

Shaken: a qualitative, diachronic report on how a major seismic event impacts a Study Abroad program.

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Abstract

The Christchurch earthquake of February 2011 altered the lives of the hundreds of thousands of people living in and around the city. Both individuals and their institutions were faced with the unique challenge of trying to carry on their lives and operations in the wake of a major disaster. One system is focused on in particular: the Frontiers Abroad program, which hosts American students at the University of Canterbury just outside of the city. Qualitative interviews were obtained from participants and organizers of the program and were then compiled and analyzed for patterns, presented here in theoretical form. I conclude that students were much more likely to feel at risk if they knew they were experiencing an earthquake; that students interpreted the event incredibly differently, with some seeing it as a personal disaster while others saw it as an opportunity (and that the latter students far outnumbered the formers; and that peer groups were enormously influential in how students perceived, understood, responded emotionally to, and behaved in the aftermath of the earthquake. Theoretical insight is, thus, provided into how a unique system and the individuals of which it was comprised responded to a major seismic event.

Introduction

On the 22nd of February, 2011, the city of Christchurch, New Zealand was hit by an earthquake with a magnitude of 6.3 on the Richter scale,¹ resulting in an estimated 182 deaths² and damage so significant that whole portions of the city may have to be abandoned, with over 100,000 homes requiring repair and some 10,000 requiring demolition due to extensive damage.³ Such an event is certain to have produced a diverse

¹Earthquake Commission and GNS Science, "New Zealand Earthquake Report – 22 February 2011 at 12:51 p.m. (NZDT)". 18 March 2011.

²Television New Zealand, "Final Christchurch toll likely to be 182." 17 March 2011.

³Bay of Plenty Times, "Christchurch earthquake: Entire streets may be abandoned." 19 March 2011.

range of experiences, as each member of the city's population will have perceived the earthquake in a unique way.

Such experiences represent a wealth of data about the event, as each person is a firsthand observer of *both* the physical event with its associated repercussions (e.g., land movement, liquefaction, building collapse, etc.) *and* her own subjective experience of the event.⁴ Piecing together these experiences can thus provide information about both the event itself and the human response to the event (e.g., perceptions, beliefs, attitudes of the event and those impacted by the event), allowing for analysis of both its external and the internal components, the objective and the subjective.

While many of these experiences have been shared between friends or recorded in journals or published on blogs, there has been no attempt made to reconcile these accounts for either the purpose of creating a holistic account of the event or identifying trends in how people were affected by it. Of course, trying to record and synthesize the data captured by hundreds of thousands of observers and unify it into a coherent narrative is impossible. This does not mean that the task must be abandoned: rather, it must be focused to capture some specific subset of those affected.

One group of particular interest is students studying abroad in Christchurch. These students, even in the wake of a large earthquake months earlier, were willing to travel an enormous distance to study in this seismically active area. They were also removed from much of the social support upon which people rely in times of crisis: they had little to no access to friends or family and, being students, had relatively modest financial backing. At the same time, their experiences intersect with those of the directors of their program who had to face the unique pressure of dealing with both the personal ramifications of the earthquake (e.g., damage to homes, concerns for the safety of family, etc.) while, at the same time, trying to ensure the safety and well-being of the students placed in their

⁴ R Weiss, *Learning From Strangers: The Art and Method of Qualitative Interview Studies* (New York: The Free Press, 1994), 8.

charge. However, so far no report documenting the experiences and observations of this uniquely-positioned group has been undertaken.

Background

The Frontiers Abroad program is a study abroad program that takes American students interested in studying natural sciences and provides them with the opportunity to first do scientific fieldwork and then take courses from two different universities in New Zealand. The program consists of two fields of study: Geology and Earth Systems, the latter covering topics ranging from water contamination to indigenous environmental management techniques.

