

Social Media as Boundary Objects: A Case of Digitalized Civic Engagement in Malaysia

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Abstract

The emergence of social media has excited considerable interest regarding its capabilities in catalyzing enormous societal changes. Overall, the relationship between social media and civic engagement is one of the important, multifaceted areas that has received limited attention to date within the IS field. From advocacy to crime prevention, the answer to how and to what effect social media may contribute to contemporary civic engagement is still contested. By using a case study of digitalized crime fighting communities in Malaysia, we conceptualize the use of social media in catalyzing civic engagement by putting forward the notion of boundary object. Coupled with a practice lens, we offer a rich understanding of how the boundary-spanning competence of social media can be transformed in situated practice and catalyze the development of contemporary civic engagement as an instructive account that contributes to the IS literature on ICT for development.

Keywords

Social media, boundary object, ICT for development, practice-based studies, case study

INTRODUCTION

The assertion that civic engagement directs communities towards achieving development goals has long been deemed to be valid. Effective and sustainable civic engagement is, indeed, needed to bring essential improvements, including better understanding of requirements, increased community cohesion, enhanced democracy and increased social inclusion (Olphert and Damodaran 2007). However, the progress towards civic engagement often remains minimal, due in part to the constant struggle from resources, opportunities or generally, a platform of participation. More recently, the eager adoption of social media by millions of individuals around the world has led to a new form of civic participation, which we named as the contemporary civic engagement. This changing media landscape propagates a unique participatory potential “by fostering openness, inclusivity and the opportunity to debate issues of common concern” (McGrath et al. 2011, p. 2), which then allows people to mobilize support and to initiate social movements on a global level.

Collectively, the new media offers a tantalizing promise for enhancements to social life; it has the potential to deliver genuine improvements in quality of life by catalyzing civic participation. This potential complies with the agenda of ICT *for* development (ICT4D), a key emerging area that focuses on assessing the power of technologies in facilitating the development of communities. Within this domain, new technologies are applied to meet different societal expressed needs and to function as a vehicle for furthering developmental goals (Thompson and Walsham 2010). In this paper, we contribute a rich understanding of the civic use of new media to the growing body of ICT4D research by presenting an in-depth case study on the use of social media for the prevalence of crime in Malaysia. More specifically, we put forward the notion of boundary objects to conceptualize the application of social media for civic engagement and to unveil how social media could afford different boundary spanning capabilities when it was enacted by communities to satisfy different demands.

Social media is a participatory media, whose capabilities, values and power derive from the active participation of collectivities. In this regard, we draw on a practice lens to develop a nuanced understanding on how social media could supply us with novel boundary spanning opportunities and how these boundary-spanning competencies could be shaped by its recurrent use in practice. Such theoretical perspective privileges neither users nor technology, but advances the view that technology structures are constituted by users in their ongoing practices, which then shape their subsequent, situated use of that technology (Orlikowski 2000). Against this

backdrop, we propose that bringing together the dynamic nature of boundary objects and the practice lens allows us to open up the black box, and cogently answer two research questions: (1) how does social media function as boundary objects in contemporary civic engagement? (2) how does the boundary-spanning competence of social media transform and catalyze the progress of contemporary civic engagement?

The contribution of the study is twofold. First, we bring together the literature on new media and civic engagement, which remains largely fragmented, and bring attention to this important area that remain underexplored in IS research. While social media has increasingly attracted the attention of researchers, questions regarding how social media play a part in addressing difficult societal issues such as crime prevention are still largely unanswered (Preece and Shneiderman 2009). By providing information on how social media might serve broader developmental objectives, such as civic engagement in this case, our study also contribute to the growing body of ICT4D research, which has been increasingly acknowledge by IS field (Thompson and Walsham 2010). Secondly, by delineating the utilization of social media as boundary objects, we move beyond a simple cause-and-effect explanation, to unveil the underlying factors and dynamics that are crucial in understanding the practical application of social media. In this regard, we inform the boundary object literature by portraying how social media as boundary objects can be flexibly enacted in practice to fulfill different situated needs and trigger the progress of civic engagement.

