wong is the executive director of Hawaii's Thousand Friends, a statewide nonprofit group that works to protect natural and cultural resources.

Peter Apo is a trustee at the Office of Hawaiian Affairs, which will control 10 parcels of land on the makai side of Kakaʻako.

Anthony Ching is the executive director of Hawaii Community Development Authority, which oversees the redevelopment of Kaka‘ako. Prior to this appointment, he was executive director of the State Land Use Commission.

George Atta is the director of the City of Honolulu’s Department of Planning and Permitting.

<01:32>

Huff: Now my first question, you know we talked a lot about the utopian dream. And for Mr. Ching, Tony, if we took a picture of the proposed plans that are now on the table and moving through, how closely do you think they resemble the vision that was expressed way back in 1976 when Kaka‘ako was given over to the State of Hawaii.

Ching: Well, to be quite honest, in 1976, I believe the initial vision saw a more Bladerunner type of view with elevated, um, walkways and high-rise towers. And that obviously is not the picture that we see here today. I think for, um, a reality check, one can only look so far as um, the Halekauwila Place that is opening, um, on Tuesday next week. And that’s going to be 204 affordable rental units, um, and 20 stories. Um, and it so it’s a high-rise apartment rental. Uh, and it’s meant for families with incomes of about 60 percent of AMI. That sounds funny, but that’s about 40 … $40,000 for a single. Um, that’ll be about perhaps 60 or so for a family of four.

<02:43>

Huff: OK, now, Donna. Same question to you. If you look at what the potential was of Kaka‘ako — perhaps what people were thinking at the time might be different as Tony says, you know, our vision of the future may have been different — but given that we are now in current time, how do you and how does Thousand Friends and the environmental community feel about what’s going on there.

Wong: Well, I disagree with Tony, which is not a surprise. That, um, and the Legislature said in their Act 153 that HCDA would result in communities which served the highest needs and aspirations of Hawaii's people. And I pretty much don't think that all these high-rises so close together with no green open space, blocking all the views, um, is really what the Legislature had in mind.

<03:32>

Huff: OK, now George, the city has kind of been cut out. You guys are kind of involved quite a bit at the end of the process in making sure things get hooked up properly and traffic flows and so on. But, overall, does the city have a position on where Kaka'ako seems to be going today.

Atta: We don't have a position on the current master plan, but we had, uh, comments, uh, when the plan was being adopted. Um, you know, and because we don't actually have control of the zoning. You know, we haven't really created a vision for Kaka'ako. It's sort of like, it's not our kuleana, so we don't have our own separate vision for Kaka'ako.

Huff: In terms of though how it relates to other properties around it, do you feel like it's appropriate to what you folks do have planned for the areas around it.

Atta: Um, it's different, and in the surrounding areas, we do have ideas. And the other thing is, the city controls like Ala Moana Park and, you know, Blaisdell Center. So there are big chunks of land that is in Kaka'ako that we do control, and we have our own ideas about that. And we do have ideas about how those things should be integrated with the other parcels in Kaka'ako.

<4:48>

Huff: OK, now Peter Apo from OHA, you folks are one of the stakeholders now with considerable property on the makai side. This is to the ocean side of Ala Moana Boulevard.

What do your folks envision for that property? And, particularly, how will OHA as a developer perhaps approach this differently than, say, some of the developers inland.

Apo: Well, if I can just first set some context, we're brand new kids on the block. And the properties that we have as a result of a, uh, an agreement, some people don't like to call it a settlement, but the state owed the Office of Hawaiian Affairs $200 million over, long story short, some back rent. Uh, we preferred cash. Uh, after four governors over 17 legislative sessions, we're not able to work it out, and Gov. Abercrombie came forward by offering us 10 parcels in Kaka'ako Makai. So it was an opportunity that we decided to seize. So we are the new kids on the block. We have been, to date, a cash trust. That is, all our revenue came, and we have cash that we deposit in investment scenarios. Our first, our first experience at being a landowner of commercial real estate. We own land in other places like Waimea Valley, but those are called legacy lands. So this commercial real estate is about, uh, creating the base of the trust. We have, uh, we serve a beneficiary group of Native Hawaiians, over 200,000 who live in Hawaii. We have another 250,000 that live on the mainland. So it's a huge responsibility, and it's a very expensive undertaking, and we run a plethora of programs — everything from health care to education, we support 13 charter schools, etc. So, I wanted to make sure that the context in which we have become a commercial landowner — that we are not a stockholder-driven corporation. We are not highest and best use, build value, sell it and run. We're here to stay, and we want to do something good with Kaka'ako Makai and, uh, set an example as to what good development ought to be.

<07:08>

Huff: Let me ask, in that context, and in line with the questions I just asked the other three, how do you feel about what's going on on the other side of Ala Moana Boulevard. Is that anything close to what OHA would consider for its parcels?

Apo: You mean, what's going on now?

Huff: Yes, the kind of projects that are being approved, yeah.

Apo: You mean, on the other, on the mauka side. Well, you know, I tend to, my memory, I was in the Legislature in the 80s, is that the vision for Kaka'ako was supposed to be a, basically, a high-rise live, work and play. They had formulas back then of percentages for affordable housing, etc., etc. You know, so what I see rising now that's taken a long time, is kind of what was envisioned as far as I recall. If my memory is faulty, I apologize. But all these years, it's kind of what I had in mind. And I think what the problem is that it's taken so long to get to the buildout part that there's been a community — a loss of community memory as to what the commitment was back when the Legislature, you know, when they enacted that back then. <08:15>

Huff: Interesting point. Donna, let me, let me throw that to you. I mean, is it, is this something that is just sort of happening naturally, economically, and really indeed what everybody expected? Or what's wrong with what's happening now?

Wong: General growth Properties, you know, they saw the future, and then when Howard Hughes bought out General Growth Properties, they weren't here, coming here, to keep the small businesses that made Kaka'ako, that we all use. They're all going. So it's being driven by bigger profits now. Um, everybody wants to get on the bandwagon. And it's development. And the way that the rules and everything are now being laid out, it is being developed at the highest and best use.

<08:59>

Huff: Um, Tony, you've had now three people banging on you just a little bit. Not too serious from one side, but certainly Donna's are very serious. And we did get a caller question, Wendy from Makiki, who brings up exactly that small business point. And as I recall, from the plans I saw back in the 80s, those platforms that the high rises were to be built on, had down below a lot of space for small business. As you recall, we called it mixed-use at the time. What's ever happened to that? I mean, is there going to be room for small businesses in the Kakaʻako as it's moving today?

