

科技部補助專題研究計畫成果報告

期末報告

如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為(第3年)

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報告附件：出席國際學術會議心得報告

本研究具有政策應用參考價值：否 是，建議提供機關教育部, 行政

院環境保護署, 科技部,

(勾選「是」者, 請列舉建議可提供施政參考之業務主管機關)

本研究具影響公共利益之重大發現: 否 是

中 華 民 國 108 年 12 月 26 日

中文摘要：本研究從生態巨觀的角度了解個人如何進行災難相關的資訊傳播行為，藉此了解各種不同層次的因素，如何影響個人建立起長期的災難適應能力，也就是災難韌性的建立。此外，由於災難韌性的建立，與公民社會組織息息相關，因此本研究也擴及曾經參與過災難救援的組織，了解其在災難期間以及之後於社群媒體上的對外傳播，是否呈現特定的趨勢，與災難防治有關。本研究採混合式研究方法：個人部分，結合兩波(2017年9月以及2017年12月, N = 1,061)的問卷，以及個人的臉書資料(2015-2017, N = 438)分析，研究發現影響災難資訊傳播行為的因素，包含個人與社會因素，這些因素會進而影響到個人進行災害防治的認知與行為。組織部分，經由分析55個組織的臉書貼文，以及對於四個參與災難救援的臉書社團的觀察，結果顯示極少數曾經參與多次災難救援的組織，在災難與災難發生中間，多從事與社區發展或營造相關的事務；而三個民間社團在災難與災難期間，鮮少運作，但每當災難發生時，卻能夠快速動員，其原因與一群少數領導人橫跨這些社團的網絡連結有關。整體而言，這些研究結果對於社群媒體使用、災難與風險傳播、組織網絡、社區韌性等文獻理論提供貢獻。在應用上，本研究結果則提供關於災難防治政策方面的建議。本研究也達到研究計畫書提出的子目標：第一，建立一個巨觀生態式的架構，預測個人在非災難時期與災難時期的資訊傳播行為。第二，了解個人平常的社群媒體使用，如何影響其對於新聞資訊的接收效應，特別是災難相關的資訊，加深媒體使用理論上的解釋。第三，解釋自發性團體如何進行災難動員的背後機制，以及其他公民組織在災難與災難發生期間的傳播機制，藉此幫助社區建立長期的災難適應能力。

中文關鍵詞：災難管理 社群媒體 資訊行為 社會網絡 媒體使用 混合方式 公民組織

英文摘要：Employing an ecological lens, this project aims to understand the factors that influence individuals' engagement in information behaviors in the context of disaster risk reduction (DRR), which has implications for the long-term resilience building. Given that resilience building is contingent on civil society organizations, this study also examines the organizational dynamics involved in DRR, in particular, the ways disaster response organizations coordinate and communicate with publics through social media during and after disasters. In doing so, I hope to uncover the patterns that have implications for resilience building. To accomplish these goals, this project adopts a mixed-methods approach. At the individual level, the data included a two-wave survey data (N = 1,061) and individuals' (N = 438) Facebook posts (2015-2017). The results of this part of analysis showed that individual (e.g., habits) and social (e.g., online social networks) factors influence individuals' DRR information behaviors, which in turn shape their knowledge and behavioral change related to DRR. At the organizational level, the data

consisted of the Facebook posts of the 55 organizations involved in disaster response (2012-2017), in addition to the interviews with four citizen-based groups and ethnographic observations of their Facebook posts. The findings showed that disaster response organizations were involved in community building affairs between disasters, which can be seen as a way to help communities build resilience. In the meantime, the citizen-based groups were relatively inactive between disasters. But these groups were able to quickly mobilize for new disasters due to the social connections built among the group leaders enabled through Facebook or LINE. Overall, findings of this project present contributions to the existing research on social media use, risk communication, disaster management, organizational network, and community resilience. In practice, findings also provide directions for the development of DRR policy, taking into account different sources of social and digital disparities, as well as opportunities of collaboration and coordination with civil society organizations.

英文關鍵詞： disaster risk reduction, social media, social network, media exposure and use, civil society organization, mixed-methods study

科技部補助專題研究計畫成果報告

(期中進度報告 / 期末報告)

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本計畫除繳交成果報告外，另含下列出國報告，共 1 份：

執行國際合作與移地研究心得報告

出席國際學術會議心得報告

出國參訪及考察心得報告

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中文摘要

本研究從生態巨觀的角度了解個人如何進行災難相關的資訊傳播行為，藉此了解各種不同層次的因素，如何影響個人建立起長期的災難適應能力，也就是災難韌性的建立。此外，由於災難韌性的建立，與公民社會組織息息相關，因此本研究也擴及曾經參與過災難救援的組織，了解其在災難期間以及之後於社群媒體上的對外傳播，是否呈現特定的趨勢，與災難防治有關。本研究採混合式研究方法：個人部分，結合兩波(2017年9月以及2017年12月, N = 1,061)的問卷，以及個人的臉書資料(2015-2017, N = 438)分析，研究發現影響災難資訊傳播行為的因素，包含個人與社會因素，這些因素會進而影響到個人進行災害防治的認知與行為。組織部分，經由分析55個組織的臉書貼文，以及對於四個參與災難救援的臉書社團的觀察，結果顯示極少數曾經參與多次災難救援的組織，在災難與災難發生中間，多從事與社區發展或營造相關的事務；而三個民間社團在災難與災難期間，鮮少運作，但每當災難發生時，卻能夠快速動員，其原因與一群少數領導人橫跨這些社團的網絡連結有關。整體而言，這些研究結果對於社群媒體使用、災難與風險傳播、組織網絡、社區韌性等文獻理論提供貢獻。在應用上，本研究結果則提供關於災難防治政策方面的建議。本研究也達到研究計畫書提出的子目標：第一，建立一個巨觀生態式的架構，預測個人在非災難時期與災難時期的資訊傳播行為。第二，了解個人平常的社群媒體使用，如何影響其對於新聞資訊的接收效應，特別是災難相關的資訊，加深媒體使用理論上的解釋。第三，解釋自發性團體如何進行災難動員的背後機制，以及其他公民組織在災難與災難發生期間的傳播機制，藉此幫助社區建立長期的災難適應能力。

中文關鍵字：災難管理 社群媒體 資訊行為 社會網絡 媒體使用 混合方式 公民組織

Abstract

Employing an ecological lens, this project aims to understand the factors that influence individuals' engagement in information behaviors in the context of disaster risk reduction (DRR), which has implications for the long-term resilience building. Given that resilience building is contingent on civil society organizations, this study also examines the organizational dynamics involved in DRR, in particular, the ways disaster response organizations coordinate and communicate with publics through social media during and after disasters. In doing so, I hope to uncover the patterns that have implications for resilience building. To accomplish these goals, this project adopts a mixed-methods approach. At the individual level, the data included a two-wave survey data (N = 1,061) and individuals' (N = 438) Facebook posts (2015-2017). The results of this part of analysis showed that individual (e.g., habits) and social (e.g., online social networks) factors influence individuals' DRR information behaviors, which in turn shape their knowledge and behavioral change related to DRR. At the organizational level, the data consisted of the Facebook posts of the 55 organizations involved in disaster response (2012-2017), in addition to the interviews with four citizen-based groups and ethnographic observations of their Facebook posts. The findings showed that disaster response organizations were involved in community building affairs between disasters, which can be seen as a way to help communities build resilience. In the meantime, the citizen-based groups were relatively inactive between disasters. But these groups were able to quickly mobilize for new disasters due to the social connections built among the group leaders enabled through Facebook or LINE. Overall, findings of this project present contributions to the existing research on social media use, risk communication, disaster management, organizational network, and community resilience. In practice, findings also provide directions for the development of DRR policy, taking into account different sources of social and digital disparities, as well as opportunities of collaboration and coordination with civil society organizations.

