



Countering Alphabetic Risk in Post-Catastrophic Contexts: The Role of Cultural and Environmental Heritage

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Abstract

Catastrophic events are moments when people experience major life transitions that challenge their identity and involve them emotionally. Based on a systematic analysis of the literature, the paper focuses on describing the results of an exploratory research conducted with teachers who have experienced a catastrophic event (earthquake) and on the role that environmental heritage and education can play in the post-disaster recovery phase as a resource for teaching and community reconstruction. The study involved 23 primary school teachers from Abruzzo who had experienced the earthquake in an Italian context. The study used the semi-structured interview technique to allow an in-depth analysis of the issues raised, based on stimulating questions and related feedback. The results confirm that cultural heritage possesses vital ganglia that can help people redefine the cultural, social, perceptual and inhabited space, conceived as a socially constructed territory, and strengthen those coping skills that help individuals recover from the traumatic event and identify protective strategies that counteract the existential disorientation that pervades them. This would facilitate post-disaster recovery and mutual understanding between people in ways that enhance their ability to accept loss and transform it into an experiential resource. In essence, the study demonstrates how heritage in the post-disaster phase can help teachers and students to rebuild their personal, social and cultural community identity.

Keywords: Cultural heritage; Disasters; Catastrophic event; Earthquake; School; Teaching; Post-catastrophe

Background to the Study

In the face of a pandemic or a catastrophic event such as an earthquake, tsunami, etc., individuals' personal and social worlds are overwhelmed, creating forms of "existential displacement" that lead them to completely rethink the meaning of their actions and their lives. Studies show how disasters can hinder the achievement of personal, educational and professional goals, making people more vulnerable. Indeed, catastrophic events have a strong emotional, behavioural and educational impact on individuals, especially children and adolescents [1]. Post-catastrophic moments therefore produce a great deal of disorientation in children, adolescents and adults, leading them to redefine the conditions of continuous learning and adaptation and to resort to different forms of coping (where they exist) in order not to risk being overwhelmed

by events. This is also because, after the first moments of uncertainty, the crisis of the individual is also expressed at the level of identity, in the form of a "relational and social loss", which must be sustained through the provision of effective educational interventions capable of rebuilding and keeping alive an experiential, cultural and social fabric that appears lost or altered in the perception of the individual.

Disasters also disrupt the essential social functions of communities, creating forms of human and social disruption to which communities may or may not be able to respond, as resilience research has shown. In fact, successful communities also increase their ability to network and respond to relief efforts, i.e. to be resilient [2,3]. In fact, when a critical event occurs, it is possible that incisive and positive relational responses from individuals, organizations and local groups will occur, leading to emergency management before and during the event. These responses can also

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relate to the symbols and meanings that cultural and environmental heritage brings, which help to reconnect individuals with the community to which they belong, increasing the enjoyment of life and the desire to support the community, with the idea that the sharing of signs and meanings can make it possible to cope with and overcome crises. This is in order to initiate new identity processes that lead the community to participate in a true "multi-identity" re-foundation. In recent years, a body of theoretical and empirical research has begun to explore and document more systematically the role that cultural and environmental heritage plays in the preventive and post-disaster phases in helping children, young people, families, schools and organizations to cope with moments of crisis before, during and after a disaster. In this sense, the theme of territorial, cultural and environmental heritage seems to be fundamental in the search for significant forms of intervention in the post-disaster phase that best support students in their journey to overcome the difficulties of the critical event, which can have lasting effects helping them to reconnect the "before" and the "after" of the catastrophic event [4,5]. In the field of education, these situations represent real existential and formative challenges, where teachers are called upon to redefine their professionalism through precise forms of reflection and to prepare interventions aimed at strengthening the learning paths of students at different levels.

