

Broadcasting Resilience: Developing Wildfire Readiness Through Student-Driven Radio Programs

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ABSTRACT

This paper introduces an innovative educational initiative focused on producing a community radio program to enhance students' understanding of wildfires. It creates an open dialogue platform for students to share ideas and concerns about wildfire preparedness, promoting an inclusive and participatory learning environment. A key component of this educational approach is establishing a 'readiness' framework to equip students with the necessary competencies to converse thoughtfully and effectively about the multifaceted narratives, dilemmas, and tensions inherent in dealing with significant wildfires. The project also emphasizes the importance of risk communication, aiming to improve students' abilities to convey information about wildfire risks clearly and accurately, catering to diverse audience needs. This approach is vital for enabling students to make informed decisions and take appropriate actions before, during, and after wildfire events, thus integrating scientific understanding and practical communication skills to foster proactive community engagement.

Keywords

Radio, youth engagement, preparedness, wildfires.

INTRODUCTION

Wildfire management is a complex and multifaceted challenge that requires a comprehensive approach to address effectively. The importance of changing attitudes, improving capacity, investing in community participation, and modifying stakeholder engagement procedures and policies is underscored by numerous studies, indicating that traditional methods of wildfire management are no longer sufficient in the face of increasing wildfire frequency and intensity due to climate change and other factors. Tedim et al. (2016) conceptualizes fire as a biophysical phenomenon and a fundamentally social process intricately tied to the human-natural systems in which it occurs. This perspective is echoed and expanded upon by Thompson et al. (2015) and Schultz and Moseley (2019), who call for systemic changes in wildfire management. They argue that addressing the current challenges of wildfires transcends the mere application of a set of theoretically sound procedures. Instead, it demands a localized understanding of wildfires, tailoring strategies to make territories less prone to wildfires and communities less vulnerable yet more resilient. This approach aligns with the goals of economic valorization, sustainable development, and the safeguarding of territorial resources.

Thompson specifically advocates for integrating risk management principles into decision-making processes, whereas Schultz and Moseley (2019) focus on the importance of collaborative governance to effectively tackle the complex challenges of wildfire management. Their research collectively underlines the necessity for a comprehensive strategy beyond traditional firefighting tactics. Such a strategy emphasizes a proactive

management stance, focusing on anticipating, assessing, and mitigating wildfire risks, underscoring the importance of a holistic plan that incorporates scientific understanding and community involvement to enhance resilience and safety.

From the assumption that improving societal readiness for wildfires requires a holistic approach to risk communication and attitude modification, it is clear that comprehensive methods are needed to successfully address the complex issues related to wildfire threats. This viewpoint emphasizes how crucial it is to incorporate many approaches and involve various stakeholders to foster a more resilient and knowledgeable community. In order to be effective, risk communication must go beyond the conventional one-way information transmission approaches and adopt interactive, participatory techniques that foster understanding and conversation. It is essential to leverage a range of technology and communication channels to reach different audiences. This will ensure that information about the risks posed by wildfires and how to prepare for them is clear, practical, and easily accessible.

The research presented here advocates a multidimensional strategy focused on three key pillars: a) the value of youth engagement and participation, b) establishing school-community learning collaborations, and c) emphasizing intergenerational capacity-building methods. Collectively, these pillars aim to enhance community resilience, encourage collaborative governance, and ensure a holistic and inclusive approach to wildfire risk communication and management.

YOUTH ENGAGEMENT AND PARTICIPATION

Promoting youth engagement and active involvement in society has become increasingly important in the past few decades (DFID-CSO, 2010). Participatory research programs have demonstrated their efficacy as interventions in promoting individual and community development. These initiatives operate under the premise that the current generation has valuable knowledge and should express their opinions firsthand, drawing from their own experiences (Kim, 2019, among others). According to the systematic review conducted by Anyon et al. (2018), youth participatory research programs have yielded significant outcomes in various domains, including social, interpersonal, cognitive, academic, and professional achievements, as well as leadership and personal agency.

