Ethnic differences in perceptions of social responsibility: Informing risk communication strategies for enhancing community resilience to flooding

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Abstract

Purpose: This research investigated ethnic differences in perceptions of social responsibility, in relation to flooding, for householders, local businesses and policy makers.

Design/methodology/approach: The data were obtained via a questionnaire survey of three communities in Birmingham and one community in South East London, UK. A total of 481 responses were received and used in the statistical analysis. The interpretation of the findings was aided by cognitive mapping to synthesise the data transcripts from 174 responses to the open-ended questions. Comparisons were made between communities in different locations and with different experience of flooding.

Findings: Ethnic differences consistently exist within the perceptions of householder and business groups within communities (in different locations) which have recent experience of flooding, but not in the policy maker group or in a community without recent flood experience. The finding also suggests three different levels of resilience and their association with different ethnic groups.

Research limitations/implications: Future research should conduct further analysis with equal ethnic representation throughout each community group so that more ethnic groups can be investigated and compared. For a more comprehensive understanding, further investigation should be conducted across different communities in different countries with different environmental hazards.

Practical implications: The findings contribute to the understanding of the influence of demographic factors in disaster management field, and can provide useful knowledge for targeted and tailored strategies of communication of flood information.

Originality/value: The research represents the first attempt to investigate ethnic differences in perceptions of social responsibility of householders, small businesses and policy makers for the community resilience to flooding.

Keywords: community resilience, ethnicity, flooding, perceptions, social responsibility

Article Classification: Research paper

Introduction

In the UK, flooding is now one of the biggest risks faced by communities, with the merging of our built and natural environments also increasing vulnerability to flooding events (Fowler and Kilsby, 2003). The failure of physical resilience measures (Sarewitz *et al*., 2000; DEFRA, 2005) has led to a greater recognition of social aspects of a disaster as an important research area (Wisner *et al*., 2004; Canon, 2000). Many researchers have suggested that flooding is a social event and research must explore the social context and processes in the community (Fordham, 1998; Quarantelli, 2005). Institutional policies, such as the UK National Security Strategy, also state that communities play a key role in resilience (Cabinet Office, 2008). The need to recognise the social aspects of flooding and involve community groups in the management of flood risk is a fundamental element of UK Department for Environment, Food and Rural Affairs' 'Making Space for Water' (DEFRA, 2005). A localised approach at community level would also provide a better context for understanding the perceptions that lead to resilient behaviours, particularly for members of the community who fail to engage in resilience promoting actions. Research in other environmental hazards, including earthquakes (Lindell and Perry, 2000), hurricanes (Peacock *et al*., 2005), tornadoes (Mulilis and Duvall, 1997), volcanoes (Perry and Lindell, 1990) and tsunamis (Johnston *et al*., 2005) indicates that the perceptions of risk can affect an individual's decision to prepare for extreme weather events, and hence determine their resilient behaviours. Community resilience involves complex interdependencies between key community groups, but the precise nature of the relationship within these groups, particularly behaviour and perceptual aspects, is not well understood (Smit and Wandel, 2006). The review of literature from a number of academic fields and policy research has so far highlighted the importance of researching perceptions of social responsibility as a way of better understanding the decision making processes and behaviours of individuals, for enhancing community resilience to flooding.

Social responsibility (SR) is a term that has been utilised in a variety of forms but is widely recognised as relating to the relationships between the economic, environmental and social aspects of an organisation or group activities that endeavour to benefit society (ISO, 2004). Personal responsibility is recognised by the US Federal Emergency Management Agency as being the key to building a resilient community (Colten *et al*., 2008). Perceptions of the need and ability to mitigate climate change have been found to be precursors to personal behaviour change (Spence and Pidgeon, 2009). The way in which people perceive their roles and responsibilities can be of great significance to policy making, adaptation and climate change mitigation (Nicholson-Cole, 2005).