Ching: So the mantra for, from a zoning standpoint, from the authority has always been and continues to be mixed use. And so, I think the description of Kakaʻako as just high-rises is inaccurate in that it's actually a set of neighborhoods that we have established and recognize for existing patterns. Sheridan track is a existing neighborhood. We do not look to change that, the nature of that particular neighborhood. Central Kakaʻako bounded by Cooke Street, Piʻikoi, um, Waimanu and Queen Street is characterized by 5,000-square-foot lots, which will never be developed as high-rises because it would just take too many of those lots. That character, we're obliged to preserve. And if you look at it today, that's the haven for your air conditioning repair, um, and other service functions, pet, uh, pet items, there's child care. There's a variety of places. Now, it's important to realize that, uh, much of the large growth is occurring in what we call the Pauahi and Auahi neighborhoods, which are characterized by large development lots and single-land owning by, uh, Kamehameha Schools and, um, Howard Hughes Victoria Ward Limited.

<10:49>

Huff: OK, George, let me ask this question as a long-time planner, an expert in these sort of things. Is it really realistic to expect that say, an air conditioning repair shop, or a place that

might have chemicals or noise or something like that, can really exist alongside a residential high-rise, um, and I think that possibly what Tony is saying is that there will be separations, but it's not that big a space. I mean, how realistic do you think it is to, to expect that small businesses will survive this process?

Atta: I think it's possible. It's not easy, but I think it's possible. You know, zoning was set up in the old days to separate, um, uses that were incompatible with, with each other. Mixed use brings into question that strategy of separation. And nowadays, you know, the nuisance things of noise, odors and chemicals can be, uh, you know, handled better than they could in the old days. So, I think there are ways to mix, uh, and separate within a block — and still make it possible. I think the more difficult thing is not so much the technical or physical aspects of the nuisance and separation, but really the, whether the, uh, question of property values can be controlled or managed in a way that won't drive out small business.

<12:17>

Huff: OK, that's kind of along the lines of what I was asking. Peter, did you want to —

Apo: Yeah, you know, just one thought. I recall a lot of discussion going on back then that was fearful that if we did not do better urban planning, fearful of urban sprawl, uh, that the community would be so dispersed that the cost of that infrastructure, etc., the traffic. And so Kaka'ako Makai, as I recall, the conversation was to create a live, work and play place where people could leave their automobiles, walk to work, walk to the movies, walk to a restaurant, walk to get a haircut, walk. That's what my impression was, as I recall back then. Uh, the urban sprawl occurred anyway. <laughs> But I don't think it's too late. I think the vision of trying to

create, of trying to bring people back to the city, and create, because technologies today and design things, so I hope that we can work that part out.

<13:23>

Huff: We should point out, you mentioned earlier, that you spent quite a bit of time as a state legislator, so you have another perspective in addition to being an OHA trustee. A couple of questions right in line of what we were just talking about.

Kalei in Waikiki — I support the high-rises in Kakaʻako. Put the high-rises in the city. Save the ag land, exactly what you were just commenting on.

Um, and let me bring that back to you Donna. You very frequently pointed out, you know, green reason for Kakaʻako. No?

Wong: <laughs> It didn't work. If anybody has paid attention, they'd just, uh, the Land Use Commission just approved redesignation of Koa Ridge and then Hoopili. So, Hoopili is going to have 11,000 homes. Um, and that's where the Aloun Farms are. And they raise produce that we all eat. So, so far, that hasn't worked.

Huff: Let me ask, why do you think it hasn't worked? What do you think is going on that has made it so that this is not turned into a place to attract people who are otherwise buying subdivision homes?

Wong: Why, why Kakaʻako hasn't worked? The whole planning?

Huff: You mentioned they were approving these subdivisions. You know, what do you think is going on?

Wong: Well, starting with the Land Use Commission, they just didn't look at the value of the land. And their argument that because it was within the urban growth boundary as identified by

the city, it was therefore slated for growth. Um, that urban growth boundary just came into play I think in 2000, and it's been fluid. Now they're changing the name of it. It's not going to be called an urban growth boundary. I don't know what the definition is going to be, but, you know, the line just always keeps moving.

<15:12>

Huff: Tony, let me. It just keeps moving, that sucker, that little line. Tony, in terms of, when you and your staff look at a proposal and you're trying to ask yourselves, "Does this meet the rules of Kaka'ako?" or something, do you have a big picture in mind? Like, oh wait a minute, maybe this is blossoming to a point that we're not going to be able to plan it, we're not going to be able to truly control it, the economic factors that George mentioned will just overwhelm us and we'll end up with another Waikiki as opposed to a truly livable area.

Ching: You know, in 76, and I believe in the studies that were done, the population projection was expected to be 45,000 people in a very, um, a dense high-rise type of situation. We have ability through zoning to control floor area that is developed. So the floor area ratio is 3.5 in general, which is in sync with the surrounding, um, area.

Huff: What does 3.5 mean?

Ching: 3.5 means that if you have a 10,000-square foot lot, it's a multiplier. So a 10,000-square foot lot with a 3.5 FAR or density ratio means that you can build 35,000-square feet of floor area. So, the allowable floor area or density that's projected is in concert with the, um, with the outlying areas or with the city in general. And so I'm going to have to say that at this point, given that kind of ratio, you can by arithmetic project how much floor area you can build in Kaka'ako and you can then project how many people might live there. Our current projection is that by the

year 2030, there might be 30,000 people living there. There is currently a 12,000-person population at this point.

Huff: And of those 30,000 I want to ask a question that came from Bill in Mililani, how many people who will be living in the area when the development is complete, will automobile be allowed in the area? Development in 2030 is far from complete, right?

Ching: Yes, certainly.

Huff: So 30,000 in 2030, how many do you see when it's actually complete, say in 2040 or in 2050?

Ching: I actually see that in the next two to five years, there will be just over 5,000 units at current count that might be developed. If you project that there might be 1.8, and that's the current ratio, people living in each one of those units, then it might be another 10,000 people. So we would be, it would take us to 22,000 people in the next five years. Thereafter, what's our ultimate population? It depends on, again, the pace, but the environmental impact statement that we are conducting might project perhaps, still that same 30,000 but perhaps we might go up with Transit-Oriented Development or the attractiveness of the people living in the city, that we might end up perhaps to a 40,000 level. That's our projections.

