



Environmental Empathy and Disaster Risk Reduction of Prospective Teachers

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ABSTRACT

Environmental Empathy refers to the ability to comprehend and communicate the feelings of the natural world and other living organisms. Disaster Risk Reduction involves measures taken to minimize the impacts of natural disasters on communities and ecosystems. This paper investigates the connection between environmental empathy and disaster risk reduction of prospective teachers. A sample of 160 prospective teachers taken from Thiruvananthapuram district and the data were collected through random sampling technique. The tools used for the study were Environmental Empathy and Disaster Risk Reduction Scales. The result of the study reveals Environmental Empathy and Disaster Risk Reduction are highly correlated with respect to Prospective Teachers. The subsample results show that Environmental Empathy and Disaster Risk Reduction is higher with Prospective Teachers residing in Rural area than Urban. Moreover, Prospective Teachers with Science as their optional subject have higher Disaster Risk Reduction and Environmental Empathy than those who opted Social Science.

Introduction

The Earth cries out, and humanity listens, sometimes hesitantly, sometimes urgently. As the consequences of environmental degradation as well as climate change intensify, understanding our interconnectedness with nature becomes more crucial than ever.

The Hyogo Framework for Action, the Millennium Declaration, and the UN Millennium Ecosystem Assessment have different focuses but are similar few that environmental degradation, poverty, and disaster risk share common causes as well as common consequences for human security and well-being. They also recognize that ecosystem services, environmental management, and environmental information offer opportunities to reduce disaster risk, decrease poverty, and achieve sustainable development (ISDR, 2018).

Environmental Empathy refers to the ability to feel and understand issues related to the natural environment (Albelda & Sgaramella, 2015), and it influences one's attitudes and behaviours toward the natural environment. Environmental Empathy in action occurs when a person realizes that there is an environmental problem, is concerned about the problem, and then actively tries to solve the environmental problem (Holm, 2012). This is where Environmental Empathy, the ability to perceive and share the feelings of the natural world, emerges as a powerful tool for Disaster Risk Reduction.

Disaster Risk Reduction (DRR) is a mandatory capability that every individual has and it requires continuous collaboration and cooperation between all strata of society tasked with clear understanding and managing risk through research. The various ways to manage it are policymaking and implementation, financing DRR through government, industry, and non-governmental organisations, communicating risks through media, the public, government, and many others, and listening to those adversely impacted. Kontar et al (2021). Disaster Risk Reduction can be effectively achieved only through a comprehensive approach aimed at connecting and integrating all the actors involved in forecasting, preventing, managing, and mitigating disaster risk and its consequences. Elena Righi et al (2021)

The environment and disasters are intrinsically connected. Environmental deterioration influences natural processes, alter the resources that are readily accessible to human beings, and intensifies vulnerability. It exacerbates the effects of natural hazards, decreases general resilience, and challenges conventional coping mechanism (ISDR 2004).

Building resilience to disasters requires nurturing Environmental Empathy. By fostering a connection with our natural world, we can cultivate a deeper understanding of how environmental degradation exacerbates risks. When communities possess strong social cohesion, access to resources, and effective governance, they are better equipped to reduce disaster vulnerabilities through

preparedness measures and risk-informed decision-making. Ultimately, by fostering empathy and understanding, we can empower communities to prevent disasters and recover and rebuild sustainably."

Need and Significance of the Study

The ability to share the emotional experience of the natural environment is known as empathy for nature. (Tam 2013). Environmental Empathy is important because it helps us understand how the environment is feeling so we can respond appropriately to the situation. Through the development of environmentally empathetic attitude, we can make the concept stronger. The development of environmental empathy among children is crucial because, when they become adults and are responsible for their own actions, the present younger generations may encounter the effects of climate change in a variety of ways in the future. Understanding our connection to the environment and fostering a sense of empathy for the natural world. This empathy, when coupled with concrete actions to reduce our environmental footprint, can be a powerful tool for Disaster Risk Reduction

Disaster Risk Reduction is described by the United Nations Office for Disaster Risk Reduction (UNISDR) as "preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development" (UNISDR 2016). Disaster risk reduction, also known as just disaster reduction, is the idea and process of lowering the likelihood of disasters by methodically analysing and controlling the causes of them, such as decreased exposure to hazards, decreased vulnerability of people and property, prudent land and environmental management, and increased readiness for unfavourable outcomes (USAID 2011). "Disaster Risk Reduction is the policy objective of disaster risk management, and its goals and objectives are defined in Disaster Risk Reduction strategies and plans (Oslo R, 2020).

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, the reduced vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (IFRC 2011). Environmental Empathy, often described as the capacity to understand and share the feelings of the natural world and living organisms, plays a crucial role in fostering proactive attitudes and behaviours toward disaster preparedness and mitigation.

Environmental Empathy refers to the ability to understand and share the feelings of the natural world and other living organisms. Disaster Risk Reduction involves measures taken to minimize the impacts of natural disasters on communities and ecosystems. Some studies have shown that individuals and communities with higher levels of Environmental Empathy are more likely to engage in pro-environmental behaviors and take proactive measures to mitigate disaster risks.

