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The Role of Educational Attainment in Shaping Perceptions of Climate Change Mitigation and Adaptation Strategies

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Abstract

Global community has been witnessing increases in atmospheric temperature along with climate variability and change. Human activities are primarily responsible causing temperature raise consequently having weather related extreme events. Nepal, being diverse topography and climatic zones, experiencing severe impact of climate change. Rapid melting of ice in Himalaya region, bio diversity loss, drought and heavy rainfall are becoming regular phenomena in the recent past. The climate variability and change causing climate induced disasters impacting livelihoods of rural population of Nepal. Mitigation and adaptation measures initiated at local level play a pivotal role in reducing impact of climate change. The mitigation and adaptation measures could be initiated after having thorough understanding of community people about their perception on this. For this, education of local community may maximize their understanding which play a critical role in shaping their knowledge, perception and understanding about climate change, its impact and mitigation and adaptation measures. In this background, a study was carried out among 428 households of ward no 5, 6 &7 of Sarawal Rural Municipality, Nawalparasi West, Nepal. Out of 428, 33.4% were illiterate, 26.2 literate

(informational education), 26.9% primary (up to 8 class) and 13.6% were high school and above. The main purpose of this study was to better understand about perception of study population on climate change mitigation and adaptation measures which could be initiated at local level. The study was designed in 5-point Likert scale having eight different mitigation and adaptation measures. A null hypothesis was formulated for this study indicating that there is no direct association between level of education and community perception about climate change mitigation and adaptation measures. The findings of study denote that there is association between perception of climate change mitigation measures and level of education. While comparing the educational level and their response, p-value is <0.05, indicating that it is statistically significant meaning there is a significant association between education and their level of understanding thus null hypothesis is rejected.

Keywords: climate change, mitigation measures, education, greenhouse gases

1. Introduction

Climate change mitigation depends significantly on public knowledge, awareness, and behavior. Education plays a critical role in shaping people's understanding and perceptions of climate-related issues. In Nepal, climate-induced disasters are on the rise, accounting for approximately 65 percent of the total impact in terms of deaths, disabilities, livelihood disruptions, and the loss of cultural heritage and infrastructure. Notably, during the 2017/2018 period, floods in the southern regions of the country resulted in an economic loss equivalent to 2.08 percent of the national GDP (MoFE, 2021). A disaster happened, mainly a flood on September 27-29, 2024, had huge devastation, 236 people lost their lives, and 165 people were injured. The flood caused infrastructural loss as 11 hydropower (225.96 MW), 3 irrigation projects, 14 suspension bridges, and 11 Bailey bridges were damaged, resulting 4.35 billion NPR loss. The flood also impacted on agriculture and livestock, loss worth around 6 billion NPR (NDRRMA, 2024). Fragile geo structure, diverse topography, and climatic zones, Nepal is prone to climate-induced disasters (Aryal, 2023) and 90 percent population is at risk of death due to two or more types of disasters (MOHA, 2018).

In this context, it is important to examine how people's climate change mitigation and adaptation practices are shaped on the basis of educational level. A study conducted on students' perception of climate change in the western Himalayas, Jammu and Kashmir, India, highlights that students having a higher level of awareness through formal education had limited involvement in adaptation and mitigation actions. This also gives the message that students are not motivated and are missing a better formal education with an appropriate learning approach with hands-on exposure (Zeeshan, Sha, Tomlinson, & Azeez, 2021). A study conducted among 400 respondents (200 urban, 200 rural) on perceptions of climate adaptation and mitigation in Southern Ecuadorian Ades indicates that respondents from urban areas agreed with the sentence of mitigation, whereas respondents from rural settings agreed with the adaptive approaches (Iñiguez-Gallardo & Tzanopoulos, 2023). Climate change is a global issue affecting all regions and nations. Initially addressed by natural sciences, it has since drawn interest from social and economic disciplines. This broader engagement has introduced diverse perspectives and mitigation strategies. A multidisciplinary scientific approach is essential for

developing comprehensive global solutions (Nunes & Dias, 2022). A study entitled understanding farmers' perspectives on climate change mitigation and adaptation found varied levels of trust among farmers in different sources of climate change information, with scientists being the most trusted (42%) and mainstream media the least (9%). While a majority (68%) believed climate change is occurring, opinions on its causes were mixed, with only 10% attributing it mainly to human activities. Many farmers expressed concern about the impact of climate change on their own farms (46%) and Iowa agriculture (43%), though a third believed human ingenuity could address the issue. There was strong support for farm-level adaptation measures, but less support (33%) for government-led greenhouse gas reduction efforts (Arbuckle, Jr, Morton, & Hobbs, 2015).

A study conducted on students' knowledge of climate change, mitigation, and adaptation in the context of constructive hope found that students had moderate but uneven climate change knowledge, with better understanding of causes than mechanisms and some notable misconceptions. Girls generally performed better than boys in most knowledge areas, though boys had a slightly better grasp of transport-related mitigation. Accurate knowledge of climate change and its solutions strongly predicted constructive hope, highlighting the value of solution-oriented education (Ratinen, 2021). The study *Three Roles of Education in Climate Change Adaptation* highlights education's vital role beyond awareness-raising. It stresses a shift from decision-making to adaptation learning through general education, infrastructure, and targeted support. Coordinated efforts are key to resilience and equity. Transformative change lies in educational strategies that integrate learning into adaptive responses (Feinstein & Mach, 2019).