Keywords: disaster risk reduction, social media, social network, media exposure and use, civil society organization, mixed-methods study

Final Report

Introduction

Employing an ecological lens, this project aims to understand the factors that may influence individuals' engagement in disaster risk reduction (DRR) measures. DRR reflects a long-term consideration of disaster management, which consists of measures that may prevent new risks, reduce the impact of existing risks, and increase the resilience of individuals, organizations, and communities (United Nations, 2015). Given information behavior is the foundation of DRR measures (Ibrahim, Ye, & Hoffner, 2008; Lai & Tang, 2018; Sommerfeldt, 2015), this study focuses on individuals' DRR-related information behaviors, the antecedents and the outcomes. In addition, DRR measures often involve civil society organizations. Hence, this study extends the examination to the organizations/groups that are involved in DRR, particularly those who participated in disaster responses, and broaches the communicative and networking mechanisms that sustain those organizations/groups over time.

Research Objectives

As detailed in the proposal, this project aims to accomplish the following objectives: 1) To build an ecological model of mapping and predicting individuals' disaster-related information and communication behavior, taking into account individual, structural, environmental, and technology use factors; 2) To enrich theoretical explanations about how individuals' curation of information in general and DRR-related matters in particular is subject to the networked environment maintained via social media; 3) To identify the communicative and networking mechanisms of sustaining citizen-based groups for disaster mobilization, as well as civil society organizations for long-term community resilience building.

Literature Review

Related to DRR measures, several areas of research are relevant, but each has its own limitations. In the existing research on risk communication, the focus is on psychological factors that influence risk information seeking (e.g., Yang, Aloe, & Feeley, 2014a; Yang, Kahlor, & Griffin, 2014b). The theorization is thus limited to information seeking and processing, without being extended to other risk-related cognitive or behavioral responses. Even less attention is paid to different types of information behaviors, such as information sharing (Lai & Tang, 2018). In environmental communication, there is consideration of the effects of the consumption of media content on pro-environmental attitudes and behavioral consequences, but not the factors that influence those media consumption behaviors (Zhao, 2012).

As a result, this study draws on the orientations-stimuli-reasoning-orientations-response (OSROR) model from political communication (Cho, Shah, McLeod, McLeod, Scholl, & Gotlieb, 2009; Shah et al., 2007), along with the frameworks of curation (Davis, 2017; Thorson & Wells, 2016) to examine the antecedents, the processes, and the outcomes of DRR information gathering and sharing. Briefly defined, OSROR model explains the influence of structural and motivational characteristics (O) on individuals' media exposure (S), which in turn affects the process of message elaboration and discussion (R) that results in cognitive (O) and behavioral outcomes (R). Indeed, research has shown that disaster information gathering and sharing may encourage protective behavior (Lai, Chib, & Ling, 2018; Wood, Mileti, Kano, Kelley, Regan, & Bourque, 2012). Another framework, frameworks of curation, posits that individuals are subject to the networked environment on social media, which influences the ways individuals gather, filter, and interpret the information, or called

curation. Personal curation involves both information gathering (consumptive curation) and information sharing (productive curation). Different types of curators include journalists, strategic actors (e.g., organizations), social contacts, and computer algorithms. Hence, integrating these two frameworks, this study argues that in the context of DRR, individuals' DRR information gathering (S) is influenced by risk-related (e.g., risk perception) and non-risk (e.g., habit of customizing information) (O) factors. DRR information gathering will then facilitate DRR information sharing (R), which facilitates knowledge and behavioral change about DRR measures (O-R) (see Figure 1).

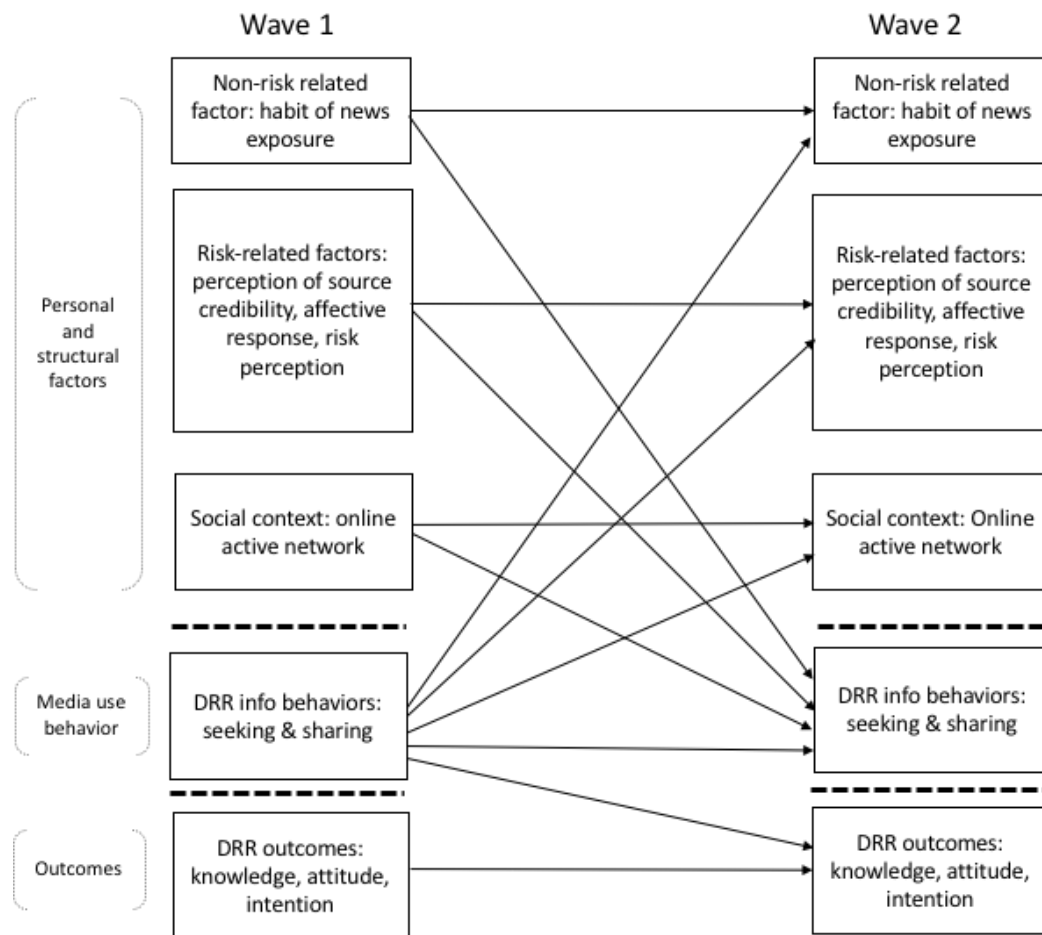


Figure 1. The conceptual model of individual DRR behaviors

In addition to individual' information and social capacity (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008), community resilience is built on response organizations' resource provision, which may be reflected in their network structures (Harris & Doerfel, 2016; Lai & Hsu, 2019; Tierney, 2003). In fact, during the course of the project, I have proposed a model of dormant organizing (Lai, 2019a) that identifies the types of groups/organizations that are able to be sustained between disasters and the communicative and networking mechanisms that sustain those groups/organizations, particularly through social media (see Figure 2). To further provide empirical evidence to this model, I interview groups/organizations involved in disaster responses and analyze their Facebook posts in order to identify the patterns that maintain group/organizational operations related to DRR over time