There were 17 students participating in the Geology branch of the program and 15 students participating in the Earth Systems branch at the time of the earthquake. Of these students, all 17 of the Geology students and 9 of the Earth Systems students went to study at the University of Canterbury, located just outside of Christchurch, New Zealand. The remaining 6 students enrolled at the University of Auckland in Auckland, New Zealand. The two cities lie on the South and North Island of New Zealand, respectively, so only Christchurch was affected by the earthquake, whose epicenter was 10 km southeast of the center of the city.⁵

The earthquake occurred on Tuesday, the 22nd of February. Power immediately went out and did not go back on until that night. Water was contaminated with sewage making drinking tap water and showering impossible (though all students were provided with clean drinking water). On Thursday, program directors announced that they were relocating all students to a field station in Westport where they would have access to clean water, beds, etc., and be away from the aftershocks that continued to affect the area. Only one student did not go to Westport, as he went to a nearby Red Cross camp and was evacuated up to Auckland by plane where he stayed with Frontiers Abroad students throughout the aftermath that followed. The other students stayed at the field station in Westport while the program directors waited to find out how the University of

⁵ Earthquake Commission and GNS Science, “New Zealand Earthquake Report.”

Canterbury would respond to the earthquake, as many of its buildings had been damaged and were in need of repair or inspection. After a few days, it became clear that the damage was so extensive that the University would not reopen in time for students to get a full semester's worth of education, and required that all international students transfer to other universities. For Frontiers Abroad, this meant that the Earth Systems students would join their peers in Auckland, while the Geology students would be relocated to Wellington. However, some students decided that they did not want to leave the South Island and, instead of transferring, dropped out of the program.

Methods

Qualitative Interviews

The first step of the project was to undertake a series of qualitative interviews with people representing all the different facets of Frontiers Abroad including students, faculty, coordinators, and parents. The qualitative method was selected because of its ability to elicit rich, detailed data from subjects, integrate their multiple perspectives into a coherent whole, reveal the human side of the event, and because of its ability to immerse readers in the experiences of others in a way that facilitates them gaining a first-hand perspective of the event that is not possible through plain data analysis.⁶ Additionally, as this is some of the first research emerging from the aftermath of the earthquake, the qualitative method also was selected because of its ability to reveal variables and potential hypotheses for future studies.⁷ Forming any sort of hypothesis requires some level of knowledge and understanding of a phenomenon, which this research will make available.

The research is diachronic, meaning that it attempts to show how the study abroad system in question behaved and changed over time. This orientation was selected because of the temporal nature of an earthquake: there is a major event and then a causal chain of events departing from that initial catalyst. Thus, we are interested not merely in how the

⁶ R. Weiss, *Learning From Strangers*, 9-10.

⁷ *Ibid.*, 10-11

different parts of the organization fit together (as would be captured in a synchronic study) but, rather, how those parts interacted and evolved in response to the event.

The process for conducting such qualitative research consisted of deciding whom to interview, collecting the data via interview, and analyzing the data. However, the process was not strictly linear, as the collection of data and analysis occasionally shifted the focus of the study as they revealed new features of the event, requiring modification of the list of interviewees, restarting the process.

Identifying the Respondents

To attempt to capture all aspects of the Frontiers Abroad system, five students, one set of parents, and two program directors were interviewed. These individuals were selected because they represent a diversity of perspectives on the Frontiers Abroad organization and because they are the people to whom I had access.

Conducting the Interviews

All interviews were conducted in person. This was done to avoid telephone interviews which empirically do not yield as rich of a data set due to a tendency for increased evasiveness on the part of respondents and a willingness to cut off interviews significantly earlier than those carried out in person.⁸

The interviews lasted as long as the respondent was interested in continuing the conversation and multiple interviews were often conducted allowing for more time for data collection (and better data collection, as the break between interviews gives the respondents opportunity for reflection on the subject, and builds the rapport necessary for respondents to be more forthcoming).⁹ All subjects were digitally recorded to ensure no information was missed and so that their exact wording was captured. While recording can deter candor, hopefully the degree of familiarity already established between the researcher and the respondents through prior involvement in the Frontiers Abroad

⁸ Ibid., 59

⁹ Ibid., 57

program offset this effect. Relevant sections of the recordings were transcribed during analysis.