<18:13>

Huff: George, do you have any reaction to those kind of projections?

Atta: I think that's potentially realistic. In that sense, I think, uh, you know, we have a similarity of vision with the city in the sense that our overall general plan does direct city into the growth into the transit corridor. And, uh, we are looking at, with our TOD plan, in trying to create this high-density, urban live-and-play communities around the station. And we've seen the numbers, and Tony's correct about the FAR density. It's similar to adjacent areas in the city.

<18:52>

Huff: Yeah, let me pursue that question. Compare that kind of density at buildout to some of the other areas we have in Honolulu. Like, is that like Waikiki or is that like Salt Lake or is that like Aiea. You know, can you give me a sense of what that looks like?

Atta: I would say it's, it's, well 3.5 FAR, is sort of like Waikiki. So, and again, the FAR density is really, you know, it just tells one story about the density. And Tony knows this very well. That the density can be high or bulky. So the design of that density within a block can vary tremendously, and, uh, how much open space you can get within that block, so when you ask what the character of it — does it look like Waikiki or Salt Lake, in a way, it can look like Salt Lake, it can look like Waikiki. You know, lot of it is influenced by design and the master plan.

<19:53>

Huff: Here, let me ask you this question. And I may have seen you cringe a little bit when he said it's kind of like Waikiki. Uh, many of us will remember Waikiki when it was before like it is now, and we know how the Hawaiian people generally feel about the development in Waikiki. How does that make you feel as a trustee of Hawaiian trust now with property that could look like Waikiki.

Ching: It's not going to look like Waikiki. I guarantee it, it's not going to look like Waikiki. You know, of anyone in Hawaii, Hawaiians have been the biggest victims of bad development, of alienation from the land, etc. So trustees, with our 200,000 beneficiaries that live here, uh, we can't go there. So our challenge is how to balance commerce and culture. What we hope is that our 10 parcels — in combination with the other, the other acreage on the makai side of Ala Moana Boulevard — will sort of serve as a front yard to the mauka side of Ala Moana Boulevard, where people can come celebrate themselves, small businesses can thrive. It's a

challenge to try to make the numbers work. But that's what trustees envision, is a place where local people, wherever local people go, visitors will come. But we're not going to target and build out highest and best use. We've gotta do some balance. We're not stockholder-driven. We have fiduciary responsibilities, true, to try to, you know, uh

Huff: maximize revenues

Ching: On the other hand, we also have, part of that fiduciary duty, is to do something that Hawaiians can be proud of and that everybody can be proud of. It's easier said than down, but that is the commitment of the trustees.

<21:42>

Huff: Donna, again, going back to my question to George. When you picture those kinds of ratios, what else -- I know how you feel. I can just feel it. What should they be doing differently there? I mean, you've got this economic pressure? What do you do? Just say stop or what do you do?

<22:01>

Wong: You're throwing out all of the numbers. All the palapala, all of that on paper. Is anybody looking at the infrastructure? Is anybody? Sand Island? How much more can it handle? It can handle those other 30 condos that are coming up. That's okay. No problem with sea level rise. No climate change.

>> flowing.

<22:28>

Wong: For residents, they already have the odor. Who knows where it's coming from. Walking around Kakaʻako, the ones that live there now, and they're having that issue. So it's not just

development in Kaka‘ako. There's going to be more in waikiki. And as the numbers for tourists keep rising, 8 million now and climbing? You know, so you've got in between, Waikiki, all along, ‘Aiea, all the way down.

<22:58> So everybody else has got to stop because we're going to develop here. I don't see any comprehensive integration or review of what is our capacity. What is the carrying capacity of all of this? >> Huff: exactly why we brought George in today.

<23:15>

Atta: I can say the analysis has been done. Preliminary assessment along the entire rail corridor. We're not just looking at Sand Island, about Honouliuli and system capacity all the way. There are trouble spots. And Sand Island treatment plant, the

second digester is intended to alleviate the capacity problems there. So we know where the choke points are. We know where the deficiencies are. And we have things related to both the consent decree as well as the transit, and the mayor has given the department that both the consent decree and T.O.D. are priorities. So we've looked at the system. We know and we've mapped where the choke points and deficiencies are. So we're scheduling. Repairs and upgrades. So we're aware of the problem.

<24:08>

Huff: I'm sorry, Donna. I should let you answer the question. It occurred to me, I want to inject on behalf of our viewers. Larry in Waikiki, asking, what do we do with the garbage. Water and sewage. Are these issues being addressed? Getting back specifically to what Donna is saying about Kaka‘ako, after the HCDA approves a project, it ends up in your lap to figure out whether things are connected properly, happening. Do you have in Kaka‘ako problems with the system that cannot handle even the existing uses?

<24:41>

Atta: Not immediately. I know Donna mentioned the odor problem. This is something that may sound funny to the lay person, the odor problem is not a capacity issue. The odor is not coming because the sewer is overcapacity. It's a different problem. Sometimes you get odor because there's not enough flow going through a pipe. The two are different problems.

>> spilled more.

<25:11>>

Atta: No. I'm just saying when you say odor, people assume there's a capacity problem. That's not true. >> Huff: in terms of the balancing act, city has to play with its own projects, Transit Oriented Development, with Waikiki, growing, with the demand multifamily houses being developed, upstream and residential areas, how are we, who's going to ultimately pay for this investment that needs to be made for these highly dense areas? Is it spread out through everybody? So I'm

paying? Or is it just the people who are in that particular area?

<25:47>

Atta: It's everybody. This is a system with sewer hook-up charges and the sewer fees that go with the water bill. Everybody pays for the sewer system. >> Huff: so why is that good?

<26:01>

Atta: Why is that good? >> Huff: Policy question maybe.

<26:05>

Atta: That's true of any major infrastructure. It's never locally paid by the local community. Our major roads, major board of water supply, pipeline, sewers, anything of major infrastructure capacity is paid by everybody. It's not paid by the local geography.

<26:25>

Ching: Although when you have developers, for instance, Ward Avenue, there are two mains going down there. Right now, it's 60-inch main that takes actually the upstream waste and does not take local waste. There's a 14-inch main that takes up local poop along Ward. As a function of the development that's occurring in the area, the Howard Hughes Victoria Ward people won't be charged with upgrading that 14 to a 30. And that would then conceivably take from a capacity, it would then support all of the planned development in that area.

<27:00>

Huff: So, the planned development is not -- is outside of Kakaʻako?.