A study conducted in Costa Rica underscores that their scientific understanding of climate change is limited, with deforestation seen as a primary cause and low trust placed in informal sources of information. Public support for climate-related policies is strong, particularly in areas like forest conservation and sustainable agriculture, though concerns arise over hydroelectric power expansion and water pricing. Many environmentally friendly behaviors are driven more by financial constraints than by climate awareness, raising questions about the sustainability of such behaviors as income rises. It emphasizes that developing countries' engagement with climate action is shaped by immediate socioeconomic realities and highlights the importance of context-specific research to inform effective and equitable climate policies (Vignola, Klinsky, Tam, & McDaniels, 2012) . Thus, socio economic condition of people cannot be undermined while designing and implementing mitigation and adaptation strategies. A study on climate change perception in Hong Kong used survey data and statistical analysis to explore links between risk perception (RP), perceived adaptive capacity (PAC), attitudes, and behaviors. Two PAC dimensions emerged: mental flexibility and perceived effectiveness of actions/resources. RP and PAC were linked to pro-environmental attitudes, but the second PAC factor showed a negative association. Despite positive attitudes, adaptive behaviors varied, indicating a gap between perception and actual action (Ma, Wong, Cheung, Lo, & Jim, 2021).

A study conducted on climate change education for mitigation and adaptation highlights the education sector as a crucial yet underutilized tool for addressing climate change. It emphasizes the effectiveness of local, actionable educational strategies in influencing attitudes and behaviors. It also calls for more rigorous research and evaluation to inform impactful

climate education policies (ANDERSON, 2012). An article highlights that formal and informal education enhance awareness, foster critical thinking, and promote sustainable behaviors, thereby equipping individuals and communities with the knowledge and skills needed to understand and mitigate climate change impacts. This further discusses the interlinkages between climate action and other SDGs. Education is presented as a powerful enabler of climate action, capable of empowering vulnerable populations, building resilience, and driving global cooperation for a sustainable future (PRIATNA1 & KHAN, 2024).

A study concludes that formal education significantly enhances people's adaptive capacity to climate-related disasters, especially in low-income settlements. Education directly improves risk awareness, access to information, and job opportunities while indirectly reducing vulnerabilities such as poor health and exclusion. Promoting formal education emerges as a powerful, flexible strategy for strengthening climate resilience and breaking cycles of vulnerability (Wamsler, Brink, & Rentala, 2012). A study explores how education strengthens human capacity, reducing vulnerability and enhancing resilience to climate risks. Across eleven global case studies, formal education consistently improves disaster preparedness, response, and recovery. The research supports investing in education as a long-term strategy for building climate resilience (Muttarak & Lutz, 2014). An analysis of data from 125 countries (1980–2010) shows a strong and consistent negative association between disaster mortality and female education, particularly among women aged 20–39 with at least secondary education. While overall human development (HDI) correlates with lower disaster deaths, only the education component, especially female education, remains statistically significant across all models. Income and life expectancy show little to no explanatory power when education is accounted for. These findings highlight education, not income, as the most critical factor in reducing vulnerability to natural disasters (Striessnig, Lutz, & Patt, 2013).

A study on the role of education in disaster preparedness: Case study of 2012 Indian Ocean Earthquake on Thailand’s Andaman Coast underscore a strong link between education and disaster preparedness, highlighting that both formal schooling and disaster-related training enhance preparedness, especially among the highly educated. Formal education improves cognitive skills, enabling better responses during disasters, even without prior experience. Additionally, education has spillover effects within communities, particularly through educated female members. The study suggests that universal access to at least secondary education can significantly reduce disaster vulnerability and improve community resilience (Muttarak & Pothisiri, 2013). Education plays a crucial role in shaping climate change mitigation and adaptation practices, though it should be accessible and affordable to the vulnerable population (Aryal, Gangal, & Karki, 2025). This study investigates how different educational qualifications influence people's perception regarding climate change mitigation strategies in Sarawal Rural Municipality.

1.1 Research Objective

The main objective of this study is to critically examine the role of education in shaping perceptions about climate change mitigation and adaptation practices.

1.2 Research Hypothesis

The study has formulated the following null hypothesis:

H01: There is no significant difference between educational level and perception of Mobility Management

H02: There is no significant difference between educational level and perception of Resource Management

H03: There is no significant difference between educational level and perception of food procurement

H04: There is no significant difference between educational level and perception of food intake reduction.

H05: There is no significant difference between educational level and perception on waste handling.

H06: There is no significant difference between educational level and perception of renewable energy.

H07: There is no significant difference between educational level and perception of green spaces.

H08: There is no significant difference between educational level and perception of sustainable construction**.**

2. Research Methodology

A quantitative research method was used for conducting this study. A total of 428 households were selected by applying simple random sampling. The following statistical formula with finite population was applied (Taro, 1967) to calculate the sample size: n=N/1+N (e) 2

Where:

n = desired sample size

N = total population size

e = margin of error (5% or 0.05)

Non-response rate (NNR) = 5%

The structured household survey questionnaire was applied as an instrument to assess perceptions across eight climate mitigation domains categorized based on their education level into:

- Illiterate 143 (33.4%)
- Literate (informal education) 112 (26.2%)
- Primary education (grades 1–8) 115 (26.9%)
- High school and above (grades 9–12 and above) 58 (13.6%)

