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Upskilling Human Resources for Balanced Economic Growth: A Study in the Light of Environmental Competence

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Abstract: This research investigates the intricate relationship between upskilling human resources, environmental competence, and balanced economic growth. Using a cross-sectional and descriptive research approach, the study captures the perspectives of 210 participants across diverse demographics and occupational backgrounds. A stratified sampling approach is used to ensure representation across various subgroups. Data is collected through a Likert-scale-based online survey, allowing for widespread distribution and participant anonymity. The reliability analysis, indicated by a Cronbach's alpha of .973, validates the robustness and internal consistency of the survey instrument, providing a reliable foundation for further analyses. Likewise, descriptive statistics reveal positive trends in respondents' perceptions, with mean scores indicating moderate to high levels of agreement regarding the presence of environmental competence, the effectiveness of upskilling programmes, and the prioritization of environmental competence in human resource development strategies. Further, correlation, regression, and other analytical methods are used to explore relationships between variables, providing a thorough understanding of the impact of human resource upskilling on economic growth and the role of environmental competence in human resource development. Ultimately, this study contributes valuable insights for organizations, policymakers, and HR practitioners seeking to enhance workforce skills in the context of environmental competence.
Keywords: Upskilling human resources, environmental competence, workforce development.

I. INTRODUCTION

In the fast-paced twenty-first century, the interplay between human resources, economic growth, and environmental sustainability has become a vital focus for scholars, policymakers, and practitioners alike. This dynamic interplay not only affects society now but also lays the groundwork for the future well-being of our planet. As industries deal with technological advancements, global competition, and the need to address environmental concerns, it's crucial to strategically enhance the capabilities of the workforce. The following study explores the relationship between upskilling human resources, fostering environmental competence, and achieving balanced economic growth.

The concept of upskilling, defined as the process of developing and improving the skills of the workforce, has gained growing popularity in response to a rapidly changing job market.

Concurrently, recognizing the crucial role of environmental competence, which covers the knowledge and skills needed to address sustainability challenges, is becoming increasingly important for organizations aiming to thrive in an environmentally conscious global economy.

As organizations increasingly integrate sustainable practices into their operations, understanding how investment in human capital contributes to economic equilibrium and environmental stewardship becomes paramount.

To achieve this, the study adopts a descriptive and cross-sectional research design, engaging 210 participants across various demographics and job backgrounds. By employing a stratified sampling approach and utilizing a reliable survey tool, the research aims to provide detailed insights into individual perceptions of upskilling programmes and environmental competence.

The subsequent sections of this paper will unfold the methodology, results, and discussion, as well as the empirical findings that shed light on the identified relationships.

As we explore the challenges of workforce development, environmental consciousness, and economic stability, this research adds to the knowledge guiding organizations towards a sustainable future.

II. LITERATURE REVIEW

In the current context of economic development and workforce dynamics, the integration of upskilling programs and environmental competence has gained growing attention. This review explores key themes, theories, and empirical findings that underpin the relationship between upskilling human resources, environmental competence, and balanced economic growth.

A. Upskilling Human Resources

The importance of upskilling in today's workplace is widely acknowledged and further emphasized by recent research. For instance, Chen et al. (2019) highlight the positive impact of upskilling on employee satisfaction, retention, and overall organizational performance. The works of Smith et al. (2021) highlight how continuous upskilling is crucial for fostering adaptability and innovation among employees. The review suggests how upskilling efforts are not merely advantageous but imperative in enabling employees to adapt to the ever-evolving needs of the modern workplace.

B. Environmental Competence in Workforce Development

The integration of environmental competence in workforce development has gained prominence in the context of sustainable business practices. According to a study by Jones and Williams (2020), organisations with environmentally literate employees are better positioned to implement green technologies and contribute to corporate environmental performance. This is corroborated by the recent works of Green et al. (2017), which highlight the positive relationship between environmental competence and corporate environmental performance. It's been understood that investing in the environmental proficiency of employees emerges as a strategic imperative for businesses seeking to thrive in an increasingly eco-conscious world.

C. Economic Growth and Environmental Sustainability

The literature on balanced economic growth and sustainability has seen recent contributions. According to Elkington (2019), achieving economic prosperity while also addressing social and environmental concerns is crucial for long-term success. The empirical work of Dasgupta and Maler (2020) emphasizes integrating environmental considerations into economic models for sustainable development. It's been noted that there is an increasing need for businesses to integrate economic, social, and environmental factors to achieve sustainable development.