One wonders, therefore, how it is possible for a teacher, from the moment of the disaster, to continue to create authentic learning opportunities for all pupils and to support them in their progressive recovery, given the existential displacement that overwhelms them. Indeed, in post-disaster crises, life skills and literacy processes are put to the test and the school population is exposed to conditions of high literacy risk, but also to the weakening of the set of social, cognitive and personal skills that would be necessary to face the needs and challenges of daily life in a positive way. This often has a radical impact on students' thoughts, behaviours and attitudes [6]. Literacy, understood as the repertoire of basic knowledge and skills that individuals need to live in a rapidly changing world and which is an indispensable condition for their continued participation in social, cultural, political and economic activities, is at risk of being compromised as a result of a disruptive event, such as a natural disaster, which interrupts the acquisition process. However, if it is understood as "living literacy", it tends to encompass the way people write and read about their lives, thus including their individual, social, cultural and environmental heritage, which constitute those symbolic and identity elements that distinguish a given community and a given territory in its various aspects (historical, artistic, archaeological, architectural, environmental, ethno-anthropological, etc.) [7,8]. Post-disaster prevention and educational intervention programs based on community and community literacy can effectively reduce conditions such as

depression, anxiety and loneliness. This is because vulnerability implies the notion of 'risk education', in which individuals and communities are able to perceive and interpret the difficulties they are exposed to in a 'fragile' environment, and make appropriate choices arising from this awareness. Continuing to create authentic learning opportunities for students, without interrupting the development of literacy processes (cognitive, relational, social, etc.), therefore becomes fundamental for their growth and life. At the heart of this concept is a form of knowledge that allows students to integrate literacy processes at deep levels of their personality and reality, and teachers to significantly restructure their professionalism by adopting pedagogical strategies that allow them to help their students understand "who they are and what they are" [9,8]. However, literacy is an essential human right and a real "treasure" that cannot be neglected without risking inevitably generating a whole series of collateral problems that affect individuals and, in post-disaster situations, aggravate the situation of the most vulnerable groups [10]. It is necessary to implement structured socio-educational interventions to counteract the disorientation and discomfort caused by the "losses" resulting from the traumatic event. Therefore, if it is true that, over time, literacy has become an essential tool for improving the lives of individuals and eliminating inequalities through the development of virtuous policies and practices aimed at overcoming problems of various kinds, it is necessary to clarify the relationship between literacy, emergency and individual, social, cultural and environmental assets. For this reason, in the post-disaster phase, the cultural and environmental assets and resources of a territory can be interpreted as real "lifelines" capable of providing valid support for learning and the activation of coping strategies capable of supporting, through their diversity, the need to rebuild the identities of a given territorial community.

The Role of Cultural and Environmental Heritage Education in Areas of High Vulnerability

In recent years, the literature has sought to explain how the use of cultural heritage in education plays a crucial role in improving disaster resilience. Cultural and environmental assets and resources contribute significantly to post-disaster recovery by restoring cultural identity and helping students develop coping strategies to deal with stressful events and the risk to children's emotional health, particularly post-traumatic stress disorder (PTSD) and its symptoms [11]. The inclusion of post-disaster educational pathways can ensure sustainability and promote effective responses [12]. Integrating cultural heritage into educational risk management in vulnerable areas is essential to managing uncertainty in educational settings. By recognising the importance of cultural heritage in disaster response and preparedness, educational programmes can harness knowledge and skills to build

community resilience and facilitate faster recovery [13-15]. In this sense, cultural heritage plays a crucial role in the post-disaster phase by contributing to individual and community resilience and to the progressive personal recovery and overall well-being [16,17]. Although countries such as Italy have not always emphasised disaster-related preventive measures, in recent years cultural and natural heritage has been widely recognised as a powerful resilience tool in the post-disaster phase. In the aftermath of a disaster, in addition to rescuing people, it is also necessary to rescue their cultural heritage; such a mutual rescue allows for a faster recovery and improves the resilience of individuals in the long term, but also to generate benefits of various kinds during reconstruction, contributing to social transformation and reducing social vulnerability [18]. In particular, the integration of cultural heritage in educational contexts can provide a platform for learning from the past, fostering a sense of identity and promoting individual and community engagement. This idea not only safeguards cultural and environmental heritage, but also equips people with the knowledge and skills they need to recover from disasters, ultimately contributing to overall resilience in challenging circumstances.