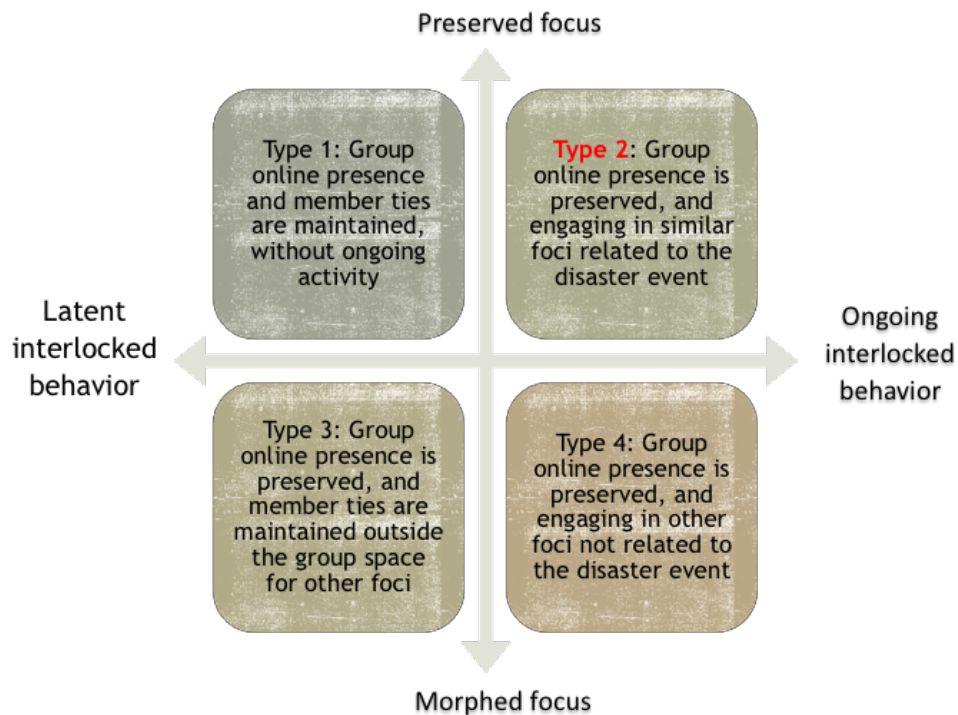


Figure 2. The model of dormant organizing (Lai, 2019a)

Methods

Individual survey data. To test the conceptual model of individual DRR behaviors in Figure 1, this study conducted a two-wave online survey in Taiwan. The respondents were recruited and selected with the assistance of an international online panel company (Survey Sampling Inc, renamed as Dynata in 2019). A pilot test was first carried out with a sample of 50 people in the first week of September 2017, and the official survey data collection took place from September 1 to September 14, 2017, with the sample size of 1,061 (response rate = 5.44%). The second-wave survey was conducted three months after, from December 14 to December 17, 2017, with the sample size of 472 (response rate = 44.4%). Please refer to Lai (2019b, 2019c) for detailed measurements. Below is a brief summary of the key variables.

The measurement of DRR information gathering and sharing references existing research on curation (Davis, 2017; Karnowski, Kümpel, Leonhard, & Leiner, 2017; Lai & Tang, 2018; Thorson & Wells, 2016). The outcome variable—DRR literacy—covers knowledge, attitude, and behavioral intention of engaging in DRR. I adopted the scale developed by the Ministry of Education.¹ The antecedents of DRR information behaviors consider motivational (social norms, perceived knowledge, knowledge insufficiency), risk perception (affective response, assessment of hazard severity and likelihood), and efficacy (information seeking efficacy, capacity of customizing) factors, which reference the literature of risk communication (Yang et al., 2014b). Moreover, I also examined the variables of capacity of customization of online information, reflecting the mechanism of curation (Wells & Thorson, 2017), and perceived trustworthiness of the sources of curation (Mayo & Leshner, 2000).

Following Wells and Thorson (2017), I also recruited and collected 438 participants' Facebook newsfeed (2015-2017) in order to identify the factors that may influence

¹ http://disaster.moe.edu.tw/Safecampus/Main/Knowledge_Disaster_Download.aspx

individuals' curatorial practices on social media in relation to their cognitive and behavioral outcomes. Those participants were recruited through both Survey Sampling Inc and PTT bulletin boards from September 1 to September 24, 2017. The data collection took place in September 2017. This part of data collection was completed in collaboration with the researcher--- Dr. De-Nian Yang at the Institute of Information Science, Academia Sinica. After obtaining the approval by the Research Ethics Committee for Human Subject Protection, National Chiao Tung University (NCTU-REC-105-050), we created a project website on Google App Engine with a Facebook application ID. We have requested the approval from Facebook before the collection procedure commenced. Note that before authorizing the research team to access their Facebook newsfeed data, participants were asked to fill out a short survey, asking about their sources and contacts from/with whom they obtain daily information on Facebook. They also reported their tendency of behavioral change after consuming information on Facebook. All the data collected and processed followed the high-profile measures of de-identification and confidentiality, and no personal information of the individuals (e.g., profile information, their friends) was collected. There were no interactions between the research team and the participant. The only contact was the verification of the participant's email for the purpose of distributing incentives to the participant through mail-in coupons.

Organizational data. For the organizational data, I developed a list of organizations that were involved in disaster responses. With the assistance of Dataa, a data analytics company in Taiwan, I targeted six types of disasters, including landslides, earthquakes, fires, floods, explosions, and typhoons, and searched for news stories and public posts on social media and PTT bulletin boards that mentioned disasters during 2012-2017. After manual filtering, 55 organizations and three citizen-based groups were identified. I approached the organizers of these citizen-based groups for in-depth interviews with the purpose of understanding how those groups were mobilized for more than one disaster. Four interviews were conducted from July to September 2018, with the length ranging from 34 to 140 mins ($M = 70$). Each of the interviews was audio recorded and transcribed for analysis. These interview data were to supplement the interpretation of the Facebook data collected for the other 55 organizations. These organizations' Facebook data were collected through Python. Among the 55 organizations examined, seven organizations were involved in more than one disaster ($M = 1.31$, $SD = 1.09$). For organizations only involved in one disaster, I analyzed their posts during the disaster (one month). For organizations involved in more than one disaster, their posts starting from the time when the first disaster happened to the one month after the last disaster were analyzed.

Note that the reason for this research design is twofold. First, I encountered difficulties in recruiting participants from citizen-based groups. And based on my observation, those groups' Facebook posts are actually more informative in offering insights into the mechanisms that sustain those groups during and between disasters, which is one of the objectives of this project. Second, due to Facebook's blanket restriction enforced in August 2018, it is challenging to collect data from Facebook groups since then.

Results

Individual survey data

The results showed that different mediating mechanisms exist as personal factors influence DRR information seeking and sharing differently, which then predict outcomes of DRR.

Please refer to Lai (2019b, 2019c) for detailed results. Below is the excerpt from these two conference papers and a brief summary of the results.

Habit of news exposure was positively associated with both DRR information gathering and sharing. Source credibility and online active network were significantly related to DRR information sharing. Affective response and risk perception did not predict either information gathering or sharing. Related to the outcome variables, DRR information gathering was positively related to DRR attitude and intention, but not with DRR knowledge. DRR information sharing was only related to DRR knowledge, but in a negative way. Moreover, DRR information gathering significantly predicted all of the personal factors, including habit of news exposure, source credibility, affective response, and risk perception. In the meantime, DRR information sharing did not significantly predict any of the personal and structural factors. Together, these results suggest that DRR information gathering and sharing serve different paths of influence between the effects of personal factors on the outcomes of DRR.

For the Facebook part, the results of the short survey data revealed three types of Facebook users, including dual-track curators, aggregate curators, and social curators. Three types of curators had differential characteristics. For example, social curators were driven by high frequency of likes on their newsfeed. Moreover, I identified three types of users based on their responses to Facebook curation. They were: easy, majority, and late adopters, who were predicted by different factors. For example, late adopters tended to follow different types of Facebook fanpages.

