

Text Mining for Disaster Causality—Learning From Typhoon Experience

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Current paradigm of disaster learning is confined in some macroscopic descriptions of adverse events. Disasters are simplified into records of the events, including event time, location, number of casualties, number of people affected and various statistics of economic losses. The original rich experience during a disaster is boiled down to a few discrete rules of thumb. Most of them present simple linear causality demonstrated by the statistical numbers of the disaster, which is indeed not as simple. Disasters are complex social processes, nested within a wider social context. Current approaches to disaster learning may help increase our awareness about disasters, they however do not seem capable of providing a synthesized picture of the ramified disaster experience, nor do they seem appropriate for depicting the complication of the causalities between disaster events, the societal development and the disturbance emerged in between.

People clarify disaster causation through reviews of past documents and detailed investigations. Large amount of documentation is created each time a disaster event occurs. People, however, are forgetful and have limited ability to extract information from large amount of text. Eventually, most of the experiences and lessons learned from past events are merely documented and filed on shelves. The learning process repeats from the beginning when next time a similar disaster strikes. How do we accumulate disaster experiences more effectively to learn from them? This research is intended to reconstruct the underlying societal disturbance triggered by typhoon events through the text mining of disaster causality. It is hoped that through the advance of text-mining, we are able to increase our understanding of the disaster causation in a societal context. And lessons learned from past events will be able to transform from event-based knowledge of disasters into a more systemic understanding of the functional dynamics of the society.