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EMPIRICAL RESEARCH

Social media empowerment in social movements: power activation and power accrual in digital activism

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ABSTRACT

Social media assume a role in activism by enabling the powerless to voice widely shared grievances and organise unequally distributed resources. However, the predominant focus on the episodic effect of social media in the digital activism literature presents a limited understanding of how social media can play a role at different level of grassroots involvement and for movement continuity. By adopting a multidimensional empowerment perspective and extending the temporal scope in examining social media-enabled social movements, this study expounds on the logic of connective action (in contrast to the conventional logic of collective action) to offer a theory of social media empowerment. The study builds on a case study of an environmental movement to derive two key contributions: (1) it extends our knowledge of grassroots organising through a conceptualisation of the processes of how social media can allow individuals to assume a more proactive role in driving a social movement and (2) it provides a new understanding of the use of social media to sustain activism over time through the conceptualisation of social media empowerment mechanisms. A framework for social media empowerment in social movements is offered with implications for the mobilising practices of grassroots leaders and organisations.

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1. Introduction

Digital activism has attracted considerable attention following significant social media movements such as the Arab Spring, the Spanish Los Indignados, Occupy Wall Street, and the Umbrella Revolution in Hong Kong.[1] In addition to serving as a non-institutional channel that allows the powerless to voice widespread grievances, social media is unique in placing individuals at the centre of a vast network. This allows individuals to "activate and act as catalysts of collective action" (Cardoso, Boudreau, & Carvalho, 2013, p. 3), thus promoting grassroots self-organising (Cardoso et al., 2013; Kane, Alavi, Labianca, & Borgatti, 2014; Van Laer & Van Aelst, 2010). Recent studies have noted that social media-enabled movements follow the logic of connective action in contrast to the conventional and more familiar logic of collective action (Bennett & Segerberg, 2012). The logic of connective action argues for a more expansive path to concerted actions through the self-motivated sharing of personalised content on social media – it allows dispersed individuals to come together spontaneously even if they do not all identify with a common ideology or collective identity and even if membership and organisational resources are not present a priori (Bennett & Segerberg, 2012; Vaast, Safadi, Lapointe, & Negoita, 2017).

This study aims to derive insights into nascent knowledge of social media-enabled social movements. Though a number of studies have investigated connective actions in social media-enabled movements (e.g., Rane & Salem, 2012), they continue to focus on the episodic effects of social media. This approach is illustrated by two research tendencies that constrain our understanding of the full potential of social media and connective action. First, many studies are concerned primarily with presenting the amplification effect of social media, such as the quick effect of gaining a wide reach via connective action (e.g., Agarwal et al., 2014; Enjolras, Steen-Johnsen, & Wollebæk, 2013; Penney & Dadas, 2014), and in doing so, grassroots involvement is often conflated with "participation", thereby neglecting other outcomes, such as influence and control (Baker, 1993). However, these other outcomes must be considered to understanding how individuals and grassroots organisations can catalyse and drive social media-enabled movements in contrast to those driven by more established, experienced activist groups or professional social movement organisations (SMOs).

Second, accounts of social media use after a surge in active and visible actions are lacking, even though it remains true that persistent action over time is essential to bringing about meaningful change (Earl & Kimport, 2011; Snow, Soule, & Kriesi, 2004). It has been suggested that social movements undergo both *periods of rupture* (which refer to intense periods of mobilisation in which movement activities are highly

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visible and participants highly active [Fominaya, 2015; Taylor, 1989]) and *periods of abeyance* (which refer to periods in which movement activities are less visible and less active, often when the movement experiences a temporary decline or demobilisation [Fominaya, 2015; Taylor, 1989]). However, the often-assumed transitory nature of social media-enabled engagement has inherently led to more attention being paid to periods of rupture (Selander & Jarvenpaa, 2016). As a result, our understanding of the potential of social media to provide a connecting structure that can sustain activism over time, particularly during the period of abeyance, is incomplete. The real dynamics of such digital activism, which span both periods, are overlooked (Fominaya, 2015).

Therefore, this study aims to provide a more holistic understanding of the following question: "how does the use of social media empower the people in social movements?" Expounding on the logic of connective action, this paper will extend the temporal scope of analysis in examining a social media-enabled social movement. Simultaneously, to scrutinise the conflated "participation" outcomes of movements, this study draws on the empowerment perspective that offers a multidimensional analysis (De Zúñiga, H, 2012). Building on an in-depth case study of an environmental movement, a theory of social media empowered periods of rupture and abeyance in social movements (presented in the framework in Figure 3) is inductively derived, revealing mechanisms of *power activation* and *power accrual* over the periods of rupture and abeyance. To the best of our knowledge, this study is the first to look into the empowerment processes and mechanisms of social media beyond its episodic effects.

2. Literature review

2.1. *Digital activism and social media*

In citizen-led movements (e.g., the Arab Spring, Spanish Los Indignados, Occupy Wall Street and Umbrella Revolution), Facebook, Twitter, and YouTube were the preferred social media platforms. Citizens increasingly turn to social media platforms because they allow anyone to publicly post at low technical and financial costs, helping them intervene in their communities and produce change through joint actions (Castells, 2007; Yuce, Agarwal, Wigand, Lim, & Robinson, 2014). The term "social media" refers to web-based technologies that allow for user-generated content, making it possible for users to share, circulate, and comment on multiple types of content (Kaplan & Haenlein, 2010; Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). In particular, social media has a few defining features that enable users to (1) construct a unique profile, (2) search for digital content, (3) create a list of other users with whom the user shares a relational connection, and (4) view and traverse their connections and those made by others on the social media platforms (Kane et al., 2014, p. 279). These features of social media have behaviour-structuring effects that warrant a new evaluation of collective behaviour (Dolata & Schrape, 2015). In discerning the action dynamics underpinning emergent social media-enabled movements, a notable study is that by Bennett and Segerberg (2012), which proposes a *logic of connective action*.

In contrast to the familiar *logic of collective action* associated with organisational resources and collective identities, connective action refers to a new form of collective engagement whereby multiple actors come together informally based on self-motivated sharing of personalised content on social media, even if they do not equally identify with a common purpose (Vaast et al., 2017). In Appendix A, the differences between the two logics in terms of their assumptions and mechanisms of influence diffusion are detailed. Subsequent research has built on the logic of connective action to help us understand the role of social media in giving rise to grassroots self-organising, and some approaches are more direct than others. For example, the studies by Yuce et al. (2014) and Bennett, Segerberg, and Walker (2014) conceptualise social media as an enabler bridging overlapping networks and a mechanism stitching together these networks, further clarifying the logic of connective action in which individuals (instead of organisations) can take on the brokerage role of spreading information and influence (Burt, 2005).

That said, we noted in our review (Appendix B, focus 1–3) that existing studies are limited to shedding light on grassroots organising, particularly on how social media allows ordinary people to assume higher levels of participation. Many have treated social media users simplistically as passive participants in movements (e.g., Tufekci & Wilson, 2012; Valenzuela, 2013). Simultaneously, another stream of literature delves into the categorisation analysis of messages posted on social media (e.g., Bajpai & Jaiswal, 2011; Gaby & Caren, 2012; Harlow, 2012; Oh, Eom, & Rao, 2011; Rane & Salem, 2012; Shirazi, 2013). As suggested in the introduction, there is also an inclination to regard people's participation as the primary if not the only outcome of social media-enabled social movements. Focusing on participation as the outcome, previous studies have investigated the factors that drive participation (e.g., Agarwal et al., 2014) and types of participation (Penney & Dadas, 2014) in both online (e.g., Selander & Jarvenpaa, 2013) and offline (e.g., Enjolras et al., 2013) modes.

In comparison, less attention has been paid to other possible outcomes that are less evident at the

beginning of a movement or that take longer to develop, such as influence (the ability to impose meaning and shape how people think) and control (the resources to own and overcome problems) (Baker, 1993; Schulz, Israel, Zimmerman, & Checkoway, 1995). These outcomes have, in fact, been suggested as the manifestation of different levels of "participation", particularly in exemplifying the shift from passive participation to self-organising (Agarwal, Lim, & Wigand, 2012; Maghrabi & Salam, 2013). When these outcomes are conflated in a single representation (i.e., participation), it is difficult to distinguish peripheral participation from full participation and to clarify the community role, competency, and commitment as users climb the ladder of participation to self-organisation. It is essential to deconstruct the participation outcome in order to better illustrate the logic of connective action that posits individuals as agents of change (rather than just passive followers) and to capitalise on the uniqueness of social media in allowing a higher level of participation. Figure 1, in part, depicts the shift to connective action and the focal outcome of existing studies.

2.2. *Temporal perspective of connective action and latent power*

We noted earlier that movements that persist over time undergo periods of rupture and abeyance, which are characterised by peak activity and decline, respectively, that together constitute the protest cycle or cycle of contention (Tarrow, 1993). However, our review shows that the extant research on social media-enabled movements is dominated by a focus on the period of rupture (please refer to the column on temporal scope in Appendix B). Such a focus, however, could be understood as a natural corollary to the attention-grabbing period of rupture, which does not help us understand the potential of social media during period of abeyance that is critical for movement continuity (Taylor, 1989). It maintains the assumption that social media use is transitory in nature (Selander & Jarvenpaa, 2016), hence perpetuating the episodic effects of social media. Our primary concern is that this may result in a narrow perspective of understanding a social movement that usually involves long-term actions to create desired changes (Earl & Kimport, 2011; Snow et al., 2004).

Referring to periods characterised by less visible activity, periods of abeyance take place between periods of rupture when movements experience temporary declines relative to peaks of movement (Taylor, 1989). While the period of rupture emphasises the mass mobilisation of consensus and action, abeyance is about sustaining the movement in a non-receptive political and social environment. Hence, the repertoire and tactics required during a period of abeyance are distinctive (Taylor & Crossley, 2013). From the few studies on periods of abeyance, it is understood that an abeyance structure, possibly in the form of a movement organisation, is critical to providing continuity and linkages to new rounds of mobilisation. The abeyance structure serves three important functions for future mobilisation: promoting the survival of activist networks, sustaining a repertoire of goals and tactics, and promoting a collective identity (Taylor, 1989). In particular, the social movement abeyance structure should (1) persist over time in order to maintain personnel, (2) create group beliefs and goals for high levels of commitment, (3) impose stringent criteria for exclusive membership, (4) apply the centralisation of power to produce organisational stability and coordination, and (5) elaborate alternative cultural frameworks to provide security and meaning for those who remain in the group (Taylor, 1989; Taylor & Crossley, 2013). An example of related study has explored how a movement subculture that was imbued with the day-to-day lives of those involved can contribute to movement continuity (Fominaya, 2015).

On a related note, we argue that the concept of latent power may shed some light on the "inner strength" to be built up during the period of abeyance. "Latent power"

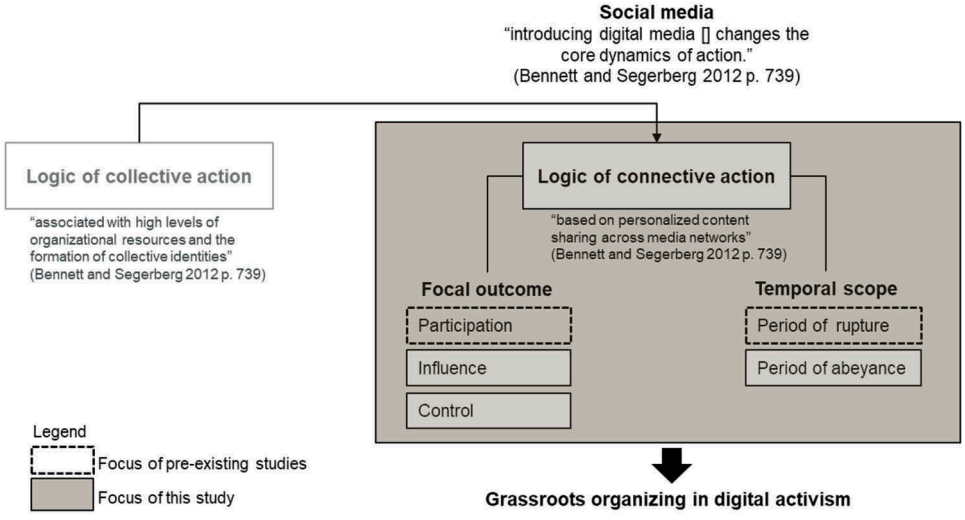

Figure 1. A literature-based understanding of social media-enabled movements.

refers to the "power base *at the disposal* of particular parties … as an underlying power of particular groups and their *potential* for achieving given ends" (Poole, 1975, p. 17). The accumulation of latent power is important to keeping a social movement alive (Taylor, 1989). For instance, with social media platforms serving as digital abeyance structures (Earl & Schussman, 2003), the digital footprints that remain on the Web provide records, sustain connections, and accumulate action repertoires that can be passed on Bennett and Segerberg (2012). When the critical activities of abeyance, such as the retention of activist networks and identities and the repertoire of goals and tactics (Taylor, 1989, p. 762), are made possible by social media, we posit that latent power is accumulated.

In information systems, though some rare exceptions exist to look beyond periods of rupture in social media-enabled movements (e.g., Ghobadi & Clegg, 2015; Selander & Jarvenpaa, 2016), their analysis either is situated at the organisational level or focuses on the narratives of oppositional forces (e.g., elites) (refer to focus 4 of Appendix B). Among them, only one (i.e., Tim, Pan, Bahri, & Fauzi, 2018) investigates grassroots organisation, yet the period of abeyance is not accounted for. Without considering the period of abeyance, social media-empowered movements may have already been sceptically labelled "slacktivism" and activists "keyboard warriors". It is imperative to present a more holistic understanding of how social media empowers people during periods of rupture and abeyance.

2.3. *Outcome perspective of connective actions and empowerment*

Empowerment provides a suitable theoretical lens through which to understand social media-enabled activism because it has the potential to elicit different levels of civic engagement. "Empowerment" refers to a mechanism through which a community gains mastery over its affairs (adapted from Rappaport, 1987, p. 122). Empowerment, or power for the powerless, is at the heart of social change and development (Drury & Reicher, 2009). Digital technology has been acknowledged as an effective non-institutional form of exchange capable of shifting the power dynamics in a social movement (Bennett & Segerberg, 2013). Through social media, the aggrieved population connects and bands together to establish a power base that allows them to execute joint action in pursuing change (Cullinane, Donaghey, Dundon, Hickland, & Dobbins, 2014; Leong, Pan, Ractham, & Kaewkitipong, 2015). More importantly, as mentioned earlier, the multidimensional characteristics of empowerment allow us to study empowered actions beyond participation (De Zúñiga, H, 2012; Tye et al. 2018). In a similar vein, Gaventa (1980) defined instruments of power as the ability to construct or eliminate barriers to participation using forces that influence shared consciousness and control resources to reward or punish. This definition reinforces our intention to investigate participation, influence, and control as empowered outcomes. Finally, though less well established, the temporal effects of empowerment and the importance of considering them are acknowledged (Kieffer, 1984; Maynard, Gilson, & Mathieu, 2012). In Table 1, our literature-based synthesis of different types of powerlessness in a movement is provided, leading to our subsequent review of three types of empowered outcomes: participation, influence, and control.

Next, we detail how each of the empowered actions can be understood based on the existing studies to identify the differences in the empowerment process that may be introduced by the use of social media (in comparison to logic of collective action). Participation, manifested primarily as co-presence in mass gatherings, has been the key dependent variable examined in social movement studies. Earlier research has identified various driving factors of participation, including shared grievances and deprivations from a traditional collective perspective (Hannigan, 1985), benefits that outweigh participation costs in rational choice theory (Olson, 1965) and collective identification in a model of collective action (Stürmer & Simon, 2009). These arguments, albeit rooted in different theories, underscore a bedrock assumption of the logic of collective action in which

Table 1. Types of powerlessness in a movement.