Demographic factors affect the adoption of resilient behaviours to reduce the risk of earthquake damage (Lindell and Perry, 2000) and are included as influencing factors in a number of community resilience models (Tieney and Bruneau, 2007; Cutter *et al*., 2008). Demographic factors may help to explain the reasons why two people from the same geographical community hold different perceptions of SR and display different behaviours when presented with the same flooding event. The paper reports an investigation on the effect of ethnicity on the perceptions of SR in three communities in Birmingham and one in South East (SE) London, United Kingdom. The research involved administering SR questionnaire to three community groups, namely householders, small businesses and policy makers. The term 'householder' refers to an individual who resides within the case study area; 'small business' refers to either the owner, manager or a person of senior standing within a local business; and 'policy maker' refers to an individual who is in a position within the local authority or other organisation that is able to have an influence upon the decision making process. The following sections describe the concept of SR within the context of this investigation and the influence of demographic factors on the perception of SR, before research methods and findings are explained. The paper concludes with the implications of the findings on policies, research limitations and areas for future research.

The concept of social responsibility and community resilience

SR has long been an important field of research for both academics and business practitioners and continues to provide a valuable research area for those wishing to investigate modern societal issues (Peterson and Jun, 2007; Gorte, 2005). The conceptualisations of SR within the majority of literature have largely been business-based, exploring Corporate Social Responsibility (CSR) (Horgan, 2005; Clark, 2000). In many countries, SR is perceived as being voluntary actions which go beyond existing legal obligations (ISO, 2004). Regulations and legislations often deal with environmental responsibility of organisations and this has led to an imbalanced approach where the improvement

of SR has been confused and often seemingly replaced by environmental responsibility (ISO, 2004). Further, SR has been the focus of research in business (Boehm, 2009), education (Li *et al*., 2008) and pro-social attitudes (Rushton, 2004). These studies indicate that personal responsibility for behaviour is related to the perceptions that people hold. This supports to the idea that perceptions of SR and their affect upon decision making and behaviour in relation to resilience to flooding is an important area to explore. Exploring perceptions of SR will provide an excellent platform from which to investigate community resilience.

The emergency services and utility companies are responsible for many of the immediate impacts of flooding, but the continued resilience of the community in the short to medium term relies upon the groups which make up that community (i.e. the householders, small businesses and policy makers). The Pitt (2008) review supports the importance of these three groups, highlighting that local government plays a central role in managing flood risk, with community groups, such as local flood groups and the National Flood Forum, helping to inform the public of the risks they face before, during and after a flood event. Communities are made up of individuals, each of whom can have an effect upon their personal level of resilience, which in turn will have an effect upon their community resilience. Therefore, individuals have a responsibility to increase their own resilience and they can do so through the decisions they make about being aware of the risks, accepting these risks and engaging with the issue of flooding. Unfortunately, many people are unaware or are in denial about the risks they live with each day and research has been shown people shift the responsibility of preparing for flooding from themselves to the government (Werrity *et al*., 2007; Krasovskaia, 2005). This indicates that community groups are currently failing to be socially responsible for the risk of flooding. One reason proposed for this by Spence and Pidgeon (2009) is that individuals may not engage with climate change issues because they perceive others to not be engaging either. It is these counterproductive perceptions and flawed decision making which needs to be addressed in order to increase community resilience to flooding. Therefore, it is important to gain a better understanding of the way in which individual's perceptions of SR can affect community resilience.

The influence of ethnicity on perceptions of social responsibility

Perceptions of environmental and technological hazards vary between cultures due to different perceptions held by individuals within each specific culture (Poortinga *et al*., 2002; Steg and Sievers, 2000). Douglas and Wildavsky (1982) indicate that attitudes towards theoretical dangers are influenced by cultural norms, that help to shape which dangers are feared and what risks are taken. Kahan *et al*. (2007) stated that these cultural norms achieve this by entering into an individual's

cognitive and social risk identification processes. This suggests that perceptions of risk can vary between individuals from different cultures. This is supported by Brenot *et al*. (1998) who found that members of Black ethnic groups had more dread of hazards due to their perceptions about personal exposure to hazards. Kahan *et al*. (*ibid*.) suggest that African-Americans may be more inclined to feel vulnerable to dangers in general, due to them possessing a reduced sense of political empowerment than other ethnicities. Kahan *et al*. (*ibid*.) and Palmer (2003) also indicate that there is a particular type of white male group within the general population who are highly sceptical about risks in general and hold extremely individualistic attitudes. These earlier researches indicate that there are ethnic differences in perceptions of risk, with members of Black ethnic groups perceiving risk to be higher than members of White ethnic groups.