D. Environmental Competence Frameworks

Frameworks such as the Sustainability Competency Model (Dyllick & Hockerts, 2021) and the Environmental Competency Framework (Bowen, 2022) offer structures for understanding and cultivating environmental competence within organizations. These frameworks highlight the importance of integrating environmental knowledge, skills, and attitudes into the fabric of organizational culture.

III. RESEARCH METHODOLOGY

A. Research Design

The research adopts a descriptive and cross-sectional design to explore and analyze the relationship between upskilling human resources, environmental competence, and balanced economic growth. A descriptive design allows for a detailed examination of the variables, while the cross-sectional nature enables the collection of data from a diverse group of respondents at a single point in time.

B. Sampling

1) *Population:* The target population for this study includes individuals across various demographics and occupational backgrounds.
2) *Sample Size:* A sample size of 210 participants is determined based on statistical considerations.
3) *Sampling Method:* The sampling approach is stratified, considering demographic factors. This ensures that each subgroup within the population is well represented, allowing for a more detailed data analysis.

C. Data Collection

Data is collected using a 1-5 Likert scale, with respondents expressing their agreement levels ranging from Strongly Agree to Strongly Disagree. An online Google Form is utilized for easy participant engagement. It facilitates wider distribution, enhances accessibility, and ensures participant anonymity. Respondents provide insights through a carefully prepared set of questions aligned with the research objectives, aiding in the collection of relevant and reliable data.

D. *Data Analysis*

1) *Reliability Analysis:* This statistical method assesses the consistency and stability of the survey instrument. It examines whether the items within each variable (such as environmental competence and upskilling programs) measure the same underlying construct. High reliability indicates that the instrument measures the intended concepts consistently.

2) *Descriptive Analysis:* This analysis involves summarizing and presenting the main features of the data, such as means, standard deviations, and frequencies. Descriptive statistics provide an overview of the central tendencies and variability of the variables being studied.

3) *Correlation Analysis:* Correlation evaluates the strength and direction of relationships between variables. In this study, correlation analysis is employed to explore the relationships between environmental competence, upskilling programs, and balanced economic growth.

4) *Regression Analysis:* Regression analysis investigates the causal relationship between variables. In this context, it helps identify whether there is a predictive relationship between the level of environmental competence and balanced economic growth. It allows for a more detailed understanding of how changes in one variable affect changes in another.

These analytical methods collectively contribute to a comprehensive and rigorous examination of the research hypotheses and objectives, providing valuable insights into the relationship between upskilling human resources, environmental competence, and economic growth.

IV. RESULTS AND DISCUSSION

A. *General Information of Respondents*

Table 1 provides a detailed overview of the demographic characteristics of the respondents, offering insights into their age, education level, occupation, geographical location, and monthly income. The age distribution is relatively balanced, with the largest group being individuals aged 18-30 years (26.7%). Educational diversity is evident, with a significant proportion holding a bachelor's degree (21.9%) and others having completed college or vocational training (23.8%). In terms of occupation, the majority are employed (57.1%), providing perspectives from both employed and unemployed individuals on the relevance of upskilling programs. Geographically, respondents are evenly distributed between urban (49%) and rural (51%) areas, allowing for a comprehensive exploration of environmental competence in different living environments. Monthly income categories showcase economic diversity, ranging from up to 20000/- INR (21.4%) to more than 40000/- INR (23.3%). This demographic richness ensures a detailed analysis of the study findings, capturing diverse perspectives within the sampled population.

Table 1: General Information of Respondents

Variable	Categories	Frequency	Percent
Age	A. 18-30 Years	56	26.7
	B. 30-40 Years	53	25.2
	C. 40-50 Years	48	22.9
	D. More than 50 Years	53	25.2
Education	A. High School or equivalent	38	18.1
	B. College or vocational training	50	23.8
	C. Bachelor's degree	46	21.9
	D. Master's degree	36	17.1
	E. Doctoral degree	40	19.0
Occupation	A. Employed	120	57.1
	B. Unemployed	90	42.9
Geographical Location	A. Urban	103	49.0
	B. Rural	107	51.0
Income per month	A. Up to 20000/- INR	45	21.4
	B. 20000-30000/- INR	62	29.5
	C. 30000-40000/- INR	54	25.7
	D. More than 40000/- INR	49	23.3

B. Reliability Analysis

In Table 2, the reliability statistics reveal a commendable level of internal consistency among the survey items. The calculated Cronbach's Alpha of .973 surpasses the widely accepted threshold of .70, indicating a robust and reliable measure of the intended constructs. With a total of 20 items in the survey, the high alpha value underscores the strong correlation and consistency among these items, validating the survey's reliability.