Source of powerlessness	Description
Inability to participate	The community is excluded or restricted from agenda-setting, decision-making, or issue-raising processes because those with power are able to construct or eliminate barriers to such participation (Bachrach & Baratz, 1962) Often evident in the lack of a formal system through which people can make their voices heard, which in turn "keep[s] issues from arising, grievances from being voiced and interests from being recognized" (Gaventa, 1980, p. vii)
Inability to influence	The force that influences or shapes meaning, consciousness and ideology is vested in people with authority and legitimacy (Lukes, 1974) Often evident in restricted topics, the range of discourse and perspectives in public debate, making it easier for those in power to subordinate, suppress, and even exploit people (Speer & Hughey, 1996)
Inability to control	The community does not possess the resources to make decisions, enact the changes desired, or organise people to overcome a situation Often evident when a community remains oppressed and limited by the unequal distribution of its members' resources, and its members do not have the ability to take responsibility or ownership to guide and direct a solution (Conger & Kanungo, 1988; Zimmerman, 1990)

resistance to joining in actions arises mainly from high individual participation costs that outweigh collective gains (Bennett & Segerberg, 2012). With social media, these costs are significantly reduced. The gap between the cost and the benefit is minimised to the extent that free-riding, a common issue in collective action, is barely a concern. From the empowerment perspective, social media removes structural barriers to participation with actions fundamentally beginning in a private space and interpersonal network (Bennett & Segerberg, 2012).

One is also empowered when he or she is able to influence, i.e., to impose meaning, to shape how people think about community problems or to enable others (Bartunek & Spreitzer, 2006; Christens, 2012). Influence is critical in motivating participants and instilling a commitment to the cause of the movement (Diani, 2012). Essentially, framing is the concept that represents how influence can be attained; its definition is to "assign meaning to and interpret relevant events and conditions in ways that are intended to mobilise potential adherents and constituents" (Snow & Benford, 1988, p. 198). Following the logic of collective action, framing often involves iconic leaders (such as Martin Luther King Jr. and Mahatma Gandhi) or legitimate SMOs (Snow & Benford, 1988). This is in contrast to social media-enabled movements that are unique for their leaderless, horizontal structures, such as the Occupy Wall Street movement (Hardt & Negri, 2011). Social media makes framing more feasible for grassroots activists who do not possess the financial capital or institutional connections of SMOs or the charm of a leader (Carty, 2010; Carty & Onyett, 2006; Pu & Scanlan, 2012). Moreover, instead of an action frame that is collectively shared, social media-enabled movements are driven by the diffusion of personal action frames manifested in the sharing of already internalised ideas. The level of self-change in individuals is much reduced, giving rise to a more inclusive process in appealing to people (Bennett & Segerberg, 2012).

The final empowered action – control – is determined by the resources that the community possesses, including the ability to manage these resources (Conger & Kanungo, 1988; Zimmerman, 1990). The social movement literature has partly explained this concept through resource mobilisation theory, which emphasises resources as the determinants of a movement's success (McCarthy & Zald, 1977). These resources include material resources (e.g., money, supporters, and access to media) and nonmaterial resources (e.g., legitimacy, loyalty, networks, personal connections, public attention, authority, moral commitment, and solidarity) (Fuchs, 2006; Yuce et al., 2014). Under the logic of collective action, organisational capacity and tactics are critical for mobilising resources (Klandermans & Roggeband, 2010), and most studies have examined how resources are aggregated through legitimate SMOs (Cardoso et al., 2013; McCarthy & Zald, 1977). However, as opposed to dependence on SMOs, the connectivity of social media networks can contribute to the organic gathering and transferring of resources (Leong et al., 2015; Mora, 2014). More importantly, the social network forms an organisational structure under the logic of connective action (Bennett & Segerberg, 2012), in contrast to serving only as an informal precondition that helps spread influence for more centralised mobilisation in accordance with the logic of collective action. The empowerment perspective has suggested that this situation is resource empowerment (Leong et al., 2015). As power over resources or the ability to control and organise resources grows, the social capital of a community grows, and its dependence on outsider support therefore decreases (Ersing, 2003).

In sum, the empowerment perspective offers a multidimensional analytical framework. An analysis from an empowerment perspective can enhance our understanding of social media roles in social movements by urging us to rethink how digital activism is shaped by different dimensions of empowerment. To move beyond the episodic effects of social media in social movements (highlighted earlier), this study extends the temporal scope in examining a social media-enabled social movement through the inclusion of periods of rupture and abeyance (Taylor, 1989). Figure 1 summarises our review and depicts the focus of our study in relation to prior research.

3. Methodology

This paper adopts an interpretive case study research methodology (Pan & Tan, 2011; Walsham, 1995). This qualitative method takes into account context, allowing us to examine a sequence of actions and processes to unearth the underlying structures of social movement events and to discuss the role of social media in answering a "how" question (Gephart, 2004; Maghrabi & Salam, 2013). Additionally, in view of the hidden nature of power and because the acts of empowerment are not directly observable (Silva, 2007), an interpretive approach is applied to collect and analyse texts that reflect the subjects' interpretations of meaning and lived experiences (Klein & Myers, 1999; Lee, 1991; Walsham, 1995). By using the concept of empowerment as a "sensitising device" (Klein & Myers, 1999, p. 75), this interpretive approach not only allows us to view and make sense of a large volume of data but also preserves a considerable level of openness for new findings to emerge from the data (Walsham, 1995). Recognising the scarcity of studies that look beyond the episodic effects of social media in digital activism, a single-case design is employed for a deeper exploration of the highly

contextualised patterns of a phenomenon that is not yet well understood (e.g., Selander & Jarvenpaa, 2016).

3.1. *Case context*

On March 8 2011, an article titled "Taking a Risk for Rare Earths" was published in the New York Times publicising Malaysian authorities' initial approval of a rare earth refinery to be built in Kuantan, the capital of the state of Pahang in Malaysia. The article aroused widespread controversy and anxiety, for the public feared that the plant might leak radioactive and toxic materials. Rare earth elements are a group of 17 chemical elements that are often used to produce electronic equipment, green technology products (wind turbines), and military equipment (jet engines). Most of them contain radioactive elements, and extracting them is hazardous (BBC Bourzac, 2011; News, 2012a; RETA, 2013). The plant's disposal plan for radioactive waste was not reassuring, especially in light of the fact that rare earth processing factories have left industrial pollution in China that the country is still attempting to clean up (BBC News, 2012b). Although Zelen (a pseudonym for the foreign company that owned the plant) insisted that the plant was safe and emphasised that waste would have low-level radioactivity and would be safely disposed of, the residents who opposed the plant claimed that it was not consistent with industry best practices; it was too close to heavily populated areas on a site where the groundwater level was high, putting the 700,000 people living within a 30-km radius of the plant at direct risk of toxic leaks and emissions. By comparison, Molycorp's plant in California was situated far from residential areas (Reuters, 2012), and a mining plant in Australia was situated more than 35 km away from a population of 1500.

The people in the neighbourhood of the plant were also dissatisfied with the lack of transparency and public consultation regarding the plant construction. In the midst of this fierce opposition by the people who could potentially be affected, a temporary operating licence (TOL) was granted to Zelen in February 2012. Only 1 month later, official inquiries and a safety assessment of the plant by the International Atomic Energy Agency (an international organisation that sought to promote the peaceful use of nuclear energy) were initiated due to mounting pressure from protests by the public (BBC News, 2012b). Figure 2 shows the chronological order of the key events.

Malaysia's environmental movement appears to be an exemplary case for our study. First, the use of social media as an enabler of the movement is critical. Through new media, enraged people attempted to raise public awareness and mobilise the community. More than 40 Facebook groups/pages have been created, over one million YouTube views of 20 homemade videos have been registered, and countless Malaysians have shared information and opinions on their personal social media pages in opposition to the plant construction. Second, the movement is a grassroots effort – many campaigns emerged from the joint efforts of concerned citizens, including activists, environmentalists, local government officials, nearby residents and students. Third, the case is uniquely suitable for our study because it comprises more than one key event organised through social media, hence forming a natural research design for a study that aims to delve into digital activism over the periods of both rupture and abeyance. As shown in Figure 2, Green Assembly 2.0 and the Green Walk were chosen for this study because the popularity of both events relied on the use of social media. In the first event in February 2012, approximately 20,000 people gathered as the news of a peaceful gathering spread through Facebook. Later, in November, a 300-km Green Walk from Kuantan to Kuala Lumpur (Malaysia's capital) was organised and joined by at least 20,000 people. These two events represent periods of rupture, and the time gap between the two events represents the period of abeyance during which the less visible process of movement continuity occurred (Drury & Reicher, 2005; Fominaya, 2015).

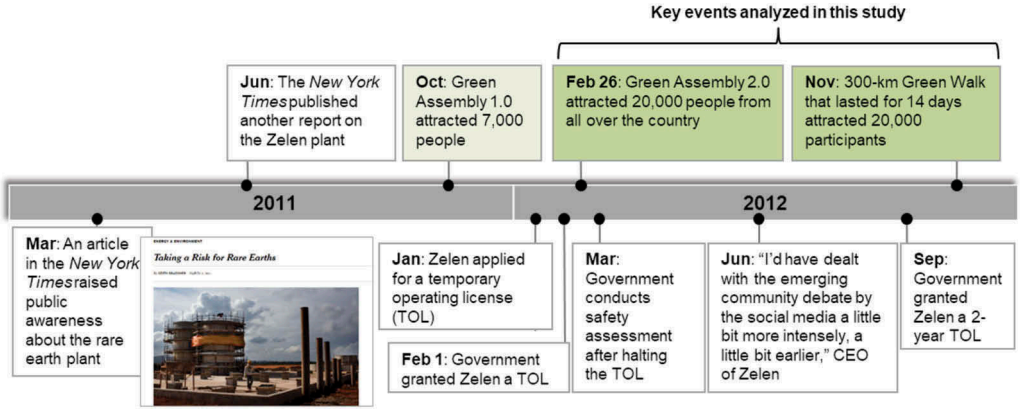

Figure 2. A chronology of key events in Malaysia's environmental movement.

Although the movement is ongoing and has yet to achieve its ultimate goal of overturning the government's decision, as we discussed, it can be considered successful to certain extent because it has increased community efficacy and attracted the attention of the existing power structure (Amenta et al., 1992; Pigg, 2002). In response to the lobbying of the citizens, the government established a committee to investigate the safety of the plant in March 2012, barely 1 month after suspending the TOL granted to Zelen (Reuters, 2012). The CEO of Zelen also publicly acknowledged the gravity of citizens' concerns (see the quote from him in Figure 2) (Bloomberg, 2012). These grassroots actions created public awareness of the environment. As illustrated by one of the interviewees, the state assemblyman of Pahang,

> Our people began to talk about it [environmental issues] and also practice it. They began to pay attention to the environmental impacts of every economic activity, including industry, agriculture, and fisheries. They would observe the changes in environment, air, water and sea…. People also pick up a phone and call the regulatory authorities if there is any concern.

The next sections detail the data collection and analysis.

3.2. *Data collection*

The primary data were collected from semi-structured interviews, focus groups, and digital content from social media. In two visits to Malaysia in 2014, we interviewed 24 people, viz., 4 government officials, 4 activists, 9 volunteers, and 7 residents, and we conducted one focus group with 6 activists (see Appendix C for details on the subjects). In the context of our case, an activist is a person who is focused on advocating for a cause, who is knowledgeable about policies and programmes in support of the cause and who campaigns to bring about social change. A volunteer is a person who offers their resources, e.g., time, money, or expertise, to make change in their community. Majority of the activists are volunteers and not all volunteers identify themselves as activists due to their previous inactivity. The subjects were identified through (1) native collaborators who are familiar with the key people involved in the movement, such as local government officials; (2) contacts made directly with administrators of large Facebook groups, such as "Pahlawan Hijau"; and (3) the chain referral sampling approach (Biernacki & Waldorf, 1981) by means of interviewee referrals.

The interviews were led by one interviewer who was proficient in both the local language and English. Each interview began with broad, generic questions and progressed to questions specific to the interviewee's involvement and usage of social media in the movement (see Appendix D for sample questions). Whenever new themes emerged, new interview questions were formulated to elicit additional information that could explain, refute, refine, or enrich the arguments or modify the theoretical lens. In addition, new questions were based on the findings of previous interviews. In the focus group, the interviewer ensured that everyone expressed their views to avoid group dominance by particular individuals (David & Sutton, 2011) and group conformity (Babbie, 2007). All the interviews were recorded, transcribed, and translated (when they were not conducted in English).

Secondary data were gathered via various sources, such as websites, news articles, press releases, magazines, books, journals, campaign materials, and social media platforms (Appendix E). We searched for articles dated from January 2010 to the end of 2014, primarily with the search term "Zelen". We searched for archival data 1 year before the publication of the New York Times article to ensure that all relevant discussions were gathered, though the search results showed that the movement was popular only after the article was published. We repeated the search using the same key term on Facebook and YouTube, two social media platforms that were heavily leveraged during the movement. In particular, the articles included in our analysis chronicled the movement, and the Facebook groups and pages and YouTube videos included in our analysis were initiated/created by individuals or community groups. The secondary data were useful to acquaint us with the case background and to prepare us for entry into the field, especially in suggesting relevant probing questions during the interviews. In total, the primary and secondary data collection yielded 334 pages of transcripts and notes and 127 photographs.

3.3. *Data analysis*

To address the "how" question, we attempt to unearth mechanisms that explain how social media empowers the people. Our data analysis draws on methodological procedures that employ an interpretive approach (Walsham, 1995) and mechanism identification (Avgerou, 2013; Pan & Tan, 2011; Pentland, 1999). We rely on the guidelines of Pan and Tan (2011) as well as the suggestions of Avgerou (2013) and Pentland (1999) to inform the process of abstraction from the descriptive "surface structure" of the stories told by interviewees to the explanatory "deep structure" that underlies the sequence of events.

First, data analysis began with data organisation, whereby narratives related to the use of social media in the movement were chronicled (Langley, 1999). As we went through this text of narratives (Pentland, 1999), we paid attention to activities and community involvement that occurred during periods of rupture (the Green Assembly 2.0 and the Green Walk) and over the period of abeyance. In preparation for the

subsequent data analysis to identify the mechanisms, we highlighted narratives of events, actions, and interactions with a particular focus on *verbs* describing actions that produced changes from the initial conditions to the observed outcomes (Avgerou, 2013).

Second, the analysis involved open coding (Strauss & Corbin, 1998). We considered the distinctive features of social media (in relation to other technologies), how these platforms were used in the community engagement, how individuals/groups leverage social media to participate and the resultant outcomes. From the text of narratives or descriptive surface structures, *stories* were created to describe our interpretation of how grassroots actors were engaged, and simultaneously, tentative concepts were developed to represent the processes. We took the stand that a clean theoretical slate is impossible (Eisenhardt, 1989) and that familiarity with theories can strengthen the researcher's "sensitivity towards subtle nuances in data" (Strauss & Corbin, 1998, p. 49). Hence, the conception of empowered outcomes (i.e., participation, influence, and control) was applied as an analytical filter in our empirical investigation to derive the tentative concepts that illustrate the social media empowerment process (see the example coding in Appendix F).

Third, we focused on further abstraction and axial coding. Based on their empirical substance, the tentative concepts derived earlier were abstracted to present "an objective version of the basic events and characters required to uniquely identify a particular story" (Pentland, 1999, p. 720). One example is the derivation of "diversification of participation" (as shown later in Figure 3). In doing so, we turned to existing knowledge of the logic of connective action and social movement theories as a point of comparison to clarify the emergent constructs of social media empowerment. Concurrently, we focused on making connections among the derived concepts in accordance with the principle of axial coding. The concepts were compared for similarities and differences. For example, we iterated between data from periods of rupture and abeyance to capture competing evidence that challenged or complemented our existing knowledge of the episodic effects of social media. The concepts of the diversification of participation and the sustenance of participation were hence derived. Appendix F illustrates the coding process.