LITERATURE REVIEW: CONTEMPORARY CIVIC ENGAGEMENT

Civic engagement is an umbrella term which may be explained as “a process through which stakeholders influence and share control over development initiatives, and the decisions and resources which affect them” (Havel 1996). It is the process in which citizens embrace the responsibilities to actively participate in public life to help shape and strengthen the local community. People can participate in civic life in myriad ways, from spending time in community work, participating in fundraising for a charitable cause, to filing complaints about street repairs in the neighborhood. Civic engagement is often linked to greater social cohesion, a greater sense of empowerment, and an increased capacity for collective action, which are all necessary in achieving development objectives. However, the effort to ignite civic progress does not come easily. Authorities often struggle to catalyze systemic change among communities, especially in developing countries where resources to manage a participatory process remain scarce. Pathways for civic engagement are often extremely limited, especially for youth, whose voice is seldom heard in the conventional model of engagement.

More recently, the creative application of technology as social innovation to keep communities informed, responsible and civically engaged has attracted considerable attention from civic entrepreneurs and leaders. In particular, social media has emerged as a participatory media that presents catalytic potential in overcoming the built-in barriers of social change. For instance, in nations where leaders are struggling to meet development goals, social media helps to digitally “blow the whistle” and create more pathways for development. However, despite the emerging, multifaceted role of social media in igniting social change, it has not received the attention it deserves among researchers (Preece and Shneiderman 2009). The socially innovative effect of social media, which emerges within specific contexts, opens up a number of opportunities for further exploration. In this study, we aim to contribute important insights to the phenomenon of contemporary civic engagement by focusing on an important community problem – the issue of crime. More specifically, we investigate the use of social media as a boundary objects in enabling, empowering and engaging communities in awareness building, counteraction and the prevention of crimes towards developing a civil society.

THEORETICAL BACKGROUND: BOUNDARY OBJECTS IN PRACTICE

Boundary objects are defined as a broad range of artifacts that “are plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites” (Star and Griesemer 1989, p. 393). A boundary object is adaptable, shareable across different problem solving contexts (Carlile 2002; Tim et al. 2013), and capable of “inhabit several intersecting social worlds and satisfy the information requirements of each of them” (Star and Griesemer 1989, p. 393). There has been a plethora of studies in the existing literature that apply the concept of boundary objects to artifacts that possess the properties of modularity, abstraction, accommodation and standardization (Pawlowski and Robey 2004; Star and Griesemer 1989). Among these, technological artifacts such as knowledge sharing software, enterprise systems, virtual prototyping technologies and project management tools are often suggested as boundary objects that are capable of facilitating interaction and collaboration between disparate groups of individuals (Carlile 2002).

Reflecting on its typology, a boundary object is not necessarily static (Carlile 2002). Instead, boundary objects are often ascribed with particular functions (Nicolini et al. 2012), “subject to reflection and local tailoring” (Star 2010, p. 603), and “may evolve or change as they are modified to address internal or external contingencies” (Doolin and McLeod 2012, p. 572). They are capable of performing different roles in different settings or over

time, and “their characteristics are hard to sustain as problems and people change” (Carlile 2002, p. 452). However, while much of the literature acknowledges the flexibility and adaptability of boundary objects, it is surprising to find that a concrete understanding of boundary objects’ dynamics is still largely absent in the extant literature (Gal et al. 2008). There are only a handful of studies that broadly outline the emergent nature of boundary objects. For instance, Carlile (2002) anticipated that boundary objects may change depending on the type of boundary faced, but do not explicitly elaborate on the change process. Levina and Vaast (2005) proposed that a technological artifact can only emerge as a boundary object-in-use when it is meaningfully and usefully incorporated into the local practices. Doolin and McLeod (2012) drew on the concepts of sociomateriality to discuss how a prototype, as a designated boundary object, can be recognized and delineated as a boundary object-in-use by different groups of users and achieve varying boundary spanning effects.

Along these lines, we concur that although some of these studies have hinted at the dynamic nature of boundary objects, the transformation of a boundary object in terms of the transition of its symbolic importance in practice is still an under-developed idea. Star (2010) underscored that the dynamics where boundary object is *tailored* to local use within communities of practices have often been neglected by researchers. Echoing this point, we emphasize that the attributes of boundary objects are only defined and built upon communities’ participation and practices. While assessing the material properties of boundary objects is useful in revealing how an artifact may afford certain boundary-spanning competence, this single-dimension perspective obscures the intertwining complexity between social practices and boundary objects. In the following section, we elaborate on how *practice* constitutes an inseparable part of the emergent nature of boundary objects, and how this perspective can generate nuanced insights beyond the conventional discussions of boundary objects.