Payment was not offered, as there was no budget available for this measure and it was not necessary to obtain good results because respondents tend to participate not for financial reward, but because they are interested in making a contribution to the study.¹⁰

With respect to the confidentiality of the respondents, descriptions are as general as possible to avoid providing information sufficient for a reader familiar with the program to identify them. However, this was impossible in some cases, as disguising the identity of the respondent could not be done while maintaining any degree of veracity. All respondents were alerted to the fact that confidentiality could not be guaranteed at the start of each interview, but their candor was encouraged for the sake of obtaining good scientific results. Beyond this, no sort of consent agreement was provided, as the familiarity of the respondents with the interviewer made such a form unnecessary and could even have interfered with the interview by giving it an air of formality that might deter candor in responses.

Analyzing the Data

Analysis is issue-focused, emphasizing common themes in the experiences and observations of the respondents and how they relate to one another (as opposed to case-focused analysis which emphasizes the perceptions and observations of each individual). This was done through a process of coding that, first, identified theoretical structures of the system and its response to the earthquake, and then matched these structures with the specific details transcribed from interviews. This coding allowed for the sorting of information, which was first integrated into coherent themes or topics of analysis and then integrated into one holistic report.

¹⁰ Ibid., 58.

Results

All the raw data for this report is in the form of audio files recording the various interviews. They are not included in this report for the sake of maintaining confidentiality.

Discussion

Analysis of the interviews is broken down into three sections, each focusing on a different theme that emerged over the course of data collection:

1. Initial Perceptions of the Earthquake

Analysis of the collected accounts of the earthquake reveals significant concurrence regarding the nature of the physical event including decidedly similar descriptions of the sensation of shaking, multiple mentions of falling objects and glass, and frequent reference to an immediate loss of electricity. However, despite such consistency in the respondents' impressions of the event itself, their associated affective responses varied widely, primarily according to the degree to which the respondents felt themselves to be in danger.

Two distinctions are tacitly drawn in describing respondents' perceptions as varying "according to the degree to which [they] felt themselves to be in danger." The first is a distinction between the respondents' beliefs and their affective states. While the former requires conscious content such that the respondent has an explicit opinion regarding how likely it is that she will be injured, the latter is a perceptive state, a feeling of danger. It is this *feeling* of danger that came up in interviews with respondents in varying degrees ranging from intense to non-existent. While this feeling was sometimes described as emerging from the respondent's beliefs about their personal safety—for example, a belief that the building one is in is not structurally sound may give rise to feelings of insecurity and danger—there is necessary connection as respondents reported both feeling as though they were in danger or feeling safe without having any explicit belief about whether or not they would sustain injury.

The second distinction I am drawing is between feelings of danger and feelings of fear, with the latter being a subset of the former. This distinction is drawn to encompass respondents' broad range of feelings of danger including not only fear, but also surges of adrenaline and feelings of deterministic inevitability.

Regarding such feelings of danger, the pattern that emerged from the interviews is that the degree to which a respondent reported feeling a sense of danger depended upon the extent to which she was aware that what was occurring around her was an earthquake. While it is seemingly obvious that the shaking described by respondents was the result of an earthquake, multiple respondents reported being uncertain of exactly what was occurring until after the event was over. It was this set of respondents that reported experiencing almost no feelings of danger, while those that quickly identified the shaking as an earthquake felt the most intense feelings of danger.

These findings are significant because they represent the way a piece of knowledge can strongly influence the affective responses that color our perceptions and experience. Both respondents that reported strong feelings of danger and those that were unconcerned by the shaking—two incredibly disparate ways of experiencing the event—were exposed to the same intensity of shaking and had similar physical surroundings. The only independent variable was whether or not they understood the shaking to be an earthquake. Thus, a mere belief was able to dramatically increase respondents' sense of danger and alter their experience of the event.

