

Methodological advances to explore the relations between environmental changes, emotions and the decision (not to) move.

Authors

Elisabeth Henriët: elisabeth.henriet@unamur.be ;

Florence de Longueville: florence.delongueville@unamur.be;

Sabine Henry: sabine.henry@unamur.be ;

Geography Department, UNamur

Introduction

It is increasingly evident that environmental change causes human mobility. Researchers have shown during the last decades that the decision to move is driven by a multiplicity of factors (economic, political, social, etc.) among which the environment plays a significative role (Black *et al.*, 2011). They have also demonstrated that mobility is an option to adapt to environmental change among other possibilities (Carvajal and Pereira, 2009). In the meantime, those links appeared to be complex, non-mechanical nor systematic. In particular, reflecting on the history of natural environment and migration studies, Piguet (2012) points the need to reembedding the natural environment within migration studies to improve migration-environment research capacities in considering those complexities.

Migration studies is a broad interdisciplinary research area (Brettell and Eld, 2015), including demography, anthropology, history, law, etc. The present study is situated at the intersection of economics, psychology, sociology and geography. Economists researching migration are mainly interested in the micro/individual factors of the decision to move (Brettell and Eld, 2015). They are based on cost-benefit and utility maximizing behaviour. With time, the theories beyond micro-studies have moved from rational-deterministic conceptions to theories integrating social and psychological factors (Frankhauser and Ansel, 2016). In particular, actual scholars in the field stress the need to take both the cognitive and affective aspects of the evaluation of places into account in any attempt to understand or model residential choices.

In parallel, a growing number of environmental migration studies demonstrated the differences existing between the 'actual' and the 'perceived' environments, highlighting the subjectivity of people in their evaluation of their environment affecting the decision to move (Meze-Hausken 2004; de Longueville et al. 2016; Koubi et al. 2016; Massey et al. 2010). However, it only partially tackles the question of subjectivity of potential migrants, avoiding irrational perspectives and leaving out emotions. Further, Parsons (2018) argues that the human experience of the climate has often been elided in migration-environment research. She theoretically explains how the burgeoning literature on 'emotional landscape' of climate change "has sought to move research away from an onus on 'proving' a relationship between migration and the climate, towards a focus on how the climate is experienced, guides action and creates meaning in doing so" (Parsons, 2018 p 15). On the other hand, some empirical researches discuss the possible role of emotions in the decision (not to) move. Naik (in IOM 2009, p282-283) suggests that a possible reason for people not to move after a natural hazard is that fear and terror diminish and people feel psychologically able to stay; and explanations for involuntary migrant's dissatisfaction with their new place could be found in their own emotional state (Hugo, 2009 in IOM 2009, p285). In a migration research conducted in Funafuti, a majority of respondents gave reasons of "lifestyle" including low-stress working environment and enjoyment of the natural environment for not to move out (Mortreux and Barnett, 2009).

Affective aspects have however not yet been explored methodically. We argue that it is due to methodological shortcomings and we aim to participate in the latest developments in the field of environmental migration research with methodological propositions and experimenting. In this

research, we developed a game to collect data on the affective aspects of people evaluation of places in the particular context of environmental change. As they are at the heart of people evaluation *of* and behaviour *in* their environment, emotions have the potential to reveal relations between nature and society in a way that questions and enriches the knowledge of the decision (not to) move. More precisely, **we investigated how emotions related to the environment in a post-disaster context, by eliciting a variety of placed emotional experiences of those affected by the disaster.** Concretely, we recorded the meaning and strength of significative environment-emotions associations in 61 households. This both qualitative and quantitative material provides insight into the complexity and diversity of placed emotional experiences during the recovery period after the disaster.

Methodology

The fieldwork was conducted in the municipality of Guiuan (Eastern edge of the Philippines, at the typhoon paths latitude) during the summer of 2016 -three years after typhoon Haiyan devastated the place.

The research context, timing and objectives lead us to design a tailor-made data-collection strategy (Henriet *et al.*, 2021). First, because local people have been used to expect material and immaterial help from foreigners and expectation from the respondents was identified as a potential source of distortion in the data collection. Secondly, because the link between emotions and the environment is not as straightforward as the link between a certain lived situation and emotions. A game was used as an immersive data-collection setting to foster the authenticity of the data recalled and shared by the respondents. Practically, the game led the respondents to associate emoticons representing 10 different emotions with pictures of their environment and to explain those associations, allowing to collect both quantitative and qualitative place-emotion data following an embedded mixed method scheme.

The basic unit of our dataset is the crossing between a household and a picture. Each unit is associated with a set of emotions and the explanations for those emotions. The most appropriate description for the units of the dataset are picture-emotions associations as it corresponds to the qualitative material. Crossing 61 households with 10 pictures results in 610 potential data units. However, the final dataset contains 533 emotions-picture associations, mostly due to the exclusion of non-explicated emotions-picture associations. The excluded data cover a large range of pictures and emotions, suggesting that it does not bias the results.