Notably, our analysis entails an iterative process that involves disciplined imagination (Weick, 1989). By moving between the data and the theory-driven framework, the tentative explanations were refined and the framework extended (with imagination) until we identified the framework that best explains the phenomenon observed (Avgerou, 2013). With the interpretive approach that allowed emergent findings, we also noted the existence of interplay between rupture and abeyance, which will be detailed in the discussion.

The last stage of analysis involved selective coding. When the results of the partial analysis above were aggregated, the empirical characteristics of those constructs within a certain movement period became identifiable (Avgerou, 2013), allowing us to tease out the core mechanisms of social media empowerment, the deep structures that drive the process. For example, "power activation" was identified as the mechanism that drives the process of diversification of participation, association-based spread of influence, and anticoagulation of control. Until the results were finalised and a framework emerged (Figure 3), we ensured alignment among the data, theory, and findings (Klein & Myers, 1999). To uncover diverse

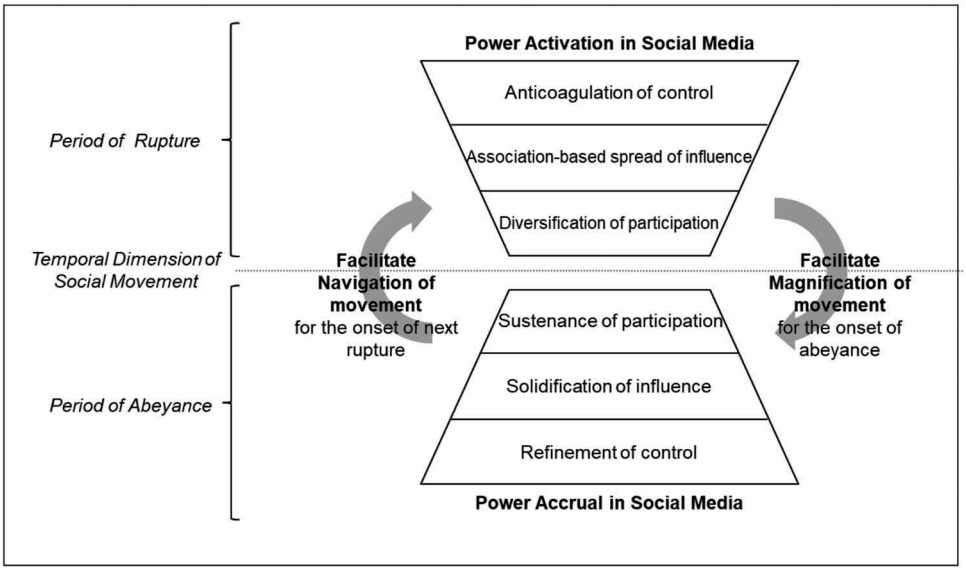

Figure 3. Empirically derived theory of social media empowered periods of rupture and abeyance in social movements.

meanings held by participants and different viewpoints including competing ones, triangulation is applied to capture multiple data sources (including interviews, focus groups, news reports, and archival data) (Keutel, Michalik, & Richter, 2014). Six rounds of intensive group discussions were also conducted within 6 months of the data collection. In each discussion, which lasted from 1 to 2 h, six to nine academic colleagues challenged our interpretations and representations of the data from multiple perspectives; half of them did not participate in the data collection. This ensured the comprehensiveness of our interpretive analysis (Denzin, 1978; Patton, 1999).

4. Results

As mentioned earlier, two key events in the movement – the Green Assembly 2.0 and the Green Walk – are selected to represent periods of rupture, and the time gap between these two events represents a period of abeyance. The subsequent interpretation of the analysis is presented in two parts: (1) the social media empowerment processes that lead to each level of involvement, i.e., participation, influence, and control, and span across the periods of rupture and abeyance; and (2) the mechanisms at play during the periods of rupture and abeyance as well as the interactions between the two periods. The findings, which are presented in Table 2 and Figure 3, are discussed in Section 5.

4.1. *Malaysia green movement*

4.1.1. *Participation*

4.2. *Periods of rupture*

Before the publication of the *New York Times* article in March 2011, a few local representatives who had little political clout in this matter despite their status

Table 2. Social media empowerment processes in social movement.

	Critical issues	How the issues were addressed	
		Before the use of social media (logic of collective action)	Social media as a mobilising structure
Period of rupture	Inability to participate	Overcoming participation cost, e.g., collective identification	Diversification of participation • Varying forms of participation • Provision of an extra institutional channel • Expansion of area and level of involvement based on individual interests, capabilities and capacities
	Inability to influence	Mobilising others via an action frame that is collectively shared, often effectively diffused by recognised leaders or SMOs Diffusion via family and friend networks	Association-based spread of influence • Multiple bases of association: messages, group characteristics, personalised identities • Spread of influence on social media is facilitated by (1) expression of a personal opinion to everyone, (2) a ready and direct audience base of individuals, (3) spread to the indirect network of individuals • Ease of reproducing influence
	Inability to control	Mobilising material and nonmaterial resources through SMOs that possess organisational capacities and tactics	Anticoagulation of control • Self-allocation of resources enabled by searches and proactive offerings of individuals • Direct contact among individuals and groups made possible immediate joining of forces • Real-time information exchange for coordination of resources
Period of abeyance		**Before the use of social media (conventional abeyance structure from** Taylor, 1989)	**Social media as an abeyance structure**
	Loss of participants for subsequent mobilisation	Promote *collective identity*, which serves as a symbolic resource for subsequent mobilisation	**Sustenance of participation** • Continued association due to low cost and crossing of the personal/public boundary • Submerged, passive participation is maintained via social media subscriptions • Sustained linkages facilitate immediate notification and subsequent participation
	Internal and external instabilities	Maintain repertoire of goals and tactics by • *Exclusive membership*: leads to less factionalism • *Centralisation of power*: produces organisational stability and coordination	**Solidification of influence** • Reinforced ties that strengthen stability • Weeding of network to stay focused on movement agenda, via dissociation features and open alienation • Constant sharing of educational awareness message
	Resource dissolution	Promote survival of *activist networks*, who provide resources by • Developing purposive commitment • Offering alternative cultural frameworks to provide security and meaning	**Refinement of control** • Retention of collective resources on social media space • Visible and accessible individually owned resources and capabilities • Identifiable trustworthy partners with the transparent digital traces

as elected officials, including Ms. Nadia and Mr. Adi (all names are pseudonyms), a member of Parliament representing Kuantan and a state assemblyman of Pahang, respectively, were attempting to raise awareness. However, participation in the form of attending seminars and informal talks was restricted to local villagers. When social media was used to organise the Green Assembly 2.0, the size of the rally increased from 5000 at the Green Assembly 1.0 to 20,000. The movement was invigorated as social media allowed everyone to participate in different ways. Ms. Nadia, Mr. Adi, and grassroots groups shared their views on their personal and group Facebook pages as well as on blogs. As described by Mr. See, a key member of the Save Malaysia Stop Zelen (SMSZ) Facebook group, "The only way for us to rebut statements made by ministers or Zelen was through social media. The mainstream media would not publish such a rebuttal".

On a more personal level, people could become involved in different ways; for example, they could "like", share, or comment on others' Facebook posts. According to Mr. Chun, a student representative of the Malaysia Youth & Student Democratic Movement (DEMA),

> We can see [participation] through the changing of a profile picture. Maybe some people did not attend the rally, but they changed their profile picture to green as a show of solidarity.

4.3. *Period of abeyance*

Due to mounting public pressure, the TOL granted to Zelen was suspended, and a safety assessment was ordered. Therefore, from visible activism, the movement entered a period of abeyance during which the people involved returned to their normal routines after the Green Assembly 2.0. As Mr. Yong said, "Everybody needs to work. We cannot afford to be full-time activists".

In the context of our case, participants made new connections during the offline event, the Green Assembly 2.0, which translated into digital connections on social media. Ms. Cui, a student activist, noticed that these connections helped sustain the activism of the crowd beyond the occasional surge in activism:

> Social media connects people and gives us confidence and encouragement. This is progress in the new era, unlike the previous organization where people pay attention to the issues that interest them today and disappear the next day. This is the difference in the new force of power [in social media].

When a network is established, activism can be sustained through social media. For example, in a community-initiated Facebook group – I'm from Malaysia! I say Stop Zelen! – the 10,000 members amassed during the Green Assembly 2.0 could continue their engagement. They continued to share relevant information with others while receiving updates from the group even after the Green Assembly. On average, group members shared over 50 posts per month during the 8-month long period of abeyance. Although the number of posts was much lower than that during the movement rupture (approximately 254 posts were shared by members during the Green Walk that followed), activism was maintained, and more importantly, the network connections persisted on social media (as of October 2014, 2 years after the Green Walk, 10,516 members remained).

From the perspective of empowerment, these connections serve as a latent power base that is critical for the onset and growth of the next event, as illustrated by Mr. Yong, the Facebook group administrator of I'm from Malaysia! I say Stop Zelen!

> I wouldn't say I am doing much right now, but I am keeping an eye on the posts that people have shared every day and deleting whatever is not relevant. What keeps me going is, first of all, not to disappoint the 10,000 people who have liked the page. Since they are showing their interest, I am not going to shut down the page. It would be such a waste to stop here just like that because 10,000 is quite a big number. Second is to keep an avenue for people who want to share new events. I am sure that when people share, there are still people who are interested in attending. This is how we can garner the attendance to support all the ground events, no matter how big or small they are.

4.4. *Period of rupture*

In September 2011, 7 months after the Green Assembly, the government announced that it had granted a TOL to Zelen, leading to the next period of rupture in this green movement. The 300-km Green Walk began with only approximately 70 people and swelled to 20,000 over a fortnight before the group reached its destination. Attributing the impact to the spread of social media, Mr. Lim, the state assemblyman of Pahang, described the *live reporting* as a *drama* that the audience (social media users) "enjoyed" watching. Mr. Yuan, assistant to Mr. Lim, said of the event:

> The turnout at the Green Walk was beyond our expectations. I think it was because of the stories that we spread through Facebook. It was difficult to get media coverage every day. The only way was to upload the photos [on social media] every day. Every half hour to two hours, we posted a picture and then

> told a story about what we were doing. When someone sent food to the participants, we also posted the photos. Many people felt that they should join because they observed the spirit of the group of people. . ..

Simultaneously, *technical experts* could share their knowledge (see the Facebook excerpt below), while others composed songs and made videos that were uploaded to YouTube. As a veteran writer on social issues, Mr. Ho contributed to increasing the public awareness by writing articles that provided analysis of the event and the movement.

> An excerpt from a Facebook thread by a social activist who was trained in chemical engineering posted on November 27 2012:
>
> To me, radioactivity can be dangerous if it causes adverse effects to our environment, health and safety. I copied a paragraph from an article that explains this more:
>
> With all of this radiation exposure, how come we're not all dying of cancer? The answer to that question is not that it takes a very large number of these particles to cause cancer. As far as we know, every single one of them has that potential; as we are frequently told, "No level of radiation is perfectly safe". What saves us, rather, is that the probability of one of these particles causing cancer is very low, approximately 1 chance in 30 quadrillion (30 million billion, or 30,000,000,000,000,000)! Every time a particle of radiation strikes us, we engage in a fatal game of chance at those odds. . ..
>
> In short, of course every extra particle that strikes us increases our cancer risk, so many people feel that they should avoid being exposed to radiation as much as they can just to reduce the possibility. My question is, do we want to increase the odds of getting cancer by allowing Zelen to fulfil someone's greed?

4.4.1. *Influence*

4.5. *Period of rupture*

Many have taken the issue to social media platforms in the hopes of influencing others. An example is the Facebook group I'm from Malaysia! I say Stop Zelen! Feeling enraged, like other Malaysians, Mr. Yong, who had never before been a social activist, created the Facebook group in the hopes that his influence would spread. In describing how he started the group, which eventually gathered more than 10,000 members, he said:

> This is how I started . . . I would share a post of an activity [of a social movement] and say, "Look, this is a truly serious issue. If you share the same thought, please share it [the post] with your friends so that we can get more power, more manpower and more people to join this page. . .." The number increased by many times; in one day, I could get more than 500 likes.

Despite her political association with the opposition party, Ms. Nadia's Facebook posts focused on the environmental impact of the movement: "It is not the political issues. It is about the environment and about the future, about protecting our industry, our people, our health, our environment". In addition to ideology, the personalisation enabled by social media was reflected in how Mr. Yong conveyed his idea of "attachment by location" when he explained the rationale of his Facebook group name compared to that of another group, "Pahang Don't Need 'Hazardous' Project", that had been created earlier:

> I think the name of the Facebook group "Pahang Doesn't Need "Hazardous' Project" tends to suggest that the group is only about Pahang state.[2] People in other places in Malaysia might not find it relevant to them. What people truly focus on this time is the rare earth plant issue. So, I decided to come up with something that unites us all. We are from Malaysia, and we share the mission to stop the plant operation. That is, why I decided to create a new page [I'm from Malaysia! I say Stop Zelen!].

This approach did not prevent others from expressing the meaning that they wished to impose on the movement. Some expressed their concern by bringing the issue closer to home – at least 33 groups were initiated by others on Facebook with naming conventions similar to that of Mr. Yong's group but different locations (see the Facebook excerpt in Appendix G Figure G1.)

4.6. *Period of abeyance*

Through social media, the relationships among participants were reinforced even after the event. As described by Ms. May,

> During the Green Assembly, I met many online friends face-to-face. When this is brought back to Facebook, you will see this effect of trust after the face-to-face contact. You may even realise that his friend is also my friend on Facebook. . . So, we have a common friend.

The trusted connections helped to improve later coordination among the dispersed groups. As Ms. May shared in a situation in which a page administrator posted misleading information on his or her page, it was easier to communicate with and convince the person if a relationship was pre-existent. Appendix G (Figure G2.) provides an excerpt from Mr. Ho's Facebook page that demonstrates solidarity and close relationships among the activists after the event.

Additionally, both Ms. May and Mr. Yong described how social media features, such as "unfriending", removal from group membership, deletion of comments, or even engagement in conversational confrontation in the open space of social media, can sh*ape influence*.

> Ms. May: Some people might distort the meaning of the activities. While we may find things totally unacceptable, the person still insists on engaging in publicity in his way. We even unfriend him [on Facebook]. We have to unfriend him even if he wants to help us with activities…. [Their] agenda can be different….
>
> Mr. Yong: Once, there was a honey seller trying to make use of the Zelen incident as an opportunity to promote the product. They posted an image saying that XXX product supports the movement. It was clearly a promotional post. So I also talked to the person through Facebook, and the person removed his promotional message. [The post] has to be something for everyone to participate in, without being sponsored and without any personal agenda behind it…. We don't want to disappoint people who "like" us, and we want to make people continue to believe in us and that the page truly delivers its value of unifying as its core mission.

The same transparency and traceability also evidence the continual engagement of individuals like Mr. Ho. Between the two events, he continued his efforts to relate stories to the followers of his page to create a sense of urgency in them. He emphasised, "sharing is the most important thing to do after the rally. We want to gather the crowd and accumulate the strength of the day as well as continue influencing the others after that day". The following Facebook excerpt is an illustration of his persistent efforts after the first event to "make them think that the problem will one day be my problem".

An excerpt from a social activist's Facebook page:

Posted on September 5 2012:
Last year, we read the news of thousands of protesters who denounced the transportation of highly radioactive nuclear waste through populated areas in Germany. Some chained themselves to the rails and even sabotaged the railway. We might not be able feel the sense of urgency as them. However, ironically, we are facing this now…. Zelen might appear to be just a popular topic or news to you now. However, when it inflicts damage on our homeland and loved ones, we will be paying a bigger price. You never know how soon it will be too late….