It is proposed that perceptions of SR may also contain ethnic differences, similar to those displayed within perceptions of risk. This is supported by Arnoldi (2009:40) who states that perceptions of risk, and perceptions of who is responsible for managing that risk, are strongly influenced by culturally-based classificatory and normative systems. This is a strong indication that perceptions of risk and perceptions of SR are both influenced by cultural norms associated with different ethnicities. Further, Myers (1994) found that cultural orientation has an influence upon how people react to images of climate change, how much information they absorb and the likelihood of whether or not this information will lead to pro-environmental behaviour. This indicates that greater interest in hazards and the adoption of pro-environmental behaviour, both of which are associated with high levels of SR, are affected by cultural differences. Hakes and Viscusi (2004) have found that non-minority members of society estimate risks more accurately. This suggests that, in the UK, members of the White ethnic group would estimate the risks more precisely than other ethnic groups. This appears to be in contrast to the research previously discussed because if non-minority members are able to more accurately estimate risks , they would have had to take a greater interest in those risks, which Myers (1994) suggested is linked to greater adoption of pro-environmental behaviours. However, Kahan *et al*. (*ibid*.) suggested that Whites of both sexes rate risks as being less serious than do African-Americans, which is linked to reduced pro-environmental behaviour. Therefore, further investigation is required into whether there are ethnic differences in perceptions of SR and the degree to which these differences share similarities with the findings from research of risk perception. Ethnic differences related to flooding can be seen in Tapsell (2000) who suggests that individuals who regard themselves as belonging to the Asian ethnic group may hold different perceptions of a community's response to and recovery from a flooding event. Gaining a deeper understanding of the relationship between ethnicity and perceptions of SR for flooding is important

because the knowledge would allow tailored strategies for communication of flood information for enhancing community resilience.

Research methods and data collection

The research was conducted in the communities of Witton, Selly Park and Digbeth in Birmingham and Thornton Heath in South East (SE) London. These two UK cities have the largest population sizes and contain communities which have recent experience of flooding. This allowed exploration of differences between communities in different locations who face different levels of risk, as well as between communities who had recent experience of flooding (Witton, Selly Park, Thornton Heath) and those who have not (Digbeth). A total of 481 participants took part in the research. The householder and small business participants were community specific, but the policy makers were representative of the Birmingham and SE London areas as a whole. The Birmingham questionnaires had 343 participants, from which 112 responded to open-ended questions. The SE London questionnaires had 138 participants and 62 responsed to open-ended questions. There was near equal gender representation throughout with 59% male and 41% female respondents. Table 1 shows the ethnic distribution. The responses were generally representative of study population as a whole, with 2001 UK Census indicating that 70.4% of the population was White, 19.5% British Asian, 6.1% Black or Black British, 0.52% Chinese, 2.9% of mixed race and 0.63% of other ethnic heritage (ONS 2001). Due to limited responses of the other ethnic groups, quantitative analyses were conducted for White and Asian ethnic groups in Birmingham, and White, Asian and Black ethnic groups in SE London. They represent 94% of the completed questionnaires. A full justification of study population is described in Mullins (2012).