<27:05>

Ching: The planned development locally. Remember that 60-inch main takes care of the rest of the stuff that flows through and the 14-inch main is something that needs to be upgraded to handle local production. So again, as George mentioned, where capacity issues are the within the purview of the developer, they're going to contribute to that capacity issue. They are obliged specifically to address at their cost, that particular issue. George mentioned with respect to odor, that that odor is not a capacity issue. And there was sworn testimony provided at a recent hearing and it confirms that it's 78-inch main along Auahi street is actually flowing at under capacity in the flow rate is not what is it should be. It then creates a situation that there are more off gases created because there's more capacity and less flow. It's not moving fast enough through there. It creates in some situation an operational issue. Actually, I believe if you go down into the area, while there was work recently, capped it all off. I don't believe you'll find that odor.

<28:23>

Ching: So capacity versus operational issues are two different things. >>Huff: let me change the subject. >> Ching: go right ahead.

<28:32>

Huff: I'm not enjoying this. It's interesting but you have to be a little bit on the wonky side. It's a little bit warm in here. I enjoy this question. Lived in Kakaʻako for 20 years. Campaigned for a grocery store. There are none in the area. This makes it difficult for elderly people. Are there plans to build a grocery store?. Ching: Question is directed to me?

<28:55>

Ching: The authority is received an application for Keauhou Lane and part of the planned development there could include a grocery type store. >>Huff: Could?

>> Ching: Could. >>Huff: what does that mean.

<29:10>

Ching: Until it's built and the grocer is there, Donna wouldn't let me get away with just promising. Or there's plans to. So another thing in, not to get into the stats, but a grocery store like Times or Safeway might be 35,000 square feet. And the one that I patronize, services the Kaimuki area. In the Kaimuki area, there might be hundred thousand people. So there's a Safeway Kapahulu Foodland. In Kaka'ako, 12,000 resident population. So with the growth, will come the services. Build it and they will come. And so really, prescription drug services are another item because we have many elderly in the area. I do believe they will be coming.

<30:01>

Huff: I'm going follow up with you on that in just a minute. Right now, I need to speak to our audience briefly. Tonight, we're asking is Kakaʻako moving in the right direction. We invite to

you join our conversation by calling, e-mailing or tweeting your question and comments. Call 973-1000 on ʻOahu. And 800-283-4847 from the neighbor islands.

Appendix B

Study Material: Tweets

Support Condition

Source	Tweet	# of Replies Received	# of Favorites	Seconds from start
jadenl	peter apo is a longtime HI politician	0	0	120
vickyp	At least there's an approved plan for affordable 'micro unit' housing in Kakaako. A little hope for young professionals who want to live in town.	5	0	134
leilani	Definitely the new social epicenter. Love the Honolulu Night Market and Kaka'ako farmer's market.	0	0	218
andiem	Is Kaka'ako moving in the right direction? It depends on who you ask ... wealthy new property owner or homeless family at Kaka'ako Makai?	0	1	268
alexj	Saw cranes at Kamakee and Auahi Streets at #WardVillage in #Kakaako	0	0	480
kai55	Right off the bat, Ching is plugging an affordable rental high-rise. But it's just one high rise, compared to lots of luxury condos.	0	3	535
julez	I like the new Kakaako. It has community gatherings, opportunities for young entrepreneurs, co-working spaces.	0	0	669
kellyshiori	Maybe Kaka'ako has pockets of affordable housing, but they are far and few.	0	1	669
kaulanareyes	Me + sushi in Kakaako = happy. Love the new restaurants.	0	0	803
kellyshiori	Goodbye ocean views in Ward and Kakaako.	0	3	803
alexj	Another crane at Keawe and Auahi Streets in #Kakaako	0	0	840

leilani	My parents just bought a condo at Keauhou Place, Kakaako. Can't wait to move in Honolulu's upcoming trendy neighborhood.	0	0	870
julez	The kakaako #streetview #streetart is the best in #Hawaii	0	0	937
vickyp	Good times at the Eat the Streets in Kakaako. #nomnomnom	0	0	1071
vickyp	If you don't develop existing areas like Kakaako, it goes out to the country. Want the country country? Keep in urban areas.	0	0	1088
jadenl	Dude, the show is about Kakaako, not Hoopili.	0	0	1200
kaulanareyes	I love the new #izakaya restaurants near Kakaako. The up-and-coming 'hood is great for foodies!	0	0	1205
steph	KAKAAKO'S AFFORDABLE HOUSING RARELY IS	0	1	1205
leilani	I heard about a 800 sq ft vertical garden in Kakaako. Such a great idea!	0	0	1305
julez	Lots of people don't have $$ to buy. Kaka'ako rentals create opportunity for folks who can't afford Kakaako for-sale units.	0	0	1338
kaulanareyes	Love the free arts programs at the #Kakaako Agora.	0	0	1472
leilani	Kakaako Kitchen's mahi-mahi sandwich gets shoutout in NYT sandwich guide! #winnahs	0	0	1523
jadenl	Here we go. This is interesting. I want to know OHA's plans for Kewalo Basin.	0	0	1560
julez	Early childhood center called Hawaii Stream Academy is opening in Kakaako. Good for families.	0	0	1606
vickyp	Ran in the #Kakaako Nite Run last month at Kewalo Basin Park! So fun!	0	0	1740
leilani	Loved the slam poetry at Fresh Cafe in #Kakaako.	0	0	1740

Balanced Condition

Source	Tweet	# of Replies	# of Favorites	Seconds from

		Received		start
jadenl	peter apo is a longtime HI politician	0	1	120
kellyshiori	Who is billing it as the new social epicenter? Developers and the pro-development state agency HCDA. No surprise there. :-/	0	0	134
vickyp	At least there's an approved plan for affordable 'micro unit' housing in Kakaako. A little hope for young professionals who want to live in town.	3	0	134
andiem	Is Kaka'ako moving in the right direction? It depends on who you ask ... wealthy new property owner or homeless family at Kaka'ako Makai?	0	0	268
steph	Great, further obstruction of ocean views.	0	0	402
alexj	Saw cranes at Kamakee and Auahi Streets at #WardVillage in #Kakaako	0	3	480
kai55	Right off the bat, Ching is plugging an affordable rental high-rise. But it's just one high rise, compared to lots of luxury condos.	0	0	535
kellyshiori	Maybe Kaka'ako has pockets of affordable housing, but they are far and few.	0	0	669
julez	I like the new Kakaako. It has community gatherings, opportunities for young entrepreneurs, co-working spaces.	0	0	669
kellyshiori	Goodbye ocean views in Ward and Kakaako.	0	0	803
kaulanareyes	Me + sushi in Kakaako = happy. Love the new restaurants.	0	0	803
alexj	Another crane at Keawe and Auahi Streets in #Kakaako	0	1	840
andiem	My number one concern is green space and parks. Haven't seen plans to protect our land.	0	0	937