A Practice Lens

In this study, we draw on a practice-based standpoint to enrich the notion of boundary object with a theoretical specificity, and provide a rich understanding of its transformation, instead of merely discussing its material properties. Social practice is defined as the “recurrent, materially bounded, and situated action engaged in by members of a community” (Orlikowski 2002, p. 256). This practice lens brings together two important aspects for studying the recursive interaction between people, technologies and social action, namely the technology as “artifact”, and the “use” of technology, or what people actually do with the technological artifact in their recurrent, situated practices (Orlikowski 2000, p. 408). By framing the use of technologies in practice as *enactment*, this view focuses on the process where individuals constitute, actuate or translate their ways of using the technologies (Orlikowski 2000). We suggest that the practice perspective has much to offer scholars of boundary objects. Rather than being an artifact with rigid, embodied structures, a boundary object is intended for the development of new shared conceptions of practice and new modes of action. A practice-based perspective is therefore capable of offering a nuanced understanding of the use of boundary object, particularly on the emergent boundary spanning competence that could be enacted in situated action.

A handful of existing studies examine boundary-spanning activities from a practice-based perspective. Orlikowski (2002) demonstrated that by engaging in everyday practices, members of an organization are competent to span multiple boundaries they encounter in their daily work. Carlile (2002) recognized that spanning the knowledge boundaries is essential for learning across different functional units because knowledge is localized, embedded and invested in practice. Levina and Vaast (2005) explored how an organizational boundary spanning competence is created, along with the emergence of a new joint practice. However, despite the linkage established between the concepts of practices and boundary spanning, the extant literature pays little attention to the diversity and complexity of practices in the broader social context, as well as the potential new perspectives opened up by specific qualities of emerging technologies. As an effect of increased interest in the multinational or multicultural distributed teams as well as the intra- or inter- organizational knowledge sharing, “there is a significant body of research that examines boundary-spanning activities in organizational innovation and everyday work practices” (Lindgren et al. 2008, p. 641). As previously discussed, we observe that research on the use of contemporary technologies in community practices within the larger social context has remained in its nascent phase. The practice lens itself reminds us that people draw on the *properties* of technological artifacts and *enact* a *distinctive* technology-in-practice through the recurrent *social practices* of a community of users (Orlikowski 2000). It is thus important to investigate how contemporary technological artifacts (such as social media) offer novel influences on the enactment and structuring of technology-in-practice, and articulate how these different enactments modify or reinforce the use of technology in return.

RESEARCH METHODOLOGY

In line with our research questions, we present our analysis based on an interpretive case study. Studying the use of social media in civic engagement requires an investigation of the recurrent interactions, complex constitution and reconstitution of technological structure. Interpretive case research methodology offers a more pertinent

understanding, as it encourages the generation of new findings not prejudiced by prior hypotheses. Such qualitative research approach that is exploratory in nature is also particularly appropriate to answer our “how” research questions (Walsham 1995). Data collection was conducted by the authors from September 2013 to January 2014, which comprised of background review, onsite and online interviews, and social media data collection. In sum, 28 interviewees from several digitalized crime-fighting communities were interviewed, resulting in around 148 pages of textual data. We ensure that data was gathered from multiple levels (see Table 1) to account for possible differences in interpretation among the participants (Klein and Myers 1999). Interviews were open-ended and exploratory in nature, and occasionally guided by some rudimentary questions that were structured around the interviewee’s role, involvement and experience in social media-enabled crime-fighting initiatives. Each onsite interview was digitally recorded (with permission) and transcribed for data analysis. For interviewees who were more comfortable with expressing themselves in Malay, we engaged some native Malay speakers to help with translation and transcription. After attaining permission from our interviewees, we collect and analyze postings on the social media platform – Facebook. This rich set of social media data allows a finer-grained analysis of everyday activities of the Facebook communities and is therefore, critical in advancing the understanding of boundary objects’ transformation in practice. Additionally, we requested relevant documentation from the communities and collected data from online news reports, infographics, statistics and crime-related statements published on the web as supporting evidence for triangulation. Table 1 outlines the details of our data collection efforts.

