

# Bonding, bridging, and linking: photovoice for resilience through social capital

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**Abstract** Recognizing the social factors of resilience research, an increasing number of scholars have begun to investigate how social capital plays a role in achieving community resilience. These studies typically apply structured interviews and quantitative analyses to situate social capital in disaster management. However, such approaches often fail to present the grounded lens of disadvantaged populations. Through visual narratives, unstructured observations, and semi-structured interviews, this research illuminates how disadvantaged populations bond, bridge, and link social capital to prepare, respond, adapt, and rebuild facing ongoing disasters. In this research, I examine different types of social capital in three disadvantaged communities of metropolitan Manila and Cebu. The majority of disadvantage participants were female; participants from one of the involved communities were mostly deaf. This research applies a mixed-method qualitative analysis with an emphasis on the photovoice approach. The photovoice approach integrated with social media demonstrates an engaging local lens seldom revealed by other methods. It presents how social capital is generated and leveraged beyond the geographical boundaries and possibly the power structure. This project is perhaps the first photovoice research to visualize social capital for resilience studies. It explores social capital in disaster settings under the context of less-developed countries that have been rarely discussed in the current literature. The empirical guidance of utilizing social capital for resilience building, especially the forms of bridging and linking, fills one of the major knowledge gaps in the field. Furthermore, the application of photovoice offers rich insight about resilience studies, providing inclusive data collection as well as transparent resilience governance.

**Keywords** Social capital · Community resilience · Photovoice · Disadvantaged populations · Philippines

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## 1 Introduction

Facing more extensive long-duration crises, policymakers have started to integrate top-down macro-strategies with bottom-up climate adaptation approaches (Van Aalst et al. 2008; Saavedra and Budd 2009; Roberts 2010). That means their focus transfers from the central/state government to the local community to tackle environmental hazards. At the level of community, in addition to the physical component, more and more scholars are beginning to emphasize the social factors of enhancing community resilience (Cutter et al. 2003). The complex nature of a community requires researchers and practitioners to consider resilience beyond statistical analysis. It calls for attention to mobilize and transform socioeconomic resources for resilience building, especially in disadvantaged communities.

While the concept of social capital is not new, it has recently become a popular topic in the social sciences, from economics and education to urban development. The framework of social capital illustrates an analytical approach to look at community mobilizing, organizing, and transformation. It presents a nonlinear perspective to study a community, which connects the theoretical framework with the nuance of community nature, such as the intangible norms and relationships (Hawkins and Maurer 2010). The lens of social capital provides a comprehensive understanding of how communities prepare for, respond to, and learn from hazards; this is more of a contingency management approach to enhance resilience building compared to municipal governing initiatives (Murphy 2007).

With hazards as a series of simultaneous crises, increasing resilience through social capital for long-term humanitarian aid is critical. According to current literature, Aldrich and Smith (2015) point out that very few studies have demonstrated the effects of social capital in resilience building under the context of developing countries. Recognizing the value of linking social capital, there is still little attention paid to the pragmatic guidance for disadvantaged populations to reach authorities across power structures for community resilience building (Elliott et al. 2010).

There is insufficient local data available to explore critical issues mentioned through the mainstream quantitative and qualitative approaches. Participatory action research (PAR) draws from a great variety of intellectual origins, which could be defined as “systematic inquiry, with the collaboration of those affected by the issue being studied, for the purpose of education and taking action or effecting social change” (Minkler 2000 p. 192). In general, PAR connects with community participation, alternative ways of knowing, linking knowledge with action, empowerment, capacity building, and balance between processes and outcomes (González et al. 2007; Minkler 2000; Mora and Diaz 2005). Photovoice, as a method of PAR, has been applied in a variety of fields including education and public health to analyze critical issues and promote positive changes, especially in the less accessible communities (Krieg and Roberts 2007; Strack et al. 2004; Wang 1999; Wang and Burris 1997). For instance, in vulnerable coastal communities in Thailand, photovoice was used as a powerful method to examine social and environmental changes and develop an open dialogue with communities about natural resources management, community development, and climate adaptation (Bennett and Dearden 2013). According to a major search engine, there are few studies that apply photovoice in exploring resilience planning.

Situating planning in the era of social media, a number of planners have begun to embrace the technology to enhance planning outcomes through accessing new data, augmenting participation, and advancing decision-making (Crowe et al. 2016; Fredericks and Foth 2013; Hasan et al. 2013). During disasters, incorporating social media in response efforts can

provide timely information, a new form of trust building, and alternative governing mechanisms (Mehta et al. 2016).

In this research, I aim to answer this question: How do disadvantaged communities bond, bridge, and link social capital for enhancing resilience with limited financial and governmental resources. I examine three disadvantaged communities affected by frequent hazards in the Philippines through a social capital lens. The majority of disadvantage participants were female; participants from one of the involved communities were mostly deaf. A mixed-method qualitative approach with an emphasis on photovoice and social media investigates the bonding, bridging, and linking of social capital in metropolitan Manila and Cebu.

Through visual narratives, unstructured observations, and semi-structured interviews, I explore how disadvantaged populations utilize their social capital for increasing community resilience. Particularly, the photovoice approach integrated with social media provides an interactive local angle, which is seldom revealed by other methods and practices. It presents how social capital can be created and leveraged beyond the geographical boundaries and possibly the power structure. This research exploration increases planners' understanding of social capital for resilience building in the context of low-income and lower middle-income countries. Rather than focusing on responses to quick-onset crises, this research provides an empirical study of resilience building with frequent long-duration hazards in the disadvantaged communities. In addition, the integrated application of photovoice and social media demonstrates insights for planning processes and outcomes regarding data generation, knowledge dissemination, public participation, and multilevel governance.