<Insert Table 1>

The study used a perception of SR questionnaire based upon a modified version of Berkowitz and Lutterman's (1968) SR scale. Modified versions of the original scale have been used in a number of SR studies (Reed *et al*., 2005; Megicks *et al*., 2005; Chacon *et al*. 1998, Frieden and Downs 1986). The scale was also chosen because it is attitudinal in nature and it is believed that a community's vulnerability to natural hazards can often be measured by the attitudes of its members. The questionnaire consisted of 12 attitudinal statements which were scored using a 4-point scale ranging from Strongly Agree (4) to Strongly Disagree (1), with a number of statements being reverse scored to counter acquiescence. This gave each questionnaire a potential total score range of between 12

(representing very low SR) and 48 (representing very high SR). The questionnaires were analysed using Predictive Analytical Software (PASW) statistical package.

Following the close-ended SR questions, the respondents were asked to provide answer to ten open questions. The questions were designed to expand upon the topics covered in the questionnaires, allowing explanation and reasoning to be discovered. The aim was to provide a realistic context for the perceptions of SR which can facilitate the interpretation of findings. Participants also had the option of taking part in an interview based around the same set of questions. Four participants chose to take part in interviews. The rest of the 170 participants responded by answering the open-ended questions. This method of gaining information from the transcripts allows anonymity to remain intact even from the researcher, increasing the honesty and validity of the information. All the transcripts were pooled together and analysed using cognitive mapping, following advice given by Ackermann *et al*. (1992). A synthesis of the qualitative data was obtained through an integrated cognitive map, showing relationships between issues and themes captured from the transcripts. Cognitive mapping is a widely used, validated research tool for exploring representations of knowledge of particular subjects, problem solving, decision making and representing attitudes (González *et al*., 2001). Cognitive mapping has also previously been used to investigate issues related to risk (Harris *et al*., 2002) and corporate strategy development (Eden and Ackermann, 1998). In this research, the cognitive mapping analysis was aided by Decision Explorer software.

Analysis results

Comparison of SR scores between ethnic groups

For Birmingham, the SR scores for all three community groups were found to be normally distributed. The histograms for the two largest ethnic groups, White and Asian were also normally distributed. When exploring the data from all three community groups in all three communities together, a *t*-test revealed that t (df = 59.11) is -.392 (p = .696). This indicates that there are no significant differences between the SR levels of the White and Asian ethnic groups. However, when exploring the data separately for those communities which had experienced recent flooding, Witton and Selly Park, a different result emerged. The *t*-test revealed that t (df = 207) is -3.414 (p = 0.001). This indicates that there is a significant difference between the SR levels of the White and Asian ethnic groups. Note that this analysis only included the householder and small business data set for Witton and Selly Park because the policy makers were not community-specific. Interestingly, the ethnic differences disappeared when the policy maker data was reintroduced into the analysis.

Policy makers are perceived as possessing a particular level of SR, regardless of whether the community has experienced recent flooding or not. Therefore, the findings indicate that there were no ethnic differences in the policy maker or non-flood experience community data sets. Significant ethnic differences do exist within the householder and small business community groups within communities which have experienced recent flooding. The direction of this difference is indicated by the SR scores which show that the Asian ethnic group report significantly higher levels of SR (Mean= 38.19) than the White ethnic group (Mean = 35.34).

For SE London, the histograms for the three largest ethnic groups, White, Black and Asian were normally distributed. When exploring the data for the White and Black ethnic groups for all three community groups, a *t*-test revealed that *t* (*df* = 105) is 2.651 (*p* =.009). This indicates that there is a significant difference between the SR levels of the White and Black ethnic groups. In order to provide a direct comparison between matched community groups and matched experience of flooding, between Birmingham and SE London communities, the White and Asian ethnic group data for householders and small businesses was analysed separately. The *t*-test revealed that *t* (*df* = 84) is -1.796 (*p* = .021). This indicates that there is a significant difference between the SR levels of the White and Asian ethnic groups within the householder and small business community groups. This mirrors the results found in the previous analysis of the Birmingham community groups. It should also be noted that when this was done for the Black ethnic group (with White ethnic group), the significant difference previously found becomes even greater (*t* (*df* = 84) is 2.750, *p* = .007). As with Birmingham, there were no ethnic differences within the policy maker community group. When exploring the data for the Black and Asian ethnic groups, the *t*-test revealed that *t* (*df* = 45) is -3.842 (*p* < .001). This indicates that there is a highly significant difference between the SR levels of the Black and Asian ethnic groups. These results show ethnic differences exist within perceptions of SR for householders and small businesses within communities which have experienced flooding and are consistently present in different locations. The direction of these differences are indicated by the SR scores which show that the Asian ethnic group report significantly higher levels of SR (Mean= 35.13) than the White ethnic group (Mean = 33.55), with both reporting significantly higher levels of SR than the Black ethnic group (Mean = 31.25).