Table 1. Data Collection

Onsite semi-structured interviews	22 onsite face-to-face interviews were conducted with each interview lasted an average 90 minutes. List of interviewees involved were (1) the Royal Malaysia Police team (the national police force) who initiated social media presence as to promote civic engagement, (2) a crime desk journalist from one of the largest circulating newspapers published in Malaysia, with a Facebook page that recorded more than 890,000 “Likes”, (3) a very influential community leader who founded a community policing association and used social media actively to fight crime, (4) a well-known Asian crime analyst who is actively involved in various crime fighting committees, (5) social activists, active bloggers and criminal lawyers who were also the founders of several digitalized crime-fighting communities, and (6) followers of crime-fighting communities, including those who have been involved in, or benefited from some widely known cases (e.g. stolen car owner who track down the car with the help of the social media communities).
Online interviews	Six interviews were conducted on Facebook. All interviewees were followers of the crime fighting communities and interviews were conducted individually and asynchronously. Online interviews are particularly appropriate for participants who are concerned with the physical presence of the researcher and make it easier for participants to discuss more sensitive topics (e.g. their personal encounter on crime) (James and Busher 2009).
Facebook postings	Data were also collected from the postings of several crime fighting pages on Facebook. Our aim is to take advantage of the significant amount of social media data to better understand the interactions among the communities and to uncover the development of civic engagement. This data collection was also guided by input gathered from interviewees, which allowed us to screen and select influential postings such as stolen cars and murder cases that have attracted a large number of digital attentions or have been successfully solved with the help of social media.

Data collection and data analysis go hand in hand in interpretive research, representing the interplay of theoretical concepts and empirical data. Data were assessed and reassessed several times, categorized into emerging themes, first guided by a set of preliminary, potentially relevant theoretical constructs that serve as the “sensitizing device” (Klein and Myers 1999, p. 75). More specific themes emerged in the research process as researcher’s understanding of the phenomenon deepened. The unique interaction between social media and communities’ practices led us to the notion of boundary objects. Our attention to the practice lens emerged from the observation in which communities enacted social media differently to achieve different demands. After identifying this particular set of themes, we moved back and forth between our data and theories, interrogating the materials to verify whether the emerging claims were supported by the data, and conversely, whether the theories help to deepen our understanding of the empirics (Pan and Tan 2011). At various points in the data analysis process, visual mapping and narrative strategies (Langley 1999) were used to condense the voluminous amount of data and to visualize key events. In sum, the data analysis was itself an iterative review cycle of empirical data, literature and the theoretical lens, while continuously building an explanation of the phenomenon and gradually shaping the conceptualization. The process continued until we reached the state of theoretical saturation, i.e., where it was possible to comprehensively explain the case research findings using the derived conceptualization, and when new data could neither dispute the conceptualization nor reveal new themes.

CASE DESCRIPTION

In Malaysia, crime is one of the most topical discussions, and is often listed as one of the topmost serious problems threatening the country's developing strategy (Habibullah and Baharom 2009). Across the country, cases such as snatch theft, burglary, robbery, kidnapping, rape and murder have become increasingly common, and have left residents in a constant vigilant state (Sidhu 2005). The situation has become more alarming with the increase of violent and even high-profile crimes in recent years (Economist 2013).

"A lot of us- someone who is close to you, your family, have become a victim of crime. If I take a stone and throw at anyone here, I am sure they have a story to tell" – Administrator of Facebook crime-fighting community

"I think Malaysia is at the juncture whereby this kind of postings [crime cases] people would like to share. Everyone we have spoken to has either first or second hand experience of being snatched or robbed or broken into. It's not even third anymore." – Follower of Facebook crime-fighting community

Considering the soaring crime rates, a range of anti-crime endeavors has been initiated among Malaysians at every level. Despite the demanding policy reform and physical safety protections, the most significant, all-embracing initiative is the emergence of social media-enabled crime fighting. Residents who constantly suffer from crime have begun to initiate their own attentive, defensive and preventive crime-fighting strategies by using social media. This collective voice and digital attention is also challenging law enforcement authorities to keep pace; many of them thus turn to social media to approach the public and to help with investigations. Given this background, we move forward to introducing four leading digitalized crime-fighting communities that we interviewed in Malaysia, which representatively broach the subject of social media for civic engagement.