The data analysis has been articulated around three objectives: [1] describing the placed emotional experiences in Guiuan to contextualize typhoon-related placed emotional experiences; [2] characterizing the Typhoon-related placed emotional experiences; [3] investigating the various environments most related to the Typhoon. Qualitative and quantitative data treatments have been used in a reciprocal, interdependent and iterative manner, resulting in a fully integrated mixed data analysis (Tashakkori and Teddlie, 2009).

The qualitative material was analysed via coding (Allard-Poesi, 2003). Initial coding phases aimed to list the different meanings of picture-emotions associations: activities, atmospheres (relax, stressful, etc.), moments (anecdotal, most of the time, in the past, etc.), references (in particular to the Typhoon), etc. The categories of the environment emerging from the respondent's pictures interpretations (sea & beach, garden, street, etc.) were also coded. They mostly correspond to the pictures intentional contents but some differences appeared. The emotions variables and 'pictures', 'households', etc. were also transformed into codes. Matrix coding was then used to cross the explanations by categories of the environment, pictures, emotions and meanings (objectives 1 and 3). Selective coding led to a reassembling of all codes related to the Typhoon in four emerging themes to characterize the Typhoon-related placed emotional experiences (objective 2).

The quantitative material was analysed via descriptive statistics, Chi-squared independence tests and a multiple correspondence analysis (MCA). Descriptive statistics consisted of the computation of frequencies of some particular picture-emotions associations (objectives 1, 2 and 3). Pearson's Chi-squared independence tests were used to verify if the presence of 'Typhoon' in the explanations depended on the area of origin of the household. The presence of 'Typhoon' was also tested against the presence of each of the emotions. The results provide insight into the characteristics of Typhoon-related placed emotional experiences (objective 2). Objective 3 focusses on the pictures most evocative of the Typhoon. They have been identified with their proportion of explanations related to the Typhoon (frequency of 'Typhoon' > 0,6). A MCA has then been conducted on a subset of the dataset including only the associations of emotions with those pictures. The MCA created a multidimensional space locating the categories of the emotion variables most occurring jointly near each other while the categories least related were spread (Husson, Lê and Pagès, 2017).

Results and discussion

The placed emotional experiences recorded three years after the Typhoon were dominantly positive. People mainly related the environments depicted in the pictures to happiness and calmness. As expected, splitting the data into Typhoon and not Typhoon related picture-emotions associations revealed that the emotional experiences related to the Typhoon were significantly more associated to surprise, sadness, fear and disgust and less with calmness and happiness. However, Typhoon related emotions covered the all range of emotions, with an important share of happiness. Those quantitative results must be interpreted cautiously as the explanations did not always strictly correspond to the emotions: someone could evoke the Typhoon to explain a set of emoticons including emotions that appeared not to be directly related to the disaster. We assume that this is an inevitable consequence of the inherent difficulty of giving meaning to emotions.

The picture-emotions associations covered a broad range of placed emotional experiences. Those not related to the disaster illustrated many moments and aspects of everyday lives in Guiuan anchored in a variety of physical settings such as the sea, the Church, the vegetation, the market or the school. They also revealed souvenirs and anecdotes connected to places. Those multiple facets of people emotional relationships with places coexisted with emotional experiences more specifically related to the Typhoon, including the Typhoon itself and its short-term impacts. Altogether, the Typhoon-related emotional experiences were mostly due to Typhoon transformations (destructions, reconstructions, etc.). However, some place revived souvenirs of the Typhoon and others elicited emotional experiences linked with Typhoon awareness. The sea itself was referred to as a Typhoon agent.

Some elements of the environment such as ruins, devastated vegetation, evacuation places, post-Typhoon infrastructures, etc. were particularly evocative. As such, specific Typhoon-place interactions elicited Typhoon related emotions. A focus on 'Typhoon environments' suggests the existence of an emotional gradient from the Typhoon souvenirs most uniformly negative to anticipation initiatives most uniformly positive with variations in tension and arousal among them; the places evoking destruction and renewal elicited mixed feelings. However, the material reality of the impacts of the Typhoon was not straightforwardly mirrored in people emotional experiences in their environment. For example, the weather tower is associated with the nice view people enjoy while being on top of the hill, but also to the fact the radar was blown away by the Typhoon. In fact, most environments were associated to both Typhoon related emotional experiences and not Typhoon related emotional experiences. For example, a well-maintained garden with no trace of Typhoon destruction may elicit Typhoon-related emotions because the person is afraid that it would be destroyed if another Typhoon comes; a random street may be associated with happiness, as it is possible to circulate, not like after

the Typhoon; the many newly reconstructed buildings did either elicit emotions related to their destructions-reconstructions, or everyday feelings unrelated to the disaster.