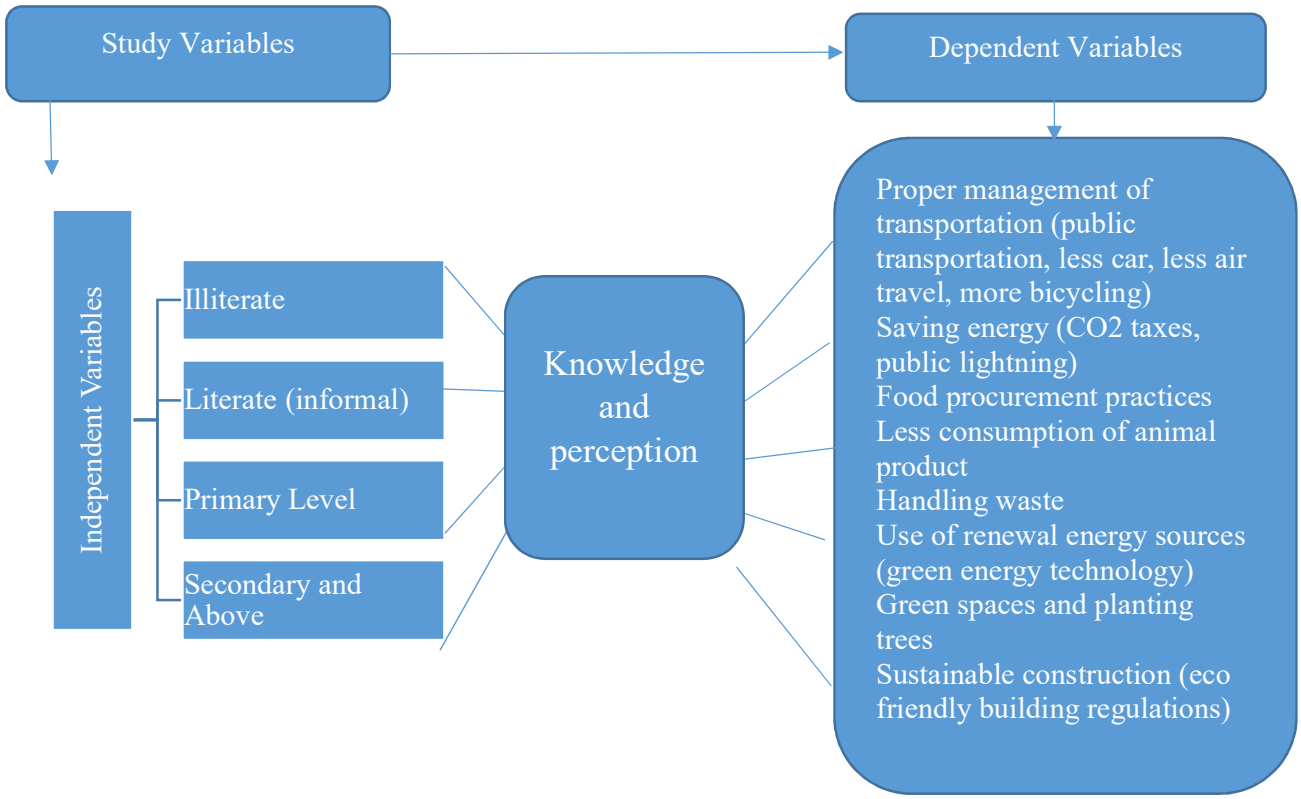
Each statement was rated on a five-point Likert scale, with higher means indicating stronger agreement or awareness. The data were analyzed using ANOVA (Analysis of Variance) to determine statistically significant differences across education levels.

The Cronbach's Alpha test was performed to ensure reliability of the instrument, including efforts were made to ensure content and construct validity. The Cronbach's Alpha test was obtained a value of .854 signifies being reliable. To ensure validity, the questionnaires were first reviewed by subject experts for technical input. Based on their suggestions, the questionnaires were revised and refined. They were then pilot-tested within the community to assess content and construct validity. Feedback from this testing was incorporated into the final version of the questionnaire.

2.1 Conceptual Framework:

The conceptual framework illustrates the relationship between educational attainment—categorized as illiterate, literate, primary level, and secondary and above—as the independent variable, and climate change mitigation and adaptation actions as the dependent variables. Education influences individuals' knowledge and perceptions of climate change, which in turn shape their engagement in mitigation and adaptation behaviors.

Figure 1: *Conceptual Framework of the Study*



3. Results and Analysis

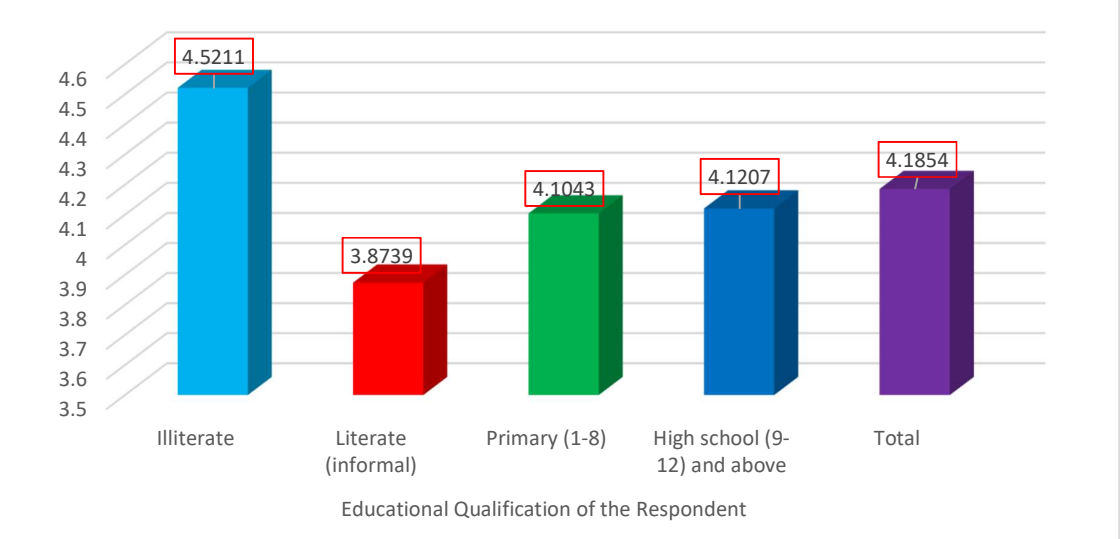
3.1 Perception on Climate Change Mitigation and Adaptation Practices

The average mean response of illiterate respondents regarding perception about climate change mitigation and adaptation practices is higher compared to literate (informal, primary level) respondents. The respondents from high school and above educational level have consistant in their response.