## 2 Theoretical introduction: social capital and resilience

Social capital, which generally refers to “the trust, social norms, and networks which affect social and economic activities” (Nakagawa and Shaw 2004 p. 7), is not a new concept but has recently become popular in the social sciences. Researchers have categorized three types of social capital that exist: bonding, bridging, and linking (Gitell and Vidal 1998; Woolcock 1998). Bonding social capital refers to ties among members of a network sharing similar demographic and socioeconomic features, such as immediate family members, neighbors, and close friends (Woolcock 1998). Bridging social capital is identified as relationships among people from different demographic backgrounds but with similar classes (Szreter and Woolcock 2004). Linking social capital refers to the ties between individuals/communities and those in power with different status groups, such as banks, national governmental offices, and international organizations (Szreter and Woolcock 2004).

From a more structural perspective, Szreter and Woolcock (2004) make a systematic categorization among bonding, bridging, and linking of social capital: bonding social capital refers to aspects of inward social networks that strengthen exclusivity and homogeneity; bridging social capital refers to outward social networks across different demographic groups with potentially similar classes; and linking social capital refers to norms of respect and trust across power structures among different status groups.

These three types of social capital do not exist evenly among people and communities. Through international development research, Woolcock (1998) emphasizes that people with fewer socioeconomic resources tend to demonstrate strong bonding social capital and some level of bridging social capital, but little linking social capital, which is the most

important component for boosting an individual or a community's capacity development. Pragmatic guidance for enhancing bridging and linking social capital in the disadvantaged communities is called for.

Incorporation of social capital in disaster studies is rare but has come to the attention of more and more scholars (Nakagawa and Shaw 2004). There is a developing literature of social capital and disaster recovery. For involved individuals in the post-disaster contexts, social networks can act as a key component of financial resources, emotional support, mutual assistance, and information to tackle challenges. Groups with higher levels of social capital through their tighter connections to others are able to facilitate for a more effective recovery despite their levels of damage, economic resources, and assistance from the government (Aldrich 2012). Chamlee-Wright (2010) argues how local community ties and their narratives of recovery affect levels of community recovery efforts. The cultural aspects and social capital including norms are crucial in the recovery and rebuilding process after disasters. Through an examination of the post-Katrina recovery in St. Bernard Parish, Chamlee-Wright and Storr (2011) argue how social capital as collective narratives can shape recovery strategies; these collective narratives, the shared identity "as a close-knit, family-oriented community comprised of hard workers," enable community members to adopt the self-reliance strategy (pp. 271–280). Such self-reliance values are vital for post-disaster community efforts when state and federal assistance is noticeably limited. Beyond "brick and mortar" approaches to recovery, policymakers should emphasize a social capital-based strategy that centralizes involved residents and increases community-based planning (Aldrich 2015). For instance, after disasters, entrepreneurship can restore bonding social capital and repurpose bridging and linking social capital by bringing together communities with similar conditions and connecting across heterogeneous individuals and groups (Storr et al. 2015).

Most current studies have focused on quick-onset hazard events, and little research has explored the effects of social networks in more long-term challenges; much of the research on social capital in disaster settings comes from the developed countries while very few studies present how social capital can play a role in disadvantaged communities in developing countries, such as in Southeast Asia (Aldrich and Smith 2015 p. 6). Research is also called for to evaluate the role of social capital in resilience building in non-crisis contexts, such as during the planning processes when stakeholders conduct resources assessment and social learning (Murphy 2007). In the face of hazards, social capital serves as the primary resource to deal with unpredictable challenges, which can be renewed and enhanced during the whole disaster cycle (preparedness, response, adaptation, and recovery); however, it remains difficult to present its mechanisms and effects accurately (Dynes 2006). Framing in the adaptive capacity context, Adger (2003) points out that the measurement and observation of social capital remain problematic (p. 401). Social capital phenomenon is not easily quantifiable. The author further argues that some population groups may be less at risk than many quantitative studies have modeled and illustrated; their capacity can be embedded in social capital to cope with stress (Adger 2003). These are some of the critical issues regarding social capital that require more thorough investigation.

It is challenging to improve local bridging and linking social capital, especially in financially disadvantaged communities. Recent research on disaster studies has revealed that communities with more bonding and bridging/linking social capital showed more resilience than those merely with bonding ties (Elliott et al. 2010; Aldrich 2011). During disasters, bonding social capital might operate as a limited safety net to respond immediately, such as individual assistance from family and neighbors illustrated in the case of Hurricane Katrina (Dyson 2006; Bullard and Wright 2007). However, bridging and linking

social capital play a more significant role in eliminating vulnerability and making a more resilient system, which is seldom demonstrated in the literature. This is one of the knowledge gaps in social capital from both academic research and development reports.

Drawing from previous research projects, scholars studying social capital in disaster settings emphasize two critical lessons learned: first, resiliency planning should not destroy existing social capital through the response and rebuilding processes; second, planners should develop a system to enhance bonding and linking social capital in order to include invisible voices and improve outreach capacities for affected communities (Elliott et al. 2010; Aldrich 2011).

In addition, there have been an increasing number of scholarly discussions regarding virtual communities and social capital. People's online action supplements their off-line and telephone communication without increasing or decreasing social capital; there is a positive association between Internet use and growing participation in civic engagement (Wellman et al. 2001). Social capital and civic participation will increase when virtual communities are physically developed and when these virtual communities promote additional communities of interest, including education, exchange of community information, and political engagement (Blanchard and Horan 1998). Scholars argue that social capital including interaction ties, trust, and norms influences quantity and quality of individuals' knowledge sharing in virtual communities (Chiu et al. 2006). The access to the Internet coupled with a local online discussion group supported the increased contact with weaker ties among neighbors; such a virtual community facilitated discussions as well as mobilized resources for local issues (Hampton and Wellman 2003). Current literature is mostly developed through investigating website services including email lists instead of integrating with social network sites, the social media products.

Based on knowledge gaps and lessons learned, this research illustrates how social capital can be integrated with resiliency planning throughout the disaster cycle using social media, with a particular attention to presenting bonding and linking social capital. In this research, I utilize social capital as a dimensional framework that integrates and interacts with various scales and units of agency, including individuals, households, community groups, and involved organizations. With the aid of social media, social capital can be an analytical tool to examine the effects of individuals, communities, and nations for resilience building.