Crime Watch Malaysia (CWM) is a crime case sharing community, initiated by a social activist, Mr. Jack, in 2010, as a platform dedicated to the safety and security of Malaysia. It was started as a blog on 2009, and switched to Facebook as an open group because "it is very much easier on Facebook and readership is very high". The aim of the group is "to highlight the horror of the rising crime rate and the brutality of crime" in the country. The group was monitored by two administrators, and consisted of more than 15800 members. *Community Oriented Policing Strategies (COPS)* was initiated by a former Royal Malaysian Police constable, Mr. Kuan, in 2007. The initiative has grown from a neighborhood scale into a statewide association, "whereby the police and the community share responsibility for identifying, reducing, eliminating and preventing problems that impact community safety and order". Moving beyond the use of official webpage, a social media strategy was introduced in 2011 "to encourage participation from the community". The association itself has accumulated more than 80000 members, while its Facebook group has more than 7000 members. *The Royal Malaysian Police (RMP)* is a Facebook page started by the federal police team so as to create "social media presence", to promote civic engagement and to fulfill a more coherent organization among all police subsidiaries. The RMP Facebook page, managed by 16 staff in the headquarter media team, was launched in 2011 and has accumulated more than 629000 "Likes", thus widely regarded as the authority that exercises crime-fighting responsibilities. *Malaysian Crime Awareness Campaign (MCAC)* is a Facebook grassroots crime-fighting community, initiated by Mr. Mark in 2012 because "crimes are happening and society is taking things on their own hands". It started off as a news-sharing platform and developed into a crime-fighting affiliation with more than 74000 "Likes" on Facebook. MCAC is managed by seven administrators who are responsible for crowdsourcing first-hand information from victims, disseminating evidence to the police force, and educating the communities with lesson learnt.

CASE ANALYSIS

In presenting our analysis, we first outline how social media could function as different *types* of boundary object, spanning different *boundaries* when recognized and situated in different settings. Moving forward to the second part of our analysis, we reflect how the role of boundary object *transforms* in practice. We observed that what we termed as a *boundary object-in-practice* emerges through the recurrent enactment of social media, which subsequently catalyzes civic engagement from one stage to another.

Crime Watch Malaysia – Creating Awareness

To realize effective civic engagement, the fundamental premise is that communities have the urge and the right to participate. Informed and aware citizens are able to exercise their rights and to contribute by participation. We observe that promoting *awareness* is thus the very first step in igniting civic engagement. In CWM, the *transparency* of social media was used as a boundary object to span an *informational boundary*. When Jack first started a blog for CWM in 2009, the central message is "to get people to contribute their crime stories because there are a lot of crime happened but goes unreported". However, "the blog didn't really kind of pull it out, the awareness we hope was not promoted enough". Raising awareness is particularly important because people are still curtailed behind the actual circumstances, due to the lack of information. "A lot of crime that happened just

goes unreported because of the hassle of going to the police station; this is the state of affair in this country". This informational boundary restricts the community in obtaining a complete understanding on the potential dangers they are facing. "At this time, people do not understand how and where the crime came from. There are just unimaginable thing that happen. You can get robbed anywhere, even in a shopping complex".

In 2011, Jack established an open group on Facebook to maximize information sharing. Propagated through the transparency of social media, a cluster of active contributors was formed by bloggers, retired teachers and activists. Coupled with their expertise in information gathering and consolidation, i.e., their *informational competencies*, a few of them turn the initiative into action. Over time, the group attracted growing attention by having detailed, up-to-date crime stories that were proliferated through the transparency of social media.

"In Malaysia, the newspaper, TV or radio is controlled by the Government, which means we can't get the right information. But on social media, anyone with the fact and evidence will post the news" – Follower

This intensive knowledge sharing and accumulation of information is particularly enabled by the transparency of social media and the information competencies of the users. Social media was used as a boundary object to span informational boundaries and subsequently, enable the development of an aware community.

Community Oriented Policing Strategies – Catalyzing Accordance

In order to achieve a groundswell of support for civic engagement, a broader focus that extends from simple awareness to behavioral influence is needed. From our data, we observed a stage where passive participants transformed into empowered contributors. This is the stage at which *accordance* with the digitalized crime-battling initiative was achieved, as shown by our case analysis of COPS. Working towards a united community requires the development of consensus and a common goal. Having established COPS for years, Kuan reveals that it is the shared focus or the consent of the need of crime fighting that binds them together: "our members consist of ordinary citizens, retired police officers and everyone who cares and concerns for the safety of the society. This is a place where all Malaysian stand together in one common agenda". Developing a common ground for citizen engagement is especially essential given that "a lot of Malaysians do not have a platform to express their crime encounters". This restricted means of connection between the communities and authorities is a *relational boundary*. This boundary was constantly highlighted by Kuan, and has subsequently directed him to leverage on the *prominence* of social media so as to strengthen the engagement among communities.