The emotional experiences related to places differed both at an intimate, individual level and on a larger scale as they also are shared, collective phenomena. Individual-places relationships indeed exist within larger social and spatial contexts (Manzo, 2003). For example, the crooked coconut trees elicited sadness for most respondents, and especially for those who were farmers before and lost their sources of livelihoods. Further, people from areas where the Typhoon hit the most expressed Typhoon-related placed emotions more frequently than those from the area least affected. It is probably due to a combined effect: people from the area least affected had another experience of the Typhoon than the others, and their places of significance were less affected, or positively transformed as with the construction of the evacuation center.

Conclusion

The present study is interesting in many aspects. First, it is an example of fully integrated mixed method research based on an innovative data collection setting using a game as data collection medium. Second, it questions the impact of a disaster on people and people behaviour. In particular, it shows that it is complex, not necessarily negative and difficult to capture with simple objective variables such as damages, flooding risks or climate change perception. The large panel of descriptive results indeed uncover a multiplicity of placed emotional experiences, intertwining tangible and intangible facets of the person-environment relationship. A variety of emotions and meanings, of place-Typhoon interactions and of individual and group concerns and experiences before, during and after the disaster combine to provoke contrasted placed emotional experiences. Finally, our results provide an empirical basis for challenging the dominant questions of migration-environment research as theoretically suggested by Parsons (2018). Indeed, they are actually focussing on 'providing' a relationship between migration and climate, while authors working within the mobilities paradigm suggest to move towards a focus on 'how the climate is experienced, guides action and creates meaning in doing so' (Parsons, 2018 p 15). By experimenting a methodology that may reconcile environmental change and migration decision making research, we contradictorily provide so complex results that it questions the relevance of such approaches for nuancing and taking the complexity of this social-environmental problematic into account.

References

- Allard-Poesi, F. (2003) 'Coder les données', in Giordano, Y. (ed.) *Conduire un projet de recherche, une perspective qualitative*. EMS, pp. 245–290.
- Black, R. *et al.* (2011) 'The effect of environmental change on human migration', *Global Environmental Change*, 21(SI), pp. S3–S11.
- Brettell, C. B. and Eld, J. F. H. (2015) *Migration Theory: Talking across Disciplines*.
- Carvajal, L. and Pereira, I. M. (2009) 'Climate shocks and human mobility : evidence from Nicaragua', pp. 1–28.
- Frankhauser, P. and Ansel, D. (2016) *Deciding Where to Live*. Springer V.
- Henriet, E. *et al.* (2021) 'Challenges and Opportunities of Field-based Data Collection with a Game. Analysis of the Development and use of a Game to Collect Data on People's Emotional Experience in their Environment', *BMS Bulletin of Sociological Methodology/ Bulletin de Methodologie Sociologique*, 149(1), pp. 7–29. doi: 10.1177/0759106320960885.
- Husson, F., Lê, S. and Pagès, J. (2017) *Exploratory Multivariate Analysis by Example Using R*. Boca Raton, Florida: Chapman & Hall/CRC.

IOM (2009) *Migration, Environment and Climate Change : Assessing the evidence*. Edited by F. Lacsco and C. Aghazarm. Geneva: International Organization for Migration.

Koubi, V. *et al.* (2016) 'The role of environmental perceptions in migration decision-making: evidence from both migrants and non-migrants in five developing countries', *Population and Environment*, pp. 1–30. doi: 10.1007/s11111-016-0258-7.

Longueville, F. De, Hountondji, Y. and Kindo, I. (2016) 'Long-term analysis of rainfall and temperature data in Burkina Faso (1950 – 2013)', 4405(February), pp. 4393–4405. doi: 10.1002/joc.4640.

Manzo, L. C. (2003) 'Beyond house and haven: toward a revisioning of emotional relationships with places', *Journal of Environmental Psychology*, 23, pp. 47–61.

Massey, D. S., Axinn, W. G. and Ghimire, D. J. (2010) 'Environmental Change and Out-Migration: Evidence from Nepal', *Population Environment*, 32(2), pp. 109–136. doi: 10.1016/j.biotechadv.2011.08.021.Secreted.

Meze-Hausken, E. (2004) 'Contrasting climate variability and meteorological drought with perceived drought and climate change in northern Ethiopia', *Climate Research*, 27, pp. 19–31. doi: 10.3354/cr027019.

Mortreux, C. and Barnett, J. (2009) 'Climate change, migration and adaptation in Funafuti, Tuvalu', *Global Environmental Change*, 19(1), pp. 105–112. doi: 10.1016/j.gloenvcha.2008.09.006.

Parsons, L. (2018) 'Structuring the emotional landscape of climate change migration: Towards climate mobilities in geography', *Progress in Human Geography*, (June 2017). doi: 10.1177/0309132518781011.

Piguet, E. (2012) 'From "Primitive Migration" to "Climate Refugees": The Curious Fate of the Natural Environment in Migration Studies', *Annals of the Association of American Geographers*, 103(1), pp. 148–162. doi: 10.1080/00045608.2012.696233.

Tashakkori, A. and Teddlie, C. (2009) *Foundations of Mixed Methods Research, Sage Publications*.