Katherine Chen:	It's time for people to come together! We cannot let the rare earth material come to our land!
Anson Tham:	We must protect our homeland!
Angie Liew:	We must do all we can do stop Zelen. No one can help us this time; we must fight for ourselves!!!
Sam Lee:	Let's get ready to form a human wall.

Likes: 86 | Shares: 115 | Comments: 16

4.7. *Period of rupture*

As illustrated in the previous section, movement activities intensified after the TOL was granted. During the Green Walk, many interpreted the impact of the issues beyond politics and themselves to the next generation, which could expand the influence of the movement. A large number of parents brought their young children on the long march, and their sharing often resonated with other parents who were equally concerned about the environment that their children would inherit. In addition, information about this event diffused rapidly because of the base that people and groups had previously established. Ms. May and Mr. Yuan illustrated this development with different examples. Ms. May said:

> We come across posts of very touching stories, such as posts from mothers who are worried about the consequences of any environmental pollution that might affect the future of their kids. We share them across different Facebook pages and groups…. I am in contact with some Facebook administrators…. Some of these Facebook pages have more than 20,000 followers. You will see the multiplying effect.

Such relevance then motivated further support from the community, as illustrated in the Facebook excerpt below:

An excerpt from the Green Walk Facebook page[3]:

A 10-min *video* showing people walking in the rain was posted on November 24 2012:
Thousands of Malaysians in the Green Walk. Let's put a stop to Zelen! Live Green!

May Lam:	The number is amazing, and the spirit is sky-high. Keep it up, our Malaysian heroes….
Rachael Soh:	The power of unity.
Kui Lip:	I will join you guys tomorrow!
Jayden Kong:	Great job by himpunan hijau…. The rise of the people….

Likes: 232 | Shares: 809 | Comments: 30

Mr. Ho, who wrote analytical articles and posted on his own Web page, which had already accumulated more than 2000 followers after the first event, further explained how influence can spread on social media:

> Some people are more famous and may have more than 1,000 or 5,000 friends. By tagging that person, the article that I wrote can be read not only by, say, my 500 friends but more. The effect may be significant.

4.7.1. *Control*

4.8. *Period of rupture*

Through social media, the people of Malaysia not only searched for information but also proactively offered resources to overcome various challenges during the active period of the movement. During Green Assembly 2.0, which was held at Kuantan, 200 km from Kuala Lumpur, people sought transportation and accommodations via social media. Ms. May, an activist, described what transpired on Facebook at that time:

> The whole network of contacts appeared! When some people from Johor [another state of Malaysia that is at least 320 km away] said that they would like to participate in this event [Green Assembly 2.0], you will see the local people begin to make contacts. Some would offer and say, "Oh you can stay at my house … I can accommodate four people…. We can find a place for you to stay…." Some would tell them the directions of how to get to Kuantan.

In addition to the search for information and other forms of support, it became possible for people to offer their own resources, such as their time and efforts. Mr. Yong has experienced how this occurred on Facebook:

> I added a few [Facebook] friends who are socially active. One of them is Chris. She approached me and offered her help. So, I included her as an admin of the Facebook group. We managed the Facebook group and screened the posts by the members to make sure that they relevant…. By the way, I have never met Chris before….

4.9. *Period of abeyance*

Although the movement subsided after the first event, a large amount of information and many connections remained on social media, serving as a basis from which an individual can understand a person or group. For instance, a person's resources or talents can become identifiable on social media, as Ms. May noted:

> From the beautiful images posted on a person's Facebook, you could tell that he is into graphic design; from a mother's Facebook page with lots of food, you could tell that she is a good cook who may be able to help provide food at events…. We try to get in touch with them.

As a result of the underlying structure enabled by social media, even after Green Assembly 2.0, people were able to identify each other when mobilising the next movement. When a person is active on Facebook by sharing the group's post, the administrators are more inclined to contact that individual to further engage him or her. For example, Mr. Ho began his involvement after Ms. May approached him.

> Ms. May: I have no personal charm. If you visit my Facebook, you will see no 'likes'. But, there are a lot of writer friends who are really charming online. They can easily get five hundred "likes", one thousand "likes", or five hundred "shares". So, we contact them in the hopes that they will help promote this issue.

> Mr. Ho: I was not too concerned about the Zelen case in the beginning, but I had been writing some articles on Facebook. May asked if I could write some articles to promote the Green Walk [the next event] … and that's how I got involved.

Based on the information shared over time, trust in a person or a group can be established, and an individual's commitment to the movement agenda can also become evident. The digital traces that individuals or groups leave on social media over time serve as an important source of trust in a virtual environment. As he reflected on how the information on a person's Facebook page would help him to get to know that person better, especially after a rally, Mr. Yong explained:

> When time is pressing during the movement, I receive messages and friend requests. I would just add the person. But, it doesn't stop there. I would also see if what he/she posted after the movement event is consistent with his/her claim of support for the movement when the person became my friend on Facebook.

4.10. *Period of rupture*

The resources retained on social media facilitated the onset of Green Walk. Social media served as a real-time, decentralised method of coordination during the Green Walk. According to Ms. May

> Our coordination is very voluntarily spontaneous. There is no need for a president. No one needs to tell you that you are responsible for this, you are responsible for that. Nobody wants to follow others' instructions. They can make decisions about their own actions.

This was particularly evident in the 14-day Green Walk, where informational and material support requested via social media received an overwhelming response from users. Figure G3 in Appendix G shows an example of such coordination on Facebook.

Ms. May and Mr. Yuan also shared a few examples.

> Ms. May: When there is not enough water to drink, people will request it through social media. It was

like praying to God. We must specify the quantity. Otherwise, the resources will continue to flow in.... Once there were not enough socks, and someone donated 200 pairs of socks.

Mr. Yuan: We said we want coconuts [on Facebook], and from that day onwards, we got coconuts every day. Because more than one person read and reacted to our request.

An excerpt from the Facebook group I'm from Malaysia! I say Stop Zelen! posted on November 15 2012:

I was not able to join the Green Walk. However, I observed on social media that many participants were injured with swollen legs and painful blisters on their feet. That is why I tried to contact my customer who manufactures socks. He was very generous and offered to donate 100 pairs of socks at first. Later, when my friend went to pick up the socks, they actually gave more than 600 pairs of socks.
I made an effort to post this message to encourage more businessmen to sponsor necessities for the people who go to the frontline, who deserve our appreciation!

Myolie Tan: Good job!
Shan Yap: Bravo!!
Tek Pang Liew: Support.

Likes: 2195 | Shares: 518 | Comments: 80

Mr. Adi added:

People contribute by funding us ... I would say besides gathering information, they also observe what we are doing. They saw the tremendous effort that the people are putting into fighting Zelen, and they started to appreciate the people who even quit their jobs to fully dedicate themselves to this movement.

4.11. *Interplay between periods of rupture and abeyance*

The case analysis also revealed interactions between the two periods of the social movement. During the period of rupture, the availability of an unrestricted platform allowed many Facebook groups to emerge. Mr. Lim, the state assemblyman of Pahang who worked closely with Ms. Nadia and Mr. Adi, said:

People started to form groups [on social media]. There was one [group] in Penang state called Green Youth, another one in Johor state called Johor Yellow Flame where they had a subgroup focusing on the environmental movement. They probably got empowered and they got charged up after the event.

Although these self-initiated efforts occurred in all 13 states and various cities across Malaysia, they were not fragmented due to the network connections enabled by social media. At a high level, the SMSZ group focused on obtaining a judicial review of Zelen, while the Himpunan Hijau Group concentrated on mobilising people, and the Stop Zelen Coalition collected and analysed data about the plant and its environmental impact. These three largest community groups of the movement were not only initiated and promoted but also connected through social media. Other Facebook groups were also loosely connected as the administrators and members cross-shared the posts of the other groups. Mr. Chun, a student representative of DEMA, illustrated the connections between his group and others:

We are helping other groups like the Stop Zelen Coalition to promote mobilization in the university since we are from the universities.... We have about 1,500 followers in our Facebook group, and they will pass [the message] to other people. At the same time, we also share this information with other student groups like Solidarity Mahasiswa. They have an even bigger crowd....

Mr. Lim succinctly described the transition from the period of abeyance to the Green Walk:

We rarely meet each other. However, if there is an event, we will come together, and the same [Facebook] group members will come out. Facebook allows us to act very quickly. It allows us to respond quicker and allows the committee members of a group to contact each other more frequently and conveniently.

5. Discussion

In next two sections, we discuss how social media empowers the people and thus enacts social change. First, leveraging the multidimensional empowerment perspective, we discuss how social media empowerment occurs. The findings are summarised in Table 2. Second, we draw on those empowerment processes to present a conceptualisation of how social media enables power activation and power accrual by offering an infrastructure for the activation of the latent power possessed by the people and for the growth and accumulation of that latent power over time. Furthermore, we explicate the interactions between the two key phases of a movement, further articulating the significance of the temporal scope in examining a social media-enabled movement. Our illustration of the power activation and power accrual mechanisms as well as the interactions between them are presented in Figure 3.

5.1. *Social media empowerment*

Table 2 summarises our discussion of results in previous section and it will be illustrated subsequently.

5.1.1. *Diversification of participation during periods of rupture*

The lack of public consultation and feedback system in authorities' decision-making processes can render the people powerless by restricting their involvement in issue-raising processes (Bachrach & Baratz, 1962). Previous studies have highlighted the need to overcome the costs and risks of participation via, for instance, collective identification. Like the Internet in general, social media allows the members of a community to have a voice at a lower cost. What makes social media different is the diversity of actions enabled through features, including liking, sharing, commenting, posting, writing notes, creating events, and creating page/group functions. Different styles of posting are also made possible and easy with this new platform, such as adding photographs, making announcements (in the form of status updates), posting videos, and sharing news stories (Gaby & Caren, 2012). By diversifying the types of actions that people can take – from the easiest to the hardest, from text to photographs to videos, from reactive to proactive, and from follower to leader – social media allows many to become involved.

Despite concerns that this approach may inadvertently induce slacktivism or keyboard warriors and thus weaken activism, our case shows that more people are willing to participate because social media lowers the cost of participation and because this type of activism begins from within a private space on social media. More importantly, our case suggests that social media platforms *generate options for people to participate based on their interests, capabilities, and capacities*. In other words, social media can expand the level and area of involvement in a joint action (Wandersman & Florin, 2000). When this expansion occurs in tandem with connectivity to others in individuals' relational networks and the openness of networks to a larger public space, the boundary between private and public space is blurred, making it easier for people to come together and act (Lynch, 2011) during a period of rupture.

5.1.2. *Sustenance of participation during periods of abeyance*

Social movement is often characterised as a short-term outburst of indignation and as a corollary of common grievances. However, it is important to sustain a movement after the upsurge of an event so that the participants are retained, their involvement continues, and the memory of previous collective behaviour is preserved. In a grassroots organisation, there is no central SMO to hold and carry the core ideas of the movement and collective identity into the next cycle. Nonetheless, digital connections through social media (e.g., Facebook friends/followers, blog followers) can give rise to persistent participation because they allow for more lasting connections between nodes (Kane et al., 2014).

Even though the degree of engagement decreases, connections can be maintained. Supported by empirical evidence from the case, our argument challenges previous discussions of the limitations of information technology (IT) or the Internet in building a sustainable network of activists due mainly to the ease of opting out (Diani, 2000; Tilly, 2004). What sets social media apart from previous IT- or Internet-based communication and groups is the overlap between personal and public space, which encourages the preservation of the underlying network. Since little effort is required by an individual to maintain the social media connection (e.g., in the form of a page/group like and default following and post notifications), the submerged network persists. With persistent connections established on social media, communication among activists, group leaders/initiators, and followers can be sustained even after an event has ended, paving the way for continuing interest and enduring ties (Soon & Cho, 2014). From the perspective of empowerment, these connections serve as a latent power base that is critical for the quick onset and growth of the next event.

5.1.3. *Association-based spread of influence during periods of rupture*

People are powerless when the forces that influence or shape meaning, consciousness, and ideology are vested in people with authority and legitimacy (Lukes, 1974). Social media shifts power by allowing anyone to be an influencer. Compared with the logic of collective action, which argues for a collective frame and shared identity in mobilising mass support (Snow & Benford, 1988), our data support Bennett and Segerberg (2012) logic of connective action in which discourse on social media is more personalised and inclusive yet able to achieve similar mobilisation effects. Our findings go deeper to empirically demonstrate how social media extends individuals' abilities to influence others by allowing different forms of association beyond a collectively shared frame. Through association with the message, group characteristics, and personalised identities, an association-induced proximity emerges, thereby allowing the community to draw relevance from the movement that motivates its support (Enjolras et al., 2013). The spread of influence is no longer limited to prior social ties like family and friend networks (Diani, 2003). This is possible only when social media places individuals at the centre of a network of influence (Cardoso et al., 2013). Specifically, our findings show that social media serves three key functions in that regard: (1) allowing free expression of opinions to everyone; (2) providing a ready audience base of an actor's (individual or group) direct network of family,

friends, and followers; and (3) extending the influence to a broader, indirect network with loose connections between the actor and the network of his or her friends brokered by common friends. As a result, an actor can exercise his or her influence by posting an opinion or simply retweeting or sharing others' posts with his or her circle of acquaintances as a broker (Tarrow, 2005). With the "tagging" feature, diffusion is further amplified during periods of rupture.

5.1.4. *Solidification of influence during periods of abeyance*

As a movement enters a cycle of decline, it runs the risk of losing ground as quickly as it was gained (Dolata & Schrape, 2015) because of the diverse agendas and interests of the individuals who participate in it and the non-receptive political and social environment. It has been contended that these internal and external instabilities can be alleviated through the maintenance of a repertoire of goals and tactics by an abeyance organisation. In particular, exclusive membership can ensure a small and homogeneous group with less factionalism, and the centralisation of power can ensure organisational stability (Taylor, 1989). Our data show a different way that these instabilities can be overcome via a more inclusive process, i.e., solidification of influence, following the spread of influence.

We argue that the use of social media can facilitate the emergence of core influence with a differentiation process through which the social influence converges in a core group (Dolata & Schrape, 2015). In contrast to a previous argument that IT-mediated exchange creates only weak ties that contribute little to the trust necessary to become an influencer, social media enables the identification of shared relational connections (or common friends), which can lead to the gradual congregation of an activist group (Kane et al., 2014). Additionally, the possibility of drawing boundaries on social media between people who clearly do not share the same interests (e.g., via the dissociation features of Facebook) contributes to the consolidation of trust in a core group. This act of ending a relationship is made not only possible but also transparent on social media; thus, it enforces the norms of mutuality, coherence, and solidarity within the network (Kane et al., 2014). In addition to filtering and grouping through personal networks, the transparency and interactivity of social media facilitates the mutual observation of individuals' behaviours and allows action to be taken when a message that is inconsistent with the common goal is posted. It is also possible to educate the masses on social media with constant informative posting. Over time, participants with a hidden agenda are dismissed, reinforcing the purpose of the underlying network and thus leading to a stable network of influence.

It is also noteworthy that the process of filtering is more inclusive with its beginning in a large, diverse network of people rather than a small exclusive activist group. Hence, we believe that social media can counter encapsulation issues in social movements in which new adherents find it difficult to join and penetrate closely knit and dedicated activist groups (Miller, 1999). Additionally, while previous discussions of associative influence highlight its scaling effect (Bennett & Segerberg, 2012), our data indicate that social media also allows the continual steering of a discourse towards the development of a stable and focused agenda. This "carry-over" and "carry-on" between events is a source of latent power encapsulated in the submerged network of influence during the period of abeyance (Gusfield, 1981).