"I started the association on social media to make it a channel for two-way communication. People will come to us for crime issues that they thought may not warrant the attention of police" – Kuan

As a former police constable and a well-acknowledged community leader who have established trust among his followers, Kuan capitalizes on the salient diffusion of social media to direct a larger number of people towards a deeper level of engagement. Together, his *relational competence* and the prominence of social media enable it to function as boundary object, capable of spanning the relational boundary, which often inhibits collective action. Despite facilitating interaction within community, social media as a boundary object also proliferates relational linkages through acknowledgment and unity. As Kuan suggest, through the increasing connectivity, crime-fighting efforts are better recognized, and community is empowered through a sense of belonging.

"Using Facebook, we also manage to gain some financial supports from what we called as the anonymous heroes. It is quite heartening to see how personal fears unite pools of like-minded individuals" – Kuan

Royal Malaysian Police – Confirming Affiliation

Translating the sense of community into sustaining engagement is the key to building a cohesive society. From our data, we find instances where civic engagement is enhanced by accountability and a sense of recognition, which subsequently leads to the building of responsive and reliable *affiliation*. When the anti-crime movement goes beyond mutual consensus, it involves a thickening of relationships and networks between crime-battling actors. This stage was clearly observed from our analysis of RMP crime-fighting endeavor.

"I always imagine that social media is a big eye in the sky. Inside the big eye we have many small eyes, which are actually the community. So, the more members we have, the more fear we are sending to the criminals. We show them the strength of community. This big eye is also a platform for the community to communicate with police. We always receive information in our inbox. Lately there was a case where 15 ladies under human trafficking being rescued, the first information was actually received in our Facebook inbox. Based on 1 information, we rescue 15" – RMP

For RMP, adopting social media is a strategized crime-fighting initiative that allows the police to "directly engage with communities, with the people". "For us to start out this social media is actually for us to break the glass ceiling". RMP emphasizes that a "Facebook presence" is a crucial move to overcome the various barriers

that restrict people from engaging in a communal living. We observed that restricted social interaction or sparse interpersonal ties between the communities and the authorities is a *social boundary* that needs to be spanned before a synergic crime-battling affiliation could be developed and sustained. In this case, the *ubiquity* of social media comes into play as a “better way to attract people attention and to create impact”.

It is important to remember the relationship between users’ competencies and the use of social media as boundary object. We observed that, in this case, the *social competence* of RMP (i.e., their authority and accountability) is for a large part, stimulating and enduring the usefulness of social media. First, we observe that RMP was able to capitalize on their status of authority and the ubiquity of social media to explicate crime prevention strategies, to clarify rumors and to supply reliable information to other crime-fighting units. Second, the ubiquity of social media allows a collective and synergic crime fighting network. RMP embark on social media to establish working relationship with a number of institutions, for instance, “RMP execute a “Scam Alert” project on Facebook by working together with the bank association as to create awareness on any cheating cases that go through bank”. Since 2011, this social media-enabled anti-crime affiliation has successfully helped to track down suspects and has established a healthy engagement with the public.

To this point, we have discussed the first part of our analysis on the use of social media as boundary object in facilitating three different levels of civic engagement. We found that the concept of boundary object was particularly useful to explain how user’s competence could be used to establish local usefulness and symbolic value of social media, hence promoting it as a boundary object. These boundary objects are then capable of signifying the users’ competence to span different boundaries.

Malaysian Crime Awareness Campaign – Building Civil Society in Practice

Moving forward, we discuss how novel utilities of social media could unfold by its application in practice. From our data of MCAC, we observed the *changing nature* of social media and how the emerging boundary-spanning role further catalyzes the development of civic participation. While most of the crime-fighting communities were initiated by experienced leaders or authorized institutions, Mark started MCAC on Facebook as a grassroots anti-crime campaign. As is common in other crime-fighting communities, MCAC first capitalized on the transparency of social media as a boundary object to enable information sharing and to intensify the visibility of crimes. At this stage, Mark and his community focus on contributing contents to the page by posting victim first-hand information and important highlights about recent crimes cases. This is the stage at which a critical mass of well-informed individuals contributes useful contents to entice participation, albeit with minimal collaboration. Through this recurrent practice of information crowdsourcing on social media, we find that a type of local coverage that is otherwise difficult to obtain through any other information source was established on the MCAC page. By having individuals as information nodes, a network that covers and captures the occurrence of crime cases of any scale, in almost every neighborhood, was established on the page. In other words, the recurrent application of social media brings to a novel structure of *pertinence*. Communities started to acknowledge the relevance of social media as an appropriate crime fighting tool and demand for closer collaboration.