Integrated cognitive map for understanding the outcomes of SR scores

An integration of different responses yields a cognitive map as presented in Figure 1. The analysis of the cognitive maps revealed four themes within the transcripts. These themes were 'high resilience', 'medium resilience', 'low resilience' and 'job role'. The high resilience theme relates to an individual

accepting that risks exist and engaging in pro-environmental behaviour. The medium resilience theme relates to an individual accepting that risks exist, but not necessarily engaging in pro-environmental behaviour, or only engaging behaviours that are concerned with the self. The low resilience theme relates to individuals that don't accept risks and don't engage in pro-environmental behaviour. The job role theme relates to the importance and focus of policy maker's job roles and responsibilities overriding individual ethnic differences. Table 2 gives an overview of the themes and example quotations found within the transcripts (participant ethnic group in brackets).

<Insert Figure 1 and Table 2>

The cognitive map reveals that participants from the Asian ethnic group displayed a greater awareness and acceptance of the risk of flooding and were more likely to adopt resilience measures than participants in the White and Black ethnic groups. Participants in the White ethnic group displayed a limited awareness of the risk of flooding, but also displayed either a lack of action or self-centred motivations and behaviours related to the adoption of resilience measures. Participants in the Black ethnic group generally did not accept the risk of flooding, or did not believe that it was a problem for them. This is linked to coding which indicates that the Black participants believed that they were often neglected by policy makers as minority groups were often housed together in deprived areas of a community. Flood risk may not have been of great importance to them because they already have a number of other priorities, some of which are linked to an increased vulnerability to extreme flooding. All three ethnic groups displayed a tendency to rely upon policy makers to deal with extreme flooding and be responsible for their welfare. This view was actually supported by policy makers from all three ethnic groups who state various job related reasons, such as access to data and planning resources, for why they would be able to make a community more resilient to extreme flooding. This indicates that the importance and focus of the work that policy makers do overrides any individual ethnic difference which may have been present.

Discussions

Participants from the Asian ethnic group displayed a greater awareness and acceptance of the risk of flooding and were more likely to adopt resilience measures. This supports previous research by Tapsell (2000) who had found that members of the Asian ethnic group hold different perceptions of a community's response to and recovery from a flooding event. Participants in the White ethnic group displayed a limited awareness of the risk of flooding, but also displayed either a lack of action, or self-centred motivations and behaviours, related to the adoption of resilience measures. This

provides reasoning for the SR scores that the White ethnic group perceived their SR to be about average, rating it above the Black ethnic group, but below the Asian ethnic group. There was some evidence of individualistic, non-socially responsible views being displayed by participants in the White ethnic group, which supports previous research by Kahan *et al.* (*ibid*.) and Palmer (2003) who had stated that there is a particular type of white male group within the general population who are highly sceptical about risks in general and hold extremely individualistic attitudes. However, in contrast to these findings, there was also evidence for some members of the White ethnic group to display higher levels of SR, resulting in an overall average level for the White ethnic group.