Therefore, engaging youth in wildfire preparedness and environmental stewardship initiatives plays a vital role in building a resilient future, providing them with the necessary knowledge to grasp the complexities of wildfire risks and environmental conservation. Giving youth the tools to participate in prevention efforts and respond adeptly and effectively in emergencies instils a sense of responsibility and agency.

Moreover, engaging youth from an early age promotes a proactive mindset towards disaster risk management, emphasizing the importance of anticipation, planning, and prevention over a reactive stance (Pfefferbaum et al., 2018). This approach is crucial in preparing communities to respond to wildfires efficiently and engage actively in risk mitigation through thoughtful land management, community planning, and policy advocacy. The active participation of youth in these initiatives nurtures a culture of resilience, wherein the values, knowledge, and skills acquired are passed down and expanded upon, influencing peers, families, and future generations. Such a generational transfer solidifies a collective approach towards resilience, transforming how communities face wildfires and environmental challenges and ensuring a sustainable and secure future for all.

SCHOOL-COMMUNITY LEARNING PARTNERSHIPS

Through the utilization of educational institutions as primary hubs for community participation and resource sharing, these collaborations enable a comprehensive and inclusive educational experience that goes beyond the physical boundaries of the classroom, reaching families, local organizations, and various community members (Monroe et al., 2015; DePetrìs & Eames, 2017). This collaborative model enhances the learning ecosystem by spreading knowledge and skills about wildfire preparedness throughout the community (Paveglio & Edgeley, 2020). This fosters a shared feeling of responsibility and encourages collective action to reduce the dangers of wildfires.

These partnerships offer a distinctive platform for engaging and experiential learning activities that integrate theoretical knowledge with practical applications.

INTERGENERATIONAL APPROACHES IN CAPACITY BUILDING

The significance of intergenerational approaches in capacity building for wildfire preparedness cannot be overstated (Prior & Eriksen, 2013). These initiatives promote community resilience against wildfires by promoting communication and collaboration across multiple age groups, thereby using each generation's unique

capabilities and views. Elders in the community often possess a wealth of knowledge about local landscapes, traditional fire management practices, and historical patterns of wildfire activity. By sharing this expertise, they provide younger generations valuable insights that can supplement and amplify current scientific understanding and technical progress in wildfire management.

Moreover, involving youth in intergenerational learning initiatives empowers them to become proactive agents of change (Trujillo-Torres et al., 2023). Young people bring fresh perspectives, energy, and a natural aptitude for technology and innovation, which can be instrumental in developing new solutions for wildfire detection, monitoring, and communication.

INTERVENTION

We developed a school-based intervention, Forest FM, based on the foundational pillars described above. The following section will present the aims, procedures, and results.

Aims

In 2017, Portugal experienced devastating wildfires that ravaged over 539,000 hectares of land and claimed the lives of more than 100 individuals. These catastrophic events were partly attributed to the effects of climate change, leaving profound economic and environmental scars on the affected regions. It also highlighted the population's vulnerability in rural areas and underscored the need for measures to ensure assistance and increase community preparedness for the risks associated with climate change.

ForestFM is an educational initiative that emerged in response to the crisis of devastating wildfires, with a primary aim to educate and engage young people about the dangers of wildfires and the critical importance of preparedness. Central to the project's approach is establishing a community radio program by students, serving as a powerful platform to disseminate invaluable insights drawn from the experiences of local elders. Through this initiative, teenagers acquire knowledge about wildfire risks and actively preserve and honour traditional wisdom while gaining essential skills to access and effectively communicate vital information.

The implementation of ForestFM reflects a comprehensive approach to wildfire preparedness, integrating the principles of youth engagement, school-community collaboration, and intergenerational knowledge sharing. The project's immersive workshop on radio production, spanning multiple sessions, serves as a testament to this approach. In the initial training block, students are introduced to radio as a medium, alongside discussions on wildfire content and formats. This phase establishes a foundational understanding and lays the groundwork for appreciating the significance of youth involvement in wildfire preparedness.