julez	The kakaako #streetview #streetart is the best in #Hawaii	0	0	937
steph	Act 153 re: Kakaako designed to ensure needs and aspirations of Hawaii's people. But execution falls short of vision.	0	0	1071
vickyp	Good times at the Eat the Streets in Kakaako. #nomnomnom	0	0	1071
jadenl	Dude, the show is about Kakaako, not Hoopili.	0	3	1200
steph	KAKAAKO'S AFFORDABLE HOUSING RARELY IS	0	0	1205
kaulanareyes	I love the new #izakaya restaurants near Kakaako. The up-and-coming 'hood is great for foodies!	0	0	1205
kai55	Legislature did not envision influx of luxury condos with Act 153, which placed Kakaako under state control.	0	0	1338
julez	Lots of people don't have $$ to buy. Kaka'ako rentals create opportunity for folks who can't afford Kakaako for-sale units.	0	0	1338
kellyshiori	True dat. High-rises will be squeezed in like sardines in Kakaako, with no open space.	0	0	1472
kaulanareyes	Love the free arts programs at the #Kakaako Agora.	0	0	1472
jadenl	Here we go. This is interesting. I want to know OHA's plans for Kewalo Basin.	0	1	1560
kellyshiori	Kewalo Basin should be protected from corporate interests. Just sayin'.	0	0	1606
julez	Early childhood center called Hawaii Stream Academy is opening in Kakaako. Good for families.	0	0	1606

andiem	I feel so bad when I drive pass the back roads over at Kakaako & see the lil kids coming out of the tents, playing.	0	0	1740
leilani	Loved the slam poetry at Fresh Cafe in #Kakaako.	0	0	1740

Opposed Condition

Source	Tweet	# of Replies Received	# of Favorites	Seconds from start
jadenl	peter apo is a longtime HI politician	0	0	120
kellyshiori	Who is billing it as the new social epicenter? Developers and the pro-development state agency HCDA. No surprise there. :-/	0	0	134
andiem	Get 'em Donna. Good job representing the environmentalist community.	0	0	218
andiem	Is Kaka'ako moving in the right direction? It depends on who you ask ... wealthy new property owner or homeless family at Kaka'ako Makai?	0	1	268
steph	Great, further obstruction of ocean views.	0	0	402
vickyp	Micro-units are a great idea, especially for Hawaii. Happy to see this moving forward.	0	0	402
kai55	Shouldn't the city have a vision for Kaka'ako?	0	0	435
alexj	Saw cranes at Kamakee and Auahi Streets at #WardVillage in #Kakaako	0	0	480
kai55	Right off the bat, Ching is plugging an affordable rental high-rise. But it's just one high rise, compared to lots of luxury condos.	0	3	535
kaulanareyes	The new micro-units are great news for Kakaako and Hawaii!	0	0	535
steph	Another building -- Nohana Hale -- is going up in Kakaako. It's too much, too fast.	0	0	653
kellyshiori	Maybe Kaka'ako has pockets of affordable housing, but they are far and few.	0	1	669
kellyshiori	Goodbye ocean views in Ward and Kakaako.	0	3	803

alexj	Another crane at Keawe and Auahi Streets in #Kakaako	0	0	840
kai55	Too many new condos in Kakaako. #overcrowding	1	0	870
andiem	My number one concern is green space and parks. Haven't seen plans to protect our land.	0	0	937
steph	Act 153 re: Kakaako designed to ensure needs and aspirations of Hawaii's people. But execution falls short of vision.	0	0	1071
andiem	HCDA is pro-development. Maybe we need to stop and think about whether that's a good thing.	0	0	1088
jadenl	Dude, the show is about Kakaako, not Hoopili.	0	0	1200
steph	KAKAAKO'S AFFORDABLE HOUSING RARELY IS	0	1	1205
kai55	Legislature did not envision influx of luxury condos with Act 153, which placed Kakaako under state control.	0	0	1338
julez	Lots of people don't have $$ to buy. Kaka'ako rentals create opportunity for folks who can't afford Kakaako for-sale units.	0	0	1338
kellyshiori	True dat. High-rises will be squeezed in like sardines in Kakaako, with no open space.	0	0	1472
kai55	With so many people moving into Kakaako, won't traffic be awful?	0	0	1523
leilani	Kakaako Kitchen's mahi-mahi sandwich gets shoutout in NYT sandwich guide! #winnahs	0	0	1523
jadenl	Here we go. This is interesting. I want to know OHA's plans for Kewalo Basin.	0	0	1560
kellyshiori	Kewalo Basin should be protected from corporate interests. Just sayin'.	0	0	1606
julez	Early childhood center called Hawaii Stream Academy is opening in Kakaako. Good for families.	0	0	1606
kellyshiori	In Kakaako, there's more luxury than affordable housing.	0	0	1740
andiem	I feel so bad when I drive pass the back roads over at Kakaako & see the lil kids coming out of the tents, playing.	0	0	1740

Appendix C

Consent Form

University of Hawai‘i at Mānoa

Consent to Participate in Research Project:

Experimental study on the use of social media while watching civic broadcasts

My name is Misa Maruyama. I am a graduate student at the University of Hawaii at Manoa in the Communication and Information Sciences program. The **purpose** of this research project is to understand how people use social media while watching televised broadcasts regarding civic issues. The results will be used to design better social media interfaces for civic learning and decision-making.

Activities and Time Commitment. If you participate in this project, you will spend as many as 1.5 hours participating. You will first be asked to answer questions on a brief survey. The survey asks about your demographic information, familiarity with technology and your positions on civic issues. It should only take about 20 minutes to complete. The survey will not have your name on it, and it will be coded with a subject number. I will not see your answers during this session.

After completing the survey, you will be asked to watch a 22-minute broadcast about a civic issue.

<Directions will differ based on the experimental condition> While watching the broadcast, you will be asked to <actively post on a microblogging platform similar to Twitter/ observe a microblogging platform similar to Twitter and REFRAIN from posting>.