Governmental agencies demonstrate limited capacity in the event of a major disaster, especially those with an insufficient financial support and ineffective governing system. It is the individuals, households, and community groups that provide essential efforts to mobilize and transform resources and networks to build community resilience. To fill in the knowledge gaps, I examine three types of social capital during frequent long-duration hazards that three disadvantaged communities in the Philippines have to tackle. In detail, I explore the bonding, bridging, and linking of social capital existing during the preparation, response, adaptation, and recovery processes. Through the visual lens across the scale of individual and community, I demonstrate how social capital can affect the community resiliency planning and its further implementations for planners.

### 3 Methods: photovoice for resilience building

This is a qualitative study integrating photovoice, unstructured observations, and semi-structured interviews. The photovoice approach that I use was first raised and systemized in the literature by Wang and Burris (1997), who applied photography training, visual

information, and community participation for policy change by creating, defining, and utilizing the images. This method allows the participatory photographers from the involved communities to act as peer researchers and change-makers. They discover, collect, analyze, and share information to audiences, such as the engaged communities and academia. These photographers are able to provide local perspectives to critical issues through their visual lens, utilizing their insider identities as well as established social relations.

There is a developing literature in photovoice related to risks and hazards that this research is built on and intends to contribute to. Public health researchers used photovoice to reveal community members' perceptions on the quality of life after the 2005 train disaster in the Graniteville community, a rural town in South Carolina (Annang et al. 2016 p. 241). Such an examination creates dialogue and even promotes social changes for disaster responses in the immediate aftermath as well as the long-term recovery through linking policymakers with vulnerable populations who are often voiceless in academia and policymaking (Annang et al. 2016 pp. 244–249). In central Auckland, a sample of homeless women was recruited to apply photovoice to illustrate their perceived health concerns for positive changes (Bukowski and Buetow 2011). This investigation enabled outsiders including researchers to gain grounded knowledge of community relationships, perception of social services, and barriers to getting off the street from the homeless women community (Bukowski and Buetow 2011 pp. 741–744). Such an exploration provides valuable data of the local lens and encourages policymaking changes for one of the most disadvantaged populations. Photovoice was also used with orphaned, HIV seropositive children in semi-urban western Uganda to examine how a group home fostered a sense of belonging and appreciation for nature, home, resources, and community as well as coped with challenges including stigma and discrimination (Fournier et al. 2014). This unique perspective provides extensive understanding of key protective factors and challenges the dominant operation of institutional care as an effective placement option (Fournier et al. 2014 pp. 4–8). Public health scholars also utilized photovoice to conduct a vulnerability and capacity assessment and develop disaster reduction strategies through a community-based participatory approach (Crabtree and Braun 2015).

Photovoice demonstrates the perspectives of vulnerable populations to tackle risks and hazards, which are often inaccessible through other methods. The literature of photovoice and risk is mostly developed by the public health researchers. Thus, I aim to bring in a planning perspective into this developing literature by addressing capacity building including social capital from the lens of local community.

Social media has changed modes of communication, playing a significant role in people's daily lives. Social media platforms such as Facebook allow the type of action or the characteristics of actions established and exchanged within and between these social networks sites (SNSs) through the technological design, which is referred to as the social media affordances (Boyd and Ellison 2007). Regarding civic engagement, the social media affordances may change both the individual and institutional aspects of mobilizing processes through new communication forms and structures (Enjolras et al. 2013). SNSs act as an interactive platform to coordinate efforts and communicate with diverse stakeholders beyond geographical and socioeconomic boundaries. Specifically, in the political domain, social media allows citizens to raise awareness and facilitate collective activism, as demonstrated in the case of Occupy Wall Street in 2011.

The slow pace of change is recognized as one of the challenges for applying traditional photovoice methodology (Wang and Pies 2004). The integration with social media possibly quickens the speed of feedback as well as change for decision-making. To adapt photovoice methods to the new media generation, this research project replaced traditional

and digital cameras with smartphones and established a social media group on Facebook. It also enlarged the scope of information delivery and resource mobilization beyond the community level through the social media application. Participants were given fundamental social media training including privacy education, allowing their photograph narratives and potential change-making to reach a global audience.

Furthermore, observations and interviews were applied to examine how photovoice can affect resilience building in the involved communities. Unstructured observations required me to enter the field with a critical eye and an open mind to learn from the communities. I visited the participatory communities to develop first-hand familiarity with the socioeconomic conditions and observe how the communities operate on typical and atypical days for resilience building. At first, these communities recognized me as an outsider, the researcher studying about them, instead of an insider. However, through recognition, acceptance, and trust building, I was able to access people, locations, and events that would not be possible to reach through other research practices. I was still in a position of power regarding information and project resource distribution; whether I was able to transform myself from an outsider to an insider is not a key issue in this project though. Semi-structured interviews were also applied in this research to attain data from participatory photographers and community residents. These interviews, which are time intensive with smaller sample sizes, required acceptance by the communities and achieved research depth. Using a mixed-method approach provided alternative data to support the validity of research findings, transforming the obtrusiveness, interpretation, and data bias of traditional research design.

### 3.1 Country profile

The Republic of the Philippines is a sovereign state in Southeast Asia in the western Pacific Ocean, comprising 7107 islands with a population at 92.34 million revealed by the 2010 Census of Population and Housing. The Philippines is regarded as one of the most vulnerable countries facing hazards due to its environmental, political, and socioeconomic settings (Luna 2001). According to the 2014 World Risk Report published by United Nations University and the Institute of Environment and Human Security, the Philippines was ranked as the second highest disaster risk in the world regarding the four components of risk (exposure, susceptibility, coping, and adapting capacities). Derived from the political and historical setting, the government and NGO approaches are regarded as the competing domains for disaster management in the Philippines; government, especially the military and NGOs both compete for international funding and popular support while they demonstrate the mutual lack of trust between each other for disaster preparedness and management (Bankoff and Hilhorst 2009). Building trust and coordination between the governmental and NGO approaches remains to be a critical and yet unsolved problem for a more effective framework of resilience building in the Philippines.