The individual's struggle to regain his or her identity mobilises the territory as a vital space for the implementation of concrete actions. The various educational institutions are therefore urged to develop a clear strategic framework after a disaster in order to try to promote actions at local level to combat school disaffection, dropping out, etc., due to these difficulties, which require different practices of socio-educational support. It is not easy to define the territory as an operational level on which to graft the various educational tools aimed at preventing and resolving the existential displacement of individuals in the post-disaster phase even if such a conception requires precise strategies that are useful for countering it, focusing attention both on the way people appropriate the cultural and environmental resources available in a given territory and on the training opportunities that can be created at all levels, especially in terms of teaching quality [16]. Didactic strategies based on the use of cultural heritage go precisely in this direction, in order to remove the obstacles to learning resulting from "catastrophes" that also become "individual, cultural and social" and risk deeply undermining the identity of a given community. Indeed, the negative effects of territorial fragility on the perception of individuals could be curbed by implementing educational processes aimed at reconstructing individual, cultural and social memory and identity. For this to happen, however, it is essential to ask whether and to what extent such assets can help students stem the lack of certainty caused by disorientation [19]. A study carried out at the University of L'Aquila has brought this link into focus, highlighting how a catastrophic event such as an earthquake has a negative impact on students' perceptions of school

dropout and lack of well-being, and how effective educational solutions that can be traced back to cultural and environmental heritage can have a significant positive impact on reducing discomfort [16]. These solutions have been shown to work well, complementing and reinforcing routine educational interventions. Although they can be considered as stand-alone strategies, they have been shown to have an impact on student learning, with more positive outcomes in the presence of improvement plans and specific instructional design modules, as also observed in the evidence literature.

Objectives of the Study

Based on a systematic review of the literature, the objectives of the study are to explore

- A. The opinions and perceptions of teachers who have experienced a catastrophic event (earthquake) about the role that heritage and environmental education can play in the post-disaster recovery phase as a resource for teaching and community rebuilding;
- B. The opinions and perceptions of teachers who have experienced a catastrophic event (earthquake) about strategies related to heritage education that can be used in the post-disaster phase to help students recover.

Review of Related Literature

The literature suggests that cultural and environmental heritage plays a crucial role in education and post-disaster recovery. When catastrophic events such as earthquakes, wars or natural disasters occur, communities may lose not only human lives and infrastructure, but also fundamental parts of their cultural identity. In this sense, education becomes a vital means of preserving the history, traditions, assets and cultural practices of the vulnerable community. Schools play a crucial role in the post-disaster recovery process by helping to harness cultural and environmental assets to keep the memory of affected communities alive, build resilience and restore a sense of cultural belonging. Heritage education in a post-disaster context can take many forms, contributing to the preservation of history, environment and culture with the aim of promoting healing and social cohesion in affected communities. Conversely, heritage education can also contribute to the prevention of future disasters by helping teachers to find ways and forms of education that enable students to understand the importance of preserving and protecting cultural and environmental heritage, with a greater awareness and responsibility for their own cultural heritage and the natural environment.

Methodology

The study adopted the qualitative approach and made use of interview and descriptive approaches to gather and present data.

Participants

The study involved 23 primary school teachers from Abruzzo who had experienced the earthquake in an Italian context. The interviewees were selected on the basis of availability and precise characteristics (age, teaching level, etc.). The semi-structured interview technique was used in the study in order to allow a more in-depth exploration of the issues raised, starting from stimulating questions and the corresponding feedback. The participants ranged in age from 47 to 57 and were all primary school teachers. All participants had experienced the earthquake that struck the city of L'Aquila in 2009. The interviews took place twelve years after the disaster. In this sense, the interviews were also used in a retrospective sense as a research tool to obtain detailed information about past experiences and perceptions of the L'Aquila area [20].