Organizational data

The organizational data are presented in two parts: interviews and the Facebook posts, which are to offer evidence of the conceptual model proposed in Figure 2.

The interview data showed that for citizen-based groups, the key for response mobilization for a new disaster was the existence of a core group of volunteers. These volunteers built the connections from earlier disasters, and the connections were reactivated when a new disaster occurred. For example, one of the interviewees was involved in the 2014 高雄氣爆, 2017 台南地震 and 2018 花蓮地震. Through the first disaster, he got to be connected with other volunteers, whom he continued collaborating for the other one or two disasters. Interestingly, he created a Facebook group for 2014 高雄氣爆 and then reused the same group for responses for the other later disasters. He also emphasized the importance of creating standard operating procedures, which could be efficiently adapted for a new disaster. Another interviewee, who was involved in 2009 莫拉克颱風 and 2015 八仙塵爆, also mentioned the similar requirement of employing a digital platform to systematically document the resource needs and provisions. Together, these citizen-based groups to a large extent exemplify Type 3 groups in Figure 2. The groups themselves were maintained in the form of Facebook groups, but member ties were maintained either within the group or outside the group. These ties were reactivated when needed, that is, a new disaster.

Related to the organizations' Facebook posts, I present below two scenarios. Figures 3-6 represent two organizations who were involved in the response actions for more than one disaster. Figures 3 and 5 capture the keywords that emerged from these two organizations' Facebook posts during and between disasters; Figures 4 and 6 identify the topics that were detected in these organizations' posts during this same period of time. Figures 7-10 represent another two organizations who were involved in the response action for one disaster. If

comparing these two groups of organizations, it is clear that, in addition to disaster responses, the first group of organizations communicated about a wide range of issues related to the community development during and between disasters. This showed that those organizations have maintained certain foci of activity that are not necessarily related to the disaster event. To a large extent, these organizations exemplify Type 4 organizing in Figure 2.

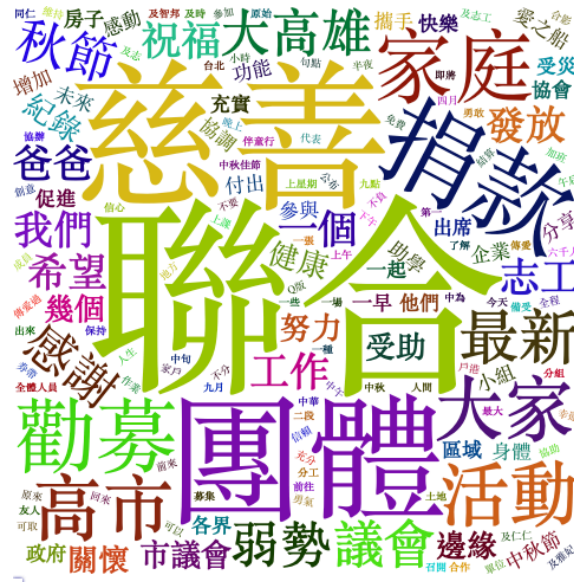


Figure 3. Wordcloud of an organization’s Facebook posts during and between disasters. This organization was involved in 高雄氣爆 and 莫拉克風災.

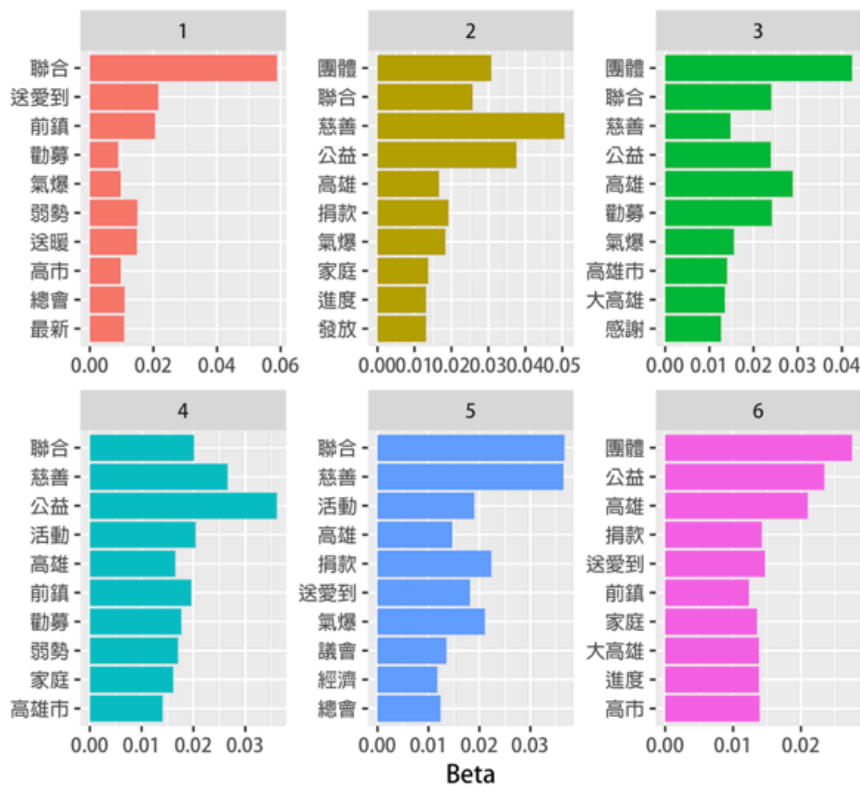


Figure 4. Top keywords of six topics emerging from an organization’s Facebook posts during and between disasters. This organization was involved in 高雄氣爆 and 莫拉克風災.



Figure 5. Wordcloud of an organization’s Facebook posts during and between disasters. This organization was involved in 台南地震, 屏東淹水 and 八仙塵爆.

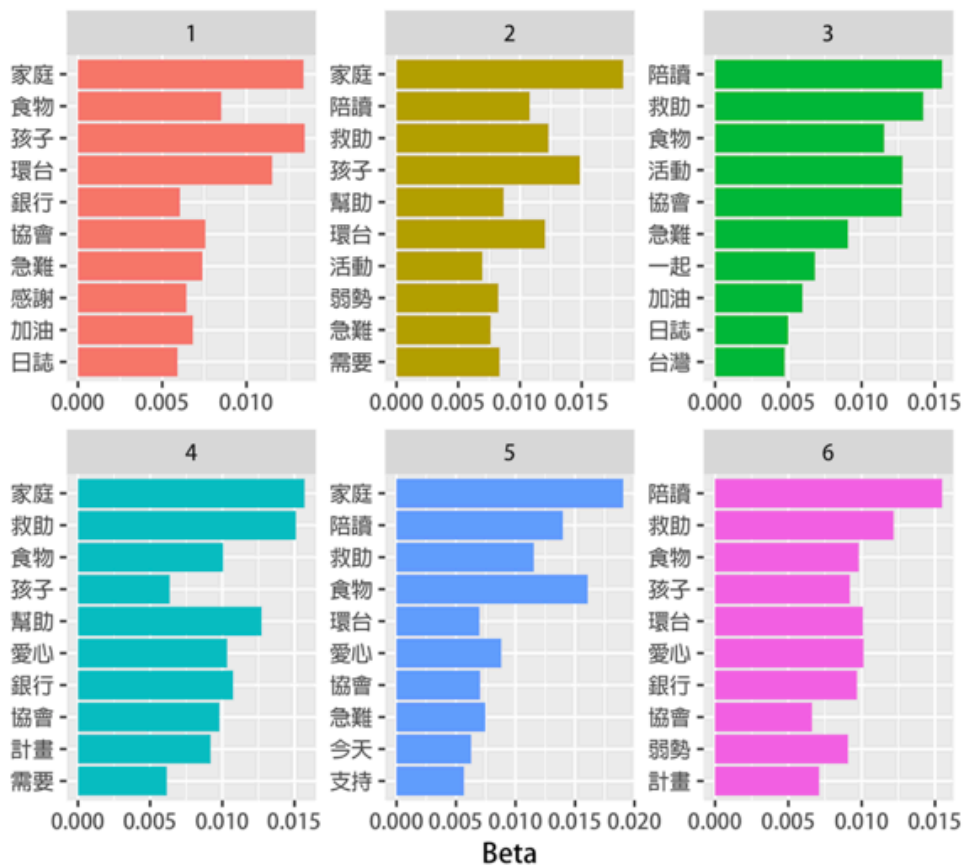


Figure 6. Top keywords of six topics emerging from an organization’s Facebook posts during and between disasters. This organization was involved in 台南地震, 屏東淹水 and 八仙塵爆.