There were two factors mentioned by respondents that may explain the differences in ability to recognize that the event was an earthquake. The first is prior experience: those who had previously lived through an earthquake realized quite early on that they were experiencing another seismic event. The second is the behavior of the people surrounding the respondent: if people nearby quickly began taking emergency precautions such as getting under desks or into doorways, evacuating buildings, or if they started exhibiting signs of fear or danger such as screaming, respondents were more likely to report

realizing early on that what they were experiencing was an earthquake and to have the associated subjective response of a sense of danger.

2. Student Responses to the Earthquake

Also of note are the diverse ways that students reacted to the earthquake in the days that followed the event. After reviewing respondents' behavior and their observations of others it became clear that students' responses fell along a continuum that will be called the Disaster-Opportunity Spectrum.

An Opportunity Response was one that took the earthquake to be an event like any other with associated consequences and opportunities. It tended to be exhibited by students who understood the gravity of the situation, but did so with an intellectual detachment that left them largely unaffected emotionally or psychologically. As such they were able to view the event dispassionately, coolly appraising the ramifications of the event and assessing what course of action to take.

These students tended to try to make the best of a bad situation, viewing the disruption of daily activities as an opportunity to pursue their interests. Many students exhibiting an Opportunity Response began planning trips to other parts of the island—both because they were interested in visiting those locations and because they were interested in getting out of Christchurch. Others took it as a chance to visit friends in other parts of the country. Those who were interested in geology took advantage of the event to investigate the effects of seismic activity and examine newly revealed geologic features. Such behavior indicates that Opportunity-Response students were able to both recognize and take advantage of the possibilities opened up by the crisis.

It is important to note that such a response was not sociopathic. After the earthquake, almost all of the students exhibiting an Opportunity Response expressed concern about the well-being of people in the city (where most of the damage had occurred) and considered immediately volunteering in any way that they could be of assistance. However, only some of these students ended up actually volunteering. Respondents

reported that those who did not follow through did so typically because they were under the impression that they were either incapable of assisting or that their assistance was unnecessary given the number of volunteers they believed to already be flocking to the city. Additionally, these beliefs were often coupled with a lack of strong moral sentiment that they should help, potentially because of a lack of personal connection to the city and its inhabitants. The interplay between this lack of emotional urgency and a set of beliefs that the student would be unable to assist tended to have a strong inhibitory effect on volunteerism.

At the opposite end of the spectrum is the Disaster Response. For students exhibiting this response, there was neither a bright side to the earthquake, nor a silver lining. They understood the event to be a horrific tragedy in which they were embroiled and were helplessly stranded, watching as things went from bad to worse. These students tended to exhibit strong negative emotional responses, typically taking the form of grief or extreme agitation. They also tended to be largely paralyzed, doing little but watching the news and discussing the scope of the tragedy with their peers.

The role of broadcast media was significant in the Disaster Response. By all accounts, there was very little new information presented by news reports. Instead, there was roughly 15 minutes of content that was repeated continuously. Given such repetitiveness, students not exhibiting a Disaster Response would watch the news for a short period each day to gather information and would then go on with other activities. Students exhibiting a Disaster Response, on the other hand, would watch the news ceaselessly, spending many hours each day in front of the television watching the same series of images and statistics over and over again. While many respondents commented on the strong correlation between media consumption and behaviors that would be classified as a Disaster Response, one should be careful to make any sort of causal claim, as it is unclear whether excessive consumption of news instilled a psychological state that produced a Disaster Response in students or if students who were already exhibiting a Disaster Response were drawn to the broadcast media.

There were also students who fell somewhere between the two ends of this spectrum. These would include students who were vaguely distressed by the earthquake but still recognized the potentials contained within it, students concerned by the uncertainty of their future, and students who initially exhibited an Opportunity Response but tempered it as they realized the scope of the disaster and observed other students exhibiting a Disaster Response.