5.1.5. *Anticoagulation of control during periods of rupture*

People are powerless when they do not possess the resources to make decisions, enact the changes they desire, or organise others to overcome a problem. In social movements, these resources are often referred to as the capacities and tactics that are critical to mobilise support and action, such as the capacity to produce, allocate, and utilise material and symbolic goods (Klandermans & Roggeband, 2010). While previous studies have focused primarily on these capacities from an organisational perspective (such as the legitimacy and capability of an SMO [Cardoso et al., 2013; Klandermans & Roggeband, 2010]), social media platforms challenge the logic of collective action by enabling a mass of voluntary and decentralised contributions and requests.

Considering that resources are unequally distributed in society and contained within disconnected individuals or groups, these resources must first be made available. On social media, these resources can be made visible and accessible to potential actors when individuals and groups offer their competencies, skills, knowledge, or personal resources (e.g., accommodations) (Edwards & McCarthy, 2004). Social media platforms also allow community members autonomously coordinate these resources among themselves (Rosen, Kim, & Nam, 2010). Given the transparency and the connections enabled by social media, community actions may be built on "self-selection and decentralisation rather than coercion and hierarchically assigned tasks" (Benkler, 2006, p. 59). This autonomy serves as a basis for the real-time coordination of resources. Through social media, the community overcomes a "boots on the ground" mentality by requesting or providing resources (such as logistical assistance) through online means while movement activities are ongoing (Gardner, 2011).

It is therefore unnecessary to contribute through a central mobilising agency, and contributions are not limited to the specific requirements of an agency. Social media, characterised by direct connections among individuals, including strangers and unfamiliar others, provides an organising platform that prevents the stiffening of barriers to contributing resources, such as additional efforts to connect with an agency. The issues and solutions that can be raised are also less rigid and more personally relevant to individuals (accommodation or transport issues that individuals face in joining a movement). When individual contributions to the movement are disintermediated, they mobilise the assemblage of resources that flow organically from diverse individuals and groups (Mora, 2014). This improved flow of resources, which resembles the reduction of blood clots or coagulation, in turn, expands the community's power over resources and ability to control, organise, and coordinate them (Ersing, 2003; Leong et al., 2015).

5.1.6. *Refinement of control during periods of abeyance*

During periods of rupture, social media empowers the masses by allowing individuals to contribute according to their own capacity and to request help and respond to requests when there is a trigger for action, such as a rally. This empowerment leads to the emergence of organising capacity, which we argue is contingent upon the simultaneous actions of the collective. When a movement enters a cycle of decline after an event that has held everyone in action together, we argue that these resources can hardly be retained. Hence, Taylor (1989) has advocated for the survival of an activist network that would serve to hold these resources and for the importance of developing purposive commitments and an alternative cultural framework to sustain the activist network. We argue that social media may fill this gap by serving as an abeyance structure that enables the accumulation of the *potential* of the people to achieve the given ends (Cullinane et al., 2014).

When individuals share information on social media about themselves, including their interests or work (e.g., graphic design), talents and areas of expertise that would otherwise be hidden and difficult to identify become visible. Moreover, individuals' levels of commitment, which were previously difficult to gauge, are now traceable. This awareness of the whereabouts of resources enhances the potential to find, identify, and access those resources, thereby increasing the capacity to enact such potentialities (Butler, 2005). Thus, social media gives rise to refined control during the period of abeyance of a movement by enhancing people's capacities to locate useful resources that will help determine the subsequent range of actions (Taylor, 1989).

5.2. *Power activation and power accrual on social media*

Building on the previous discussion, a framework is derived and our theory of social media empowerment in social movements is discussed in the following sections.

5.2.1. *Power activation on social media during periods of rupture*

During periods of rupture, people are prevented from self-determined action to participate, influence, and control. Based on the case analysis, we argue that social media enables diversification of participation, association-based spread of influence, and anticoagulation of control during periods of rupture, which together represent the power activation mechanism. Essentially, power activation refers to the exertion of power in enacting the collective effort of a social movement.

Power activation conventionally follows the logic of collective action and is contingent upon success (failure) in overcoming participation costs, mobilising others via a shared action frame, and mobilising through SMOs. By comparison, our findings in Table 2 detail the connective actions and how they are supported by empirically derived elements. For instance, we have shown how the personalised action frame advocated by Bennett and Segerberg's logic of connective action can be operationalised through group characteristics and messages and how it can diffuse widely through a ready audience that is directly and indirectly connected. We argue that social media fills the gap by providing the dispossessed with a mobilising structure through which to express their dissent in action, translate their commitment into influence, and channel their capacity to others in need. When these processes occur in a shared space, they consolidate the inherent power of the people, thus constituting a power activation mechanism.

5.2.2. *Facilitating the magnification of a movement*

As a result of power activation on social media, the initiative to participate in the movement is abundant. These self-initiated efforts, albeit beginning as the sporadic contributions of individuals or small groups, are loosely connected with one another on social media in an intertwined network of people, groups, pages, etc. More critically, conditions conducive to the onset of the next period are simultaneously created. Despite a reduction in the movement intensity, the group structure formed between activists and participants paves the way for continual, low-cost participation (e.g., by following or subscribing to a Facebook page or group). The association-based

spread of influence also leads to an expansion of the pool of potential activists who can continue the efforts, even in non-receptive environment. The exchange network and connections established with a large number of unfamiliar others in turn enrich the action repertoire with the heterogeneous capabilities and creativity of the community. Thus, we argue that the underlying network structure and increased pool of people (resources) magnify the power base of a movement, which has to be accrued in the next period of the movement.

5.2.3. *Power accrual on social media during periods of abeyance*

When the frequency and intensity of a collective effort subside, the movement enters a period of abeyance during which the role of social media is less understood. A movement is difficult to continue with the depletion of power over time, which manifests in various issues, including the loss of participants, internal instability within the activist group, external instabilities in the environment, and resource dissolution. Based on our analysis, social media plays a different role during this period by enabling power accrual, i.e., people are empowered through the sustenance of participation, solidification of influence, and refinement of control. Fundamentally, we refer to power accrual as the accumulation of power for the enactment of a joint action in a social movement. Drawing on the concept of latent power, we argue that the accrual of power is important to increasing and maintaining the underlying power of the people and their potential to achieve joint action (Poole, 1975).

Power accrual is conventionally contingent upon the existence and capacities of SMOs or clusters of activists who provide a shared memory of and symbolic link to previous activities (Taylor, 1989). In Table 2, our findings show that in contrast to the mechanisms that emphasise collective identity, exclusive membership, power centralisation, and the survival of the activist network as the sources of resources, social media platforms offer the incapacitated an alternative abeyance structure. Social media not only preserves involvement and memory but also allows continued participation. The concretisation of the activist network, while catering to the need for deepened ties to ensure internal stability, does not need to be an exclusive process – the natural selection and filtering process has its beginning in large, diverse groups. The issue of factionalism can also be addressed with the autonomy to design an action being maintained within a large number of small groups on social media. Additionally, rather than the activist network, social media can serve as a source of resources because it enhances the visibility of collective behaviours and the traceability of collective resources. These processes, when they occur collectively, retain and increase the latent power of the people, thereby constituting a power accrual mechanism.

5.2.4. *Facilitating the navigation of movement*

Power accrual on social media increases the capacity to steer activism. The retention and preservation of participants and their participation form shared and persistent memories on social media, contributing to the development of a power base that can be at the actors' disposal in subsequent events. While activism may appear to be attenuating in terms of the frequency and intensity of observable outcomes (such as the occurrence of offline rallies or the number of active posts on social media), the curation of the network, including the filtering of people and content on social media, deepens the relational base among the core individuals and groups, reinforcing their beliefs and keeping their commitment alive. At the same time, the transparency of digital content and networks on social media serves as a "map" that the actors can follow to manoeuvre within the virtual space and determine the sources and location of resources. With power accrual on social media, the "spontaneity" of action can be better explained, as social media are now the means of navigating through the masses and provide an ideal breeding ground for subsequent actions to emerge more quickly.

6. Theoretical contributions

Our study contributes to the literature on digital activism by developing a theory of social media empowerment that sheds lights on how grassroots actors can drive social movements. We argue that the framework, which encapsulates the key constructs and their relationships, contributes to building a theory for explaining the Type II theory of Gregor (2006). The boundary condition of the framework includes a movement that takes time (up to decades) to realise the desired changes and involves surges and declines in active and visible actions. Specifically, this study makes two key theoretical contributions.

First, this paper extends our knowledge of grassroots organisation in social movements by dissecting the frequently studied outcome of participation in social media-enabled social movements. There has been a greater focus on the unprecedented amplification effect of social media (e.g., Agarwal et al., 2014; Enjolras et al., 2013; Penney & Dadas, 2014), and researchers have not treated participation in grassroots actions as involvement at different levels (Baker, 1993). Recognising that this hinders our understanding of how grassroots actors can catalyse and drive social media-enabled movements (rather than just being involved as passive participants), we explicate

their involvement in three deconstructed outcomes – participation, influence, and control – by adopting a multidimensional empowerment perspective. A systematic analysis is conducted to unearth the processes that lead to these empowered outcomes across periods of rupture and abeyance. The findings suggest that social media empowers movements through the diversification of participation, association-based spread of influence, and anticoagulation of control during periods of rupture in addition to the sustenance of participation, solidification of influence, and refinement of control during periods of abeyance. In doing so, we further take the conceptualisation of connective actions with our empirically derived processes and show how they contrast with the processes and logics that prevailed prior to social media (Table 2). While most of the data support the logic of connective action by emphasising the spread of action through personal connections and self-motivated sharing, to the best of our knowledge, this is the first empirical study that takes an integrated view of the different levels of participation. This approach is especially important given that the past literature and current practitioners have implied the distinctiveness of social media-enabled movements in permitting a higher level of participation and self-organising.

Second, this study provides a new understanding of the use of social media to sustain activism over time by extending the temporal scope of the investigation to a period of abeyance. Most studies have examined social movements only during periods of rupture (Appendix B), and to the best of our knowledge, no single study has adequately illustrated the significance of social media in preserving the structure required for the next rupture. In a way, studies have failed to note that persistent actions over time are essential to bringing about meaningful change (Earl & Kimport, 2011; Snow et al., 2004). By including both periods of rupture and abeyance, our study reveals the processes behind social media empowerment. More importantly, we further conceptualise the empowerment mechanisms in social media-driven social movements, i.e., power activation and power accrual, as well as how they are related. In particular, power activation is composed of the diversification of participation, association-based spread of influence, and anticoagulation of control, whereas power accrual is composed of the sustenance of participation, solidification of influence, and refinement of control. We found that, in the absence of SMOs and strong activist networks, social media serves as a persisting abeyance structure that retains the people (resources) needed to accumulate and maintain the power to carry on the movement. We also present the processes of power accrual and how they differ from the processes that prevailed prior to the advent of social media in detail (Table 2).

7. Practical contributions

Our findings also generate practical ramifications. First, we show how social media enriches the repertoire of contention so that individuals or groups of individuals can drive joint action. Various tactics and means are suggested in the empirical study for individuals to empower themselves and others, including assuming the roles of influencing and facilitating resource sharing on social media. Individuals of different capacities and commitment levels can take different actions as leaders, such as encouraging the spread of influence (e.g., via Facebook groups following similar naming conventions). In addition to the specific types of actions from our case, this study demonstrates that social media allows grassroots creativity in the design and implementation of movement activities.

Second, by explicating how the role of social media changes after the peak moment of a movement, we show community leaders, including activists and Facebook group administrators, that a critical shift in action is required to maintain activism. Besides the intensity, the nature of the activity during the period of abeyance is different. For example, while community leaders can now sustain their efforts on social media by sending educational information at a low cost, they may work on cleaning up the group by removing members who do not share its values and objectives.

Third, although not directly addressed in the study, our findings may also be of use to SMOs that would like to complement their efforts with grassroots groups. Some of our findings point to the inadequacies of SMOs, which can be overcome by grassroots groups. For example, during periods of abeyance, the centralisation of power within an SMO preserves organisational stability but also risks a decline in action tactics (Taylor, 1989). By outlining how grassroots organisation compares with the conventional logic of movements, SMOs can draw from the advantages and disadvantages of both means. For instance, the traceability of individual past activities on social media may assist SMOs in identifying and recruiting potential activists and organisers.

Lastly, the empirical data also suggest that caution should be used in exploiting social media. As demonstrated by the experiences of some countries during the Arab Spring, a government may shut down the Internet and social media platforms. Even within a community, social media can be exploited by those with vested interests. While inclusiveness is promoted, these divergences must also be considered.

8. Limitations and future research

This paper is not without limitations. The first lies in its singular context. The analysis was conducted

against the backdrop of an environmental movement, which targets a more limited change rather than a revolutionary movement, such as a political movement (Aberle, 1966). Hence, we should be cautious of generalising the results to movements that may require higher levels of legitimacy, shared ideologies, and centralised organisations to sustain efforts that involve higher (political) risks. On a similar note, the mechanisms are sensitive to variations in context (Astbury & Leeuw, 2010). Hence, our findings should not be viewed as universal laws that apply always and everywhere. Whereas our findings help explain empowerment on social media, they do not offer comprehensive predictions or prescriptions of how these practices are ideally supported (Gregor, 2006).

Second, our study builds on data collected mainly from advocates of the movement and individuals who experienced relatively positive outcomes from social media organisation. We acknowledge that data from opponents of the movement (such as government actors or the plant owner) and individuals who were relatively unsuccessful in mobilising using social media would provide a more holistic understanding and reveal failed mechanisms and processes that would provide deeper insight.

Third, as we focus on understanding the role of social media in different empowered outcomes and across periods of varying intensity, little attention has been paid to the constraining effects of social media. While this arguably falls outside the scope of our study, it limits comprehensive knowledge of social media use and when its disempowering effects can exclude the involvement of certain populations (e.g., the elderly).

Our limitations can constitute a basis for future research. First, future research can take our framework further by developing and validating formal propositions to extend theory to prediction (Type III) and explanation and prediction (Type IV) (Gregor, 2006). By doing so, the boundary conditions of our framework could be better defined. Second, researchers can also consider expanding the data sources of the study to identify not only success but also failure factors and paths of empowerment on social media. Third, we recommend further work on the disempowering effects of social media. This is a topic about which we lack a systematic understanding, despite critiques that technology can perpetuate the interest of powerful elites and cause devoicing of oppressed groups by controlling and shaping the public discourse (Miranda, Young, & Yetgin, 2016; Young, 2018). Lastly, in future investigations on movement continuity, it might be possible to use different methods, such as network analysis and discourse analysis, to further our understanding of how social media networks sustain movements (e.g., Yuce et al., 2014).

Notes

1. A brief account of the movements and references that provide their detailed historical background: the Arab Spring refers to a series of protests that began in 2010 seeking political reform and regime change across the Middle East and North Africa (refer to Rane & Salem, 2012); the Spanish Los Indignados movement began in 2011 and criticised the political system and economic model of Spain (refer to Anduiza, Cristancho, & Sabucedo, 2013); Occupy Wall Street refers to a movement that commenced in 2011 in New York City, protesting economic inequality and the influence of corporate power in the political process (refer to Gautney, 2011); the Umbrella Revolution refers to a series of pro-democracy protests that began in 2014 in Hong Kong (refer to Kaiman, 2014).
2. Malaysia is a federation composed of 13 states and 3 federal territories.
3. Data extracted from Facebook are reproduced in the text to maintain anonymity.

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References

Aberle, D. F. (1966). *The Peyote religion among the Navaho*. Chicago: Aldine.

Agarwal, N., Lim, M., & Wigand, R. (2012). Raising and rising voices in social media. *Business & Information Systems Engineering*, *4*(3), 113–126.