If you agree to being recorded, your online behavior (what you look at and when you look at it) will be recorded. This recording will be used to understand your online behavior.

When you have finished watching the broadcast, you will be asked to answer a few questions about what you thought and felt during the session in a questionnaire. This part of the study will take about 30 minutes.

The final part of the study will be a group interview. You will be audio recorded if you consent to being recorded by checking the box below. The recording will be used to supplement notes and will be destroyed once the project is complete. You will be one of as many as 120 people participating in the study.

Compensation. You will be compensated for your participation with extra credit points in your <Course name> class.

Benefits and Risks. There is no direct benefit or cost to you for participating in this study. I hope, however, that the results of this project will help in the design of social media interfaces for civic learning and decision-making. I believe there is little risk to you in participating in this

research project. If however, you become stressed or uncomfortable answering any of the questions or working with the materials, you may skip the question, or take a break, or withdraw from the project altogether.

Voluntary Participation. Participation in this study is voluntary. You may refuse to participate, discontinue your involvement, skip a question or a study procedure at any time without penalty. This means that if you choose to stop participating, this will have no effect on your course grade or academic standing.

Privacy and Confidentiality. All research data collected will be stored securely and confidentially. Data will not be identified. This means that when the results are published, your name and any other personally identifying information will not be used. Instead, when referring to individual results, pseudonyms (such as "Subject 22") will be used. As a further privacy safeguard, the digital recordings and other data will be kept on a password-secured computer and ultimately destroyed once the project is complete.

All personal information will be kept confidential to the extent allowed by law. Several public agencies with responsibility for research oversight, including the UH Human Studies Program, have authority to review research records. Any information derived from this research project that personally identifies you will not be voluntarily released or disclosed by these entities without your separate consent, except as specifically required by law.

If you have any comments, concerns, or questions regarding the conduct of this research please contact Misa Maruyama at (808)956-3960 or email her at misattm@hawaii.edu. You may also call her advisor, Dr. Scott P. Robertson, at (808)956-2023 or email him at scottpr@hawaii.edu.

If you are unable to reach the researchers listed at the top of the form and have general questions, or you have concerns or complaints about the research, or questions about your rights as a research subject, please contact UH Manoa's Committee on Human Studies by phone at (808) 956-5007 or by e-mail at uhirb@hawaii.edu or at Biomedical Building Room B04 – 1960 East-West Road, Honolulu, HI 96822.

Consent to screen recording of mouse movements, mouse clicking and typing during social media use (check one):
____ YES, I agree to let my computer screen be recorded as described above
____ NO, I refuse to let my computer screen be recorded as described above

Consent to audio recording of group interview (check one):
____ YES, I agree to be audio recorded as described above
____ NO, I refuse to be audio recorded as described above

Signature:

I have read and understand the information provided to me about participating in the research project, *Experimental study on the use of social media while watching civic broadcasts.*

My signature below indicates that I agree to participate in this research project.

Printed name: _____ Signature: _____ Date: _____

You will be given a copy of this consent form for your records

Appendix D
Survey Instrument for groups that posted on social media (as displayed in SurveyMo

Moderator Instructions

********** **Study Moderator ONLY: Fill This Out** **********

Be sure cookies are cleared and fields below are blank!

* Participant Number (e.g. 1):

* Session Date (e.g. 09/10/2015):

****

Note: these fields should be blank / not filled in when you first enter this page.
If they are not, please DO NOT overwrite them. This is the last participant's data.

Instead: clear the browser cookies and close and reopen the browser.
If the fields are now blank, it is safe to proceed.

Welcome!

In this study you will do the following:

- Take a survey about your demographic information, social media use and positions on civic issues.
- Watch a 30-minute broadcast about a civic issue. While watching the broadcast, you will be asked to post on a Twitter-like social media platform at least three times.
- Afterward, you will be asked to complete another survey.

Please press "Next."

Background Information

Which category below includes your age?

- ◯ 17 or younger
- ◯ 18-20
- ◯ 21-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60 or older

Are you male or female?

- ◯ Male
- ◯ Female

What is your educational level?

- ◯ High school
- ◯ Some college
- ◯ Undergraduate degree
- ◯ Some graduate school
- ◯ Graduate degree

Frequency of Using Twitter

How frequently do you use Twitter?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

How frequently do you stumble upon tweets about civic issues, even when you're not looking for them?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

Frequency of Posting on Twitter

How frequently do you post tweets?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

How frequently do you post tweets about civic issues?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

Social Media Use while Watching TV

How often do you use social media while you are watching TV to learn about what you are viewing?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

How often do you use social media while you are watching TV to post a comment about what you are viewing?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)
○	○	○	○	○

What type of social media do you use to learn about or discuss what you are watching on TV? Please check all that apply.

- [ ] Twitter
- [ ] Facebook
- [ ] YouTube
- [ ] Google +
- [ ] reddit
- [ ] Instagram
- [ ] LinkedIn
- [ ] MySpace
- [ ] Tumblr
- [ ] Pinterest
- [ ] Vine
- [ ] I don't use social media to track what I am watching on TV

Other (please specify)

If you have used social media to learn about or discuss what you are watching on TV, on what device do you typically use social media? Please check all that apply.

- [ ] Desktop computer
- [ ] Laptop computer
- [ ] Tablet
- [ ] Smartphone
- [ ] I have never used social media to learn about or discuss what I am watching on TV

If you have used social media to learn about or discuss what you are watching on TV, on what device do you typically watch TV? Please check all that apply.

- [ ] Television
- [ ] Desktop computer
- [ ] Laptop computer
- [ ] Tablet
- [ ] Smartphone
- [ ] I have never used social media to learn about or discuss what I am watching on TV

Issue Knowledge

The next few questions ask about your knowledge and attitude toward development in the Oahu neighborhood of Kakaʻako.

Please indicate your general knowledge about development in Kakaʻako.

No knowledge	Low knowledge	Moderate knowledge	High knowledge	Very high knowledge
○	○	○	○	○

Attitude Toward the Issue

How favorably or unfavorably do you feel toward the way Kaka‘ako is being developed?

Extremely unfavorable	Unfavorable	Somewhat unfavorable	Undecided	Somewhat favorable	Favorable	Extremely favorable
○	○	○	○	○	○	○

Interest in the Issue

Please indicate how much you agree with the following statements.