This last type of response deserves further comment. When considering the range of responses to the earthquake, the overwhelming majority of students exhibited an Opportunity Response or a moderated version thereof. Only a very small minority of students exhibited a strong Disaster Response to the event. While this would indicate that the human response to a disaster is to look for opportunity within it, students also overwhelmingly expressed the view that a Disaster Response was more appropriate—that it was the way that they were *supposed* to feel and behave. There was the distinct sentiment among those exhibiting an Opportunity Response that—despite them being the majority—they were deviants in their psychological response to the disaster and that, as such, they needed to hide how they felt from their peers (excluding those who felt the same way that they did). These students often reported feelings of guilt and went through the motions of having a partial Disaster Response, in part to allay these feelings, but also to avoid giving off the appearance of being an opportunist or someone lacking the proper degree of empathy.

3. The Influence of Social Groups on Perceptions and Decisions

The final major pattern in the collected data is the powerful effect that peer groups have on shaping respondents' perceptions of and responses to the earthquake. Respondents' accounts give reason to think that their observation and interaction with peers was instrumental in shaping their perceptions of the event, their understandings of the event, their emotional responses to the event, and their behavioral responses to the event.

With respect to perceptions of the event, students observed the behavior of their peers to help interpret what was occurring around them, as discussed in Section 1. When

surrounding students behaved as though there was a disaster occurring, respondents were more likely to understand the situation as a disaster and identify the shaking as being an earthquake than when bystanders responded with puzzlement. Thus, the behavior of peers was able to shape respondents' basic understanding of their surrounding world, certainly a significant finding.

In addition to affecting respondents' perceptions of the event, peers also influenced how respondents came to understand¹¹ the earthquake, especially in the immediate aftermath of the event. Respondents reported a high degree of peer influence in their formation of beliefs about the earthquake, in large part due to the loss of centralized outlets of information. With the earthquake knocking out the power—cutting off broadcast and online news—and users overwhelming the capacity of cell phone service providers rendering communication with people who did have access to centralized news sources impossible, information could only effectively be disseminated through social networks via a process of peers conferring with one another, picking up information, and distributing it to peers who would relay it to others. Thus, especially in the early days after the earthquake before independent sources of information were up and running, most, if not all, of the beliefs held by the student respondents about the earthquake were obtained through the decentralized process of networking with their peers.

While such decentralized, peer-to-peer information sharing is generally considered to be unreliable—there is a reason hearsay is not admitted in court proceedings—respondents reported that much of the information they received via word of mouth turned out to be quite consistent with official information later obtained through the reliable sources such as local authorities and broadcast news. While such concurrence may be purely coincidental, student respondents mentioned that, while exchanging information, students would frequently inquire as to the credibility of the information and where the distributor had obtained the information. It is certainly possible that, if such practices were

¹¹ While I use “perception” to denote the respondents' psychological experience of the earthquake, here I use “understanding” to refer to the set of beliefs the respondents developed about the earthquake including beliefs about its magnitude, its origins, the damage it inflicted, and the fallout from the damage.

widespread, they could have served as a partial check on bad information entering and being propagated throughout the community, thus explaining the reported reliability of the information that was disseminated.

Peer influence also had an effect upon the emotional response of students to the disaster. As discussed in Section 2, students looked to the responses of their peers to make a judgment as to how they ought to feel and behave in the wake of the earthquake. If it seemed to the students that their response did not conform to the social ideal that they perceived, they attempted to either moderate the way they felt in an attempt to conform, or attempted to hide their emotional state from their peers.

Another sphere in which peers exercised influence over one another was the realm of actions and behavior. Following the earthquake, there was a great deal of uncertainty as to what should be done given the significant disruption to students' daily routines. This problem of what to do was then further exaggerated when students were asked to make significant decisions regarding their course of action, such as when they had to decide whether or not they would assent to the program directors' request that they relocate to Westport or when they were told that outstanding damage to the University of Canterbury required them to either transfer to a different university or drop out of the program. Such decisions represented significant turning points for the students in that what they did would have a profound effect on both their own direction and upon others.