This type of interview was particularly useful in understanding the value and relationship between cultural heritage, disaster contexts and teaching from different perspectives, in terms of

- **Collection of detailed testimonies:** interviews used in a retrospective sense allowed participants to express their opinions and perceptions in depth, also in relation to their past experiences, thus providing a rich and detailed view of the relationship under study;
- **Access to authentic information:** interviews provided access to information directly from the source, allowing an authentic understanding of individuals' experiences and perceptions;
- **Historical and cultural context:** the interviews allowed exploration of the historical and cultural context in which the earthquake occurred, helping to better understand the importance of opinions and perceptions of the relationship between cultural and environmental heritage, disaster and teaching experiences;
- **Exploring personal opinions and perceptions:** the interviews allowed participants to offer interpretations of the relationship between heritage and environment, disaster and education from a unique and nuanced perspective;

Identification of patterns and recurring themes: the interviews helped to generate knowledge and understanding of the phenomenon under study. In summary, the interviews provided valuable information on the value of cultural heritage in disaster contexts for enhancing the quality of teaching and educational interventions, and provided a detailed insight into the perceptions of the individuals involved.

Data Collection Instruments

Data were collected through interviews and participant observation. An interview guide was used and interviewers contacted stakeholders directly who had direct experience of the earthquake and who were in a role.

Data analysis procedure

The transcription, coding and analysis of the data was carried out using Nvivo software, which enabled qualitative analysis of the data through the use of a codebook, facilitated by the use of the software. A thematic analysis was carried out, together with a semantic analysis, which enabled the extraction of macro-categories and sub-categories, which helped to make the respondents' answers more interpretable.

Discussion of Data

Category

The study confirmed what has already been highlighted in some preliminary studies on areas of vulnerability [16], namely that cultural and environmental heritage can play a key role in promoting community resilience after a disaster. In the teachers' opinions and perceptions, the categorised elements mainly concerned the role of heritage in post-disaster education processes [21-23]. The main categories on the two axes are listed below:

A. The role of cultural and environmental heritage education in post-disaster recovery

1. **Identity and community cohesion:** Cultural heritage represents the history, traditions and shared values of a community. After a disaster, heritage can serve as a point of reference to reaffirm collective identity and promote social cohesion, encouraging people to come together to overcome adversity.
2. **Restoring normality:** Involving schools and students in heritage conservation and reconstruction can help them regain a sense of normality and continuity in their lives. Through educational activities involving the reconstruction of monuments, damaged works of art, etc., students and school communities can build resilience and regain a sense of stability.
3. **Sense of normality:** In times of crisis, such as after an earthquake, maintaining a sense of normality becomes essential for the emotional and psychological well-being of students. Heritage education provides an opportunity to continue to engage in school, family and community activities that can provide comfort and stability in times of uncertainty.
4. **Mental health and well-being:** Engagement with cultural and environmental heritage can have significant benefits for students' mental health and well-being after a disaster. School

activities that make educational use of arts events, musical performances and visits to historic sites can provide an important outlet for students from the tensions and stress associated with trauma, helping them to process their emotional experiences and build resilience, including by attempting to reconstruct their memories of the areas affected by the earthquake.

5. **Learning and memory:** Cultural heritage serves as the collective memory of the community, preserving past experiences and providing valuable opportunities to address future challenges. After a disaster, heritage can be used to document and analyse the causes and effects of the event, facilitating learning and improving preparedness for similar situations.
6. **Connection with cultural roots:** Studying and understanding cultural heritage helps students to connect with their cultural and historical roots. This sense of belonging can provide them with a stronger emotional and psychological foundation in moments of crisis, helping them to reaffirm their identity and feel part of a larger community.
7. **Preserving collective memory:** Heritage education can help to preserve the memory of students and the collective memory of a community by reminding them of challenges faced in the past and the strategies used to overcome them, or to use what has happened in a preventative way. This can give students hope and greater determination in difficult times by demonstrating how other adversities have been faced and even overcome in the past.
8. **Enhancing local resources:** Learning through heritage can lead to a greater awareness of local resources, both tangible and intangible, and foster cooperation and solidarity within the school and the local community, encouraging pupils to work together to rebuild and restore normality.
9. **Risk Management Awareness:** Cultural heritage education can also help raise awareness of the need to protect and conserve cultural property in view of future risks and disasters. This can include education on risk management practices, disaster preparedness, and cultural heritage protection planning.
10. **Promoting creativity and projection towards the future:** Learning through cultural heritage can stimulate creativity and innovation, encouraging students to find new ways to address the challenges of catastrophic events. This proactive attitude towards problem-solving can help increase students' ability to cope with difficulties, allowing them to adapt even in difficult situations.