I am interested in the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I would like to know more about the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I feel informed about the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Importance of the Issue

The way Kaka‘ako is being developed is personally important to me.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Certainty About the Issue

I am confident that my opinion on the way Kaka‘ako is being developed will not change.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I don't have strong feelings about the way Kaka‘ako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Viewing Activity

You will now watch a 30-minute broadcast about development in the Oahu neighborhood of Kaka‘ako.

We would like for you to **post at least three times** using a Twitter-like microblogging platform. You can post anything you want within the 500-character limit. You can retweet, reply to and favorite posts. Your tweets can also be retweeted, replied to and favorited.

When the broadcast is done, we will ask you to answer another survey. It will take about 30 minutes.

Please raise your hand. The moderator will give you a tutorial on how to use the tool.

.

* The moderator will give you a code to proceed.

Link to Twitter tool

Please click HERE.

Code to Proceed

* The moderator will give you a code to proceed.

Viewing Experience

The items below ask about what you were thinking while watching the video and social media feed.

Please rate the degree to which you agree with the following statements.

I tried to relate what I saw to my own personal experiences.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I tried to think about how what I saw related to other things I know.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Issue Knowledge

The next few questions ask about your knowledge and attitude toward development in the Oahu neighborhood of Kakaʻako.

Please indicate your general knowledge about development in Kakaʻako.

No knowledge	Low knowledge	Moderate knowledge	High knowledge	Very high knowledge
○	○	○	○	○

Attitude Toward the Issue

How favorably or unfavorably do you feel toward the way Kaka‘ako is being developed?

Extremely unfavorable	Unfavorable	Somewhat unfavorable	Undecided	Somewhat favorable	Favorable	Extremely favorable
○	○	○	○	○	○	○

Interest in the Issue

Please indicate how much you agree with the following statements.

I am interested in the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I would like to know more about the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I feel informed about the way Kakaʻako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Importance of the Issue

The way Kaka‘ako is being developed is personally important to me.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Certainty About the Issue

I am confident that my opinion on the way Kaka‘ako is being developed will not change.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I don't have strong feelings about the way Kaka‘ako is being developed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Social Media Experience

Please indicate how much you agree with the following statements.

When I knew I was going to post on social media just now, I tried to think of things to say in advance.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

When I knew I was going to post on social media just now, I tried to think of good arguments ahead of time.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Social Media Experience

Please indicate how much you agree with the following statements.

When I posted on social media just now, it made me think more about my own opinions and beliefs.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

When I posted on social media just now, I thought about how other posts relate to my own personal experiences

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Social Media Experience

Please indicate how much you agree with the following statements.

After I posted on social media just now, I continued to think about what other people posted later.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Posting on social media just now made me think about that topic after the posting was over.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Thought Listing

We are now interested in everything that went through your mind while watching the broadcast and viewing the social media feed. Please list these thoughts, whether they were about yourself, the situation, and/or others. They can also be positive, neutral and/or negative. Any case is fine. Ignore spelling, grammar, and punctuation. If English is not your primary language, you may write in the language you are most comfortable with. Please write for about 10 minutes.

We have deliberately provided more space than we think people will need to ensure that everyone would have plenty of room. Please be completely honest. Your responses will be confidential. You can record your thoughts and ideas in the box below.

.

What language did you write your response in?

Social Media Feed

Please indicate how much you agree with the following statements. The "social media feed" refers to the posts you viewed while watching the broadcast.

I got what I needed on this social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

This social media feed helped me fulfill my needs.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I felt like a member of this group on the social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I belonged in this social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I had a say about what went on in this social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

People on this social media feed were good at influencing each other.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I felt connected to this social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

I had a good bond with others on this social media feed.

Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
○	○	○	○	○	○	○

Social Media Posts

Overall, how favorable were the tweets you saw in today's study toward the way Kakaʻako is being developed?

Very unfavorable	Unfavorable	Somewhat unfavorable	Neutral	Somewhat favorable	Favorable	Very favorable
○	○	○	○	○	○	○

Twitter Features

Prior to today's study, were you aware of the favoriting function on Twitter?

- ◯ Yes
- ◯ No

Twitter Behavior

If you post on a microblog such as Twitter, how frequently do you typically favorite other users' tweets?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)	**N/A:** I have never posted on a microblog.
○	○	○	○	○	○

If you post on a microblog such as Twitter, how frequently are your tweets typically favorited?

Never	**Rarely** (a few times per month)	**Sometimes** (a few times per week)	**Often** (about once a day)	**Frequently** (more than once a day)	**N/A:** I have never posted on a microblog.
○	○	○	○	○	○

Interactions During Today's Study

During today’s study, about how many of your tweets were favorited?

During today's study, about how many favorites did your tweets receive?

How did you feel when your posts were favorited, if at all?

Why do you think your posts were favorited, if at all?

Recall

In the space below, please answer the question from memory without using any reminders (i.e. open tabs, other windows).

Don't worry about spelling, punctuation or complete sentences. Spend only about three minutes per question.

Why does the Office of Hawaiian Affairs have 10 land parcels in Kakaako, according to the broadcast?

What is the state's vision for Kakaako, according to the state agency that oversees development in the area?

Why is Donna Wong of Hawaii's Thousand Friends concerned about the way Kakaako is being developed?

Why is there an odor problem in Kakaako, according to the state and city officials in the broadcast?

PBS Insights Broadcast

Prior to today, have you watched the PBS Insights broadcast on development in Kaka‘ako?

- ◯ Yes, I watched the broadcast before today.
- ◯ No, I did not watch the broadcast before today.
- ◯ I don't know.

Thank You!

Thank you very much for completing the survey.

Please raise your hand to let the moderator know you are finished.

.

Appendix E

Coding Guide

My Emotion and Their Emotion

Use the code My Emotion or Their Emotion when a participant mentions a mood, feeling or emotion. Look for explicit mentions of emotion words. Code personal feeling states as My Emotion, and use the Their Emotion code when participants mention external emotions experienced by other people. Code for emotion if the person is expressing pleasure, arousal or dominance. For instance, "bored" indicates low arousal and would qualify as an emotional word. Note: Some people use the word "feel" to describe an opinion. If "I believe" can be used instead of "I feel," do not code for emotion. For example, "I feel development should continue" could also be worded "I believe development should continue," so do not code as emotion. "I feel happy" is not synonymous with "I believe happy," so code as My Emotion. Also do not code states that are not emotional. For instance, the word "abandoned" would not be coded with Emotion. While a person can feel a number of emotions after being abandoned (such as resentment or fear), being abandoned is not necessarily an emotional experience. On the other hand, "confused," "concerned," "surprised" and "relaxed" would qualify as emotions.