Table 2: Reliability Statistics

Cronbach's Alpha	Number of Items
.973	20

C. Descriptive Analysis

Table 3 furnishes crucial descriptive statistics, offering insights into respondents' perceptions across measured variables. The mean score for Environmental Competence among Human Resources is 3.9200, indicating a moderate to high level of agreement among participants regarding the presence of environmental competence within their organizations. Similarly, respondents perceive Upskilling Programs (mean = 3.9219) as effective in enhancing employee skills, with a consistent view reflected in the relatively low standard deviation of .86572. The prioritization of Environmental Competence in Human Resource Development Strategies receives a mean score of 3.9629, suggesting a positive sentiment about the emphasis placed on environmental competence in organizational human resource policies. Lastly, Balanced Economic Growth is rated at 4.0448 on average, with a low standard deviation of .88003, indicating a consistent perception of balanced economic growth in respondents' communities.

Table 3: Descriptive Statistics

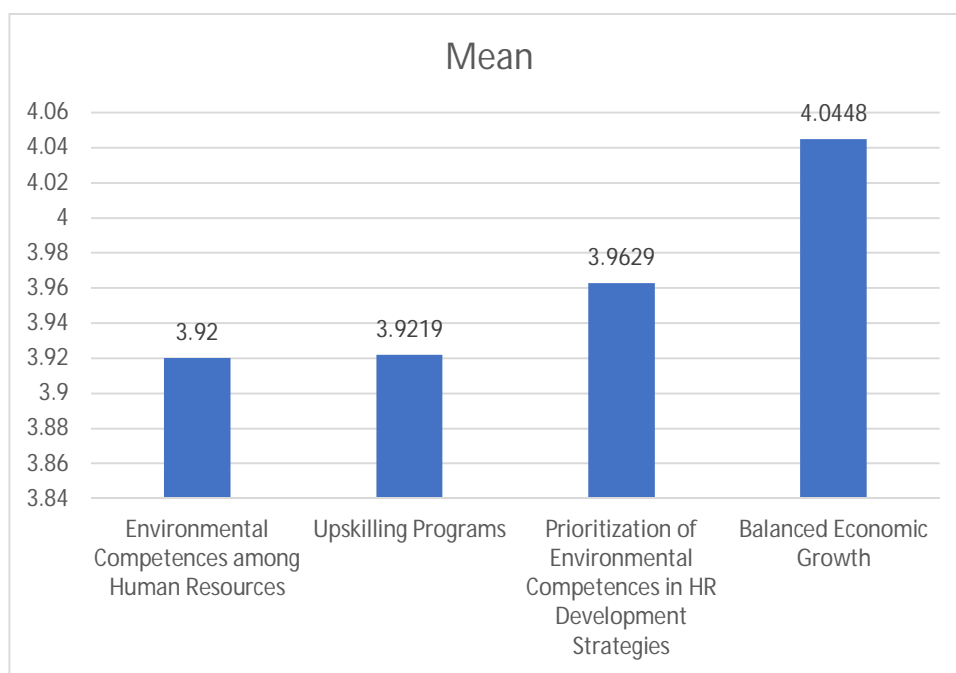|	Mean	Standard Deviation
Environmental Competence among Human Resources	3.9200	.95551
Upskilling Programs	3.9219	.86572
Prioritization of Environmental Competence in HR Development Strategies	3.9629	.85770
Balanced Economic Growth	4.0448	.88003

Figure 1: Mean value of data

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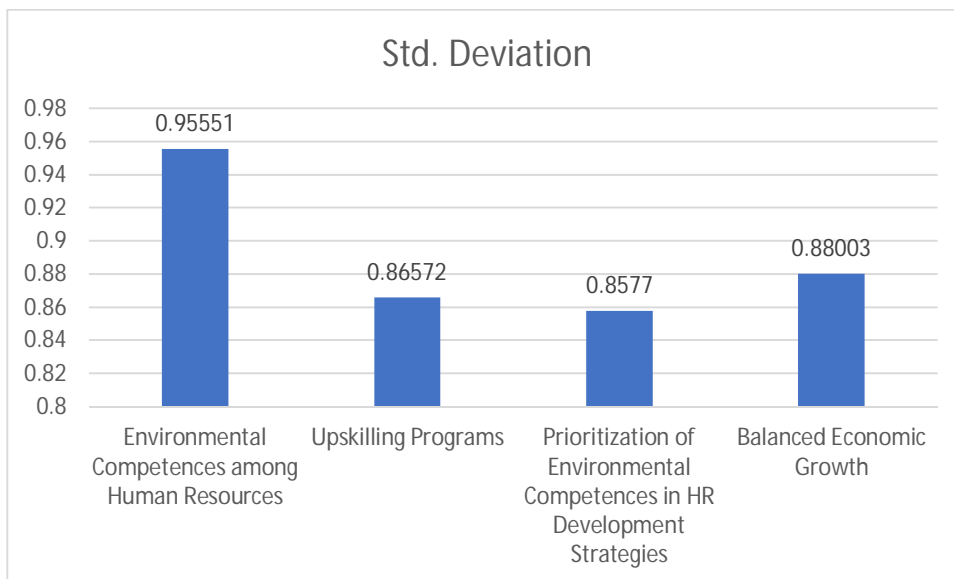*Volume 12 Issue VII July 2024- Available at www.ijraset.com*