3.2 Proper Management of Mobility

This section of the analysis focuses on climate change mitigation and adaptation strategies, emphasizing how proper management of mobility—such as reducing car use, increasing electric mobility, promoting bicycling, encouraging public transportation, and limiting air travel—can significantly contribute to reducing climate change impacts.

Figure 2: *Proper management of mobility*

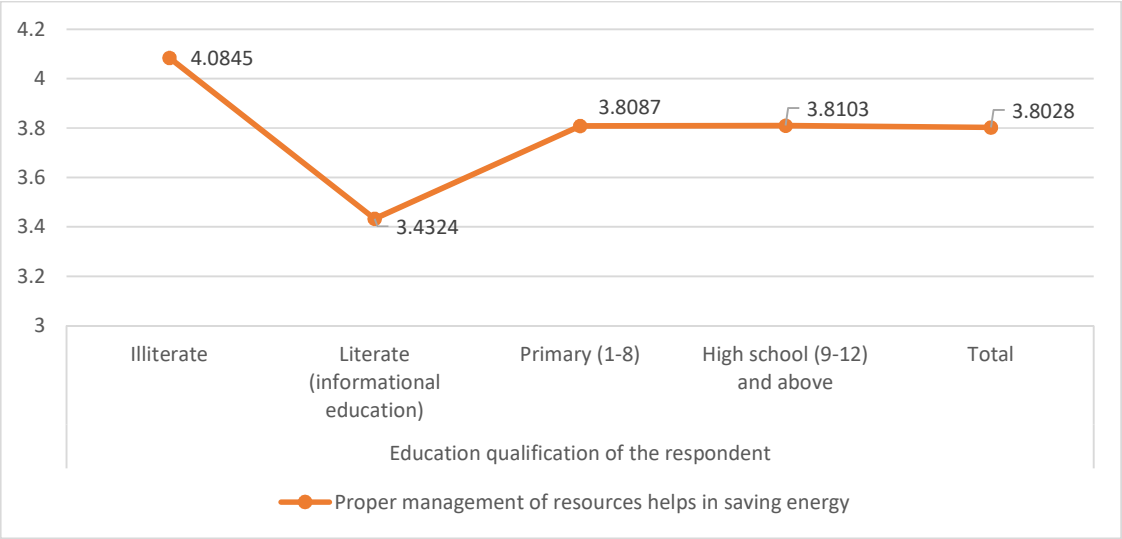


The above bar diagram presents that illiterate respondents reported the highest average mean value regarding the perception of proper mobility management. This was followed by respondents with a high school education or higher. In contrast, those with informal (non-formal) education exhibited the lowest average mean value on this statement.

3.3 Management of Resources

This analysis focuses on how the proper management of resources—such as the sensible use of energy and water, implementation of CO_2 taxes, incentives for resource conservation, and efficient public lighting—contributes to energy savings.

Figure 3: *Proper management of resources helps in saving energy*

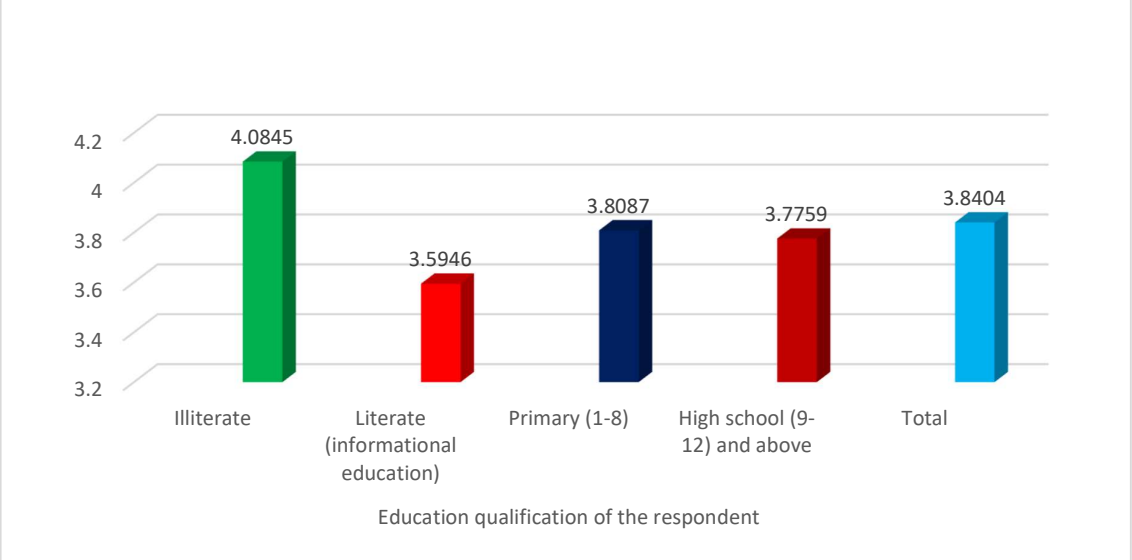


The above graph shows that illiterate respondents have rated the highest score (4.08) supporting the statement that proper management of resources helps in saving energy, while those respondents having with informal education gave it the lowest (3.43). The total average (3.80) suggests moderate awareness, but slightly lower appreciation among those with limited educational exposure.