“I think I should share this so that people can know the tactics which criminals are using right now. I just get to know this by the post itself, thanks” – Follower

Granted by the pertinence of social media, activities on MCAC moved beyond the linear, one-off story posting to an interactive, multi-directional collaboration. In other words, the pertinence of social media, which was emerged from the continuous enactment of social media, was then practically employed as the first *boundary object-in-practice* to advance civic engagement from a stage of awareness to a stage of *accordance*. As community moved to the next level of engagement, the *prominence* of social media was enacted in order to attract more concerned individuals. In this recurrent practice of social media use, community focuses on the development of common ground, i.e., a mutual understanding and shared beliefs, which could facilitate deeper collaboration. Close and purpose-driven collaboration encourage more contributions, which in turn, provide the “glue that holds people together” (Preece and Shneiderman 2009, p. 21). From our data, we observed that the prominence of social network further motivated the collective crime-fighting effort. Plenty of success stories were achieved through collaboration among the empowered community. Mag, a follower of MCAC page managed to track down her lost car with help from the community:

“I had seen posts of stolen or missing vehicles on MCAC so I decided to give it a try by posting my lost car on the page. I know that, when a few people come together, it makes a lot of difference. Because of the sharing, we tend to talk and somehow, someone is bound to know something. I suppose there is a sense of community. I don’t know who Mr. Seow is [a follower who tracked down Maggie’s lost car and assisted her with photo and location], but he was instrumental in the recovery of our car” – Mag

From a practice perspective, we observed that the prominence of social media, which was enacted to facilitate collaborative work, subsequently led to a structure of *dependability*.

“Seriously, the recent case of baby Freddie [a kidnap case that goes viral on social media until it threatened the abductors to release the boy unharmed] is really impressive. Shows how effective social media is” – Follower

Having constituted such dependability, trust was established which further promoted the desire to sustain such communal effort. This dependability of social media, as a boundary object-in-practice, led to an acknowledgement of the crime-fighting movement. The civic engagement was again, advanced to the next, deeper level, where the *ubiquity* of social media was enacted in pursuing a synergic *affiliation*. As Mark explained, once community norms were established, setting longer-range goals and promote synergic relationship become possible. The ubiquity of social media allows MCAC to attain cooperation among a wide spectrum of crime-fighting units. In doing so, the common identity of social media was transformed into a structure of *connectivity*, which reflected the established relationship between MCAC and the external crime-fighting units. Moving into a deeper level of engagement, individuals have become more civic-minded, and demonstrate commitment in creating an active community. For instance, we found that proactive actions such as tagging friends on important postings were increasingly common. Community has also started to take unprecedented responsibility in monitoring the page, provides constructive comments and resolves rumors. We summarize our findings in Figure 1.