Agarwal, S. D., Barthel, M. L., Rost, C., Borning, A., Bennett, W. L., & Johnson, C. N. (2014). Grassroots organizing in the digital age: Considering values and technology in tea party and occupy wall street. *Information, Communication & Society*, *17*(3), 326–341.

Amenta, E., et al. (1992). A hero for the aged? The townsend movement, the political mediation model, and U.S. old-age policy, 1934–1950. *American Journal of Sociology*, *98*(2), 308–339.

Anduiza, E., Cristancho, C., & Sabucedo, J. M. (2013). Mobilization through online social networks: The political protest of the indignados in Spain. *Information, Communication & Society*, *17*(6), 750–764.

Astbury, B., & Leeuw, F. L. (2010). Unpacking black boxes: Mechanisms and theory building in evaluation. *American Journal of Evaluation*, *31*(3), 363–381.

Avgerou, C. (2013). Social mechanisms for causal explanation in social theory based is research. *Journal of the Association for Information Systems*, *14*(8), 399–419.

Babbie, E. (2007). *The practice of social research*. Australia: Wadsworth.

Bachrach, P., & Baratz, M. S. (1962). Two faces of power. *The American Political Science Review*, *56*(4), 947–952.

Bajpai, K., & Jaiswal, A. 2011. A framework for analyzing collective action events on twitter. *Proceedings of the 8th International ISCRAM Conference*.

Baker, E. A. (1993). *The role of control in the occupational stress process*. Ann Arbor, MI: University of Michigan.

Bartunek, J., & Spreitzer, G. (2006). The interdisciplinary career of a popular construct used in management: Empowerment in the late 20th century. *Journal of Management Inquiry*, *15*(3), 255–273.

BBC News. (2012a). *What are `Rare Earths' used for?*. UK: BBC.

BBC News. (2012b). *Zelen (Pseudonym) learns fate for malaysia rare earth refinery*. UK: BBC.

Benkler, Y. (2006). *The wealth of networks: How social production transforms markets and freedom*. New Haven: Yale University Press.

Bennett, W. L., & Segerberg, A. (2012). The logic of connective action. *Information, Communication & Society*, *15*(5), 739–768.

Bennett, W. L., & Segerberg, A. (2013). *The logic of connective action: Digital media and the personalization of contentious politics*. New York: Cambridge University Press.

Bennett, W. L., Segerberg, A., & Walker, S. (2014). Organization in the crowd: Peer production in large-scale networked protests. *Information, Communication & Society*, *17*(2), 232–260.

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research*, *10*(2), 141–163.

Bloomberg. (2012). *Zelen (pseudonym) CEO Finds Social Media Hobbles Rare-Earths Plans*. Retrieved 27 Oct, 2014 from http://www.bloomberg.com/news/2012-07-01/lynas-ceo-finds-social-media-hobbles-rare-earths-plans.html

Bourzac, K. (2011). The Rare-Earth Crisis. In *MIT technology review*. https://www.technologyreview.com/s/423730/the-rare-earth-crisis/

Burt, R. S. (2005). *Brokerage & closure: An introduction to social capital*. New York: Oxford University Press, Inc.

Butler, P. (2005). Non-Union employee representation: Exploring the efficacy of the voice process. *Employee Relations*, *27*(3), 272–288.

Cardoso, A., Boudreau, M.-C., & Carvalho, J. 2013. Think individually, act collectively: Studying the dynamics of a technologically enabled civic movement. In *International Conference on Information Systems*. Milan.

Carty, V. (2010). New information communication technologies and grassroots mobilization. *Information, Communication & Society*, *13*(2), 155–173.

Carty, V., & Onyett, J. (2006). Protest, cyberactivism and new social movements: The reemergence of the peace movement post 9/11. *Journal of Social, Cultural and Political Protest*, *5*(3), 229–249.

Castells, M. (2007). "Communication, power and counter-power in the. *International Journal of Communication*, *1*(1), 238–266.

Christens, B. D. (2012). Toward relational empowerment. *American Journal of Community Psychology*, *50*(1–2), 114–128.

Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, *13*(3), 471–482.

Cullinane, N., Donaghey, J., Dundon, T., Hickland, E., & Dobbins, T. (2014). Regulating for mutual gains? Non-Union employee representation and the information and consultation directive. *The International Journal of Human Resource Management*, *25*(6), 810–828.

David, M., & Sutton, C. D. (2011). *Social research: An introduction*. Thousand Oaks, CA: Sage Publications.

De Zúñiga, H, G. (2012). Social media use for news and individuals' social capital, civic engagement and political participation. *Journal of Computer-Mediated Communication*, *17*(3), 319–336.

Denzin, N. (1978). *Sociological methods*. New York: McGraw-Hill.

Diani, M. (2000). Social movement networks virtual and real. *Information, Communication & Society*, *3*(3), 386–401.

Diani, M. (2003). Introduction: Social Movements, Contentious Actions, and Social Networks: 'From Metaphor Ro Substance'?. In M. Diani & D. McAdam (Eds.), *Social movements and networks: relational approaches to collective action*. Oxford: Oxford University Press.

Diani, M. (2012). Social Movements. In H. K. Anheier & M. Juergensmeyer (Eds.), *Encyclopedia of global studies* (pp. 1569–1574). Thousand Oaks: SAGE Publications, Inc.

Dolata, U., & Schrape, J.-F. (2015). Masses, crowds, communities, movements: collective action in the internet age. In *Social movement studies 18*(1), 1–18.

Drury, J., & Reicher, S. (2005). Explaining enduring empowerment: A comparative study of collective action and psychological outcomes. *European Journal of Social Psychology*, *35*(1), 35–58.

Drury, J., & Reicher, S. (2009). Collective psychological empowerment as a model of social change: Researching crowds and power. *Journal of Social Issues*, *65*(4), 707–725.

Earl, J., & Schussman, A. (2003). The New Site of Activism: On-Line Organizations, Movement Entrepreneurs, and the Changing Location of Social Movementdecision-Making. In P. G. Coy (Ed.), *Consensus decision making, northern Ireland and indigenous movements* (pp. 155–187). London: JAI Press.

Earl, J., & Kimport, K. (2011). *Digitally enabled social change: Activism in the internet age*. Cambridge, Mass: MIT Press.

Edwards, B., & McCarthy, J. D. (2004). Resources and Social Movement Mobilization. In D. A. Snow, S. A. Soule, & H. Kriesi (Eds.), *The Blackwell companion to social movements*. Oxford, UK: Blackwell Publishing Ltd.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532–550.

Enjolras, B., Steen-Johnsen, K., & Wollebæk, D. (2013). Social media and mobilization to offline demonstrations: Transcending participatory divides? *New Media & Society*, *15*(6), 890–908.

Ersing, R. L. (2003). Community Empowerment. In K. Christensen & D. Levinson (Eds.), *Encyclopedia of community: From the village to the virtual world*. Thousand Oaks, CA: Sage Publications.

Fominaya, C. F. (2015). Debunking spontaneity: Spain's 15-M/Indignados as autonomous movement. *Social Movement Studies*, *14*(2), 142–163.

Fuchs, C. (2006). The Self-Organization of Social Movements. *Systemic Practice and Action Research*, *19*(1), 101–137.

Gaby, S., & Caren, N. (2012). Occupy online: How cute Old Men and Malcolm X recruited 400,000 US users to ows on facebook. *Journal of Social, Cultural and Political Protest*, *11*(3–4), 1–8.

Gardner, R. O. (2011). Grassroots organizations. In K. Wehr (Ed.), *Green culture: An A-to-Z guide*. Thousand Oaks: SAGE Publications, Inc.

Gautney, H. (2011). What is occupy wall street? The history of leaderless movements. *The Washington Post*. https://www.washingtonpost.com/national/on-leadership/what-is-occupy-wall-street-the-history-of-leaderlessmovements/2011/10/10/gIQAwkFjaL_story.html?noredirect=on&utm_term=.ff8dd88260b3

Gaventa, J. (1980). *Power and powerlessness: Quiescence and rebellion in an Appalachian valley*. Urbana: University of Illinois Press.

Gephart, R. P. (2004). Qualitative research and the academy of management journal. *Academy of Management Journal*, *47*(4), 454–462.

Ghobadi, S., & Clegg, S. (2015). These days will never be forgotten … : A critical mass approach to online activism. *Information and Organization*, *25*(1), 52–71.

Gregor, S. (2006). The nature of theory in information systems. *MIS Quarterly*, *30*(3), 611–642.

Gusfield, J. R. (1981). Social movements and social change: Perspectives of linearity and fluidity. In L. Kriesberg (Ed.), *Research in social movements, conflict and change* (pp. 317–339). Greenwich, CT: JAI Press.

Hannigan, J. A. (1985). Social media use for news and individuals' social capital, civic engagement and political participation. *The Sociological Quarterly*, *17*(3), 319–336.

Hardt, M., & Negri, A. (2011). The fight for 'real democracy' at the heart of occupy wall street. In Council on Foreign Relations (Ed.), *Foreign affairs*.

Harlow, S. (2012). Social media and social movements: Facebook and an online guatemalan justice movement that moved offline. *New Media & Society*, *14*(2), 225–243.

Kaiman, J. (2014). Hong Kong's umbrella revolution - the guardian briefing. *The Guardian*. https://www.theguardian.com/world/2014/sep/30/-sp-hong-kong-umbrella-revolution-pro-democracy-protests

Kane, G. C., Alavi, M., Labianca, G., & Borgatti, S. P. (2014). What's different about social media networks? A framework and research agenda. *MIS Quarterly*, *38*(1), 274–304.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! the challenges and opportunities of social media. *Business Horizons*, *53*(1), 59–68.

Keutel, M., Michalik, B., & Richter, J. (2014). Towards mindful case study research in is: A critical analysis of the past ten years. *European Journal of Information Systems*, *23*(3), 256–272.

Kieffer, C. H. (1984). Citizen empowerment: A developmental perspective. *Prevention in Human Services*, *3*(2–3), 9–36.

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, *54*(3), 241–251.

Klandermans, B. (1984). Mobilization and participation: social-psychological expansisons of resource mobilization theory. *American Sociological Review*, *49*(5), 583-600. doi:10.2307/2095417

Klandermans, B., & Roggeband, C. (2010). *Handbook of social movements across disciplines*. New York: Springer US.

Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, *23*(1), 67–93.

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, *24*(4), 691–710.

Lee, A. S. (1991). Integrating positivist and interpretive approaches to organizational research. *Organization Science*, *2*(4), 342–365.

Leong, C., Pan, S. L., Ractham, P., & Kaewkitipong, L. (2015). ICT-Enabled community empowerment in crisis response: Social media in Thailand flooding 2011. *Journal of the Association for Information Systems*, *16*(3), 174–212.

Lukes, S. (1974). *Power: A radical view*. London, New York: Macmillan.

Lynch, M. (2011). After Egypt: The limits and promise of online challenges to the authoritarian Arab State. *Perspectives on Politics*, *9*(02), 301–310.

Maghrabi, R. O., & Salam, A. F. 2013. "Social media and citizen social movement process for political change: The case of 2011 Egyptian revolution," In: *International Conference on Information Systems*, Milan.

Maynard, M. T., Gilson, L. L., & Mathieu, J. E. (2012). Empowerment—fad or fab? A multilevel review of the past two decades of research. *Journal of Management*, *38*(4), 1231–1281.

McCarthy, J. D., & Zald, M. N. (1977). Resource mobilization and social movements: A partial theory. *American Journal of Sociology*, *82*(6), 1212–1241.

Miller, F. D. (1999). *The end of sds and the emergence of weatherman: Demise through success*. Lanham, Maryland: Rowman & Littlefield Publishers.

Miranda, S., Young, A., & Yetgin, E. (2016). Are social media emancipatory or hegemonic? Societal effects of mass media digitization in the case of the sopa discourse. *MIS Quarterly*, *40*(2), 303.

Mora, F. A. (2014). Emergent digital activism: The generational/technological connection. *The Journal of Community Informatics*, *10*(1), 1-19.

Oh, O., Eom, C., & Rao, H. R. 2011. Collective Sense-Making through the twitter service during the 2011 Egypt revolution. In: *International Conference on Information Systems*, Shanghai.

Olson, M. (1965). *The logic of collective action*. Cambridge: Harvard University Press.

Pan, S. L., & Tan, B. (2011). Demystifying case research: A structured–pragmatic–situational (sps) approach to conducting case studies. *Information & Organization*, *21*(3), 161–176.

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *HSR: Health Services Research*, *34*(5), 1189–1208.

Penney, J., & Dadas, C. (2014). (Re)Tweeting in the service of protest: Digital composition and circulation in the occupy wall street movement. *New Media & Society*, *16*(1), 74–90.

Pentland, B. T. (1999). Building process theory with narrative: From description to explanation. *The Academy of Management Review*, *24*(4), 711–724.

Pigg, K. E. (2002). Three faces of empowerment: Expanding the theory of empowerment in community development. *Journal of the Community Development Society*, *33*(1), 107–123.

Poole, M. (1975). *Workers' participation in industry*. London: Routledge & Kegan Paul.

Pu, Q., & Scanlan, S. J. (2012). Communicating injustice?: Framing and online protest against Chinese government land expropriation. *Information, Communication & Society*, *15*(4), 572–590.

Rane, H., & Salem, S. (2012). Social media, social movements and the diffusion of ideas in the Arab uprisings. *Journal of International Communication*, *18*(1), 97–111.

Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology*, *15*(2), 121–148.

RETA. (2013). What are rare Earths?. *The Rare Earth Technology Alliance (RETA)*. http://www.rareearthtechalliance.com/What-are-Rare-Earths

Reuters. (2012). Citizen backlash keeps Malaysia rare Earth plant on hold. https://www.reuters.com/article/us-malaysia-lynas/citizen-backlash-keeps-malaysia-rare-earth-plant-on-hold-idUSBRE84808X20120509

Rosen, D., Kim, J., & Nam, Y. (2010). Birds of a feather protest together: Theorizing self-organizing political protests with flock theory. *Systemic Practice and Action Research*, *23*(5), 419–441.

Schulz, A. J., Israel, B. A., Zimmerman, M. A., & Checkoway, B. N. (1995). Empowerment as a multi-level construct: Perceived control at the individual, organizational and community levels. *Health Education Research*, *10*(3), 309–327.

Selander, L., & Jarvenpaa, S. 2013. Online impulse activism at Amnesty International. In: *International Conference on Information Systems*, Milan.

Selander, L., & Jarvenpaa, S. (2016). Digital action repertoires and transforming a social movement organization. *MIS Quarterly*, *40*(2), 331–352.

Shirazi, F. (2013). Social media and the social movements in the middle east and North Africa. *Information Technology & People*, *26*(1), 28–49.

Silva, L. (2007). Epistemological and theoretical challenges for studying power and politics in information systems. *Journal*I. Systems, *17*(2), 165–183.

Snow, D. A., Soule, S. A., & Kriesi, H. (2004). Mapping the Terrain. In D. A. Snow, S. A. Soule, & H. Kriesi (Eds.), *The Blackwell companion to social movements* (pp. 3–16). Oxford: Blackwell.

Snow, D. A., & Benford, R. D. (1988). Ideology, frame resonance, and participant mobilization. In B. Klandermans, H. Kriesi, & S. Tarrow (Eds.), *From structure to action: social movement Participation across cultures* (pp. 197-217). Greenwich: JAI

Soon, C., & Cho, H. (2014). Omgs! offline-based movement organizations, online-based movement organizations and network mobilization: A case study of political bloggers in Singapore. *Information, Communication & Society*, *17*(5), 537–559.

Speer, P. W., & Hughey, J. (1996). Mechanisms of empowerment: Psychological processes for members of power-based community organizations. *Journal of Community & Applied Social Psychology*, *6*(3), 177–187.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Procedures and techniques for developing grounded theory*. Thousand Oaks, CA: Sage.