From the interviews, it emerges that, in the teachers' view, cultural heritage constitutes an important pillar of resilience both for students and for the entire school community after a

disaster, offering a solid foundation for the reconstruction of identity, for the restoration of a certain normality, the recovery of stability and social-emotional, relational, cognitive well-being, etc., as well as for the preparation of their future.

B. Strategies related to cultural and environmental heritage education

In education, heritage education can play a significant role in promoting different coping skills within a school community after a disaster. Teachers clearly indicate some supportive strategies related to cultural and environmental heritage grouped in:

- School and community actions (school-community collaboration, action and support partnerships, systemic renewal, etc.)
- Early post-trauma preventive and supportive interventions (supportive community building, family involvement in out-of-school educational interventions, etc.);
- Grassroots strategies (opportunities to use cultural heritage, after-school/out-of-school, alternative schooling, mentoring/tutoring, etc.);
- Reinforcement and compensation tools (active learning with decentralised classrooms in the local area, forms of individualisation linked to use, etc.).

In the light of the results, it can be seen that for the teachers interviewed, the importance of designing and implementing effective strategies that enable students to use and enjoy cultural heritage to cope with the difficulties related to post-disaster concerns:

- Promoting different uses of local cultural and environmental heritage as literacy tools to create positive student attitudes towards education, school, disciplines, students, teachers and the school community as a whole [8], which will help to overcome personal, cognitive, social, relational difficulties, etc. after a disaster;
- The development of risk prevention modules to educate the school community to understand the role that local cultural heritage can play in emergency situations and to allow constructive reflection on the culture of belonging, the school and the territory;
- Developing early and preventative interventions to educate students in the use of cultural and environmental heritage, enabling them to use it positively and critically as a resource for continuous learning;
- Developing teaching strategies and innovative materials to combat all forms of individual and social fragility in emergency situations.

The teachers interviewed are convinced that activating quality literacy processes by making use of local assets and resources

before, during and after a disaster is an arduous task, which is not without its difficulties, but which they believe is indispensable in order to be able to help pupils cope with the difficulties, crises and challenges that communities and the environment present to them on a daily basis. It remains very difficult for teachers to activate quality teaching processes in a crisis situation and to search for the meanings of what is happening, has happened or will happen and its implications. However, they consider it essential to try to help students understand, using cultural and environmental heritage as a resource, so that they can continue to learn to manage their own thoughts and emotions. Finally, some participants emphasise how the experience of catastrophic events leaves an indelible mark on people's lives and on the cultural and social context in which they live, opening up internal and external fissures that make them more vulnerable to subsequent critical events. In addition, respondents argue that catastrophic events such as the earthquake challenge teachers' entire repertoire of skills, forcing them to confront, both during and after the disaster, a range of issues related to the ability to manage uncertainty in everyday school life. In essence, for teachers, heritage can support students in learning to use their knowledge and skills to resolve identity issues, such as a sense of belonging, to activate appropriate decision-making processes, to provide rational explanations of catastrophic phenomena, to avoid the temptation to give in to fatalism and to feel useless in relation to what can be constructed as false beliefs [24].