3.4 Proper Management of Food Procurement Practices

This analysis examines the statement that proper management of food procurement practices—such as obtaining organic certification, prioritizing regional and seasonal produce, and minimizing food waste—contributes to mitigating climate change.

Figure 4: *Proper management of food procurement practices*



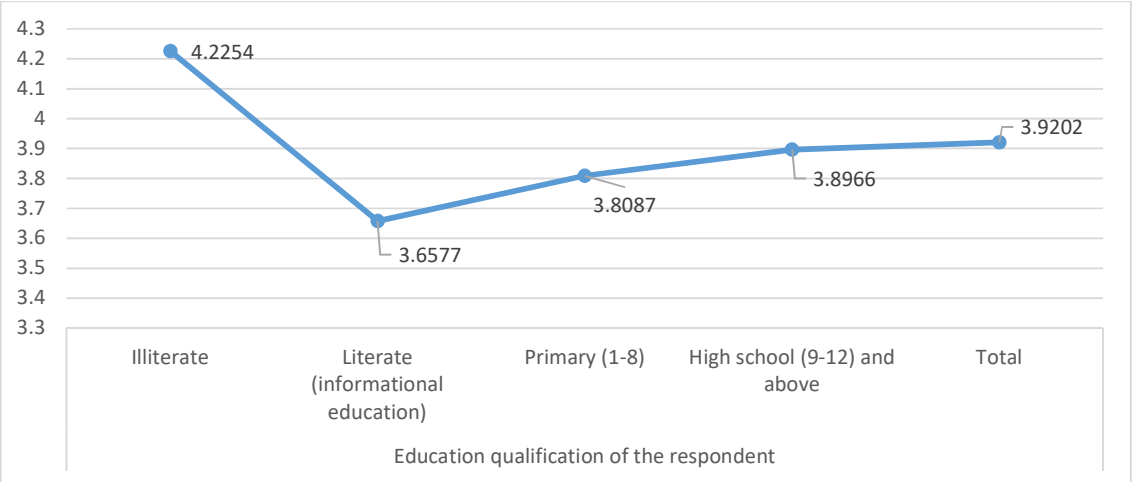
The bar diagram illustrates that support for sustainable food practices is highest among illiterate respondents, with a mean score of 4.08. In contrast, those with informal education

scored the lowest at 3.59, against an overall mean of 3.84. Despite these variations across educational levels, perceptions toward local, organic, and low-waste food habits remain generally positive.

3.5 Less consumption of Animal Product

This analysis explores the strategy of reducing greenhouse gas emissions through lower consumption of animal products and meat, adopting vegetarian or vegan diets, and limiting the intake of processed foods.

Figure 5: *Less consumption of animal products, meat, adaptation to a vegetarian diet and vegan*

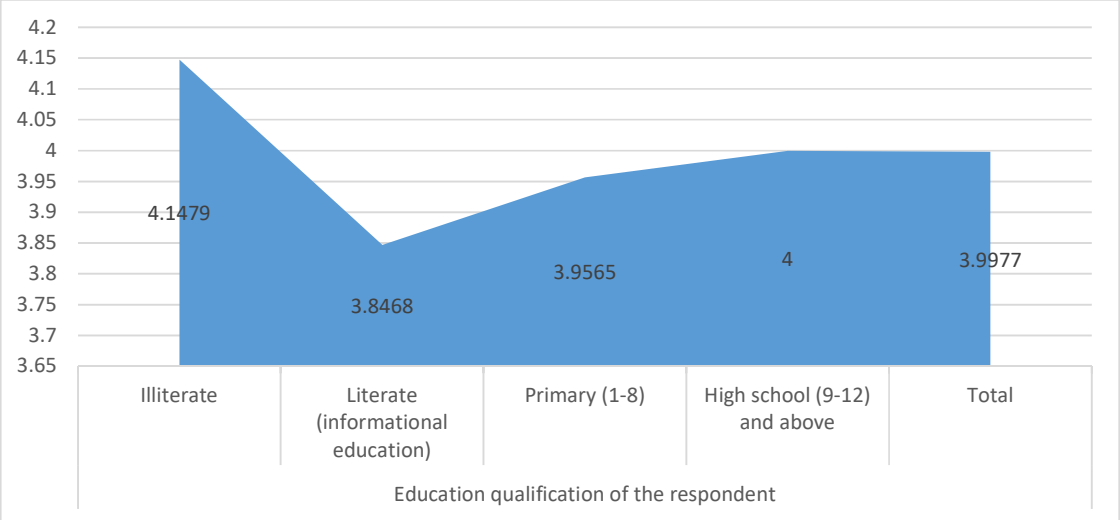


The above graph illustrates perceptions across educational levels regarding the environmental benefits of reducing animal product consumption and adopting vegetarian or vegan diets. Illiterate respondents reported the highest agreement with this strategy (4.2254), while those with informal education showed the lowest support (3.6577). Support gradually increased with higher education levels—3.8087 among primary-level respondents and 3.8966 among those with high school education or above. The overall mean score of 3.9202 reflects a generally positive attitude toward plant-based dietary habits as a means to reduce greenhouse gas emissions. Interestingly, the data suggests that formal education is associated with higher awareness, though illiterate individuals show the strongest support. This may indicate influence from traditional or cultural dietary practices rather than formal knowledge.