### 3.2 Sampling

This research is the result of a collaboration of three disadvantaged communities and a number of institutes in metropolitan Manila and Cebu City. Purposive sampling was used to select participants in the involved communities to explore the views of people that live in informal settlements with limited socioeconomic support to tackle frequent hazards.

These disadvantaged populations who have grounded knowledge about their local perspectives of resilience building are often absent in the scholarship. Purposive sampling is a non-probability sampling method. It ensured that the selected participants could potentially provide the best information regarding hazard risks and adaptation experiences from the lens of disadvantaged communities.

### 3.3 Procedures

The major phases of the research project include selection of communities, recruitment of participants, fundraising, training, sharing and discussions, action planning and implementation, observations, and interviews.

#### 3.3.1 Visitation and selection of collaborating communities (December 2013–January 2014)

I visited NGOs and community groups and evaluated potential collaborating communities based on diversity, accessibility, and vulnerabilities. During this process, I openly discussed the project collaboration with community cultural and political leaders. After assessing selection criteria, especially accessibility, I confirmed the collaboration with Fresh Wind, Buklod Tao, Inc., and Cebu Gualandi Association of the Deaf, Inc.

#### 3.3.2 Recruitment of community photographers (January 2014)

To recruit participatory photographers, I informed community leaders and announced project briefings and participation recruitment through posters and meetings in the communities. Approximately ten community members from each involved community in metropolitan Manila and Cebu City were selected based on voluntary consent. Most of the participants were from low-income households, had strong ties with their communities, and were exposed to disaster risks to various extents.

#### 3.3.3 Purchase and fundraising of smartphones (January 2014)

I initiated an online campaign to share the project briefings with the general public through various social media platforms, such as Facebook, WeChat, and Weibo. Through the online campaign, ten used smartphones were donated by the public for the project implementation. The project was also awarded the Popular Choice Award and Judges' Special Commendation for the Massachusetts Institute of Technology Climate Colab 2013 contest. The Toyota Foundation funded the major expenses of this project, including the purchase of another sixteen smartphones.

#### 3.3.4 Project training (February 2014)

The training was conducted primarily by myself as the Principal Investigator and was supported by collaborating agency staff for necessary interpretation. There were three major elements of the training: the methodology of photovoice, fundamental photography, and introduction of smartphones. At the end of the training, I delivered smartphones to the selected participants and facilitated project design conversations.



### 3.3.5 Meeting and narrative development (February 2014–January 2015)

Wi-Fi access was available to each participatory community. The access was located in the community evacuation center, community office building, and church hall. The project was not responsible for the personal usage of participants' mobile services. A Facebook group was set up as the project platform as well as an online photography gallery for participants to upload and share their photograph narratives. Participatory photographers were requested to post at least five photographs a week for 12 months to the project Facebook group via their social media accounts. For each photograph, participants developed detailed narratives. During this stage, photographers began to identify the major themes and make recommendations for social change according to the visual narratives. Participants also gathered roughly on a monthly basis to share their critical narratives and findings.

### 3.3.6 Action planning and implementation (November 2014–February 2015)

Participatory photographers planned and formed a series of events to share their visual narratives as well as policy recommendations for resilience building with a larger audience, including community leaders, policymakers, researchers, journalists, and affected community members. The outreach events included participatory mapping and design, community photography exhibitions, and an action committee regarding sustainability of the project.

### 3.3.7 Observations (December 2013–February 2015)

I conducted observations of the participatory communities and photographers including field notes and photographs to demonstrate: (a) how participatory photographers created a public sphere for discourse, learning, and solutions regarding community resilience; (b) how the newly formed digital sphere transformed the communicative and governance mechanisms; and (c) the strengths and challenges of the proposed action research and methods.

### 3.3.8 Interviews (March 2014–February 2015)

I carried out in-depth interviews with the participatory photographers, political and cultural leaders, nonprofit managers, and various stakeholders. Participatory photographers reflected on their accomplishments and lessons learned and reached consensus regarding the future of the project. The interviews evaluated the effectiveness of this mixed-method qualitative project and its research design, as well as led to the development of an action plan for influencing resilience planning in the broader region.

## 3.4 Limitations

This study is limited by the purposive sampling method and the small sample size. Findings are contextually specific, which cannot be assumed to reflect the whole Filipino population or disadvantaged populations. The intention of this mixed-method qualitative study, however, is to raise new perspectives and encourage engagement for resilience building in the disadvantaged communities, not to produce a representative sample.

Further, even though the project addresses the empowerment of disadvantaged populations, the most vulnerable who lack basic access (such as electricity), sufficient time availability, or sustainable motivation were not able to participate in the project. This group of the most vulnerable population, such as single parents and senior citizens with physical limitations, is still underrepresented in this participatory action research. Future projects should address the voices from these population groups.

Also, under political and cultural stress, participatory photographers intend not to photograph or generate narratives regarding certain topics, such as local political disputes related to themselves or their family members. These critical issues are often revealed through informal settings, such as personal conversations or subtle facial expressions after building trust between participants and myself. These invisible stories demonstrate great value to explore a more complex dimension of the community. It remains challenging to document these perspectives in any official forms as original data.

As a primary investigator (PI), I built trust and solid relationships with the involved residents and communities. But I could still be an outsider and in a position of power regarding information and resources distribution. Photographs and interviews that I conducted with the involved community members could not possibly reveal the essential locality presented by the participatory photographers. During the fieldwork of the research project, I was mainly a facilitator and coordinator for the photography creation, narrative development, and action planning; the participatory photographers were playing a more active role in generating and analyzing data as well as acting on policymaking changes. In fact, my positioning as an outsider or insider was not critical in this research setting. Establishing an interactive platform for participants to demonstrate invisible issues and promote positive changes is the key mission for a PI.