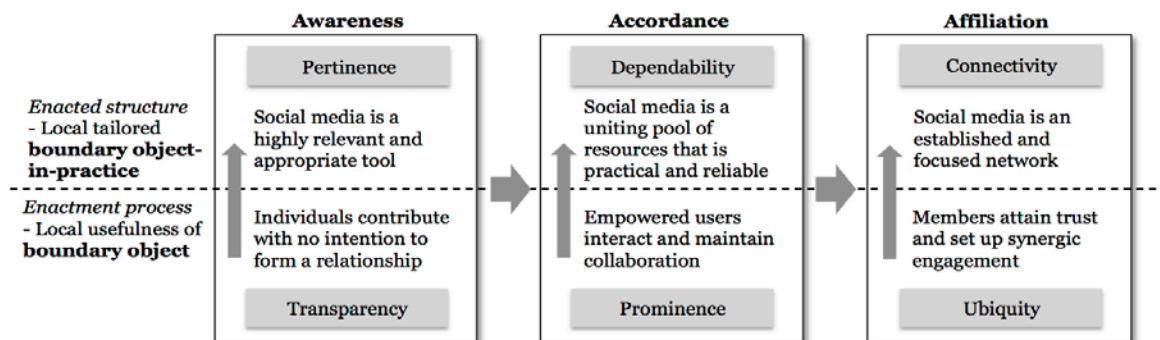


Figure 1. Enactment of Boundary Object-in-practice

DISCUSSION

Our analysis illustrates both the designated and emergent use of social media for civic engagement, drawing on the theoretical concept of boundary object and the practice lens. First, we suggest that social media possesses a range of inherent capabilities that could serve as a common schema with which to articulate particular functionality. Consistent with prior studies (e.g. Carlile 2002; Levina and Vaast 2005), we found that social media acquires a local usefulness when its symbolic importance been promoted by users who armed with specific competence. From our analysis of the three crime-fighting communities, we observe a conceptually similar prerequisite for social media to be effectively put in action. In these communities, the informational, relational and social competencies that were owned by the involved users emerged as a necessary condition for social media to acquire a local usefulness, and thus function as boundary object. We therefore affirm that before the recognition and the use of social media developed into a collective scale, a user could recognize, value and use the artifacts to promote it as boundary objects. Additionally, we found that a boundary object also functions to enable and amplify the users' competencies in return. For instance, users who possess informational competence could not ignite significant behavioral change without the transparency of social media. Similarly, the transparency of social media, without being promoted by user or meaningfully incorporated in joint practice, could not by itself generate much of the discussion. This finding is worth highlighting because the complex interaction between human actor and boundary object is still largely neglected in extant studies.

The second and perhaps more important insight that was generated from our analysis is the dynamic nature of the boundary object. i.e., its reconfiguration in practice as to accommodate new demand (to span new boundary). This is an important gap to bridge in order to grasp a complete picture on how and why boundary objects function the way they do (Carlile 2004). In particular, we underscored that specific boundary-spanning capability may emerge through the recurrent *enactment* of the technology *in practice*. We propose that a boundary object is typically the outcome of a process of enactment, insofar as its local usefulness and common identity were established and solidified. Additionally, when a boundary object was enacted recurrently in situated practice, it reconstructs the conditions of the community in terms of the social structure, how they make sense of the technology they use and thus what technological properties they use. In the case study, we show that the role of social media transforms, or in our terms, a new *boundary object-in-practice* emerged, as it was being used and reconfigured by the collectivities in response to particular need or contingencies.

CONCLUSION

Overall, through an in-depth case study on the use of social media in digitalized crime-fighting communities in Malaysia, our research offered a rich understanding of the use of social media as boundary objects for civic engagement. From a theoretical perspective, our research contributes to the extant literature by (1) documenting important insights on how social media could serve developmental objectives such as civic engagement (McGrath et al. 2011) and thereby informing its potential to the growing body of ICT4D research, and (2) conceptualizing the utilization of social media as boundary objects in two ways, thereby bridging the relevance and reinforce the usefulness of both boundary object theory and practice perspective to the use of new media in broader social context. At present, there are limited initiatives that capture the rich, intertwining relationships between new media and the participation in civil society. Our first contribution is to draw together the dynamics of social media as boundary objects and to discuss its contribution in civic engagement.

Secondly, we proposed nuance insights on the use of boundary object in two distinctive ways, as supported by our analysis of digitalized crime-fighting communities in Malaysia. The first part of our findings informs the line of research that is focusing on the *appropriation* of boundary object. We contribute important insights on how user's competence could invoke specific capability of social media to promote it as a boundary object. We also emphasize that once such a boundary object has been put into action, it signifies the competence of the users to span boundary. Moving forward, the second part of our analysis reveals the transformative nature of boundary object. We propose that through the recurrent *enactment* of boundary object, a *boundary object-in-practice* that was inscribed with new boundary-spanning competence emerged. These findings postulate that instead of merely focusing on the designated boundary-spanning functionality of technological artifacts, the transformative nature of boundary object that is granted by its malleability deserves more attention.

In terms of practical implication, this research contributes important insights on how new media could serve purposes that go beyond personal, discretionary use to a more serious application that could bring larger benefits to the society. On a positive note for those interested in promoting development goal with the new media, our study has demonstrated the potential of social media to function as a "civic media" that could strengthen the social bonds of a community and cultivate civic engagement. Additionally, by unpacking civic engagement into stages and consider the distinct demands within each stage, practitioners could construct better agenda in capitalizing social media to promote citizen participation. Moving forward, we also encourage scholars to devote attention to the growing discourse on the promise of new media in civic engagement, or more generally, in leveraging society-wide change that serves developmental purposes. Using our conceptualization as a point of departure, researchers may explore how the different potentials of technological artifacts could be unfolded in specific practices, and discuss the important implications in wider social contexts.

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ACKNOWLEDGEMENTS

This research paper was supported by University of Malaya Research Grant (UMRG) RP004H-13ICT.

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