Dopelt, K et al (2019). Explored the Relationship between Environmental Empathy and Pro-Environmental Behaviors in the Case of University Students" This study examines how Environmental Empathy influences not only individual behaviors but also collective efforts towards environmental protection and disaster resilience. Sendai Framework for Disaster Risk Reduction, endorsed by the United Nations, emphasize the importance of incorporating community perspectives, including empathy towards the environment, into Disaster Risk Reduction strategies.

Additionally, fostering Environmental Empathy can lead to greater awareness and understanding of the interconnectedness between human activities and environmental processes, thereby promoting more sustainable and resilient practices that can help mitigate the impacts of disasters. Overall, promoting Environmental Empathy can play an important part in reducing the risk of disasters by fostering a greater sense of responsibility and stewardship towards the environment, ultimately benefiting human societies and ecosystems. The significance of nurturing Environmental Empathy as a means to enhance disaster preparedness, response, and recovery efforts, thereby fostering more resilient and sustainable communities.

A limited number of studies in the area of Environmental Empathy and Disaster Risk Reduction underscores the importance of the study under investigation. This gap in the literature highlights the need for a thorough comprehension of the impact of Prospective Teachers' Disaster Risk Reduction ability and Environmental Empathy.

Objectives of the Study

1. To find out whether there is any significant relationship between Environmental Empathy and Disaster Risk Reduction of Prospective Teachers for the total sample.
2. To find out whether there is any significant difference in the mean scores of Environmental Empathy of Prospective Teachers with respect to locale.
3. To find out whether there is any significant difference in the mean scores of Environmental Empathy of Prospective Teachers with respect to optional subject.
4. To determine whether the mean scores differ significantly from Disaster Risk Reduction of Prospective Teachers with respect to locale.
5. To determine whether the mean scores differ significantly from Disaster Risk Reduction of Prospective Teachers with respect to optional subject.

Hypotheses formulated for the study

1. There exists a significant relationship between Environmental Empathy and Disaster Risk Reduction of Prospective Teachers for the total sample.
2. There exists a significant difference in the mean scores of Environmental Empathy of Prospective Teachers with respect to locale and optional subject.
3. There exists a significant difference in the mean scores of Disaster Risk Reduction of Prospective Teachers with respect to locale and optional subject.

Methodology

A normative survey method was adopted for the study. The study's population comprises of Prospective Teachers across Kerala and a sample of 160 Prospective Teachers from Thiruvananthapuram district was selected for the present study. The Random sampling technique was used for the study.

Tools used for the study:

- Environmental Empathy Scale (Prepared and Validated by the investigators)

Environmental Empathy Scale with three-point rating scale was used for the study. The components of Environmental Empathy taken for the study were Cognitive, Emotional, and Compassionate.

- Disaster Risk Reduction Scale (Prepared and Validated by the investigators)

Disaster Risk Reduction Scale with components, Local concern, and Health care, Role of school in Disaster Risk Reduction, Survival skill development, and training programme, Structural construction practices, and the role of organizations and society in Disaster Risk Reduction. Hence the scale with 30 items with three-point rating scale.

Statistical Techniques Used for the Study

- Correlation analysis: Karl Pearson's Product Moment Method
- Test of Significance: t Test

Study boundaries

- The present study was delimited to the Preservice Teacher Education Institute in Thiruvananthapuram district.
- The present study was delimited to Prospective Teachers in Thiruvananthapuram District only.
- The present study was delimited to Prospective Teachers with optional subjects Social Science and Science only.

Result and Discussion

Table 1

Showing Correlation between Disaster Risk Reduction and Environmental Empathy of Prospective Teachers for the total sample

Variables Correlated	N	Mean	SD	r	Level of Significance
Disaster Risk Reduction		67.94	10.03		
	160			0.972	0.01
Environmental Empathy		66.51	10.03		

Table 1 reveals that the obtained mean and standard deviation of Disaster Risk Reduction and Environmental Empathy for the total sample are 67.94 and 10.03 and 66.51 and 10.03 respectively. It shows that the mean values of both variables are similar and the variation is also the same. The obtained 'r'-value: 0.972 is significant at 0.01 level. From these, it is clear that there exists a positive high correlation between Disaster Risk Reduction and Environmental Empathy of Prospective Teachers for the total sample. Hence, the hypothesis 'there exists a significant relationship between Environmental Empathy and Disaster Risk Reduction of Prospective Teachers for the total sample' is accepted.

Table 2

Showing Locale wise comparison Disaster Risk Reduction and Environmental Empathy of Prospective Teachers

Variable	Locale	N	Mean	SD	t-vale	Level of Significance
Disaster Risk Reduction	Rural	80	73.26	7.08	7.89	0.01
	Urban	80	62.62	9.74		
Environmental Empathy	Rural	80	71.86	6.64	7.95	0.01
	Urban	80	61.16	10.02		

From Table 2, the obtained t-value 7.89 of Disaster Risk Reduction of Rural and Urban Prospective Teachers is greater than the table value at 0.01 level of significance. t-value obtained for Environmental Empathy of Rural and Urban subsample is 7.95, which is also significant at 0.01 level. From these, it is revealed that Disaster Risk Reduction is higher in Rural Prospective Teachers than that Urban with respect to Locale. Similarly, the Environmental Empathy of Rural Prospective Teachers' is Higher than that of Urban Prospective Teachers.

