Does Measurement of Intentions Allow Us to Assume Behavior? A Disaster Information Seeking Perspective

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Abstract

Disaster research has examined actual behavior and intended behavior, but has rarely compared the two. The aim of this study is to compare actual behavior with intentions and draw conclusions about whether reported intentions can be used to predict behavior in a disaster.

An online and mail survey of Australians was conducted between September 2012 and February 2013 and secured 348 responses. 157 people with no disaster experience reported their information seeking intentions and 183 people who had experienced a disaster in the past two years reported their actual behavior.

Limitations of the research included sampling methods (snowball and convenience), which led to biases in the respondent demographics.

Analysis of the results showed little difference between actual intended behavior. While more rigorous research needs to be undertaken to confirm or refute the results, this study supports using respondent intentions in order to predict information seeking behavior in a disaster.

Keywords

Disaster, intentions, information seeking, communication.

Background

This paper is an exploration of whether the way people intend to seek information in a disaster is what they actually do. It is part of a wider study on how people seek information in a disaster. It takes information from people who have not experienced a disaster and who report what they think they would do in that situation, and compares it with the information seeking experiences of people who have been in a disaster in the past two years.

Literature review

The research of disaster behavior and information seeking has shown actual behavior during a disaster and intended behavior, but rarely are the two compared outside disaster preparedness research (Paton 2003). The aim of this study is to compare actual behavior with intentions and draw conclusions about whether reported intentions can be used to predict behavior in a disaster.

In other fields, studies comparing behaviour with behavioural intent tend to show different results for different informational seeking circumstances (DeVito, Bogdanowicz, and Reznikoff 1982), although the DeVito et al study showed a difference between behaviour and behaviour intent in looking for health information. Paton outlines a number of variables that will affect conversion of intentions to actions in the preparation of individuals for a disaster (Paton 2003, p. 213): sense of community; the degree to which people accept personal responsibility for their own safety; the frequency of events for which they need to prepare for (so the longer ago the previous event, the less urgent preparation action will be); the past experience of the individual or the community that person lives in; and trust in authorities. This indicates that conversion of information seeking intentions into action in the midst of a disaster might be a complex process. It is certainly not one that has been explored by other research.

In fast moving or sudden impact disasters, such as flash flood, tsunami, wildfire, terrorist attacks and tornado, other people and television have been the key sources of information for those who experienced it (Greenberg, Hofschire, and Lachlan 2002; Jones and Rainie 2002; King 2007; Stempel III and Hargrove 2002). In slower moving events, such as hurricane and slow flooding, news and weather websites, radio and television have been shown to be the important sources of information (Kindell, Lu, and Prater 2005; Piotrowski and Armstrong 1998; Ryan 2008). Social media is an emergent source, but has not yet been shown to be an important source, although at least two studies have shown people intend to make it an important source if they experience a disaster (American Red Cross 2011; Canadian Red Cross 2012). Research yet to be reported on Hurricane Sandy may show this to be changing.

While Mileti and others have proven the existence of the confirmation stage in disaster behaviour (Mileti and Peek 2000; Ripley 2009), many people believe they will behave differently. In reporting their intentions of what they would do once they learned of an accident at a local chemical plant, the majority of respondents in Phillips et al's study (p.281) said they would act immediately they had news of such an accident. 50.7% of respondents in the lowest income quartile and 58.5% of the remainder of respondents in this survey stated they would take action straight away. The remainder in each group said they would look for more information. On reporting their intended information sources, the Phillips et al respondents were consistent with the findings of others that television would be a primary source followed by neighbours then friends and family and this was supported by Rainie's research for Pew Internet Project in which 57% of Americans said they would turn to television first for news of a terrorist incident (Rainie 2003). Canadians prefer television (39%), social media updates by agencies including email (31%) and radio (26%) as their primary source of information about an emergency (Ipsos Reid 2011p.3). So while there is correlation between planned and actual sources in some disasters, the numbers differ, with more people using television as their main source than those intending to use TV as their main source. In the WTC terrorist attacks, 88% of people used television as their main source (Greenberg, Hofschire, and Lachlan 2002), and the Oak Grove Birmingham tornado (Legates and Biddle 1999) and hurricane Danny (Piotrowski and Armstrong 1998), 85% and 89% used television as their main source of information respectively.

In a CDC scenario focus group study, Wray and Jupka (2004) found that people considered mass media and agency sources as critical sources of information in a terrorist attack. There seemed to be no mention of 'others' as a source of information in this study, even though 'others' become an important source (Mileti and Fitzpatrick 1992), particularly when information is not available. In the Wray and Jupka study, it is difficult to determine if 'others' was presented to respondents as a possible source of information or mentioned, but not recognized by researchers as a legitimate source within the parameters of the study.

