

Agency expert partners supporting bushfire disaster resilience education for primary school students: A case study in New South Wales, Australia

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Abstract

This research sits within the context of relationships spanning geography teaching, collaborations with expert partners, natural hazards, disaster resilience education, bushfire, and fire-fighter volunteers as expert partners. The research aims to investigate the situation of fire-fighters being actively involved in student classroom learning and the contribution that fire-fighters make to students' understanding of bushfire risk in Stage 3 (Years 5 and 6) Geography. This research will also show how expert partners support outcomes that increase the resilience of students and reduce current and future disaster risk. The case school was selected on the basis of bushfire risk level, intended delivery application of an exemplar unit of study, and intended collaboration with involvement of volunteer fire-fighters to assist student learning. Primary data will be collected from teachers, students, parents/carers, and New South Wales Rural Fire Service fire-fighters using semi-structured interviews, observations, and focus groups. The research will deliver findings for emergency services agencies to consider when developing and implementing natural hazards programmes targeted at children, particularly those programmes that are delivered by volunteer fire-fighters.

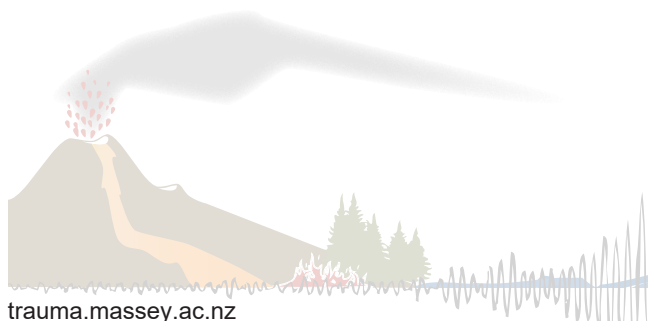
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Context of Disaster Resilience Education

The New South Wales (NSW) Geography Syllabus Stage 3 expects students to investigate a recent Australian bushfire event and consider the impact of bushfire on people, place, and the environment (NSW Education Standards Authority, 2015). The syllabus emphasises inquiry learning where students rigorously investigate the physical and emotional effects of bushfires, identify problems and issues, and propose solutions.

A disaster occurs when the impact of a hazard is greater than the resources and capacities of a person or a community to mitigate it (United Nations Office for Disaster Risk Reduction, 2019), where hazards interact with social structures (Cedervall & Raju, 2020). According to the United Nations, disaster risk reduction is “the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events” (United Nations International Strategy for Disaster Reduction, 2009, p. 10-11). The Australian Curriculum and NSW Geography Syllabus provide the mechanisms for young people in Australia to learn about the concepts of disaster risk reduction.

In the context of disaster risk, resilience is about not just bouncing back but to move or bounce forward by actively reducing risks of future impacts (Haworth et al., 2018). Emergency management agencies including the NSW Royal Fire Service (RFS) create programmes to build more disaster-resilient populations that can recognize current and future risk, can reduce and manage those risks, and are better able to recover from disasters (Coalition of Australian Governments, 2011). The Sendai Framework states that “children and youth are agents of change and should be given the space and modalities to contribute to disaster risk reduction, in accordance with legislation, national practice and educational curricula” (United Nations, 2015, p.23). School disaster resilience education (DRE) is the key mechanism through which children can participate in disaster risk reduction activities (Amri et al., 2017). DRE can build students' understanding of the hazards and provide knowledge



and skills to enable them to plan, prepare, respond, and recover (Ronan et al., 2016). DRE can be readily applied in geography to bushfire hazards where risk and uncertainty are challenges but represent problems to be solved and are not insurmountable threats (Ronan, 2014). In Stage 3, geography students focus on real-life and authentic local problems related to bushfire (NSW Education Standards Authority, 2015).

The NSW RFS engages with communities and individuals at risk of being affected by bushfire through programmes and activities primarily delivered by volunteer fire-fighters. NSW RFS volunteers can be invited into classrooms as authentic experts to support teacher-led student learning delivering both syllabus and DRE outcomes. They can do this by sharing personal stories and physical and emotional experiences as well as providing information, facts, and data via geographical tools, and guiding students to examine problems as well as reflect on and refine solutions (Ermeling & Yarbo, 2016).

Research Aim and Importance

The aim of this research is to investigate and further understand the contribution and impact that volunteer fire-fighters have on students' understanding and interest in bushfire risk in Stage 3 Geography in the NSW Geography K-10 Syllabus (NSW Education Standards Authority, 2015).

The importance of this research. There is limited published research on the application of inquiry learning approaches in the context of teacher-led, syllabus-connected, classroom-based DRE. The extent to which fire agency experts engage as expert partners in the classroom and influence student learning outcomes is not measured, and there is little to no understanding of the enablers and barriers to consistent, sustained, and quality support from such experts. There is also a dearth of published research on DRE outcome effectiveness (Amri et al., 2017).