While these are concerns, the importance of findings lies in the sense that participants demonstrate the invisible perspectives through their lens in the disadvantaged communities. The application of photovoice not only empowers participants to identify local issues but also leads to social action for change through visual documentation and online interaction (Goodhart et al. 2006; Sharma 2010; Streng et al. 2004). This project provides a platform and toolkits for disadvantaged populations to understand their capacities as well as develop strategies to enhance resilience building.

### 3.5 Data analysis

During the 15-month official fieldwork period, twenty-six disadvantaged community members participated in the project as photographers, co-researchers, and change-makers. Thus, data analysis occurred on two levels (participant-generated and external researcher-generated) to affirm the core value of participatory action research, ensure quality of data, and present a more thorough understanding of resilience.

The participant-generated data analysis was mostly conducted through photograph sharing and narrative development organized by the involved photographers on a monthly basis. Participatory photographers as a collective unit analyzed the data derived from visual narratives for emerging themes, categories, or concepts. Specifically, they identified critical community challenges and capabilities, discussed current and possible adaptive strategies, and developed action plans for enhancing community resilience. Participants also reflected on their online interaction and governance through the off-line meetings. These monthly meetings were mostly facilitated by the participant-selected facilitator and assisted by myself.

The external researcher-generated analysis was primarily conducted by myself. Field notes and reflexivity journals from observations were gathered and categorized through narrative analysis. During this process, common themes occurred and coherent stories of resilience were constructed from the data. In addition, the audio/visual recording from interviews was transcribed, respectively.

Participatory photographers developed narratives to describe the selected photographs as well as explain how they connect with resilience. All of the presented narratives were created and shared by participatory photographers via the project Facebook group or monthly meetings. Since participatory photographers were co-researchers in this project, this dissertation should be another platform for them to deliver their standpoints and knowledge products. The next three sections examine visual narratives as well as in-depth interview discussions regarding social capital. It is one of the major themes abstracted from the participant-generated and external researcher-generated analyses. The selection of visual narratives aims to demonstrate a grounded understanding of social capital. A similar event or theme could be documented and uploaded by more than one photographer. Certain visual narratives, such as community rescuing activities, could occur repeatedly. Among similar photograph stories, the clarity, aesthetics, and representation of participatory photographers were taken into consideration for the visual presentation.

## 4 Bonding: dialogues within the community

The bonding of social capital is presented as interactive dialogues and actions within the same communities. These engagements among family members, neighbors, and community group members can be illustrated as norms and networks (Woolcock and Narayan 2000). With limited financial resources and ineffective governmental systems, bonding social capital is a common approach for disadvantaged populations to mobilize various assets to prepare, respond, and adapt to hazards.

### 4.1 Norms

Norms of bonding social capital are referred to as accustomed efforts or activities, and they contributed to community resilience within or below the level of community. Norms include the perception of certain cultural traditions or social activities. For instance, participants demonstrated a strong sense of togetherness to participate in community activities for building resilience. One of the common phenomena was that community members would love to wear outfits or use products painted with the logo of their communities, as indicated in the visual story below (Fig. 1).

Another strong social norm presented is the gender role. The gender norm is portrayed and developed in a number of layers. First, visual narratives and interviews, especially at the beginning stage of the project, present the gender distinction, such as the gendered division of labor. One can easily discover that most of the active community participants are female, including mothers at different ages. Regarded as the caregiver, females spend more time completing domestic assignments for community engagement and organizing. Based on the physical capacity, some mothers distinguished their roles from the male counterparts in the communities:

Women are the motivators because we are not that strong like the men, so the work of the man is different from a woman's. They can do more hard things like the



**Fig. 1** “Community members went out for outreach programs and proudly wore shirts and raincoat with the logo of Buklod Tao.” Taken and written by Mary Grace, October 13, 2014

rescuing, and women will also do their parts, the community kitchen and to motivate men to do their work.

Second, both males and females recognize the significance of domestic assignments. For instance, females played a significant role in their households and communities to deliver information, motivate participation, and mobilize resources. One of the interviewees illustrated:

As a woman, as a mother, like we do at home, we motivate our children to do good, that’s one...We can express to our community, we can motivate the group to participate more, and then of course we share with them what we know.

Through the project engagement, there were a great number of visual narratives presented and uploaded regarding community resilience activities. Among these visual narratives, it is nearly always females who were primarily responsible for the domestic activities, such as cooking and farming (Fig. 2).

The domestic activities in resilience building, such as delivering food in the visual story above, have been underappreciated. Through the presentations and sharing of visual narratives, both males and females had the opportunity to reflect and recognize the value of domestic work including information sharing and food management during flooding cycles (Fig. 3).

Third, an increasing number of ideas and actions occurred which were distinguished from the traditional gender norm. Even though certain activities, such as rescuing, were still viewed as restrictedly gendered, women should not be limited to domestic assignments for community resilience building. A gender empowerment statement was demonstrated from a male participant:

Wow! It is a girl. Every tricycle<sup>1</sup>

<sup>1</sup> The human-powered three-wheeled vehicle that is commonly used in the Southeast Asia for short-distance commuting.



**Fig. 2** “Some of the mothers processed recycled water bottles for making containers of the plants.” Taken and written by Francia, August 28, 2014



**Fig. 3** “Went out to deliver food as part of the community kitchen program for responding to hazard.” Written and taken by Vincent, October 12, 2014

driver is a boy. Being a girl is not a hinder for being a tricycle driver. Being a girl is not weak as long as you want. You can also drive. You can anything you want.

The changing perception of the gender norm could lead to the transformation in action. One of the participants observed regarding the gender norm:

Male and female leaders interact through constant communication where we can have exchange of ideas at thoughts that will help the project and organization in the future.