Social media use and intentions to use have been the subject of a number of studies in North America(American Red Cross 2011; Canadian Red Cross 2012; Ipsos Reid 2011), with significant numbers of respondents expecting that social media will become one of their main sources of information in a disaster. About one third of Canadians expected to be able to lodge requests for help on social media (Canadian Red Cross 2012) even though 79% of those surveyed has experienced a serious storm or power loss event . Social media was attractive to about half of respondent Canadians as a means of notifying friends and family that they were safe (Canadian Red Cross 2012; Ipsos Reid 2011). While many studies have explored how people and agencies have used various forms of social media, few have explored exactly how many people in the total population have use social media in relation to other information sources. In those studies exploring actual experience, social media is still a minor part of information seeking behavior in disasters (Fu, White, Chan, Zhou, Zhang, and Lu 2010; National Weather Service Central Region 2011; Ryan In press; Vachette and King 2011).

Hypotheses

H1:   In a disaster there will be no significant difference between intentions to use radio and television as a main source of information and actual behavior.

H2:   There will be greater use of "others" as an important source of information in actual information seeking behaviour than in intentions.

H3:   There will greater use of news and weather websites as an important source of information in actual information seeking behaviour than in intended information seeking behaviour.

H4:   Intentions to use social media as an important source of information in a disaster will be greater than the use of social media as an important source in actual behaviour.

Framework for the study

A number of factors were tested in early attempts to allow prediction of behaviour, without success (Ajzen 1991).

Methodology

Studies that compare actual with intended behavior are conducted in two ways. The first compares the intentions and actual behavior of the same group of people by first asking them their intentions via survey or interviews and then observing their behaviour (Holmes, Marriott, and Randal 2012; Rosso and Frey 1973) or asking them to report their behaviour via a second research instrument (Zinn and Liu 2008). The second method is to compare the intentions of one group of people with the actions of a second group of people in a similar situation to the one presented in the first group's scenario (Zeigler and Johnson 1984). While there seems to be little discussion on the validity of the two methods, it would seem that the second method, which compares two groups of people from a different place or situation, may be influenced by variables relating to differences between the two populations. Cultural, demographic and other factors may influence differences or similarities, as may the type of disaster. However, in the disaster field, it is almost impossible to identify a group of people to interview and who will then reliably experience a disaster so that actual behaviour can be observed or reported against the intentions. As a result, comparing two similar populations may be the only way of developing knowledge about the correlation or otherwise of intentions and actual behaviour in a disaster.

The data used in this study was collected as part of a wider study on information seeking behaviour that received 348 responses. The survey was conducted online using the commercial version of Survey Monkey. Sampling was conducted using convenience and snowball methods – friends, family and work colleagues of the researcher were emailed with a link to the survey, and the survey was posted on the personal Facebook page of the researcher as well as a Facebook page for past and current students of the researcher. The survey opened in September 2012 and closed in December 2012. Online responses numbered 277.

The survey was also administered in hard copy, with 2,000 copies letter box dropped into the suburbs of Wilsonton in Toowoomba and Gailes in Brisbane. The suburbs were selected on the basis of their demographic characteristics – lower income and education levels than other areas in these cities. This arose from the difficulty during the lead up interviews in securing interviews with people who were of a lower education level and or an income level of less than $30,000 per year. The survey was also sent to individuals that the researcher heard of whose community had experienced a disaster in the preceding six months. The survey was sent or delivered with a return postage paid envelope and 71 responses were received, a response rate of 4%. The only followup to encourage more responses was the distribution of a media release to local media about the study – lack of resources prevented a followup letterbox drop.

Respondents were asked a range of demographic-type questions relating to age, gender, education levels, where they lived (city/urban, semi rural and rural), whether they lived in a relationship, the number of people in the household and whether dependents also lived in the household; they were asked if their community had experienced a disaster in the past two years and if so what type; and also asked to select what was or they thought might be the most important sources of information during a disasters, on a Likert scale where 1 indicated unimportant and 5 indicated most important.

The results from Survey Monkey were downloaded into the social science data analysis package SPSS, and the coding system used by Survey Monkey then used to manually enter the hard copy responses into SPSS. SPSS automatic features were then used to analyse the data. Because of the use of the Likert scale, central tendency (based on mean) and standard deviation for variability were determined for each information source mentioned in the hypotheses (Boone Jr and Boone 2012; Gavetter and Wallnau 2005).

Each hypothesis was subjected to an independent samples t-test (Boone Jr and Boone 2012; Urdan 2001), where the importance of each source was compared in the intention and actual populations. A logistic regression analysis was then conducted to determine whether certain variables were common to each group and if so, might be used as a predictor of disaster information seeking behaviour.