3.6 Handling the waste

The diagram below illustrates about climate change mitigation and adaptation strategy focused on waste management, including practices such as package-free shopping, waste separation, recycling, and awareness of micro plastics.

Figure 6: *Handling of waste*

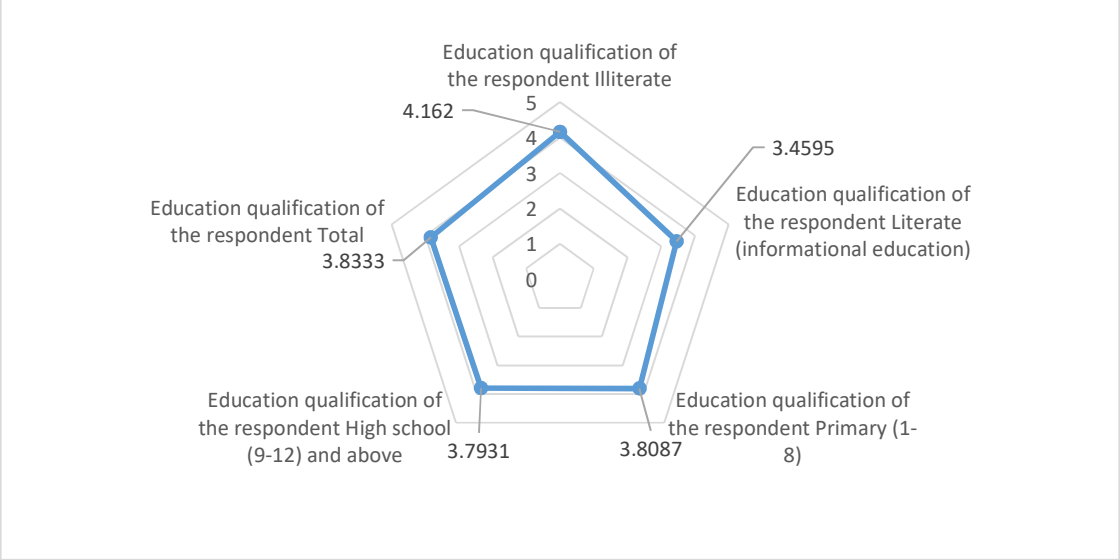


The diagram shows variations in waste handling practices across education levels. Surprisingly, illiterate respondents scored the highest (4.1479), while those with only informational education scored the lowest (3.8468). Scores increased with higher formal education, peaking at 4.0 for high school and above. Overall, the average score across all groups was 3.9977, indicating relatively consistent engagement in waste handling regardless of education level.

3.7 Renewable Energy

The below diagram illustrates about use of renewable energy sources (use of green energy technology.

Figure 7: *Use of renewable energy sources*

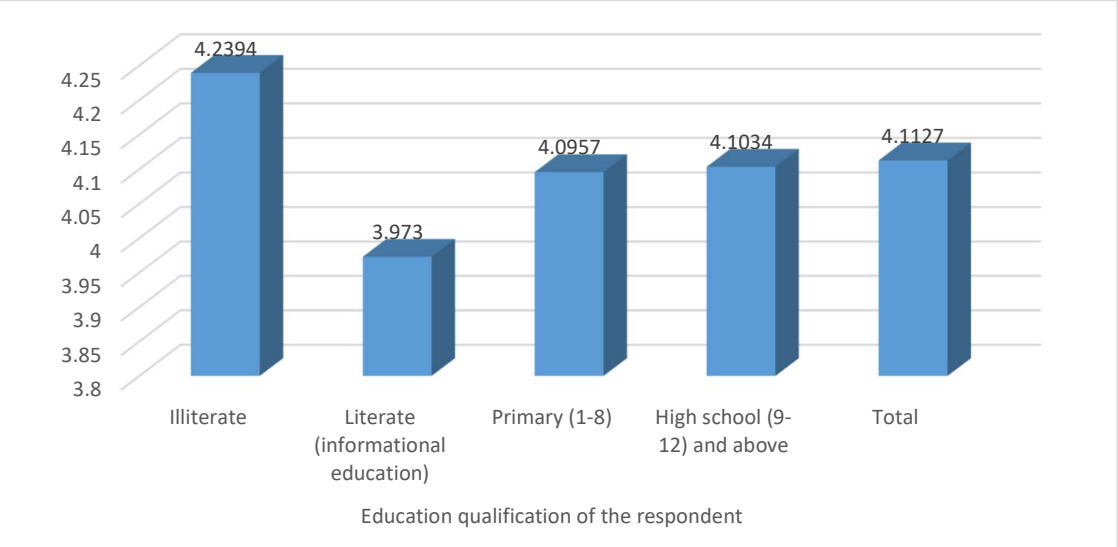


The overall mean (3.83) shows moderate acceptance, with illiterate respondents (4.16) again showing higher support than other groups. The lower score among informally educated participants (3.46) may suggest a knowledge or awareness gap in technological solutions.

3.8 Green Spaces

This part of analysis tries to examine perception of respondents on green spaces and planting trees (more tree planting, community garden).

Figure 8: *Green spaces and planting trees*



This measure received one of the highest total ratings (4.11), with particularly high appreciation from illiterate (4.24) and high school educated (4.10) respondents. The data indicate widespread agreement on the role of afforestation and green infrastructure.

3.9 Sustainable Construction

Support for eco-friendly construction practices was fairly uniform across groups, with a total average of 4.03. Illiterate respondents (4.21) rated this the highest, possibly reflecting practical understanding of building materials and local climate resilience needs.