Figure 7. Wordcloud of an organization’s Facebook posts during the disaster. This organization was involved in 莫蘭蒂颱風.

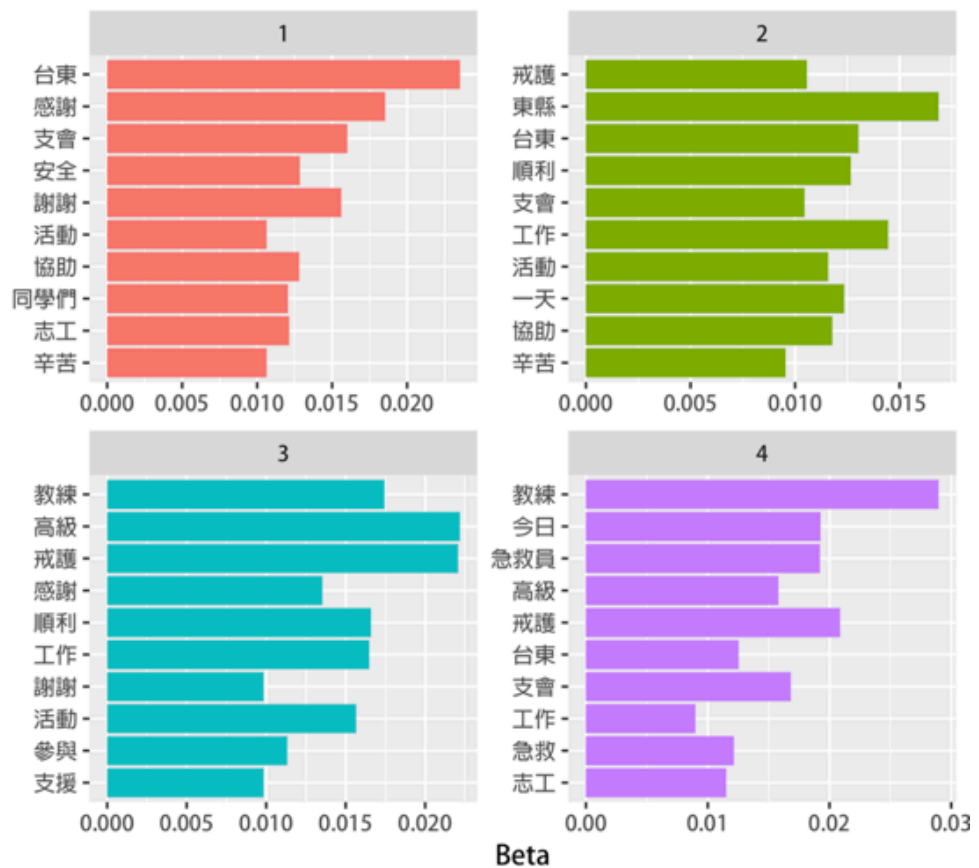


Figure 8. Top keywords of four topics emerging from an organization’s Facebook posts during the disaster. This organization was involved in 莫蘭蒂颱風.

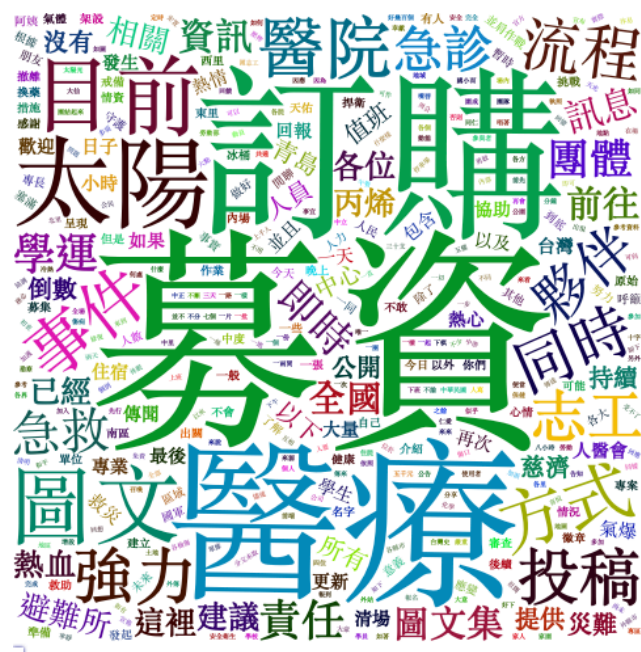


Figure 9. Wordcloud of an organization’s Facebook posts during the disaster. This organization was involved in 高雄氣爆.

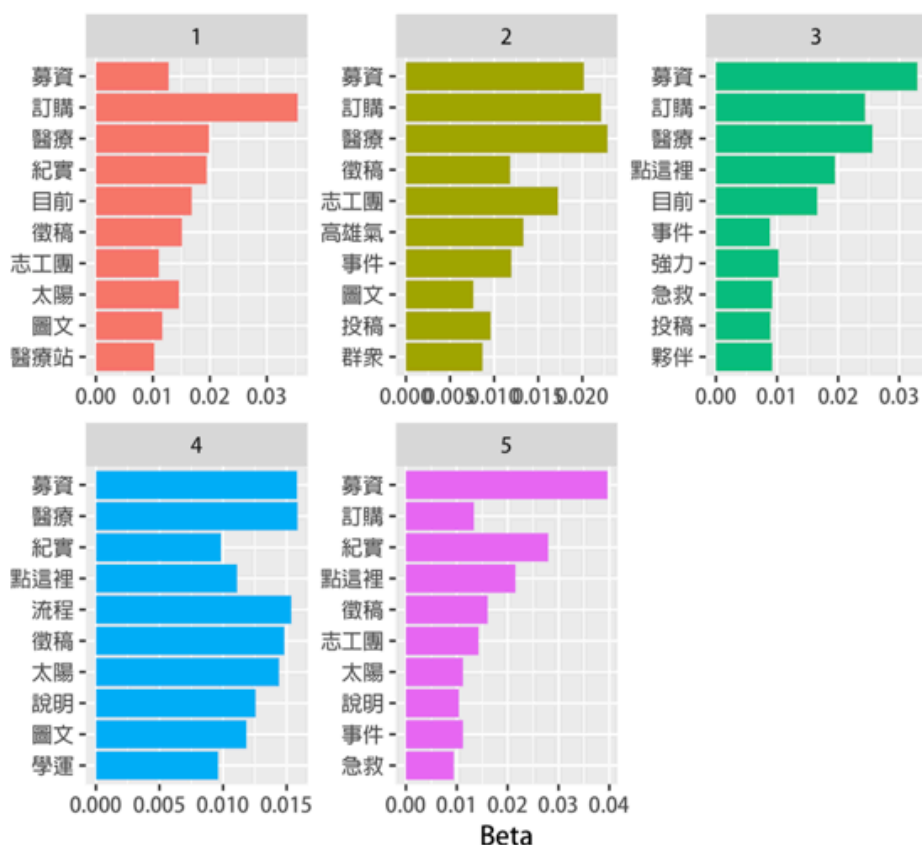


Figure 10. Top keywords of five topics emerging from an organization’s Facebook posts during the disaster. This organization was involved in 高雄氣爆.