Engaging/observing as an insider-outsider, with lived experience as a fire-fighter, fire agency employee, school education programmes developer, and early career researcher, this research addresses a notable gap in our knowledge on how expert partners such as fire-fighters can support student learning in the classroom. It will also add to the body of knowledge where DRE and education practice converge. This work will show how experts support effective DRE outcomes that increase the resilience of students and reduce current and future disaster risk. This research project is not an evaluation of Stage 3 Geography classroom teaching or agency

programme resources that fire-fighters bring, which tend to focus more on knowledge-based outcomes than skill or action-based disaster risk reduction and resilience outcomes (Ronan et al., 2016).

New Knowledge

The work considers the real-world challenges of bushfire risk and disaster risk reduction in a local context and is engaged wholly with educators and emergency services to deliver findings that will make a difference to young people in their local setting. The new knowledge generated by this research will reside in the social connections, interactions, collaborations, knowledge sharing between teachers, students, parents/carers, and the emergency service agency experts sharing the delivery of classroom disaster resilience education.

Most interest in this new knowledge is expected to lie with emergency services, teachers, and students. For emergency services, that knowledge will be around programme design and implementation for Stage 3 Geography as well as in skills and capability development for those expert partners supporting classroom teachers. For teachers, the contribution that experts can play in the classroom will be clearer, and particularly directed to the bushfire mitigation unit in Stage 3 Geography. For students, the value of collaboration with fire-fighter experts will be drawn out during the research, as will the process for sharing knowledge, taking guidance, and considering advice about bushfire.

A Case Study Approach

The case study will be an embedded single-case design to facilitate the study of the social phenomena of fire service experts supporting teachers and engaging with students whilst minimising disruption to the classroom and learning environment (Swanborn, 2010). This research primarily fits into the exploratory case study type (Yin, 2009) used to describe the phenomenon and the real-life context in which it occurred, seeking to make generalisations by extrapolating the study's findings to other cases or situations. Emerging literature about children and DRE recognises that qualitative data collection methods are important for understanding how young children are interpreting key safety concepts such as those put forward by teachers and fire service experts (Johnson et al., 2014).

This typical case will capture the circumstances and conditions of the everyday situation of learning about bushfire which is undertaken through Stage 3 Geography using inquiry learning. The case is not holistic;

rather, it has three embedded units of analysis in the exploratory single-case design to reflect the teachers of the Geography unit, the touchpoints of the experts collaborating with the Stage 3 student participants, and the NSW RFS volunteer fire-fighters as expert partners.

The case school. A school was selected as the case on the basis of four criteria: the school is located in an area of “extreme” bushfire risk identified in the local Blue Mountains Bushfire Risk Management Plan; teachers of the Stage 3 cohort intend to apply or adapt the approach set out in a particular exemplar of a bushfire unit of study; the teachers intend to utilise and involve volunteer fire-fighter experts at four points across the unit of study - planning, early implementation, midway, and at the end; and there are local NSW RFS volunteers who have the capacity to engage with the school at each point. The case school has a rich history of successful collaboration with the NSW RFS on bushfire safety across years K-6.

Data Collection

Primary qualitative data for the purpose of the research will be collected from first-hand sources of teachers, students, and NSW RFS experts using semi-structured interviews, observations, and focus group discussions. Research participants are expected to be three classroom teachers, 40 Year 5 and 6 students, 15 parents/carers, and four NSW RFS volunteer fire-fighters.

Semi-structured interviews are a common qualitative data collection method useful for gathering facts, opinions, and rich insights (Gibbs et al., 2018) and allow the interviewer to pursue unexpected lines of enquiry during the interview (Grix, 2010). Initial semi-structured interviews with teachers will be used to ascertain attitudes, opinions, experiences, and behaviours about DRE as well as students’ capability to grasp DRE concepts and generate empathy (Fuller & Hartley, 2021; Leavy, 2017). Further interviews will be undertaken with teachers and expert partners across the unit of study to ascertain what works for teachers and experts. The interviews will also be used to establish teachers’ views on how expert partners can address students’ fears or anxiety about bushfires (Johnson et al., 2014). The principal questions will be adapted from studies of child-centred DRE and earlier research by the NSW RFS.

Student peer-to-peer interviews will occur at the end of the unit with a focus on establishing what DRE outcomes have been achieved through interactions with NSW RFS experts. Such an approach will position the youth as active co-researchers and aid in having their viewpoints taken into account (United Nations, 2015). The structure

and guiding questions for semi-structured interviews with both children and adults regarding bushfire is well tested and reported. In that regard, I intend to adapt elements of semi-structured interview protocol and instruments from the work of Towers (2012).