Is the participant using an emotion word related to his or her OWN mood, feeling or emotion?

- If yes, code as My Emotion.

Is the participant using an emotion word related to SOMEONE ELSE'S mood, feeling or emotion?

- If yes, then code as Their Emotion.

Is the participant using the word "I feel" or "I like" to express an unemotional belief or opinion?

- If yes, do NOT code as Emotion.

- If “I feel” can be replaced with “I believe,” then carefully consider whether it is an emotion. For example, “I feel like they're just saying that it is affordable housing and affordable high rises just so that the locals don't get politically involved” would not be coded as emotion because it is an expression of an opinion or belief.
- “Personally I like the culture, art, and shopping areas in Kakaako” also would not be coded as an emotion because it expresses an opinion, rather than a feeling.

Knowledge Level

Use the knowledge level code when participants write about the extent of their knowledge, what they learned or what they did not know.

Is the participant writing about how much he or she knows, or how much he or she has thought about the topic?

- If yes, code as Knowledge Level.

Is the participant writing about what he or she learned? Is the participant acknowledging that he or she encountered new information?

- If yes, code as Knowledge Level.

Is the participant writing about what he or she does not know? Is the participant thinking about being confused?

- If yes, code as Knowledge Level.

Question

Use the question code when participants ask questions or express what they want to know about the topic of conversation.

Is the participant asking a genuine (not rhetorical) question?

- If yes, code as Question.

- Sometimes it is difficult to know if the question is rhetorical or not. If there is no way to know for sure, code as Question.

Is the participant thinking about what the person wishes he or she knew?

- If yes, code as Question.

Is the participant thinking about what he or she wants to learn about in the future?

- If yes, code as Question.

My Story and Their Story

Use the Narrative codes—My Story and Their Story—when participants share accounts of their direct experiences or someone else's direct experiences. The My Story code often includes narratives from childhood, as well as more recent memories in or about Kaka'ako. Use the *My Story* code when participants describe what *they* saw, heard, felt, smelled or tasted. Use the *Their Story* code when participants describe what *someone* else experiences with their five senses. Sometimes participants don't explicitly say an event was experienced directly, but use the code when it is implied. If the person is writing about an experience in past or present tense, use the My Story or Their Story code.

Is the story reflecting on a direct experience in the past or present?

- If yes, consider coding as My Story or Their Story.

Is the participant describing something he or she experienced directly—something he or she could see, hear, feel, smell or taste?

- If yes, code as My Story.

Is the participant describing something someone else experienced directly—something *someone else* could see, hear, feel, smell or taste?

- If yes, code as Their Story.

My Future and Their Future

Use the My Future and Their Future code when participants wrote about *future* implications of development in Kaka'ako. If participants wrote about how the development will *personally impact them or their family*, use the My Future code. If the participant wrote about how the development will *impact other individuals, groups or society*, use the Their Future code. Verbs that indicate a future orientation such as "will," "would," "shall" and "going to" suggest the My Future or Their Future code may apply. Even if the participant determines the issue is not relevant to future goals, but the possibility was considered, code as My Future (e.g., "probably by the time Kakaako's construction would be complete, I would be gone.")

Is the participant thinking about future consequences of the issue for the person or his or her family?

- If yes, code as My Future.

Is the participant thinking about future consequences of the issue for someone else or a particular group?

- If yes, code as Their Future.

Is the participant thinking about future consequences of the issue for society at large?

- If yes, code as Their Future.
- Examples: "With more development and people living in Kakaako, it will cause more traffic" and "In the downtown area all anyone would see would be tall building many vehicles, sometimes even violence."

Evaluating Arguments

Use the Evaluating Arguments code when participants are *judging someone else*'s stance, ideas, plan or logic ("It makes sense to me"). It must be clear they are critiquing another person's

statements, not their own reasoning. Often, this will sound like agreement or disagreement. For example, they may critique what people are saying on the broadcast or social media (e.g., "they did a good job addressing the problem" or "At the same time she made sense in what she asked"). Some participants critiqued people for what they felt was missing from their plan or argument. This would also be coded as Evaluating Arguments.

Is the participant judging someone else's stance, ideas, plan or logic?

- If yes, code as Evaluating Arguments.

Action

Use the Action code when participants are judging what actions should be taken in the future, ranging from from nothing (e.g., "Let the situation handle itself") to slowing or stopping development to changing the decision-making process. Use the code even when the participant talks about the course of action in specific or vague terms (e.g., "I personally think that Kaka'ako's development is something that should happen"). If a participant is *judging someone else's plan of action* or *proposing a plan of action*, this would be coded as Action.

Is the participant judging a plan for the future?

- If yes, code as Action.

Is the participant proposing a novel plan for the future?

- If yes, code as Action.

Session Media

Use the Session Media code any time the participants wrote about the social media, broadcast or tool interface they viewed *in the session*. Use the code when people mention specific ideas from the media or the content's tone (e.g., bland or heated), relevance, length or quality. When participants write the mock Twitter tool's usability, appearance and functionality, use the code.

Do not use the code when participants are mentioning the broadcast or social media to "back into" their thoughts but are not describing the media in any way (e.g., "While watching, I thought …," "After watching it, I noticed …," or "Before watching it, I felt like …").

Is the participant describing an aspect of the media or technology viewed *during the session*?

- If yes, code as Session Media.

General Media

Use the General Media code if the participants wrote about everyday use of technology or consumption of media *outside of the session* (use the Session Media code for references about technology or media in the session). Comparisons between day-to-day technology use or media consumption and what was encountered in the session would be double coded with General Media and Session Media. Occasionally, participants will mention encountering news and information via media; use the General Media code for these units. Use the code when participants discuss typical social media behavior or content in their social media feed.

Is the participant describing media or technology viewed *outside of the session* (in their day-today lives)?

- If yes, code as Action.

Posting

Use the Posting code when participants wrote about posting, wanting to post or not knowing what to post. Apply the code whenever participants seem aware of self-presentation on the feed. Also, use this code when participants write about their audience or the possibility of feedback (e.g., replies, retweets or favorites).

Is the participant writing about posting (e.g., posting, wanting to post, not wanting to post, not knowing what to post)?

- If yes, code as Posting.

Is the participant writing about self-presentation or audience on the social media feed?

- If yes, code as Posting.

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