Stürmer, S., & Simon, B. (2009). Pathways to collective protest: Calculation, identification, or emotion? A critical analysis of the role of group-based anger. *Journal of Social Issues*, *65*(4), 681–705.

Tarrow, S. (1993). Cycles of collective action: Between moments of madness and the repertoire of contention. *Social Science History*, *17*(2), 281–307.

Tarrow, S. (2005). *The new transnational activism*. Cambridge, UK: Cambridge University Press.

Taylor, V. (1989). Social movement continuity: The women's movement in abeyance. *American Sociological Review*, *54*(5), 761.

Taylor, V., & Crossley, A. D. (2013). Abeyance. In D. D. P. David, A. Snow, B. Klandermans, & D. Doug McAdam (Eds.), *The Wiley-Blackwell encyclopedia of social and political movements* (pp. 1–3). Oxford: Blackwell.

Tilly, C. (2004). *Social movements*. Boulder, CO: Paradigm Publishers.

Tim, Y., Pan, S. L., Bahri, S., & Fauzi, A. (2018). "Digitally enabled affordances for community-driven environmental movement. *Information Systems Journal*, *28*(1), 48–75.

Tufekci, Z., & Wilson, C. (2012). Social media and the decision to participate in political protest: Observations from. *Journal of Communication*, *62*(2), 363–379.

Tye, M., Leong, C., Tan, F., Tan, B., & Khoo, Y. H. (2018). Social media for empowerment in social movements: the case of Malaysia's grassroots activism. *Communications of the Association for Information Systems*, *42*(1), 408-430. doi:10.17705/1CAIS.04215

Vaast, E., Safadi, H., Lapointe, L., & Negoita, B. (2017). Social media affordances for connective action: An examination of microblogging use during the Gulf of Mexico oil spill. *MIS Quarterly*, *41*(4), 1179–1206.

Valenzuela, S. (2013). Unpacking the use of social media for protest behavior: The roles of information, opinion expression, and activism. *American Behavioral Scientist*, *57*(7), 920–942.

Van Laer, J., & Van Aelst, P. (2010). Internet and social movement action repertoires: Opportunities and limitations. *Information Communication and Society*, *13*(8), 1146–1171.

Walsham, G. (1995). Interpretive case studies in is research: Nature and method. *European Journal of Information Systems*, *4*(2), 74–81.

Wandersman, A., & Florin, P. (2000). Citizen Participation and Community Organizations. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 247–272). US: Springer.

Wattal, S., Schuff, D., Mandviwalla, M., & Williams, C. B. (2010). Web 2.0 and politics: the 2008 us presidential election and an e-politics research agenda. *MIS Quarterly*, *34*(4), 669-688.

Weick, K. E. (1989). Theory construction as disciplined imagination. *Academy of Management Review*, *14*(4), 516–531.

Young, A. G. (2018). Using Ict for social good: Cultural identity restoration through emancipatory pedagogy. *Information Systems Journal*, *28*(2), 340–358.

Yuce, S. T., Agarwal, N., Wigand, R. T., Lim, M., & Robinson, R. S. (2014). Bridging women rights networks: Analyzing interconnected online collective actions. *Journal of Global Information Management*, *22*(4).

Zimmerman, M. A. (1990). Taking aim on empowerment research: On the distinction between individual and psychological conceptions. *American Journal of Community Psychology*, *18*(1), 169–177.

Appendix A

Table A1. Logic of connective action in social media-enabled social movements (Bennett & Segerberg, 2012).

	Logic of collective action	Logic of connective action
Cost–benefit gap in joint actions	A central challenge is to persuade individuals to overcome their resistance to joining collective actions in which personal participation costs may outweigh gains, particularly when people can free-ride on others' efforts	Radically reduced communication costs as a result of social media use have reduced the gap between the cost and benefit in participating in joint actions
Identity reference	Requires a common group or *collective* identity, ideological identification, and symbolic construction of a united "we"	Identity reference is derived through *inclusive and diverse* large-scale personal expression
Action frame	Advocates a *shared collective action frame* to garner support	Advocates for *personal action frames* and easy-to-personalise action themes
Identification	Requires people to make more difficult choices and *requires a higher level of self-change* in individuals	The starting point is the self-motivated sharing of *already internalised or personalised ideas* with others
Leader/Organisation	*A recognised leader or credible social movement organisation* is usually central in developing and propagating the ideology and collective action	Relatively *decentralised* to the extent that the community avoids designating leaders and official spokespeople
Role of social network	Emphasises the role of social network relationships and connections as *informal preconditions* for more centralised mobilisation (e.g., in forming and spreading action frames and forging common identifications and relations of solidarity and trust)	"Networks are not just precursors or building blocks of collective action: they are in themselves organizational *structures* that can transcend the elemental units of organizations and individuals" (p. 753)
	Emphasises the *strength of group ties* between organisers and followers and among the activists	Emphasises *large-scale, fluid* social networks
Role of digital technology	Maintains that digital media may help reduce some costs in these processes but *do not fundamentally change the action dynamics*	"Participation becomes self-motivating as personally expressive content is shared with and recognized by others who, in turn, repeat these networked sharing activities. When these interpersonal networks are enabled by technology platforms of various designs that coordinate and scale the networks, *the resulting actions can resemble collective action, yet without the same role played by formal organizations or transforming social identifications*" (p. 752)

Appendix B

Table B1. Selected social media-enabled movement studies.

Reference	Journal	Brief description of the study and movement(s)	Focal outcome in grassroots organising	Temporal scope of social media use in movements
Focus 1: Passive participants or users of social media				
Tufekci and Wilson (2012)	Journal of Communication	Validates, through a qualitative survey analysis, that social media are crucial in shaping how citizens make individual decisions about participating in protests Movement: 2011 Egyptian revolution	Does not focus on grassroots organising; regards social media primarily as a source of news about public affairs; participation is operationalised as attendance at protests	Period of rupture (4-day survey that began less than 2 weeks after President Mubarak resigned)
Valenzuela (2013)	American Behavioral Scientist	Suggests that "social media are not so much creating new forms of protest but amplifying traditional forms of protest, such as street demonstrations" (p. 936) Movement: 2011 demonstrations in Chile for changes in education and energy policy	Does not focus on grassroots organising; regards citizens as "passive" participants who express opinions (rather than influencing others) and join causes (rather than initiating events)	Period of rupture
Wattal et al. (2010)	MIS Quarterly	Assesses the use of social media (blogs, YouTube, MySpace) in influencing candidates' performance from a media perspective Movement: 2008 US presidential election	Does not focus on grassroots organising	One election cycle (February 2007–January 2008)
Focus 2: Analysis of social media posts				
Bajpai and Jaiswal (2011)	International Information Systems for Crisis Response and Management Conference	Suggests that Twitter is a medium that primarily facilitates consensus among participants when movements are publicised and legitimised from users' viewpoints (Klandermans 1984); analyses the content and structure of messages; features logic of collective action Movement: 2010 Thailand protests	Focuses on citizen-provided messages posted on social media	Period of rupture
Gaby and Caren (2012)	Social Movement Studies	Examines the types of social media (Facebook) posts that recruit new users Movement: 2011–2012 US Occupy Wall Street	Focuses on citizen-provided messages posted on social media	Period of rupture
Shirazi (2013)	Information Technology & People	Adopts critical discourse analysis to analyse the communication messages of citizens in response to state officials; highlights the use of social media as a communication channel for organising protest events Movement: 2009–2011 movements in the Middle East and North Africa	Focuses on citizen-provided messages posted on social media	Period of rupture
Rane and Salem (2012)	Journal of International Communication	Advances the logic of connective action and suggests that social media facilitated a proximal process of diffusion (in relation to hierarchical process); highlights that groups that share high levels of identification are critical of the diffusion of ideas among them Movement: 2011 Arab uprisings	Focuses on citizen-provided messages posted on social media	Period of rupture
Focus 3: Participation as a conflated outcome in grassroots digital activism				
Agarwal et al. (2014)	Information, Communication & Society	Investigates the adoption of different technological tools within grassroots social movements by investigating "What leads users to either engage with or resist a given technology?" Movement: Tea Party and Occupy Wall Street	Focuses on participation (in the form of technological tool adoption)	Period of rupture

(*Continued*)

Table B1. (Continued).

Reference	Journal	Brief description of the study and movement(s)	Focal outcome in grassroots organising	Temporal scope of social media use in movements
Penney and Dadas (2014)	New Media Society	Develops a typology of seven roles of social media in facilitating online actions: e-mobilisation, citizen journalism, editorial commentary, second-hand circulation, strengthening of ties, e-tactics, online deliberation Movement: 2011–2012 US Occupy Wall Street	Suggests multiple types of participation	Period of rupture
Maghrabi and Salam (2013)	International Conference on Information Systems	Develops a process-oriented view of the case of social media-enabled movements, features the logic of collective action by advocating social media as an enhancing tool that accelerates the achievement of conditions required for collective action Movement: 2011 Egyptian revolution	Process model implies multiple levels of participation, including influencing others (influence) and mobilising resources (control)	Period of rupture
Agarwal et al. (2012)	Business & Information Systems Engineering	Highlights the diffusion of information and emergence of community leader in social media-enabled movements (blogs); adopts the logic of collective action Movement: Women's rights movement	Focuses on the diffusion of influence (from individuals to individuals)	Period of rupture
Yuce et al. (2014)	Journal of Global Information Management	Discovers brokering and bridging processes between two online collective actions in which a set of bloggers acted as brokers who bridged two overlapping networks; features the logic of connective action Movement: Women's rights movement	Implies the influence propagated through social networks	Period of rupture
Bennett et al. (2014)	Information, Communication & Society	Advances the logic of connective action and suggests that social media serve as stitching mechanisms that connect different networks into coherent organisation in the absence of recognised leaders, common goals, or conventional organisation Movement: 2011–2012 US Occupy Wall Street	Implies the influence propagated through social networks	Period of rupture
Focus 4: Studies beyond the period of rupture				
Selander and Jarvenpaa (2016)	MIS Quarterly	Investigates the use of social media at the organisational level, or social movement organisation; suggests that digital action repertoires can support both stability and changes in values Amnesty International's strategic initiatives involving social media	Does not focus on grassroots organising	Looks beyond short-term critical events and actions (to understand legitimacy and persistence in the use of social media)
De Zúñiga (2012)	Journal of Computer-Mediated Communication	Examines whether social networking sites can promote democratically desirable civic attitudes and behaviours; suggests that civic participation is multidimensional: (1) civic engagement (e.g., volunteering for charities), (2) offline political participation (e.g., attending political rallies), and (3) online political participation (e.g., forwarding political messages by e-mail) Movement: no specific movement	Does not focus on grassroots organising; social media are regarded primarily as a source of news about public affairs	Looks beyond a single movement (considers any civic activities in which respondents have participated in the 12 months prior to the survey)
Ghobadi and Clegg (2015)	Information and Organization	Explores the use of social media for expression and elites' reactions to digital activism, such as Internet filtering and surveillance Movement: Iranian post-election crisis in 2009	Does not focus on grassroots organising	Longitudinal data (2009–2013) collected from three YouTube bases and supplementary interviews
Tim et al. (2018)	Information Systems Journal	Develops a process model of social media-enabled movement by advancing the affordance actualisation and the unintended consequences of social media use Movement: Malaysian environmental movement	Focuses on emergent grassroots organising	Does not consider a period of abeyance

Appendix C

Table C1. List of Interviewees (Number of Interviewees: 30).

Community group	Interviewees (pseudonym)	Focus group/ Interview	Number of interviewees	Remarks
Government official	Yang Berhormat (which means honourable, is a title conferred on political dignitaries in Malaysia) Ms. Nadia	Interview	1	Member of Parliament for Kuantan, the state capital of Pahang, Malaysia (Pahang is the state where the rare earth refinery was built)
	Yang Berhormat Mr. Adi	Interview	1	State assemblyman for Beserah constituency area of Pahang, Malaysia, and leader of the Stop Zelen Coalition (SZC)
	Yang Berhormat Mr. Lim	Interview	1	State assemblyman for Semambu constituency area of Pahang, Malaysia, and Publicity Chief, Himpunan Hijau Group
	Mr. Yuan	Interview	1	Personal assistant of Yang Berhormat Mr. Lim, who was very involved in the movement
Activist	Social activists, including Mr. Ho, Ms. May, Ms. Cui (student representative from DEMA)	Focus group	6	Facebook administrator of 300-km Green Walk, activists and volunteers in the environmental movement
	Mr. See	Interview	1	Chairman of Save Malaysia Stop Zelen (SMSZ) coalition, campaigner of the environmental movement
	Mr. Teo	Interview	1	Treasurer of Himpunan Hijau Group
	Mr. Tan and Ms. Lim	Interview	2	Founder of a Facebook group "Pahlawan Hijau" and active participants in the environmental campaign
Volunteer	Mr. Chun	Interview	1	Student volunteer, member of Malaysia Youth & Student Democratic Movement (DEMA)
	Mr. Yong	Interview	1	Administrator of the I'm from Malaysia! I say Stop Zelen! Facebook group
	–	Interview	7	Volunteers from the Pahang Don't Need "Hazardous" Project Facebook group
Residents	–	Interview	7	Residents living near the rare earth plant

Even though some interviewees had political affiliations, they were powerless in influencing the decision of the government.

Appendix D

Excerpt of Semi-structured Interview Topic Guides

General questions regarding the Interviewee

(1) Can you introduce yourself?
(2) Can you tell us what the anti-Zelen Movement is?
(3) What is your involvement in the movement?
(4) What are the reasons that motivate you to be involved?
(5) How did you first learn about the movement?

General questions regarding Interviewee's social media use

(1) What are some of the social media that you used?
(2) Before the movement, what do you use social media for?
(3) During the movement, what do you use social media for?
(4) How are you involved in the movement before the introduction of the movement's social media?
(5) Have you interacted with other participants, including other activists or NGOs, through social media? If so, how did this occur?
(6) What do you find are the most useful features of the social media platform of your choice? Why?
(7) What happens on the social media platform when the (offline) rally is over?
(8) From your view, how did social media make a difference in the movement? Can you give an example?
(9) What are some of the negative implications of social media use, if any? Can you give an example?
(10) From your perspective, what has been achieved through the movement?

Depending on the role of the interviewees, specific questions may be pursued. For example, we asked the government officials for contextual information on the government policy and reactions to the movement. For interviewees who initiated a Facebook page or were administrators of Facebook groups, questions on the challenges of managing social media during and after the rally were posed. Examples of questions are provided below:

Government official

(1) Is there a dedicated social media team that handles all these social media campaigns?

(2) Do you know of any instances in which individuals emerged through social media and subsequently became leaders in the movement?
(3) Do you see any changes in the young people today in terms of their civic engagement and participation compared to youngsters 5 or 6 years ago given their active social media usage?

Volunteer

(1) How exactly do you collaborate with other groups through social media?
(2) Why do you take on this issue when there are many other issues that the student association can focus on?
(3) Do you see any spread of influence, say, from students to their parents or families?
(4) Have you experienced confrontation or opposition from someone you know? Was it through an online channel?

Volunteer (Facebook admin)

(1) How do you design your Facebook posts? Any criteria?
(2) You have never met this lady who volunteered to help with your Facebook group. What makes you think that you can trust her?
(3) It can take a long time to realise social change, and you may be well aware that the movement has died down; however, I can see that you are still posting on the Facebook group. Why are you doing that?