With greater exposure to open exchange of ideas, different perceptions of gendered roles emerged from visual narratives and interviews; there was also different division of community work. Females started to participate in assignments that used to be completed by males including construction and technical training (Fig. 4).



**Fig. 4** “Both females and males are working on the construction of rebuilding together.” Taken and written by Francia, June 22, 2014

This photovoice project integrated with social media afforded opportunities for involved participatory photographers to reflect on their perceived gender norms as well as share such norms with a larger audience. Females were encouraged and transformed to take a more proud and bold role in leading community adaptation as well as capacity building in the involved communities. They could walk out of their perceived roles as solely caregivers. Males learned to recognize and appreciate the traditional roles of females. The gender norm is one of the reflections about the more empowering governance for potential change-making. As one of the female community leaders indicated in the interview regarding the self-report assessment of the participation:

I did my part as a leader for many years, as a member, or a Board of Trustee of Buklod Tao. I am already a model of woman’s strength. I want to learn more. Like I want to join some more seminars, trainings so that I will add my knowledge [so that I can] be a model to my community.

## 4.2 Networks

At the community level, there are various formal and informal networks established. One of the most important and instant networks that a disadvantaged community member could have is his or her family. Disadvantaged populations are exposed to diverse obstacles, especially when disasters strike. Under extreme conditions, family serves as the primary network for the source of information, human capital, and material aid to tackle challenges. A considerable number of visual narratives and interviews were produced on disaster preparedness and recovery with family members, including emergency rescuing, cleaning, and house rebuilding (Fig. 5).

One of the interviewees described how family was alerting him about the unpredictable flooding while he was asleep:

I was just awake. It was a big rain. I went back and forward from home and evacuation center four times. There is flooding twice a month. We do not have anywhere to go. I am afraid. What if nobody wakes me up?

From family members, one’s fundamental network is usually expanded to neighbors and other community members who share similar physical and socioeconomic conditions in



**Fig. 5** “Family worked together to clean up their home and neighborhood after the flooding.” Taken and written by Nashrene, September 20, 2014

close proximity to each other. The close proximity enables neighbors to share information as well as act on collective efforts for resilience building.

My neighbors know that I take pictures. One of my neighbors has a comment. Like the garbage, she wants to change the *barangay* [a Filipino term referring to local neighborhoods] so she just wants to help. So now she doesn't throw the garbage everywhere. She just throws it in the right place.

Photovoice documented neighbors sharing resilience-related knowledge and work, aiming for potential change-making. During this process, the participatory photographers played an important role in proposing visions, encouraging transformation, and mobilizing efforts.

When I'm taking photographs of the children, I'm informing them of what I'm doing, why I'm doing that, and I'm giving them a vision, like, a vision to learn to clean this area, be responsible and diligent, and clean this area to avoid flooding when the rain comes. So, after I took photographs and after informing the people, especially the children who were playing around, I noticed that they are now changed. They have learned to clean their places, to clean the roads, sidewalks, like that.

There are other important networks that noticeably affect adaptation and resilience within the community, which have not been adequately discussed by the scholarship. These networks can be formally or informally organized by individuals and groups; they include youths, middle-aged housewives, local entrepreneurs, and rescue teams, who facilitate resources for resilience building. The visual story below presents how a youth group worked together in the community garden for food resilience (Fig. 6).

Community entrepreneurs played a significant role in resilience building whereas the informal network of entrepreneurs has been hardly revealed. In the light of insufficient governmental support, disadvantaged populations turn to entrepreneurship for pragmatic problem solving. Informal entrepreneurs, such as street vendors, provide immediate material aid and support services including basic food supply and medical treatment to people experiencing hardship. During the community engagement, these entrepreneurs



**Fig. 6** “A youth group planted local plants in the community garden.” Taken and written by Herlene, May 15, 2014



**Fig. 7** “Ambulant vegetable vendor appeared in Libis Riverside, after an hour of sun bathing along the nearby subdivision road. Sumptuous lunch is coming up.” Taken by Ka Noli, February 3, 2015

attained up-to-date information regarding needs and challenges of the affected populations, such as the location and amount of food distribution (Fig. 7).

The community-based rescuing teams also made a great effort to build resilience, especially during the critical phase of response. These rescuing teams provided search and rescue services promptly following the flooding on a regular basis; they demonstrated their rich knowledge and experiences of neighborhood geography and hazards which were mostly self-learned and trained. Based on the self-reliant resources, rescuing teams ensure the safety and well-being of the community when governmental responders are not immediately available to help. The visual story below demonstrates how the rescuing team conducted evacuation with their community-produced rescue boat (Fig. 8).





**Fig. 8** “The community-based rescuing team acted on the immediate evacuation through the community boat when flooding struck.” Taken and written by Mary Grace, September 19, 2014

## 5 Bridging: learning across participatory communities

The bridging of social capital was illustrated through different forms of learning across involved communities and organizations, mainly through multidisciplinary interactions and networks. This type of social capital is involved with communities and groups that share similar socioeconomic status and political power from different physical and geographical backgrounds.

### 5.1 Multidisciplinary

Interaction existed among a great variety of stakeholders such as academicians, participatory communities, and neighborhood associations. Disadvantaged communities can be the hub of idea exchange and interaction to conduct research or implement projects to enhance resilience among different stakeholders. These stakeholders are able to learn about local approaches regarding community development and resilience building. To illustrate, one of the interviewees expressed how the involved community developed academic activities for university students and that the community could learn from the engagement: “Buklod Tao Inc. became the center of university students affairs, [including] interviews, thesis, NSTP’s [National Service Training Program] and all. [We are] so glad to learn more from them as they share their knowledge with us.” (Fig. 9)

The interaction among involved communities, universities, and other stakeholders encouraged disadvantaged populations to act on enhancing resilience through exchanging social learning and diverse resources. One of the interviewees revealed: “That’s why I



**Fig. 9** “Shredding of dried leaves and sieving of shredded composed materials had been enjoyed by 104 sophomore students from the Holy Family School of Quezon City.” Taken and written by Mary Grace, January 10, 2015