Subsequently, the workshop progresses to a deeper exploration of radio production techniques, emphasizing the use of sound and language to convey messages effectively. Significantly, students are sensitized to the importance of listening to and incorporating local knowledge and community perspectives into their content. This aspect underscores the value of school-community partnerships in fostering a more inclusive and informed approach to wildfire communication and preparedness.

In the final phase of the workshop, students actively apply their newfound knowledge and skills to produce radio content explicitly focused on wildfire preparedness. This culmination reflects the collaborative efforts of youth, educators, and local community members, embodying the intergenerational exchange of knowledge and the collective commitment to wildfire resilience.

Procedures

The study included students from three high schools in central Portugal's high-risk wildfire zones. The methodology focused on an intervention in which students created radio content. The study aims to assess the impact of the intervention on students' knowledge, awareness, and information-seeking behaviours related to wildfires by conducting surveys before and after the workshop. This comprehensive methodology allowed for a complete analysis of the intervention's effects and offered helpful information for designing future wildfire education programs aimed at teenagers in high-risk regions.

The first survey aimed to understand local adolescents' collective knowledge and awareness levels by targeting a more significant cohort of students across the three schools (N=234). This method yielded insights that extended beyond the workshop attendees. The subsequent survey was only given to the workshop participants (N=49), allowing for a more targeted examination of how the intervention affected their awareness and attitudes concerning wildfires.

Both surveys had a specific area to evaluate where participants obtained information about wildfires. Participants evaluated a set of statements of information-seeking behaviour using a 5-point scale ranging from 1 (total disagreement) to 5 (complete agreement). However, for the purpose of this paper, we specifically focus on the effects of the intervention on social conversation related to wildfires. This includes examining the frequency of discussions with family and friends as well as self-perception of wildfires knowledge

Results

In this section, we present the findings from a pre-post survey designed to assess changes in participants' engagement in social conversations about wildfires with family and friends and their self-perception of knowledge on the subject. Our analysis focuses on three key questions: the frequency of discussions regarding wildfire preparedness within their networks, the depth and quality of these conversations, and the participants' self-assessed understanding of wildfires before and after engaging with the radio program. These aspects are crucial for evaluating the program's impact on fostering a culture of preparedness and awareness through informed dialogue and self-reflection. By examining these indicators, we aim to shed light on the effectiveness of the radio program in enhancing not just awareness but meaningful communication and self-perceived knowledge about wildfires among community members.

Table 1. Levels of Agreement on Frequency of Wildfire Discussions with Family and Friends on Self-perception of Preparedness (%)

	Strongly Disagree		Somewhat Disagree		Neutral		Somewhat Agree		Strongly Agree	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
I frequently talk about wildfires with my family members	21.8	4,1	24.8	16.3	32.1	40.8	18.4	32,7	3.0	6.1
I usually talk about wildfires with my friends	28.6	2.0	23.9	34,7	25.8	26.1	17.1	24.5	4.3	12.2
I have sufficient knowledge of what to do in the face of wildfires	2,6	0.0	15.5	4.1	25.3	40.8	17.2	49.0	9.4	6.1

Table1 presents findings from a pre-post survey designed to assess changes in behaviours and perceptions related to wildfire discussions and self-assessed knowledge following an educational intervention. Here are some key points developed further from the table:

1. **Increased Conversations about Wildfires:** There is a notable shift in the frequency of discussions participants have about wildfires with their family and friends. Before the intervention, a smaller percentage of respondents reported frequently discussing wildfires with their family (3.0% strongly agree) and friends (4.3% strongly agree). Post-intervention, these numbers increased to 6.1% for family discussions and 12.2% for discussions with friends, indicating the intervention's effectiveness in encouraging more conversations about wildfire preparedness.
2. **Change in Discussion Dynamics:** The pre-survey data showed that a significant portion of participants were either neutral or disagreed with the statement about frequently discussing wildfires with family and friends. Post-intervention, there is a shift towards agreement, especially in the "somewhat agree" category for family discussions, which almost doubled from 18.4% to 32.7%. This suggests a positive change in participants' willingness or opportunity to engage in conversations about wildfires.
3. **Self-Assessed Knowledge Improvement:** The most striking change is observed in the participants' self-assessment of their knowledge regarding what to do in the face of wildfires. Initially, only 9.4%

strongly agreed with having sufficient knowledge, but post-intervention, there was a significant increase in the "somewhat agree" category from 17.2% to 49.0%. This reflects a substantial improvement in confidence among participants about their understanding of wildfire preparedness. However, the "strongly agree" category decreased slightly, suggesting room for further enhancement in perceived knowledge depth.

4. **Decrease in Neutral Responses:** Post-intervention, there is a noticeable decrease in neutral responses across all questions, most significantly in the self-assessed knowledge about wildfires, dropping from 25.3% to 40.8%. This reduction suggests that the intervention helped clarify participants' uncertainties or ambiguities regarding wildfires, pushing them towards a more decisive stance on their knowledge and discussion frequency.
5. **Reduction in Disagreement:** There is a general decrease in the percentages of "strongly disagree" and "somewhat disagree" responses from pre- to post, particularly in conversations about wildfires with family. This trend suggests that reservations or reluctance to engage in these discussions have been mitigated, possibly due to increased knowledge and awareness.

CONCLUSION

A comprehensive strategy for wildfire management necessitates understanding the fire as a biophysical and social process, as Tedim et al. (2016) suggest, and a proactive and inclusive approach to learning and adaptation. This strategy should emphasize youth engagement, intergenerational capacity building, and school-community partnerships as central pillars. By integrating these concepts, communities can foster a culture of continuous learning and adaptation to the dynamic nature of wildfire threats.

Regular evaluation of community participation efforts, risk communication campaigns, and preparedness operations becomes crucial in identifying areas for improvement. Learning from past wildfires and adjusting strategies based on new information and changing conditions are essential to enhance societal preparedness. Moreover, involving young people and creating opportunities for intergenerational learning can lead to more innovative solutions and a deeper understanding of wildfire risks.

School-community partnerships can play a pivotal role in this context, bridging knowledge and action. Through educational programs focusing on wildfire preparedness, risk communication, and resilience building, these partnerships can empower communities to be better prepared for, respond to, and recover from wildfires. Such a comprehensive strategy, grounded in community involvement and intergenerational collaboration, enhances resilience to wildfires and helps safeguard communities and conserve ecosystems against the backdrop of evolving climatic conditions and increasing wildfire threats.

The educational initiative Forest FM aspires to create a more informed and resilient generation of students through its focus on open dialogue, readiness framework, and the strategic incorporation of risk communication. By developing their understanding of and ability to communicate about wildfires, the project supports the broader goal of enhancing community preparedness and resilience in the face of natural disasters.

The data from the Forest FM project, which involved the creation of radio content focused on wildfires, reveal a significant increase in discussions about wildfires among participants with their families and friends, as well as an improvement in their self-assessed understanding of how to respond to these events. The positive shift in responses post-intervention highlights the effectiveness of targeted educational initiatives in cultivating a more informed and proactive community regarding wildfire awareness and preparedness. This project equipped individuals with the knowledge and skills to address wildfire concerns and contributed to a broader cultural shift towards environmental sustainability and resilience.

The effort highlights the need for education to develop a well-informed and adaptable society to face wildfire concerns by promoting community-wide involvement in preparedness measures. Schools play a crucial role in developing resilient, knowledgeable, and cohesive communities by integrating these programs into their curricula. This all-encompassing educational method promotes a broad cultural shift towards environmental sustainability and resilience, preparing communities to be more resilient and proactive in dealing with environmental challenges in the future.

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