Non-participant observation occurs when the researcher is an outsider to the classroom under study, watching and taking notes from a distance (Creswell, 2013). This non-participant observation of behaviours and interactions between students and the expert partners will occur in the natural setting of the Year 5 or Year 6 classroom at two time points – midway through the unit when group activity is ongoing, and at the showcase at the end of the unit of study. This observation will occur both live and via video recording; protocols have been developed for each data collection type by participant.

The purpose of a focus group is to spark a dialogue between group members guided by topics supplied by the facilitator (Grix, 2010). Focus groups will be conducted with students early, midway, and at the end of the unit of study, and in the following year after a bushfire season. A focus group will be conducted and recorded with parents/carers after the subsequent bushfire season to determine the contribution of students to household response.

Status of the Research

The ongoing COVID-19 pandemic has intermittently affected teaching and learning in NSW schools, methods of study for students, and restricted access to schools for the parent/carer community and others – including researchers. As of April 2022, the commencement of the bushfire unit of study has been delayed pending a conclusion to COVID-19 restrictions and students being back in the classroom after any further period of “learning from home”. While the commencement of data collection has also been postponed, with the strong support forthcoming from the School Leadership Team the prospects are excellent for data collection in Term 3, 2022.

Despite these challenges, it is anticipated that this research will generate findings that will pave the way for longer term research and scaled implementation of approaches to DRE programming at the Stage 3 level that supports and integrates school-based and teacher-delivered disaster resilience education.

High Hopes for this Research

With data collection about to commence, I continue to have high hopes for the new knowledge to be found with

this research and its value for emergency services in collaborating with schools and students about bushfire particularly and natural hazards generally. This research also reflects the ethos of Central Queensland University (CQU) to deliver research that has true impact in the research strength area of community and disaster resilience (CQU, 2020).

The Influence of Professor Kevin Ronan in my PhD Journey

My association with Kevin Ronan goes back to 2013 when he and Dr. Briony Towers from RMIT University became leaders of the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) project “Child-Centred Disaster Risk Reduction (CC-DRR)”. At the time, I was the NSW RFS End-User representative on this project. End-Users would gather at project workshops led by Prof. Ronan with colleagues from across Australia to reflect on collective actions, hear about agency CC-DRR activity, and chart the course for the research year ahead.

My interest in CC-DRR grew from the passion and leadership of Prof. Ronan and particular examples of young people taking charge and playing a leading role in responding to disasters – most particularly at Strathewen Public School following the 2009 Black Saturday bushfires and Kamaishi Junior High School following the 2011 Great East Japan earthquake and tsunami. Prof. Ronan advocated for my inclusion in the Doctoral Program at CQU and spoke for me as a 55-year-old without research experience but with a strong interest in disaster resilience education and an ongoing commitment to community engagement work with children and young people, as well as adults in my capacity as a senior NSW RFS volunteer in the Blue Mountains, NSW.

My application for the Doctoral Program was submitted in May 2017 and accepted in January 2018 with Prof. Ronan as my Principal Supervisor. In those early days, Prof. Ronan implored me to take heed of his two tenets of a successful and completed thesis. Firstly, I had to employ research pragmatism where the 100 ideas I had racing around in the Doctoral application had to be whittled down to 50 ideas in the post-acceptance Memorandum of Understanding. These ideas then had to be pared back to one with the final choice of working with a single case school at Confirmation. Secondly, there has to be those “get out of bed” moments of joy and excitement about the research and what it can deliver, to keep the project moving forward.

We spoke at length on the legacy that we both wanted to leave, the contributions that we were making and could make in our respective worlds, and the people we were and wanted to be. Prof. Ronan re-affirmed the important place of my work and the opportunity my impending retirement (at the time) from the paid workforce would bring. This research fell out of those conversations; I wanted to know whether my time spent as an NSW RFS volunteer community engager and expert partner in classrooms makes a difference to anyone. This research also reflects the ethos of CQU to deliver research with true impact in the research strength area of community and disaster resilience – an area in which Prof. Ronan was highly respected and influential.

Prof. Ronan’s illness necessitated a transfer of Principal Supervisor (to Professor Ken Purnell), a shift to a different CQU School (Education and the Arts), and development of new understandings about education and research. During this period, I suffered a brain aneurysm which knocked me around a fair bit, tested my mettle for this research, and put my research plan back a year. Now having retired from the NSW RFS, I have drifted away somewhat from those past networks around CC-DRR and DRE that were central to my being. Still, the passion remains, rekindled regularly with visits to the CQU Rockhampton campus.

Conclusion

I am in the early stages of being a researcher, but an old stager when it comes to being an “expert partner” in engaging with schools and students. I want to know, as an NSW RFS volunteer fire-fighter, what difference do we make when it comes to disaster resilience education? Looking at the contribution that NSW RFS volunteer fire-fighters make in classrooms to the knowledge, skills, attitudes, and behaviours of young students is in its very early stages, but this research will go some way – a long way I hope – to finding out.

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