3.10ANOVA- a significant test of the research hypothesis

Table 1: *Impact of Education Level on Climate Change Practices Perception*

Respondent's perception of Climate change mitigation/adaptation practices	Sig. (p-value)	Interpretation
Education level of respondent - Mobility Management	.000	Significant
Education level of respondent - Resource Management	.000	Significant
Education level of respondent - Food Procurement	.000	Significant
Education level of respondent - Diet and Meat Reduction	.000	Significant
Education level of respondent -Waste Handling	.020	Significant
Education level of respondent -Renewable Energy	.000	Significant
Education level of respondent -Green Spaces	.089	Not significant
Education level of respondent -Sustainable Construction	.014	Not significant

The ANOVA analysis indicates that six out of eight domains showed statistically significant differences by education level ($p < .05$). A p-value of .000 (which means $p < 0.001$) is far below the conventional alpha level of 0.05**,** indicating strong evidence against the null hypothesis**.**

Therefore, it rejects the null hypothesis and conclude that there is a statistically significant difference in mobility management including other five practices perceptions or behaviors among the groups analyzed based on different education levels. However, green spaces and sustainable construction has higher value than $p > 0.05$ indicates that null hypothesis is accepted. Therefore, there is no difference between different educational levels and their perception on green spaces and sustainable construction.

The highest differences were observed in mobility management, resource use, and renewable energy practices. Surprisingly, illiterate respondents reported higher mean awareness/perception in most areas. Green spaces (tree planting, gardens) and sustainable construction (eco-friendly building regulations) were the only domain where the education level did not significantly affect perception ($p = .089$ & 0.014) respectively.

4. Discussion

The results suggest that education level does influence perceptions toward climate change mitigation, though not always in a linear fashion. While one might expect higher education to correlate with greater awareness, illiterate respondents showed consistently high agreement with climate-friendly practices. This might reflect strong traditional knowledge, community awareness programs, or social desirability in responses, exposure to local environment and age of the respondents. The lower scores among informally educated and primary level respondents may highlight a gap in environmental education content at early or non-formal levels.

A study of 1083 Danish farmers shows they are generally aware of climate change, believe it is human-caused, and take some adaptive actions, yet a gap exists between knowledge and actual farming changes. Older farmers align more with scientific views, while younger ones engage more in mitigation. Education level has little effect on perceptions or actions. Compared to US and Australian farmers, Danes have higher awareness but often see extreme weather as normal variability rather than climate change (Jørgensen & Termansen, 2016). A study in Konta Special District, Ethiopia, finds most farmers aware of climate change impacts but often misattribute its causes to natural or divine forces, hindering mitigation efforts. Despite this, they actively use adaptation strategies like soil conservation, agroforestry, and livestock raising, supported by government programs. Their strong ecological beliefs and traditional practices drive these actions. However, limited livelihood options and rain-fed farming increase their vulnerability. (Nega Abera, 2019).

The findings of this research demonstrate a clear association between educational attainment and perceptions of climate change mitigation and adaptation practices. Interestingly, respondents with no formal education (illiterate) consistently reported higher mean scores across most sustainability domains—including mobility management (less car driving, more electric mobility, bicycling, greater use of public transportation, no travel/less air travel), resource use (sensible use of energy, water, CO2 taxes, incentive to save resources, public

lightning), proper management of food procurement practices (organic certificate, preference for regional and seasonal food, avoidance of food waste), less consumption of animal product and renewable energy —than those with informal or primary education levels. Those with high school education or above exhibited more consistent but slightly lower average scores, indicating a possibly more moderate or critically informed stance. ANOVA analysis further supports these results, revealing statistically significant differences ($p < 0.05$) across six of the eight domains, particularly in mobility management, resource use, and renewable energy practices, thereby justifying rejection of the null hypothesis in those areas. However, perceptions regarding green spaces and sustainable construction showed no statistically significant differences ($p = .089$ and $p = .014$ respectively), suggesting a uniform outlook among different educational groups or potentially limited awareness of these specific domains. These findings suggest that while education level influences perceptions of certain climate actions, higher awareness among illiterate respondents may reflect experiential knowledge or recent exposure to awareness campaigns, underscoring the need for further qualitative investigation. Overall, the results emphasize the importance of inclusive and context-specific climate education strategies that engage all segments of the population regardless of formal education level.

5. Conclusion and Recommendations

This study underscores the complex relationship between education level and perception on climate change mitigation and adaptation practices. Educational interventions aimed at improving climate literacy should not overlook local knowledge systems and the potential for community-based awareness programs. Formal education may not always equate to higher perception—contextual, cultural, and experiential learning likely play significant roles.

The following recommendations have been made from these findings:

- Strengthen environmental education at primary and informal education levels.
- Ensure that local and national climate initiatives are accessible and understandable across all education levels to avoid leaving vulnerable groups behind.
- Encourage non-formal education opportunities, such as workshops and local training on energy conservation, waste reduction, and eco-friendly lifestyles, climate mitigation and adaptation practices.
- Promote community-led awareness initiatives that leverage traditional knowledge.
- Education-sensitive climate policy should be prioritized, ensuring that strategies account for varying levels of climate literacy across the population.

References

1. ANDERSON, A. (2012). Climate Change Education for Mitigation and Adaptation. *UNESCO Special Section on the ESD Response to the Three Rio Conventions, 6*(2), 191-206. doi:https://doi.org/10.1177/0973408212475199
2. Arbuckle, J. G., Jr, Morton, L. W., & Hobbs, J. (2015). Understanding Farmer Perspectives on Climate Change Adaptation and Mitigation: The Roles of Trust in Sources of Climate Information, Climate Change Beliefs, and Perceived Risk.