Participants in the Black ethnic group generally did not accept the risk of flooding. They also believed that they were often neglected by policy makers, as minority groups were often housed together in deprived areas of a community. This suggests that flood risk may not have been of great importance to them because they already have a number of other priorities. This provides reasoning for the quantitative finding that the Black ethnic group were reporting the lowest levels of perceived SR. These results appear to be in contrast to previous research by Kahan *et al.* (*ibid*.) which stated that African-Americans of both sexes rated environmental risks as more serious than did Whites. The difference in these findings could be an indication that ethnic differences can vary between countries, in this case between the USA and the UK. However, it may also indicate that differences in the effect that ethnicity has on different types of perceptions. The affect of ethnicity as an indicator for perceptions of SR may be different from its affect upon perceptions of risk. In this case, members of the White ethnic group may display higher perceptions of SR, but members of the Black ethnic group may display higher perceptions of risk. Support for this line of reasoning can be found in previous research which stated that members of the Black ethnic group had more dread of hazards due to their perceptions about personal exposure to hazards. Again, this finding is not supported by the results of the current research, but could be explained by the suggestion that ethnicity affects different types of perceptions in different ways.

All three ethnic groups displayed a tendency to rely upon policy makers to deal with flooding and be responsible for their welfare. This view was actually supported by policy makers from all three ethnic groups who state various job related reasons, such as access to data and planning resources, for why they would be able to make a community more resilient to flooding. This indicates that the importance and focus of the work that policy makers do overrides any individual ethnic differences which may have been present.

Conclusions

Perhaps, one of the greatest challenges for enhancing community resilience to flooding is community engagement and participation for adopting measures that benefit oneself and their community. The findings can be used to inform policies in the communication of resilience information and disaster responses. The finding suggests the need for a targeted and tailored strategy for dissemination of information. Standardised form and content of information which assumes homogeneous target audience (often for the majority), may not reach the minority ethnic groups and vulnerable members of the community (Olofsson 2007). In the UK multi-ethnic and multi-cultural society, the need for targeted information is clear due to a tendency that (minority) ethnic groups would prefer to live together in certain geographical areas. The information should be better presented in such a way that not only informing risk and resilience measures that individuals can take, but also enhancing their SR by highlighting the importance of individual participations and how their participations are valued in the community. This may not necessarily be via paper-based and other advertised forms of one-way dissemination, but also in two-way communication that allows feedback from community in local resilience forum meetings and community events. For policy makers, two-way communication would allow greater knowledge of the community and is an active form of community engagement (Olofsson 2007). However, it is worth noting that this dissemination of information should not be seen as discriminatory, but as a better and fairer approach that addresses the need of different ethnic groups.

Investigating the community perception of SR is a complex undertaking, but this research has provided a better understanding of ways to improve non-technical flood resilience measures in UK communities through exploring the perceptions of SR. Future research should conduct further analysis with equal ethnic representation throughout each community group so that more ethnic groups can be investigated and more direct comparisons can be made between ethnic groups. The perception of SR may be influenced by other variables, such as education, political orientation, personal beliefs and socio-economic status of the ethnic groups, which may be considered in the future research. As a context dependent concept, the perception of SR should be investigated across different communities in different countries with different environmental hazards to allow a more comprehensive understanding about the perception of SR.

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Table 1: Ethnic distribution for all community groups

Ethnicity	Birmingham	SE London
White	275	83
Asian	48	23
Black	9	24
Chinese	4	1
Mixed: White/Black	0	4
Mixed: White Asian	2	0
Other	5	3
Total	343	138

Table 2: Cognitive mapping analysis themes and example quotations

Themes	Example quotations
High Resilience	(Asian) *"We need to change the way we do things, think about the environment more"* (Asian) *"We have a responsibility to protect ourselves and others"* (White) *"I believe I have to help people who can't help themselves"*
Medium Resilience	(White) *"I'm responsible for everything inside my house"* (White) *"My immediate responsibility is making my own property more resilient"* (Asian) *"Prepare an escape plan [is my most important issue]"*
Low Resilience	(Black) *"Why should I go out of my way to help others"* (Black) *"I'm not going to act until I know for sure it's worth it"* (White) *"Most people can't protect themselves"*
Job Role	(Asian) *"We are doing what we can to protect communities"* (White) *"Government [most able to protect] because they have data and access to region wide plans and trends"* (Black) *"Local authorities [most able to protect communities] because they know where the risks are and how to counter them"*