Moreover, I used 花蓮地震 as a case to demonstrate the importance of observing organizational networks that are formed during a disaster. Figure 11 presents the organizations that were co-mentioned in the news stories, social media, and PTT bulletin boards during this earthquake disaster. It appears that the central organization (慈濟基金會) was more active in this disaster response because whenever other organizations were mentioned, 慈濟基金會 was also mentioned.

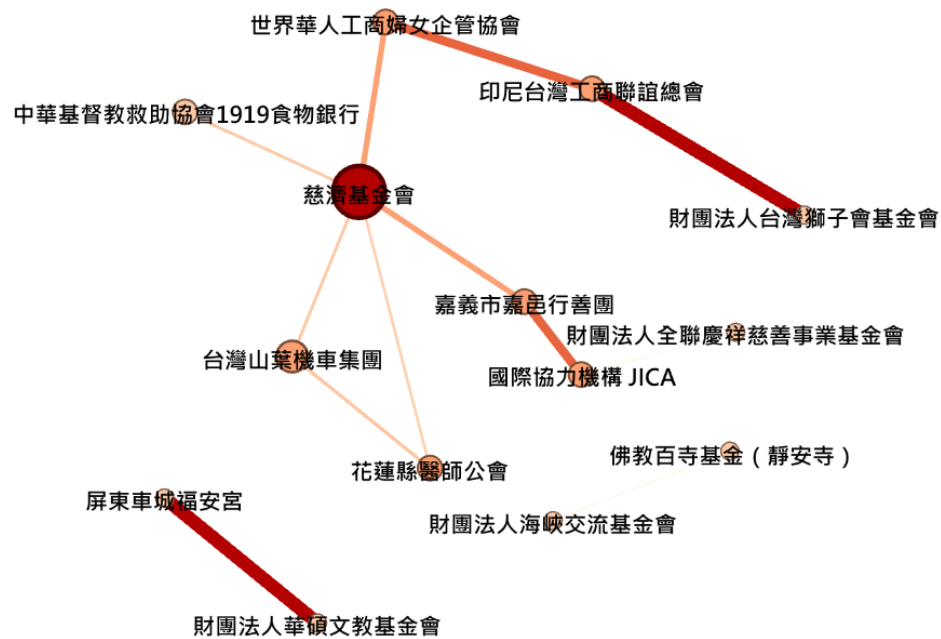


Figure 11. Organizations co-mentioned during the 花蓮 earthquake (2/7-2/13, 2018), by eLand Information.

Discussion and conclusion

Integrating multiple types of data, this project accomplishes the objectives laid out in the proposal. First, findings from the survey data collected at the individual level support the proposed model (Figure 1). In this way, they advance theoretical understanding and explanations about the mechanisms of motivating individuals' DRR information behaviors, which in turn influence their engagement in DRR measures in the longer term. These also point to different sources of disparities behind different levels of DRR engagement, which are reflected in individual, structural (social), and technology use factors. Second, findings from the Facebook data collected at the individual level reveal differential patterns of curation on Facebook in relation to behavioral responses. These contribute to theoretical explanation for the factors that shape contemporary networked environment on social media. Third, findings from the interviews and the Facebook data collected at the organizational level identify the communicative and networking mechanisms that are enabled by social media (eg., Facebook, LINE). These mechanisms help sustain citizen-based groups for disaster mobilization, as well as civil society organizations for long-term community resilience building.

Building on these findings, this project presents several policy contributions for disaster management. For example, in developing long-term DRR messages, local governments should consider working with local community organizations, nonprofit organizations, and

news organizations to cultivate a sense of information seeking and sharing related to general matters among individuals. These could take place on Facebook or beyond. In doing so, individuals are likely to engage in DRR-related information seeking and sharing, which could motivate them to perform DRR measures. Moreover, governments should pay attention to the development of a digital platform that documents the areas of expertise for different types of citizen-based groups and civil society organizations. This platform would allow for quick mobilization during disasters and thus long-term resilience building.

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科技部補助專題研究計畫成果自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

- 達成目標
- 未達成目標（請說明，以 100 字為限）
 - 實驗失敗
 - 因故實驗中斷
 - 其他原因

說明：本計畫為三年期計畫，第一年與第三年的預期目標為完成第一波與第二波的線上問卷執行與個人臉書行為資料蒐集，問卷跟臉書資料都按照原計畫蒐集完成，並撰寫成國際學術會議論文，達成預期目標。第二年的預期目標為完成組織面向的訪談與臉書資料蒐集，在訪談部分由於遇到募集對象的困難，因此輔佐質化的方式分析這些組織的臉書社團資料；在組織臉書資料方面則按照原計畫蒐集完成，達成預期目標，研討會論文與期刊論文將陸續產出。

2. 研究成果在學術期刊發表或申請專利等情形(請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊)

- 論文：已發表 未發表之文稿 撰寫中 無
- 專利：已獲得 申請中 無
- 技轉：已技轉 洽談中
- 無

其他：個人問卷資料的分析結果，已在 2019 年的國際傳播學會年會(ICA)與 2019 的 AEJMC 會議發表，目前這兩篇論文已投稿至國際 SSCI 傳播期刊。第三篇論文正在撰寫中，將投至 2020 AEJMC 會議。另外，與該計畫相關的災防組織臉書資料分析結果也在 2017、2018 年的國際傳播學會年會(ICA)發表，並即將產出兩篇期刊論文（兩篇修改後已重投稿國際 SSCI 傳播期刊）。另外，與災防組織相關的理論架構，有一篇專書論文於 2019 出版。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性，以500字為限）。

本研究採取個人與組織層面的分析，為災難傳播、風險傳播與組織網絡等領域做出理論與實證貢獻。根據兩階段的個人問卷資料分析，該研究了解影響個人災防相關資料傳播行為的因素，並深入剖析這些因素如何促成個人進行長期性的災害防治與韌性能力的建立。這些發現也顯示有必要從宏觀性的角度出發，了解(台灣)社會在災難韌性上呈現的落差，與造成落差的因素。同時，針對組織部分的資料分析，本研究提出公民組織團體如何在災難發生時與災難發生之後，以不同的傳播與網絡機制存續著，有助於建立長期性的社區與社會韌性建立。破除一般認為臨時性組織在災難發生之後即消失的迷思，本研究強調公民組織與團體在每次災難發生之後，藉由社群媒體維持著，這樣的方式可有效促成下一次的災難動員，進而減低新的災難所造成的損害。

4. 主要發現

本研究具有政策應用參考價值：否 是，建議提供機關_____

教育部、行政院環境保護署、科技部

(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)

本研究具影響公共利益之重大發現：否 是

說明：本研究分析結果對於台灣災難管理政策作出建言，特別是透過個人的社會結構因素以及資訊傳播行為等面向，了解不同的社會與數位落差，如何加深不同程度的災難脆弱性，以及應對的方針。此外，本研究也建議災難管理單位，應該加強與不同公民組織團體的合作，在平常時期透過不同的媒體管道，建立起民眾對於災難防治資訊的接收與吸收能力。

科技部補助專題研究計畫成果彙整表

計畫主持人：賴至慧		計畫編號：MOST 105-2410-H-009 -064 -SS3				
計畫名稱：如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為						
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)		
國內	學術性論文	期刊論文		篇	請附期刊資訊。	
		研討會論文				
		專書		本	請附專書資訊。	
		專書論文		章	請附專書論文資訊。	
		技術報告		篇		
		其他		篇		
	智慧財產權及成果	專利	發明專利	申請中	件	請附佐證資料，如申請案號。
				已獲得		請附佐證資料，如獲證案號。
			新型/設計專利			
		商標權				
		營業秘密				
		積體電路電路布局權				
		著作權				
		品種權				
		其他				
	技術移轉	件數		件		
		收入		千元	1. 依「科技部科學技術研究發展成果歸屬及運用辦法」第2條規定，研發成果收入係指執行研究發展之單位因管理及運用研發成果所獲得之授權金、權利金、價金、股權或其他權益。 2. 請註明合約金額。	
	國	期刊論文		篇	請附期刊資訊。	