**Fig. 10** “University students provided support for the marketing of hand-made recycled products, such as modeling for the program advertisement.” Taken and written by Francia, October 9, 2014

joined this organization. Little by little, we can help. At least we can do something to extend our help. Like the college in Manila, they have resources. You are so poor, but you can do something.” (Fig. 10)

Besides the interaction with universities, individuals outside the involved communities including technical experts offer critical support to the disadvantaged populations, such as monetary aid, material donations, and capacity-building training. The photograph below demonstrates how a foreign expert in migrant rights and water polo volunteered to teach and design water polo training program for a group of impoverished youth. The water polo training not only provides a healthy escape from extreme poverty but also improves one’s swimming techniques to prevent them from drowning and enhance their response capacity facing frequent flooding, vital for the disaster evacuation. This foreign expert provided the training expertise as well as the funding for transportation and snacks for the youth (Figs. 11, 12).



**Fig. 11** “Oxford Policy Management and International Federation of Red Cross facilitated the half-day session on Strategic Research into National and Local Capacity Building for Disaster Risk Management (2013–2015). Buklod Tao was one of the fourteen institutions that participated.” Taken and written by Ka Noli, February 6, 2015



**Fig. 12** “A foreign volunteer provided water polo training with a group of youth on a weekly basis for disaster preparation.” Taken and written by Mary Grace, September 10, 2014

## 5.2 Networks

Individual and community networks can connect with various neighborhoods and communities, even those that are not geographically adjoined. For instance, Buklod Tao bridged with other geographically distinct communities through the practice of professional boat-making. To become mobilized during hazards with limited resources, community boat-makers from Buklod Tao collected local materials and designed, constructed, and restored rescue boats for evacuation response. This practice of professional boat-making attracted both public and private donor organizations, such as Greenpeace Philippines, to sponsor this effort. The donor organizations can request any logos or patterns to be painted on the rescue boats that can be delivered to at-risk communities.



**Fig. 13** “The big fiberglass rescue boat was tested and hauled by *barangay* officers to bring it in Barangay Tanza Navotas.” Taken and written by Francia, May 25, 2015



**Fig. 14** “Water and mud rushed down the highway.” Taken and written by Louis, December 25, 2014

Buklod Tao reached other at-risk communities through providing boat-making training and services for disaster response. Thus, professional boat-making positions Buklod Tao at the center of a network for bridging public and private institutions and at-risk communities regarding disaster response. One of the boat-making examples is indicated in the visual narratives below (Fig. 13).

In addition, the established project Facebook group connected three participatory communities, which formed a social media platform for communication and change-making. This online network builds up a public sphere for participatory photographers to discuss critical issues and explore possible solutions, especially those who are often absent in regular community activities and decision-making processes. The visual story below is one of the examples. The uploaded visual narratives gave rise to the discussion on the Facebook group of the price of intensive development. Community members offered their insights regarding how inappropriate planning could result in increasing risks to their communities (Fig. 14).

Involved participants shared their disaster management experiences and interacted with each other's visual narratives through this online network. They also gained a positive sense of competition as indicated in one of the interviews:

I also see other pictures of other people. Well, I think I want to encourage them to keep uploading, especially those who are really very good at writing and taking pictures. I think it would be an effective tool to catch people's attention, the authorities' attention.

## 6 Linking: reaching beyond the vertical level of power

The linking of social capital reaches actors beyond the current power structure, such as high-level policymakers. Linking is demonstrated through various types of norms and activism.

### 6.1 Norms

There are ideas and norms of resilience building that link the involved individuals and communities with decision-makers and experts outside the communities. The integrated approach of photovoice and social media provides a local lens for those outside the community to attain grounded knowledge about disaster experiences and capacity-building activities. In particular, it presents one of the astonishing aspects of disasters to many people outside the involved communities: disasters can be a part of one's everyday life. Rather than a once-in-a-lifetime event, it is an ongoing challenge. One of the participants stated how his family and friends outside the community learned about the disaster encounters: "By using that in Facebook, it affects people. It makes people think about disaster. It makes people think what is happening, during, after a disaster."

Besides demonstrating the grounded disaster experiences, the application with social media and visual narratives enlarges the scope of the target audience regarding information dissemination:

We can really promote our community. That's one thing. And we learn how to take photographs as we go on. We take pictures everywhere and then we are learning much from this project... We can show to anyone in the world what is happening to our community. It's a small community but there are so many things happening every day that people outside do not know. Sometimes it can reach them because of this Visible Voice<sup>2</sup> project.

Integrating social media with the participatory action research enables the affected communities to reach a broader audience. These disadvantaged communities have limited access to physical infrastructure and traditional mass communication tools. Their knowledge and perspectives of disaster risks and adaptation are largely absent in the current literature but can become more visible to regional and global audiences through SNSs.

In addition to information delivery, the application of social media networks makes it possible to mobilize social, financial, and political support with a broader range of potential partners. One of the participatory photographers argued: "In person you are in a group, you

<sup>2</sup> It is the project name of this photovoice research.

are only two, only five... It's always stuck in that group. But if you upload it in Facebook, everybody, especially when it's open, everybody will see it." The integrated approach is a much more efficient approach to reach vital stakeholders such as policymakers all over the world through knowledge product dissemination, group discussions, and direct messaging.

While social capital can facilitate positive effects, negative effects are possible as well, as illustrated by one of the participants who made the following statement regarding the macro-political system:

If you do not help the mayor during the election, you cannot get any help from him after the election. ISF, the informal settler families. They target at ISF. They have more populations. They use money to buy votes. If you do not vote for them, they will track you. The poor accepts this. People have to educate. It is not the question only in San Mateo but in the whole Philippines. Corruptions. Even though the president has good projects, the implementing agencies do not do their parts.