Presentation of Findings

The study sought to explore the opinions and perceptions of teachers who experienced the 2009 L'Aquila earthquake to understand the relationship between cultural and environmental heritage, disaster events and teaching. The study revealed the importance of using heritage to strengthen coping skills and restore everyday normality, which created existential voids for students. Heritage education in schools is an important aspect of learning that helps students understand and appreciate the diversity and richness of their local resources, with the idea of fostering a sense of identity and belonging among students, as well as promoting respect for other cultures. These experiences enable students to learn new concepts and skills in a more engaging and meaningful way. However, catastrophic events such as natural disasters can have a significant impact on the ability of schools to provide education, including heritage education. Such events can result in the destruction of educational infrastructure, displacement of communities and disruption of schooling, with long-term effects on student learning and well-being. To mitigate the impact of disasters on education, it is important that schools have disaster management plans in place and integrate recovery and learning approaches. This will ensure that education, including heritage

education, can continue with minimal disruption during and after such events. This was also emphasised by respondents. It was clear from the study that teachers see the school as a learning environment where cultural and environmental heritage is a source of knowledge and a tool for resilience.

Remarks in the Margin

Teachers state that, in the face of catastrophic events, it becomes crucial to develop well-structured training interventions aimed at supporting students' efforts to reduce, mitigate and positively manage post-traumatic stress to enable them to accelerate recovery, maintain relationships with others, improve coping skills, recover from adversity, prepare for possible future experiences and adapt effectively to adversity. At the same time, however, they emphasize the need to provide teachers with training opportunities to recover and improve their teaching practice through professional learning paths that enable them to deal with such problematic situations. This is in line with what has already emerged in the literature. Although research does not always agree on which types of intervention are most effective in emergency and post-disaster situations, there seems to be a general consensus that one of the most effective ways to improve educational support during or after disasters is to support through training those who work directly with children and young people, who often report feeling unprepared to deal with complex situations [25, 26]. In this sense, the interviewees emphasize the lack of a culture of education, which involves territorial and community aspects, indicating how cultural heritage plays a central role in fostering identity re-foundation.

Conclusion

The study highlighted the teachers' conviction that cultural and environmental assets and territorial resources can facilitate the recognition of one's own community and sense of belonging, and can contribute to teachers' taking charge of pupils' difficulties, especially in the early educational intervention phase, i.e. in the first moments after the occurrence of the disaster, when assets appear to pupils as a source of rootedness, anchoring and refunding typical of human beings and citizens. Teachers emphasise how the identification of information from different sources and the critical analysis of its veracity can help them to maintain their awareness of spaces and environments. The study confirms what some previous studies have highlighted, that assets can redirect learning towards what is 'desirable' and reorient students' engagement with what they do and who they are. Indeed, teachers' main concerns are how best to support pupils' learning when much of their confidence has been undermined by uncertainty, how to continue to nurture in them a desire to learn and to make good use of knowledge and

literacy processes (in the present and future situation) and, above all, how to encourage them to rediscover and maintain a focus on life through cultural and environmental assets, which can be said to be fundamental to a broad concept of “belonging”.

Recommendations

Heritage education can be a powerful teaching tool to help students and school communities overcome the trauma of disaster by helping to equip individuals with the personal, cultural and social resources needed to cope effectively and constructively, but only if teachers in post-disaster settings are themselves supported in the arduous task of 'teaching' in emergency contexts. Consequently, teacher training in resilience skills should be conceived of as 'resisting' hazards and managing risk, rather than avoiding them, and should aim at the acquisition of concrete coping strategies. Cultural and environmental heritage education, adopted as a risk management tool, is essential to increase the capacity to understand catastrophic and pandemic phenomena in order to intervene more precisely and incisively at the local level and reduce negative impacts. This highlights the importance of supporting teachers in local contexts by looking to resources outside the school as a valuable resource. School communities facing crisis situations require a rapid response from different stakeholders, requiring decision-making, planning and foresight skills that, if not present, could expose them to serious risks. Learning to identify resources and assets outside the school and having appropriate skills to deal with a 'crisis' therefore becomes the best defence in understanding the consequences it could have on the school population if not properly managed [27-47].

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