外	學術性論文	研討會論文	4	<p>1. Lai, C.-H., & Fu, J.S. (2017, May). <i>Who is included and who is left out: Humanitarian organizations' stakeholder communication via social media.</i> Paper presented at the 67th annual conference of International Communication Association, San Diego, USA.</p> <p>2. Lai, C.-H., & Fu, J. S. (2018, May). <i>We are both alike and different: Humanitarian organizations' dialogic social media use.</i> Paper presented at the 68th annual conference of International Communication Association, Prague, Czech Republic.</p> <p>3. Lai, C.-H. (2019, May). <i>I am motivated to gather and share disaster information, therefore more prepared: Which route would you take?</i> Paper presented at the 69th annual conference of International Communication Association, Washington, DC, USA.</p> <p>4. Lai, C.-H. (2019, August). <i>Examining the paths of influence between individual motivators, information behaviors, and outcomes in disaster risk reduction.</i> Paper presented at the</p>
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					102nd annual conference of the Association for Education in Journalism and Mass Communication (AEJMC), Toronto, Canada.	
	專書			本	請附專書資訊。	
	專書論文		1	章	Lai, C.-H. (2019). Dormant disaster organizing and the role of social media. In K. K. Stephens (Ed.), <i>New media in times of crisis</i> (pp. 209-225). New York, NY: Routledge.	
	技術報告			篇		
	其他		2	篇	兩篇研討會論文已投稿至國際傳播期刊，兩篇則已修改重投 (revise & resubmit) 至國際期刊。	
智慧財產權及成果	專利	發明專利	申請中		件	請附佐證資料，如申請案號。
			已獲得			請附佐證資料，如獲證案號。
		新型/設計專利				
	商標權					
	營業秘密					
	積體電路電路布局權					
	著作權					
	品種權					
其他						
技術移轉	件數			件		

		收入		千元	<p>1. 依「科技部科學技術研究發展成果歸屬及運用辦法」第2條規定，研發成果收入係指執行研究發展之單位因管理及運用研發成果所獲得之授權金、權利金、獎金、股權或其他權益。</p> <p>2. 請註明合約金額。</p>
參與計畫人力	本國籍	大專生	9	人次	9位大學部助理經過訓練學習，協助問卷文獻搜尋工作與資料處理。
		碩士生	8		8位研究所助理經過訓練學習，協助問卷設計與資料蒐集、分析工作。
		博士生	1		一位博士班助理（交大管裡科學系），協助問卷設計、資料蒐集與資料分析工作。
		博士後研究員			
		專任助理			
	非本國籍	大專生	1		大學部助理協助社群媒體資料蒐集與處理。
		碩士生			
		博士生			
		博士後研究員			
		專任助理			
其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)					

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2017 年 07 月 28 日

計畫編號	MOST 105-2410-H-009 -064 -SS3		
計畫名稱	如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為		
出國人員姓名	賴至慧	服務機構及職稱	國立交通大學傳播科技系
會議時間	2017年05月25日至2017年05月29日	會議地點	美國加州聖地亞哥(San Diego)
會議名稱	(中文)國際傳播學會年會 (英文) Annual conference of International Communication Association (ICA)		
發表題目	(中文) (英文) Who is included and who is left out: Humanitarian organizations' stakeholder communication via social media		

一、參加會議經過

ICA is the most important and influential academic conference in the communication field. The acceptance rate of the submission is below 50%. I've attended ICA since I was in graduate school back in 2007. This year's conference took place in San Diego, USA, which was the first time I attended since I came back to Taiwan.

二、與會心得

Attending this year's ICA helps me continue my presence within the international scholarly community. This year's particularly special because I attended as a Taiwan representative. I presented the paper that laid the foundation of the survey developed for this project. Constructive comments and feedback were received during the conference, which helped me get more concrete ideas of developing and improving the survey as well as the entire project.

三、發表論文全文或摘要

The paper I presented is entitled, "Who is included and who is left out: Humanitarian organizations' stakeholder communication via social media." I presented it at the session hosted by the Organizational Communication Division of ICA. The session itself took place on May 28, Sunday, 15:30-16:15. Below is the abstract of the paper.

Abstract: This study employs a multi-theoretical framework to examine the mechanisms behind organizations' strategic use of social media to target different stakeholders and the resulting outcomes. Moreover, considering the importance of accommodating different stakeholders' technology access and usage habits, this study investigates organizations' use

of non-social media channels to engage with the stakeholders not reached through social media. Data from an online survey with 157 humanitarian organizations operating across the Asia-Pacific region, North America, and Europe showed that for the stakeholders with which organizations put on frontstage image building, organizations tend to use social media in diverse and interactive ways. Specifically, organizations' diverse uses of social media help the informational, community-building, and mobilization gratifications related to organizational operations. To accommodate certain stakeholders' interests and needs, organizations use non-SM channels to reach those targeted stakeholders, which helps organizations improve the overall communication capacity. Theoretical and practical implications of the findings are discussed.

五、攜回資料名稱及內容

Nothing specific to recommend with regard to the procedures. Feedback and comments on my research project were received.

六、其他

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2018年07月26日

計畫編號	MOST 105-2410-H-009 -064 -SS3		
計畫名稱	如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為		
出國人員姓名	賴至慧	服務機構及職稱	國立交通大學傳播科技系
會議時間	2018年05月24日至2018年05月28日	會議地點	捷克布拉格
會議名稱	(中文)國際傳播學會年會 (英文) Annual conference of International Communication Association (ICA)		
發表題目	(中文) (英文) We Are Both Alike and Different: Humanitarian Organizations' Dialogic Social Media Use		

一、參加會議經過

ICA is the most important and influential academic conference in the communication field. The acceptance rate of the submission for the 2018 conference is below 40%, and I had four papers accepted by ICA this year. This year's conference took place in Prague, Czech Republic. This was the second time I attended since I came back to Taiwan.

二、與會心得

Attending this year's ICA helps me continue my presence within the international scholarly community. This year's particularly special because I attended as a Taiwan representative. I presented the paper based on the analysis of the data that was the foundation of this funded project. Constructive comments and feedback were received during the conference, which helped me to get more concrete ideas of working on the remaining interview data collection with group/organization organizers for the third year of the project.

三、發表論文全文或摘要

The paper I presented is entitled, "We Are Both Alike and Different: Humanitarian Organizations' Dialogic Social Media Use." I presented it at the session hosted by the Organizational Communication Division of ICA. The session itself took place on May 25, Friday, 14:00-15:15. Below is the abstract of the paper.

Abstract:

This study employs a multi-theoretical framework to examine the mechanisms behind organizations' strategic use of social media to target different stakeholders and the resulting outcomes. Moreover, considering the importance of accommodating different stakeholders'

technology access and usage habits, this study investigates organizations' use of non-social media channels to engage with the stakeholders not reached through social media. Data from an online survey with 157 humanitarian organizations operating across the Asia-Pacific region, North America, and Europe showed that for the stakeholders with which organizations put on frontstage image building, organizations tend to use social media in diverse and interactive ways. Specifically, organizations' diverse uses of social media help the informational, community-building, and mobilization gratifications related to organizational operations. To accommodate certain stakeholders' interests and needs, organizations use non-SM channels to reach those targeted stakeholders, which helps organizations improve the overall communication capacity. Theoretical and practical implications of the findings are discussed.

四、建議

Nothing specific to recommend with regard to the procedures. Feedback and comments on my research project were received.