The decisionmaking process used by students to make these choices was heavily influenced by peers in two respects. First, peers had a significant effect upon what choices were even considered during the decisionmaking process. For example, some options (e.g., dropping out of the program instead of transferring) were not even considered by many students until others brought them up. In such cases, students' options were limited by their respective imaginations, and only through discussion with others were they made aware of alternatives that they did not originally know that they had—alternatives that some ended up selecting.

Additionally, while students may have been aware of certain alternatives such as dropping out of the program or not going to Westport with the rest of the program, the extent to which they considered these alternatives to be reasonable—and, thus, deserving of consideration—also depended upon whether or not their peers appeared to be seriously considering those alternatives. Thus, the only student who elected to not go to Westport reported making that decision after hearing many peers express that they also intended to not go to Westport and only attempted to fly out when others mentioned that they, too, were trying to catch planes out of Christchurch and invited him to come with them to the evacuation center. Additionally, many respondents reported that their decision to either transfer or drop out of the program was highly contingent upon the decisions of their peers: no one wanted to be the only one to drop out of the program or, conversely, *not* drop out of the program. In this way, students only considered alternatives that were made available to them or that seemed deserving of consideration, two preconditions whose satisfaction depended almost entirely upon the behavior of students' peers.

The second way in which students impacted the decisionmaking process of their peers was through discussion of the viable alternatives and evaluating which one ought to be selected. Such collective decisionmaking was reported by most respondents and was cited as being instrumental in the eventual near-unanimous decision on the part of the students to move to Westport. The decision is an interesting one, as many students wanted to pursue other alternatives and reported not feeling coerced by the program's organizers in such a way as to deter that action. Thus, one might expect that at least some students would have defected to pursue their own goals rather than relocate. Instead, all but one student relocated, and respondents all reported an identical reason for the decision: that they were concerned about the well-being of the organizers and thought that the right thing to do was accommodate them, even if it was an inconvenience, so as to not cause them further distress.

That all students would come to such a decision independently seems highly unlikely, and for good reason, as interviews with respondents suggest that the above reason for going to Westport was first presented publicly by one student in a group discussion

attended by the all other students *excluding the defector*. Respondents reported that this justification either clarified their own position on the matter, or won them over such that they were willing to abandon their initial plans to defect and went along with the move to Westport. Thus, in addition to shaping each other's perceptions, understandings, and emotional responses to the earthquake, peers engaged in a form of collective decisionmaking that resulted in behaviors and choices that were far more a product of the social collective than the individual will.

Conclusion

This analysis provides novel insight into how earthquakes affect human lives by capturing unreported, firsthand observations of the physical effects of earthquakes. It reveals the experiences of the under-explored sociological demographic that is international students studying abroad. As discussed above, students were much more likely to feel at risk if they knew they were experiencing an earthquake. In addition to such perceptual differences, their interpretations of the event also varied in that they fell along a spectrum ranging from a Disaster Response to an Opportunity Response. Finally, peers exerted an enormous amount of influence on students' experience of the earthquake and its aftermath, including their initial perceptions of the earthquake, their understanding of the context and significance of the earthquake, their emotional responses to the earthquake, and their behavior to the earthquake. From this analysis of the earthquake, we can better understand such events and those affected by them as well as identify areas for future study that are currently obscured by a lack of general knowledge of the human side of major seismic events.

References

- Bay of Plenty Times*. "Christchurch earthquake: Entire streets may be abandoned". Accessed 19 March 2011.
<http://www.bayofplentytimes.co.nz/local/news/christchurch-earthquake-entire-streets-may-be-aban/3943467>
- Earthquake Commission and GNS Science. "New Zealand Earthquake Report – 22 February 2011 at 12:51 p.m. (NZDT)". Accessed 18 March 2011.
<http://www.geonet.org.nz/earthquake/quakes/3468575g.html>
- Television New Zealand. "Final Christchurch toll likely to be 182." Accessed 17 March 2011. <http://www.stuff.co.nz/national/christchurch-earthquake/4780793/Christchurch-earthquake-death-toll-reaches-182>
- Weiss, R. *Learning From Strangers: The Art and Method of Qualitative Interview Studies*. New York: The Free Press, 1994.