Activist

(1) How do you encourage people to come together and participate in activities that you organise or support online?
(2) Are you a professional photographer, or is it your personal interest?
(3) I understand that you are from Kuantan (where the plant was built) and that you are actually concerned about this issue. What stops you from taking the initiative to participate in the movement?
(4) I understand that many people would join a (Facebook) group and like a (Facebook) page, and sometimes, you would take the initiative to contact another person. What are you trying to do? How does that help to organise and bring in more resources to the movement? Did you ever search for people by their interests, expertise, or skill sets?
(5) When people have confidence in the authenticity of an event, they will begin to propagate. How does authenticity develop? What has to be done?
(6) How did you change from being a passive participant to being part of the movement, say, as a coordinator?

Residents

(1) Do you see that the information from the social media differs from the information from television or newspapers? Can you tell us any examples?

Appendix E

Secondary Data

News and Articles

The New York Times (2011, 8 Mar). Taking a Risk for Rare Earths, Retrieved 22 Feb, 2014 from http://www.nytimes.com/2011/03/09/business/energy-environment/09rare.html?pagewanted=all&_r=0

The New York Times (2011, 29 Jun). The Fear of a Toxic Rerun, Retrieved 4 Nov, 2014 from http://www.nytimes.com/2011/06/30/business/global/30rare.html?pagewanted=all&_r=0

The New York Times (2011, 30 Jun). Malaysia Plan Meets Standards, U.N. Agency Says, Retrieved 29 Oct, 2014 from http://www.nytimes.com/2011/07/01/business/global/01lynas.html?_r=0

Books

2012. "The Green Movement" Gerakbudaya Enterprise

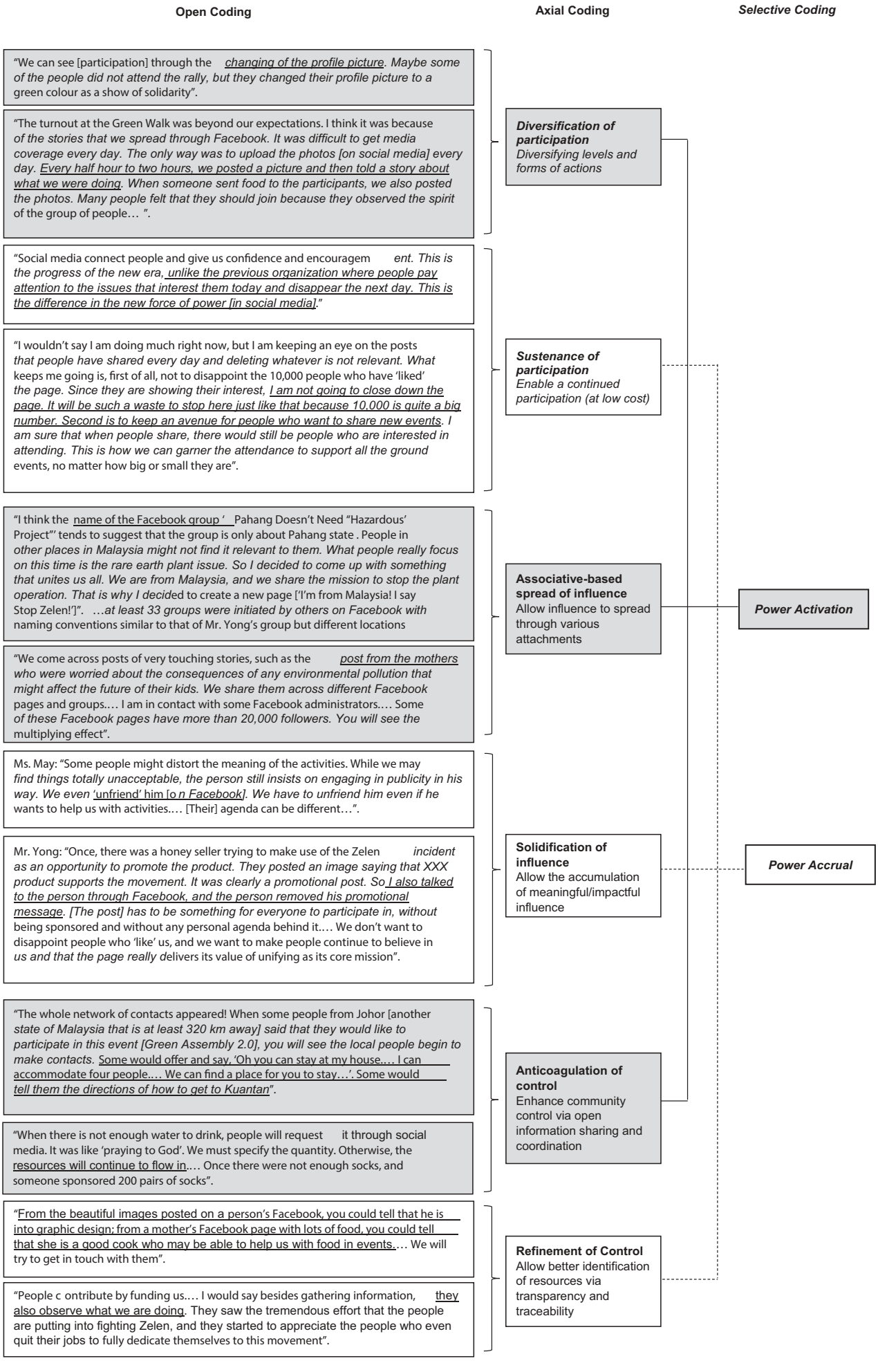
Related Facebook pages/groups (23 other groups – available upon request)

Facebook group	URL	"Likes"/Members as at October 2014
Pahang Don't Need "Hazardous" Project	https://www.facebook.com/groups/PDNHP/	40,793 Members
Himpunan Hijau 2.0: Langkah Lestari	https://www.facebook.com/pages/Himpunan-Hijau-20-Langkah-Lestari/156138757834195	16,868 Likes
Stop Lynas! Save Kuantan	https://www.facebook.com/pages/Stop-Lynas-Save-Kuantan/204890156205446	13,934 Likes
I'm from Malaysia! I say Stop Lynas!	https://www.facebook.com/groups/120600834735112/	10,516 Members
Stop Lynas Save Malaysia	https://www.facebook.com/pages/Stop-Lynas-Save-Malaysia/198611483579242?ref=br_rs	4103 Likes
Save Malaysia! Stop Lynas!	https://www.facebook.com/groups/savemalaysiastoplynas/	3390 Members
Pahlawan Hijau	https://www.facebook.com/groups/pahlawanhijau/	3088 Members
Himpunan Hijau 3.0 (Laman Rasmi)	https://www.facebook.com/HimpunanHijau3.0	1964 Likes
Stop Lynas Coalition (SLC)	https://www.facebook.com/pages/Stop-Lynas-Coalition-SLC/269265829774813	1220 Likes
Himpunan Hijau-The Green Walk Photo Contest	https://www.facebook.com/greenwalkphotocontest	390 Likes
Stop Lynas, Save Malaysia	https://www.facebook.com/groups/stoplynassavemalaysia/	77 Members
Johor Yellow Flame	https://www.facebook.com/johoryellowflame	6271 Likes
Malaysia Youth & Student Democratic Movement DEMA	https://www.facebook.com/demamsia	1371 Likes

YouTube videos (12 other links available upon request)

YouTube videos	Views as at October 2014
https://www.youtube.com/watch?v=1miUF433DFw (Chinese version)	283,946
https://www.youtube.com/watch?v=LSPyVm2Zj5I (English version)	106,846
http://www.youtube.com/watch?v=RQP3EQ_xiPg (Malay Version)	39,608
https://www.youtube.com/watch?v=8Bue9_Wa8yY	25,910
https://www.youtube.com/watch?v=B1UvjqFaEAo	183,182
https://www.youtube.com/watch?v=iTjAZDansbI	47,732

Appendix F


Open Coding
Axial Coding
Selective Coding
"We can see [participation] through the changing of the profile picture. Maybe some of the people did not attend the rally, but they changed their profile picture to a green colour as a show of solidarity".
"The turnout at the Green Walk was beyond our expectations. I think it was because of the stories that we spread through Facebook. It was difficult to get media coverage every day. The only way was to upload the photos [on social media] every day. Every half hour to two hours, we posted a picture and then told a story about what we were doing. When someone sent food to the participants, we also posted the photos. Many people felt that they should join because they observed the spirit of the group of people… ".
Diversification of participation
Diversifying levels and forms of actions
"Social media connect people and give us confidence and encouragem ent. This is the progress of the new era, unlike the previous organization where people pay attention to the issues that interest them today and disappear the next day. This is the difference in the new force of power [in social media]."
"I wouldn't say I am doing much right now, but I am keeping an eye on the posts that people have shared every day and deleting whatever is not relevant. What keeps me going is, first of all, not to disappoint the 10,000 people who have 'liked' the page. Since they are showing their interest, I am not going to close down the page. It will be such a waste to stop here just like that because 10,000 is quite a big number. Second is to keep an avenue for people who want to share new events. I am sure that when people share, there would still be people who are interested in attending. This is how we can garner the attendance to support all the ground events, no matter how big or small they are".
Sustenance of participation
Enable a continued participation (at low cost)
"I think the name of the Facebook group ' Pahang Doesn't Need "Hazardous' Project"' tends to suggest that the group is only about Pahang state . People in other places in Malaysia might not find it relevant to them. What people really focus on this time is the rare earth plant issue. So I decided to come up with something that unites us all. We are from Malaysia, and we share the mission to stop the plant operation. That is why I decided to create a new page ['I'm from Malaysia! I say Stop Zelen!']". …at least 33 groups were initiated by others on Facebook with naming conventions similar to that of Mr. Yong's group but different locations
"We come across posts of very touching stories, such as the post from the mothers who were worried about the consequences of any environmental pollution that might affect the future of their kids. We share them across different Facebook pages and groups.… I am in contact with some Facebook administrators.… Some of these Facebook pages have more than 20,000 followers. You will see the multiplying effect".
Associative-based spread of influence
Allow influence to spread through various attachments
Power Activation
Ms. May: "Some people might distort the meaning of the activities. While we may find things totally unacceptable, the person still insists on engaging in publicity in his way. We even 'unfriend' him [on Facebook]. We have to unfriend him even if he wants to help us with activities.… [Their] agenda can be different…".
Mr. Yong: "Once, there was a honey seller trying to make use of the Zelen incident as an opportunity to promote the product. They posted an image saying that XXX product supports the movement. It was clearly a promotional post. So I also talked to the person through Facebook, and the person removed his promotional message. [The post] has to be something for everyone to participate in, without being sponsored and without any personal agenda behind it.… We don't want to disappoint people who 'like' us, and we want to make people continue to believe in us and that the page really delivers its value of unifying as its core mission".
Solidification of influence
Allow the accumulation of meaningful/impactful influence
Power Accrual
"The whole network of contacts appeared! When some people from Johor [another state of Malaysia that is at least 320 km away] said that they would like to participate in this event [Green Assembly 2.0], you will see the local people begin to make contacts. Some would offer and say, 'Oh you can stay at my house.… I can accommodate four people.… We can find a place for you to stay…'. Some would tell them the directions of how to get to Kuantan".
"When there is not enough water to drink, people will request it through social media. It was like 'praying to God'. We must specify the quantity. Otherwise, the resources will continue to flow in.… Once there were not enough socks, and someone sponsored 200 pairs of socks".
Anticoagulation of control
Enhance community control via open information sharing and coordination
"From the beautiful images posted on a person's Facebook, you could tell that he is into graphic design; from a mother's Facebook page with lots of food, you could tell that she is a good cook who may be able to help us with food in events.… We will try to get in touch with them".
"People c ontribute by funding us.… I would say besides gathering information, they also observe what we are doing. They saw the tremendous effort that the people are putting into fighting Zelen, and they started to appreciate the people who even quit their jobs to fully dedicate themselves to this movement".
Refinement of Control
Allow better identification of resources via transparency and traceability

Appendix G

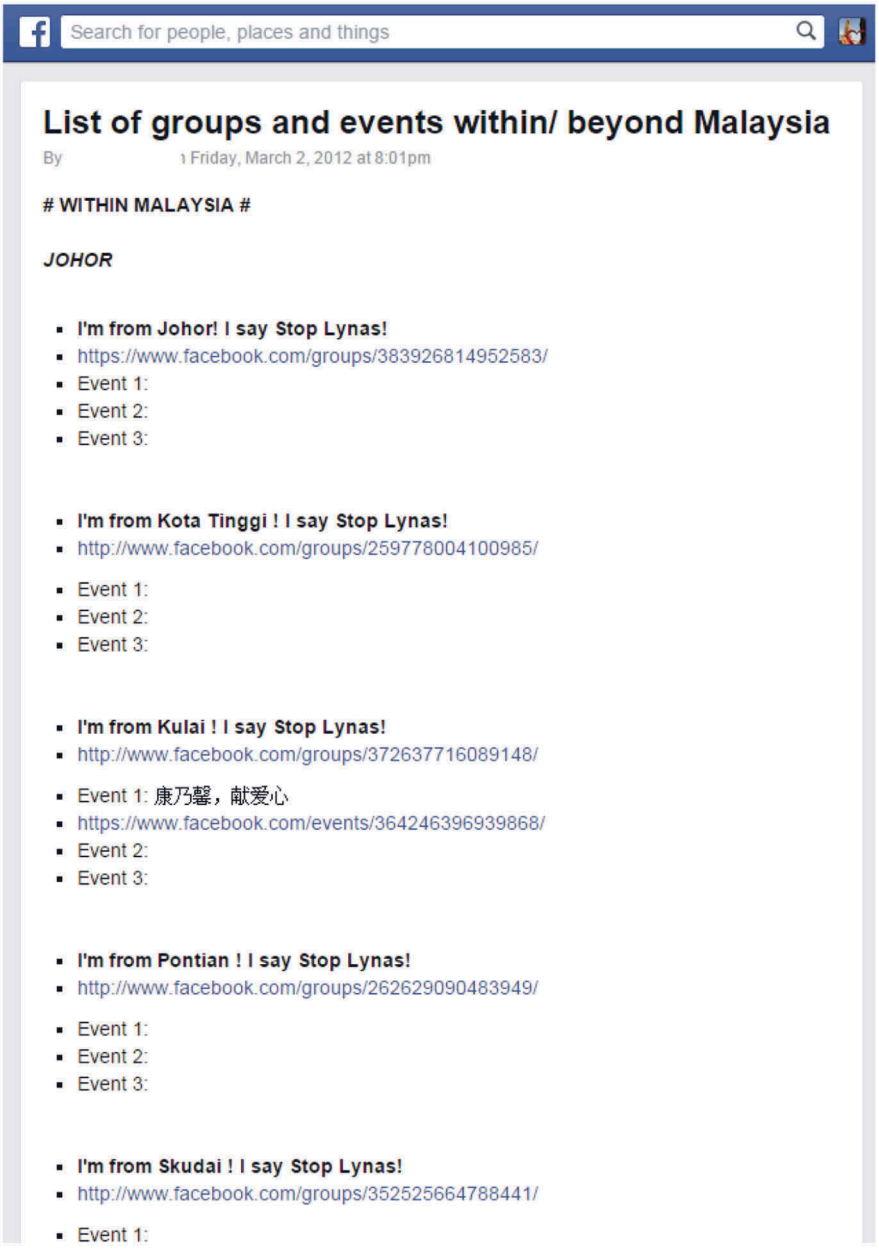


Figure G1. Anti-Zelen Facebook groups named by locations.

An excerpt from Mr. Ho's Facebook page:

A group photograph of the participants of the Green Walk was posted on November 28, 2012:

While the power of a civil society is on the rise, our friendship grows. Although we encounter conflicts, differences in opinion, and misunderstanding, everyone understands that what we are fighting for is for a better future. I hope that all of us got to know new friends in the Green Walk. Let's grow bigger!

Figure G2. A Facebook excerpt that illustrates solidified influence. (All of the user names/accounts in the Facebook screenshots are hidden to maintain anonymity.)

Figure G3. A Facebook excerpt that illustrates requests for real-time information and responses.