五、攜回資料名稱及內容

Verbal comments and feedback on my research project were received on the site and written ones were received electronically.

六、其他

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2019 年 12 月 25 日

計畫編號	MOST 105-2410-H-009 -064 -SS3		
計畫名稱	如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為		
出國人員姓名	賴至慧	服務機構及職稱	國立交通大學傳播科技系
會議時間	2019 年 05 月 24 日至 2019 年 05 月 28 日	會議地點	美國華盛頓 DC
會議名稱	(中文)國際傳播學會年會 (英文) Annual conference of International Communication Association (ICA)		
發表題目	(中文) (英文) I Am Motivated to Gather and Share Disaster Information, Therefore More Prepared Which Routes Would You Take?		

一、參加會議經過

ICA is the most important and influential academic conference in the communication field. The acceptance rate of the submission for the 2019 conference is below 40%, and I had four papers accepted by ICA this year. This year's conference took place in Washington, DC, USA.

二、與會心得

Attending this year's ICA helps me continue my presence within the international scholarly community. I presented a paper based on the analysis of the survey data. Constructive comments and feedback were received during the conference, which helped me to get more concrete ideas of working on the remaining survey data analysis.

三、發表論文全文或摘要

The paper I presented is entitled, "I Am Motivated to Gather and Share Disaster Information, Therefore More Prepared Which Routes Would You Take? ." I presented it at the session hosted by the Environmental Communication Division of ICA. The session itself took place on May 28, Tuesday, 9:30-10:45. Below is the abstract of the paper.

Abstract:

Extending the OSROR (orientations-stimuli-reasoning-orientations-response) model with the frameworks of curation and the literature from risk communication, this study simultaneously examines the influence of personal factors on information gathering and sharing in the

context of disaster risk reduction (DRR), and the influence of these factors on DRR response behaviors. Analysis of national survey data in Taiwan showed that subjective norms, knowledge insufficiency, risk perception, affective response, and informational efficacy, along with the capacity of customizing online information, have significant direct effects on DRR information gathering and sharing in terms of the types of sources/contacts involved. These personal factors and information behaviors in turn predict different levels of DRR response behaviors, with DRR information sharing serving an important mediating role. Together, the results present a more nuanced understanding of how personal factors motivate information behaviors, and identify how these factors pose as sources of disparities behind different levels of DRR response behaviors.

四、建議

Nothing specific to recommend with regard to the procedures. Feedback and comments on my research project were received.

五、攜回資料名稱及內容

Verbal comments and feedback on my research project were received on the site and written ones were received electronically.

六、其他

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2019 年 12 月 25 日

計畫編號	MOST 105-2410-H-009 -064 -SS3		
計畫名稱	如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為		
出國人員姓名	賴至慧	服務機構及職稱	國立交通大學傳播科技系
會議時間	2019年08月06日至2019年08月10日	會議地點	加拿大多倫多
會議名稱	(中文)國際傳播學會年會 (英文) Annual conference of Association for Education in Journalism and Mass Communication (AEJMC)		
發表題目	(中文) (英文) Examining the Paths of Influence between Individual Motivators, Information Behaviors, and Outcomes in Disaster Risk Reduction		

一、參加會議經過

AEJMC is one of the most important and influential academic conferences in the communication field. This year's conference took place in Toronto, Canada.

二、與會心得

Attending this year's AEJMC helps me continue my presence within the international scholarly community. I presented a paper based on the analysis of the two-wave survey data. Constructive comments and feedback were received during the conference, which helped me to get more concrete ideas of refining the paper for journal submission.

三、發表論文全文或摘要

The paper I presented is entitled, "Examining the Paths of Influence between Individual Motivators, Information Behaviors, and Outcomes in Disaster Risk Reduction." I presented it at the session hosted by the Mass Communication Division of AEJMC. The session itself took place on August 7, Friday, 17:00-18:30. Below is the abstract of the paper.

Abstract:

Building on the integrative models of media effects and audience activity, this study conducts a cross-lagged analysis of two-wave data in Taiwan. The results show that the relationships between individual characteristics and disaster risk reduction (DRR) information behaviors are driven both by media effects and selection effects, depending on the type of information behavior. Different mediating mechanisms exist as personal

factors influence DRR information seeking and sharing differently, which then predict outcomes of DRR.

四、建議

Nothing specific to recommend with regard to the procedures. Feedback and comments on my research project were received.

五、攜回資料名稱及內容

Verbal comments and feedback on my research project were received on the site and written ones were received electronically.

六、其他

ICA - International Communication Association

View Email

Sent on:

Jan 28, 2019 6:07 PM

From:

conference@icahdq.org

To:

chlai@g2.nctu.edu.tw

Cc:

Subject:

69th Annual ICA Conference Visa Letter



Monday, 28-Jan-2019

Chih-Hui Lai

chlai@g2.nctu.edu.tw

Dear Chih-Hui Lai,

I am pleased to inform you that your submission "I Am Motivated to Gather and Share Disaster Information, Therefore More Prepared Which Routes Would You Take?," has been accepted for presentation at the 69th Annual International Communication Association (ICA) Conference, to be held 24-28 May 2019 at the Washington DC, in Washington, District of Columbia, USA.

As you are aware, ICA is the premier academic association for scholars interested in the study, teaching and application of all aspects of human and mediated communication. We confirm with this letter that your attendance at this meeting, as one whose work in the communication field has been determined to satisfy our educational standards, is crucial to the success of this conference. The exchange of knowledge, research, and collaboration our conference provides is not possible without the full participation of all accepted authors.

Registration for the conference is available on the ICA website. The conference program - along with a listing of all sessions, including all special events and activities - will be available online on 1 March. Please check the ICA website and social media accounts periodically for updates.

We look forward to seeing you in D.C. and trust that you will have a fruitful and productive conference.

Sincerely,



Jennifer Le
Senior Manager of Conference Services
International Communication Association

1500 21st Street, N.W. · Washington D.C. · 20036 · USA
voice (01) 202 · 955 · 1444 · www.icaheadq.org · fax (01) 202 · 955 · 1448

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Product version number 4.16.0 (Build 83). Build date Wed Apr 24 13:34:59 EDT 2019. Server ip-10-236-27-148

105年度專題研究計畫成果彙整表

計畫主持人：賴至慧		計畫編號：105-2410-H-009-064-SS3		
計畫名稱：如何透過新科技建立長期性的災難復原與適應能力：從生態系統角度研究個人與群體的非災難與災難時的資訊傳播行為				
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)
國內	學術性論文	期刊論文	0	篇
		研討會論文	0	
		專書	0	本
		專書論文	0	章
		技術報告	0	篇
		其他	0	篇
國外	學術性論文	期刊論文	0	篇
		研討會論文	4	

					Education in Journalism and Mass Communication (AEJMC), Toronto, Canada.
		專書	0	本	
		專書論文	1	章	Lai, C.-H. (2019). Dormant disaster organizing and the role of social media. In K. K. Stephens (Ed.), <i>New media in times of crisis</i> (pp. 209-225). New York, NY: Routledge.
		技術報告	0	篇	
		其他	2	篇	兩篇研討會論文已投稿至國際傳播期刊，兩篇則已修改重投(revise & resubmit)至國際期刊。
參與計畫人力	本國籍	大專生	9	人次	9位大學部助理經過訓練學習，協助問卷文獻搜尋工作與資料處理。
		碩士生	8		8位研究所助理經過訓練學習，協助問卷設計與資料蒐集、分析工作。
		博士生	1		1位博士班助理（交大管理科學系），協助問卷設計、資料蒐集與資料分析工作。
		博士級研究人員	0		
		專任人員	0		
	非本國籍	大專生	1		1位大學部助理協助社群媒體資料蒐集與處理。
		碩士生	0		
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)					