Table 3

Showing Optional Subject wise comparison Disaster Risk Reduction and Environmental Empathy of Prospective Teachers

Variable	Optional Subject	N	Mean	SD	t-vale	Level of Significance
Disaster Risk Reduction	Science	80	73.03	6.85	7.44	0.01
	Social	80	62.85	10.14		
	Science					

	Science	80	71.88	6.69	8.01	0.01
Environmental	Social	80	61.13	9.96		
Empathy	Science					

From Table 3, the obtained t-value 7.44 of Disaster Risk Reduction of Science and Social Science Prospective Teachers is significant at 0.01 level. t-value obtained for Environmental Empathy of Science and Social Science Prospective Teachers is 8.01, which is also significant at 0.01 level. From these, it is revealed that Disaster Risk Reduction is higher in Science Prospective Teachers than that in Social Science with respect to Optional Subjects. Similarly, the Environmental Empathy of Science Prospective Teachers is higher than that of Social Science Prospective Teachers.

From the results and discussions of Table 2 and Table 3, hypotheses 2 and 3, ‘there exists a significant difference in the mean scores of Environmental Empathy of Prospective Teachers with respect to locale and optional subject’; ‘there exists a significant difference in the mean scores of Disaster Risk Reduction of Prospective Teachers with respect to locale and optional subjects’ are accepted.

Findings of The Study

The investigators found that there existed significant relationship between Environmental Empathy and Disaster Risk Reduction of Prospective Teachers. There exists significant difference in Disaster Risk Reduction of Prospective Teachers with respect to locale. The Prospective Teachers belonging to Rural areas have higher Disaster Risk Reduction and those belonging to Urban areas have lower Disaster Risk Reduction. The Prospective Teachers with Science as their optional subject have higher Disaster Risk Reduction than those who opted Social Science. In case of Environmental Empathy, the Prospective Teachers belonging to Rural areas have higher Environmental Empathy than those belonging to Urban areas. The Prospective Teachers with Science as their optional subject have higher Environmental Empathy than those who opted Social Science.

The results show that those with higher Environmental Empathy have higher Disaster Risk Reduction. If we enhance the level of Environmental Empathy, there will be a significant increase in the Disaster Risk Reduction level of Prospective Teachers. As Rural Prospective Teachers have higher Disaster Risk Reduction and Environmental Empathy, we need to find out the factors that create more Empathy towards the environment and Disaster Risk Reduction in them and need to give necessary awareness and training to Urban Prospective Teachers to develop Environmental Empathy and Disaster Risk Reduction in them. Similarly, Prospective Teachers who opted Science have higher Disaster Risk Reduction and

Environmental Empathy, we need to find ways to improve Empathy towards the environment and Disaster Risk Reduction of Prospective Teachers who opted for Social Science.

Educational Implications of the Study

- Environmental Empathy and Reducing the risk of disasters is essential for managing climate changes and environmental degradation through systematic activities.
- Empathy towards nature encourages and motivates people to care about conservation, building upon their natural care for environment.
- Inculcating the values of environmental empathy among people helps in reducing the negative impacts of disasters.
- Empathy towards nature fosters environmental stewardship and motivates people to take action to protect their environment.
- Empathy towards the environment creates an emotional attachment leading to deeper understanding and increased engagement in learning of students.
- Approaching nature empathetically and connecting with the environment, spending time in nature can reduce stress and anxiety and that leads to improved mental health and hygiene.
- By practicing efficient Disaster Risk Reduction activities in day-to-day life helps in developing critical thinking and problem solving abilities among people.
- Disaster Risk Reduction contributes to increased safety and life preparedness for potential hazards, early warning systems, evacuation plans, and first aid to reduce casualties.
- Effective Disaster Risk Reduction reduces economic impact and helps in faster recovery and minimising economic loss.
- Integrating Disaster Risk Reduction Education in the curriculum plays an important role in creating a resilient society with knowledge and skills to manage unexpected environmental disasters.

Conclusion

The present study has certain implications for developing and improving the attitude of people towards environmental conservation. The population of the study is Prospective Teachers across Kerala and they act as the bridge between the current and future generations. If they have an awareness of environmental disasters and ways to lessen the adverse effects of them, they can pass their knowledge and attitude to the students they teach. The empathetical attitude of these Prospective Teachers towards the

environment will definitely be passed on to their students and in the future, these students will become the ambassadors of environmental conservation and preservation. The environmental protection actions from the level of Prospective Teachers will act as a chain reaction and will be impacted in entire zones of the world. Keeping all these in mind the decision makers must take necessary changes and actions to improve the curriculum and activities in preservice teacher education institutes and give adequate support to maintain environmental sustainability.

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