Environment and Behaviour, 47(2), 205-234. doi:https://doi.org/10.1177/0013916513503832

3. Aryal, P. (2023). Occurrence of Disaster Events and their Impact in Nepal: Role of Government and Civil Society Organizations to Reduce the Disaster Risks. *Nepal Journal of Multidisciplinary Research (NJMR), 6*(1), 88-101. doi:https://doi.org/10.3126/njmr.v6i1.54355
4. Aryal, P., Gangal, M., & Karki, T. B. (2025). Exploring the Role of Education (Formal and Informal Learning)in Shaping ClimateChange and DisasterAwareness in Sarawal Rural Municipality, Nepal. *Nepal Journal of Atharva, 3*(1), 26-43. doi:Exploring the Role of Education (Formal and Informal Learning)in Shaping ClimateChange and DisasterAwareness in Sarawal Rural Municipality, Nepal
5. Feinstein, N. W., & Mach, K. J. (2019). Three roles for education in climate change adaptation. *Climate Policy, 20*(3), 317-322. doi:https://doi.org/10.1080/14693062.2019.1701975
6. Iñiguez-Gallardo, V., & Tzanopoulos, J. (2023). Perceptions of Climate Adaptation and Mitigation: An Approach from Societies in Southern Ecuadorian Andes. *Sustainability, 15*, 1-16. doi:https://doi.org/10.3390/su15021086
7. Jørgensen, S. L., & Termansen, M. (2016). Linking climate change perceptions to adaptation and mitigation action. *Climate Change, 138*, 283-296. doi:https://doi.org/10.1007/s10584-016-1718-x
8. Ma, A. T., Wong, G. K., Cheung, L. T., Lo, A. Y., & Jim, C. (2021). Climate change perception and adaptation of residents in Hong Kong. *Journal of Cleaner Production, 288*. doi:https://doi.org/10.1016/j.jclepro.2020.125123
9. MoFE. (2021). *National Framework on Climate Change Induced Loss and Damage (L&D).* Kathmandu, Nepal: Government of Nepal, Ministry of Forests and Environment. Retrieved from http//:www.mofe.gov.np
10. MOHA. (2018). *Disastrr Risk Reduction National Strategic Plan of Action 2018-2030.* Kathmandu Nepal: Government of Nepal. Retrieved from https://www.moha.gov.np/
11. Muttarak, R., & Lutz, W. (2014). Is Education a Key to Reducing Vulnerability to Natural Disasters and hence Unavoidable Climate Change? *Ecology and Society, 19*(1), 1-9. doi:http://dx.doi.org/10.5751/ES-06476-190142
12. Muttarak, R., & Pothisiri, W. (2013). The Role of Education on Disaster Preparedness: Case Study of 2012 Indian Ocean Earthquakes on Thailand's Andaman Coast. *Ecology and Society, 18*(4), 1-17. doi:. http://dx.doi.org/10.5751/ES-06101-180451
13. NDRRMA. (2024). *Floods and Landslides Situation Report.* National Disaster Risk Reduction and Management Authority . Kathmandu, Nepal: MoHA. Retrieved from www.bipad.gov.np
14. Nega Abera, D. T. (2019). Perceptions and practices of climate change adaptation and mitigation strategies among farmers in the Konta Special District, Ethiopia. *Environmental and Soci-economic Studies, 7*(4), 1-16. doi:DOI: 10.2478/environ-2019-0019
15. Nunes, L. J., & Dias, M. F. (2022). Perception of Climate Change Effects over Time and the Contribution of Different Areas of Knowledge to Its Understanding and Mitigation. *Climate, 10*(7), 1-19. doi:https://doi.org/10.3390/cli10010007

16. PRIATNA1, D., & KHAN, S. M. (2024). The importance of education and role of educational institutions in climate change mitigation and achieving UN SDG 13 “Climate Action”. *Indonesian Journal of Applied Environmental Studies , 5*(1), 1-5. doi:DOI: 10.33751/injast.v5i1.10559
17. Ratinen, I. (2021). Students’ Knowledge of Climate Change, Mitigation and Adaptation in the Context of Constructive Hope. *Educational Sciences , 11*(3), 1-14. doi: https://doi.org/10.3390/educsci11030103
18. Striessnig, E., Lutz, W., & Patt, A. G. (2013). Effects of Educational Attainment on Climate Risk Vulnerability. *Ecology and Society, 18*(1), 1-15. doi:http://dx.doi.org/10.5751/ES-05252-180116
19. Taro, Y. (1967). *Statistics: An Introductory Analysis. A Harper International Analysis* (2nd ed.). New York, London, Toyko: Harper and Row, Evaston John Wealtherhill.
20. Vignola, R., Klinsky, S., Tam, J., & McDaniels, T. (2012). Public perception, knowledge and policy support for mitigation and adaption to Climate Change in Costa Rica: Comparisons with North American and European studies. *Mitigation Adaptation Strategies Global Change , 18*, 303-323. doi:DOI 10.1007/s11027-012-9364-8
21. Wamsler, C., Brink, E., & Rentala, O. (2012). Climate Change, Adaptation, and Formal Education: the Role of Schooling for Increasing Societies’ Adaptive Capacities in El Salvador and Brazil. *Ecology and Society, 17*(2), 1-19. doi:http://dx.doi.org/10.5751/ES-04645-170202
22. Zeeshan, M., Sha, L., Tomlinson, K. W., & Azeez, P. (2021). Factors shaping students' perception of climate change in the western Himalayas, Jammu & Kashmir, India. *Current Research in Environmental Sustainability, 3*, 1-9. doi:https://doi.org/10.1016/j.crsust.2021.100035