The integrated approach of photovoice and social media establishes an open platform for knowledge dissemination and possible decision-making across the power structure. Instead of transforming the power structure, this integrated practice might strengthen the negative effects of the current structure that is embedded in social capital. It remains a critical topic for further exploration.

## 6.2 Activism

Involved communities demonstrate efforts to direct social, political, economic, and environmental change. There are various forms of activism for organizing community resources and reaching decision-makers, such as writing to politicians and grass-rooted political demonstrations. As part of the dissemination approach for this project, visual storytelling enables participatory photographers to illustrate one's political desire and connect policymakers to make societal changes:

I [show] the government a photograph message in Facebook... I think many people know what happened to my barangay, including the head of barangay. So I think they have an action. Half of the bridge will be constructed. This is the part of being taken the pictures... It made me feel that maybe the picture is part of the reasons.

Disadvantaged populations often lack direct access and effective mechanisms to reach decision-makers to advocate their needs, capacities, and standpoints. A great number of disadvantaged populations do not have formal education in professional writing, which is necessary for traditional formats of political outreach and activism. Thus, these disadvantaged populations are excluded from the traditional approaches of activism. For instance, participants from one of the involved communities were deaf. Their collective obstacles including access to education and employment have been seldom explored through mainstream media coverage. In the literature and policymaking of disaster adaptation and resiliency planning, especially in the context of the Philippines, the vulnerabilities and political voices of deaf populations have been barely raised. Visual narratives provide an applicable form of communication and political demonstration for disadvantaged populations, such as the deaf in this case. Even those with limited formal education and physical limitations are capable of participating and leading for community development and resilience building. The two visual stories below illustrate how deaf



**Fig. 15** “January is the zero waste month. EcoWaste Coalition together with Buklod Tao Inc. walked for a zero waste cause.” Taken and written by Mary Grace, January 5, 2015



**Fig. 16** “Cebu Gualandi Association of the Deaf, Inc. participated in the demonstration advocated rights for the Deaf community.” Taken and written by Janice, September 21, 2014

participants advocated rights through demonstration and meeting with policymakers (Figs. 15, 16, 17).

The integration of social media and photovoice facilitates civic engagement and collective action, from sustainable development to human rights. The linking of social capital through activism, especially for disadvantaged populations, is critical for community development but often absent in the scholarship and policymaking processes. The integrated practice manifests both online and off-line connections, negotiations, and even collaborations with official policymakers, foreign governmental officers, and potential decision-makers. Therefore, it expands the activist space from a muddled street to the Internet without geographical boundaries across the power structure (Fig. 18).



**Fig. 17** “Representatives of Cebu Gualandi Association of the Deaf, Inc. met with the city mayor.” Taken and written by Janice, September 30, 2014



**Fig. 18** “Government officials from Bangladesh and Oxfam, a partner of Buklod Tao Inc., paid a study visit at the livelihood and evacuation center.” Taken and written by Mary Grace, December 9, 2014

## 7 Conclusion

This project appears to be the first photovoice research to visualize social capital for resilience using social media platforms, such as Facebook. My research findings echo the argument from Aldrich (2012): individuals and groups with higher levels of social capital through connecting to other individuals and organizations are capable of facilitating effective resilience building; these individuals and groups can be greatly damaged by hazards, lack financial resources, and receive little assistance from the government.

In the context of frequent hazards, the practice of photovoice illustrates how disadvantaged populations operate social capital, which is seldom revealed by other research methods. Such an exploration situates social capital in frequent long-duration hazards rather than short-duration life disruptions. It is a critical perspective for an increasing



number of communities that have to tackle hazards on a regular basis and build community resilience as a priority.

This study provides a visual exploration of social capital in disaster settings in the Philippines, a lower middle-income country greatly exposed to climate hazards while inadequately discussed in current literature. The integrated approach of photovoice and social media further presents a local lens of social capital from the disadvantaged populations, a valuable perspective that is fairly inaccessible and seldom quantified by other research methods. This research fills a major gap in academic research and development practice, contributing to resilience studies in the lower middle-income economies, such as Southeast Asian countries with limited financial and governmental assistance.

This project illuminates the widespread prevalence of the bonding, bridging, and linking of social capital in disadvantaged communities for resilience building. The visual evidence demonstrates how disadvantaged populations with vulnerabilities are capable of mobilizing limited resources and networks as well as reaching decision-makers beyond their current power structure. In particular, marrying photovoice with social media increases the efficacy of bridging and linking social capital—the forms of social capital that have been more challenging to attain and are more vital for community resilience building. The integrated method enables social capital to be generated and leveraged beyond the geographical and socioeconomic constraints and possibly the power structure.

This empirical study brings a planning perspective to photovoice research as well as accommodates photovoice methods in the planning context. It generates new forms of data embedded in the grassroot that are rarely accessed by outsiders, including planning experts in the field. Moreover, with the social media application, this participatory action research practice improves the dissemination of grounded information and enlarges the scope of influence beyond the community level. Such toolkits and methods can be applied in future planning research and practice for inclusive data collection and analysis as well as transparent resilience governance.

Reflecting on the project, there are a number of insights that future research can address. The application of social capital has the potential to lead to a vicious circle to reproduce or sustain an unhealthy and even unjust structure at the community level, especially for those without sufficient external aid. As mentioned by some participants, existing social networks could reinforce the corrupt voting system in the disadvantaged communities. Thus, in an attempt to effect positive change, social capital can demonstrate negative effects. Future research should emphasize how to utilize social capital for resiliency planning while transforming unjust social systems. The study is limited by a small sample size whereas technology may provide possibilities for expansion. Future projects can develop the current research design and recruit a much larger number of participants through a more systematic setting. Additionally, the most disadvantaged populations are still underrepresented in accessing and participating in such research. Making the invisible visible is critical for building a just resilient community. Future studies should also embrace the integration with technology and social media to promote inclusion. A more transparent, inclusive, and interactive setting is called for to scale up the participation, reach the most disadvantaged populations, promote a transparent involvement, and encourage social action for positive change.

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