Results

The following table summarises the results for each variable.

Group Statistics

	Has your community experienced a disaster in the past two years?	N	Mean	Std. Deviation	Std. Error Mean
Radio	Yes, one disaster	171	3.9942	1.09811	.08397
	No	140	3.9929	1.06275	.08982
Television	Yes, one disaster	171	3.8246	1.19000	.09100
	No	140	3.9000	1.03396	.08739
News or weather website	Yes, one disaster	171	3.8830	1.23112	.09415
	No	140	4.0857	.85230	.07203
Direct contact with friends/family/neighbours (eg face to face, phone, texts, Skype etc)	Yes, one disaster	171	3.6959	1.15857	.08860
	No	140	3.8857	.96772	.08179
Indirect contact with friends/family/neighbours (eg email, social media)	Yes, one disaster	171	2.8363	1.20151	.09188
	No	140	3.2929	1.04913	.08867
Emergency agency social media	Yes, one disaster	171	2.8713	1.43726	.10991
	No	140	3.2571	1.20772	.10207

Hypothesis 1 - In a disaster there will be no significant difference between intentions to use radio and television as a main source of information and actual behavior.

A *t* test showed no statistically reliable difference between the mean number of those who used television (M = 3.82, s = 1.19) and those who intended to use television (M = 3.90, s = 1.03), *t*(309) = -0.59, *p* = 0.56, α = .05.

A *t* test showed no statistically reliable difference between the mean number of those who used news and weather websites (M = 3.99, s = 1.10) and those who intended to use news and weather websites (M = 3.99, s = 1.06), *t*(309) = 0.10, *p* = 0.992, α = .05.

The descriptive data are included below.

Radio

		Radio					
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	7	14	19	64	67	171
	No	4	10	25	45	56	140
Total		11	24	44	109	123	311

Television

		Television					
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	12	13	27	60	59	171
	No	5	9	25	57	44	140
Total		17	22	52	117	103	311

Hypothesis 2 - There will be greater use of "others" as an important source of information in actual information seeking behavior than in intentions.

A *t* test using direct contact with "others" failed to reveal a statistically reliable difference between the mean number of those who used "others" (M = 3.69, s = 1.16;) and those who intended to use "others" (M = 3.88, s = 0.97), $t(309) = -1.55$, $p = 0.12$, $α = .05$.

A *t* test using indirect contact with "others" showed a statistically reliable, albeit borderline, difference between the mean number of those who used "others" (M = 2.84, s = 1.20) and those who intended to use "others" (M = 3.29, s = 1.05), $t(307.70) = -3.57$, $p = 0.00$, $α = .05$.

The descriptive data are included below.

Others – direct means

		Direct contact with friends/family/neighbours (eg face to face, phone, texts, Skype etc)					
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	11	16	34	63	47	171
	No	4	5	35	55	41	140
Total		15	21	69	118	88	311

Others - indirect means

		Indirect contact with friends/family/neighbours (eg email, social media)					
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	29	39	47	43	13	171
	No	8	23	44	50	15	140
Total		37	62	91	93	28	311

Hypothesis 3 - There will greater use of news and weather websites as an important source of information in actual information seeking behaviour than in intended information seeking behaviour.

A *t* test showed no statistically reliable difference between the mean number of those who used news and weather websites (M = 3.88, s = 1.23) and those who intended to use news and weather websites (M = 4.08, s = 0.85), *t*(309) = -1.71, *p* = 1.00, α = .05.

The descriptive data are included below.

News and weather websites

| | | News or weather website | | | | | |
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	13	12	26	51	69	171
	No	1	4	27	58	50	140
Total		14	16	53	109	119	311

Hypothesis 4 - Intentions to use social media as an important source of information in a disaster will be greater than the use of social media as an important source in actual behaviour.

A *t* test showed no statistically reliable difference between the mean number of those who used emergency agency social media (M = 2.87, s = 1.44) and those who intended to use emergency agency social media (M = 3.26, s = 1.21), *t*(309) = -2.53, *p* = 0.12, α = .05.

The descriptive data are included below.

Emergency agency social media

| | | Emergency agency social media | | | | | |
		No importance	Of little importance	Somewhat important	Very important	Most important	Total
Has your community experienced a disaster in the past two years?	Yes, one disaster	45	25	36	37	28	171
	No	10	31	39	33	27	140
Total		55	56	75	70	55	311

Discussion

Overall there was little difference between how people intended to seek information and how a different group of people actually sought information in a disaster.

This allows us to take steps toward assuming that research based on intentions and hypothetical situations in this field might be accepted as a guide for how people will seek information in a disaster.

However, there are many flaws in the research design arising from the size of the sample, the sampling methods, and the resulting features of the sample, so further, more rigorous research is required.

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