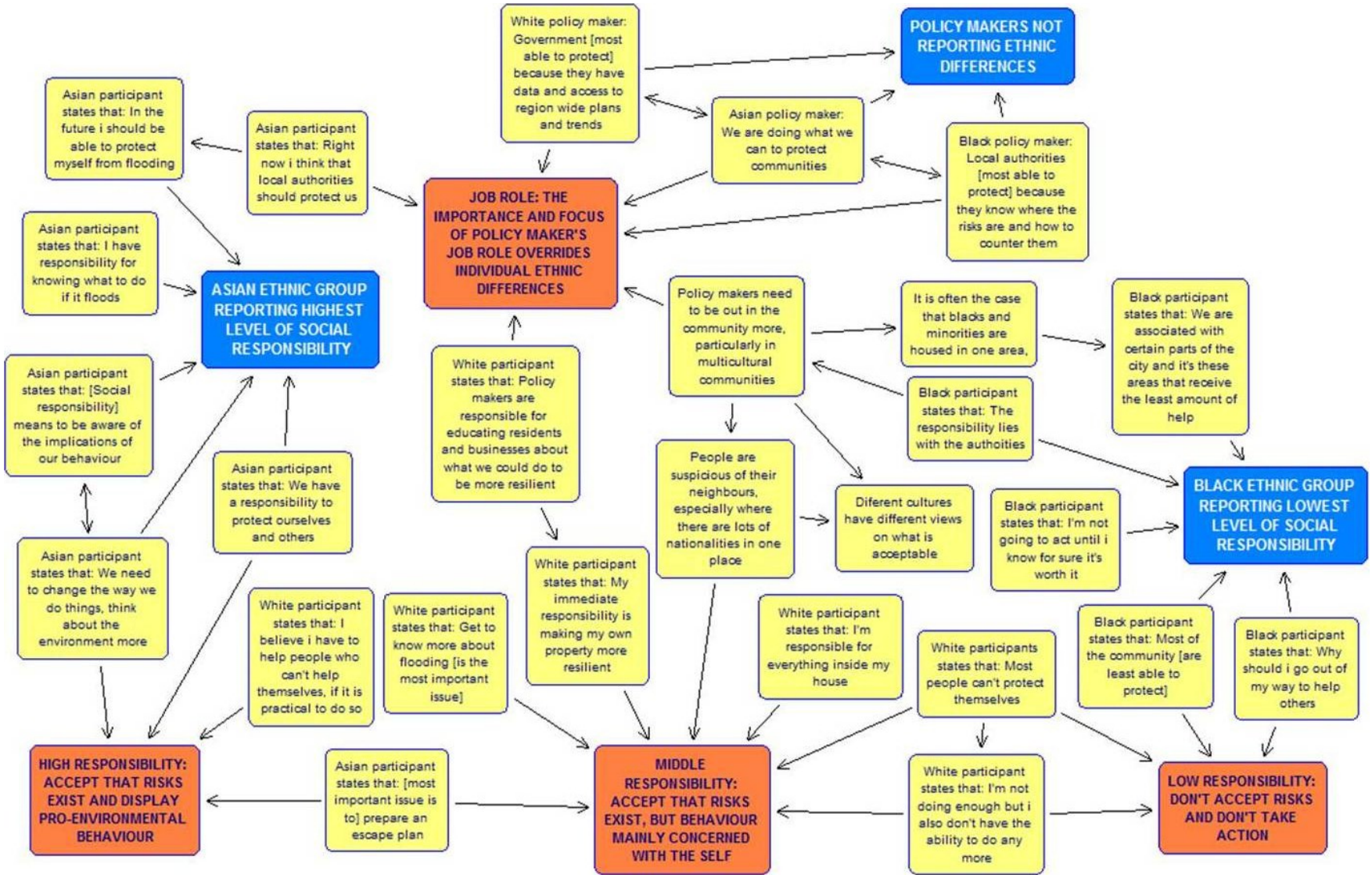

Figure 1: Ethnicity focussed cognitive map