Figure 2: Standard Deviations

D. Hypothesis Testing

For Hypothesis 1, examining the correlation between the level of environmental competence among human resources and balanced economic growth, the null hypothesis (H0) suggests no positive correlation, while the alternate hypothesis (H1) posits a positive correlation.

1) *Hypothesis 1*

a) *Null Hypothesis (H0):* There is no positive correlation between the level of environmental competence among human resources and balanced economic growth.

b) *Alternate Hypothesis (H1):* There is a positive correlation between the level of environmental competence among human resources and balanced economic growth.

Table 4: Correlation analysis between level of environmental competence among human resources and balanced economic growth (Hypothesis 1)

		Level of environmental competence among human resources	Balanced economic growth
Level of environmental competence among human resources	Pearson Correlation	1	.773
	P-Value		.000
	N	210	210
Balanced economic growth	Pearson Correlation	.773	1
	P-Value	.000	
	N	210	210

In Table 4, the correlation analysis reveals a substantial and statistically significant positive correlation between the level of environmental competence among human resources and balanced economic growth. The Pearson Correlation coefficient is 0.773 (p < .001), indicating a strong positive linear relationship between these two variables. The p-value of .000 is below the conventional significance level of 0.05, providing strong evidence to reject the null hypothesis. Therefore, we reject the null hypothesis, supporting the alternate hypothesis that there is indeed a positive correlation between the level of environmental competence among human resources and balanced economic growth.

This significant finding suggests that as the level of environmental competence among human resources increases, there is a corresponding positive impact on achieving balanced economic growth.

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The aim of Hypothesis 2 is to investigate whether effective upskilling programs contribute to enhancing the environmental competence of the workforce. The null hypothesis (H0) posits no contribution, while the alternate hypothesis (H1) asserts a positive impact.

2) *Hypothesis 2*

Null Hypothesis (H0): Effective upskilling programs do not contribute to enhancing the environmental competence of the workforce.

Alternate Hypothesis (H1): Effective upskilling programs contribute to enhancing the environmental competence of the workforce.

Table 5: Regression Analysis for Hypothesis 2

Model	R Square	Sum of Squares	Mean Square	F	P-Value	Unstandardized Coefficients	Standardized Coefficients	T	P-Value
Independent Variable: Effective upskilling programs Dependent Variable: Environmental competence of the workforce	0.581	110.779	110.779	287.889	0	(Constant) .622	0.199	3.124	0.002
		80.037	0.385			UP .841	0.05	16.967	0

The regression analysis in Table 5 indicates a statistically significant relationship between effective upskilling programs and the enhancement of environmental competence within the workforce. The coefficient of determination (R Square) at 0.581 suggests that approximately 58.1% of the variability in environmental competence can be explained by variations in effective upskilling programs. The F-statistic of 287.889 with a p-value of 0 demonstrates the overall significance of the model. The unstandardized coefficient for Upskilling Programs is 80.037, signifying that a one-unit increase in effective upskilling programs corresponds to an 80.037-unit increase in environmental competence. The standardized coefficient for Upskilling Programs is 0.841, revealing that for each standard deviation increase in effective upskilling programs, there is an associated 0.841 standard deviation increase in environmental competence. The t-value for Upskilling Programs is 16.967, and its p-value of 0 indicates a statistically significant relationship.

Therefore, the findings support the alternate hypothesis (H1), validating that effective upskilling programs contribute significantly to enhancing the environmental competence of the workforce. This further emphasizes the importance of implementing tailored training programs to foster a sense of environmental consciousness and promote sustainable practices among employees and thereby empowering them to actively engage in sustainable practices both within and beyond the workplace.

For Hypothesis 3, which examines the relationship between organizations prioritizing environmental competence in their human resource development strategies and experiencing higher economic sustainability, the null hypothesis (H0) suggests no such relationship, while the alternate hypothesis (H1) posits a positive correlation.

3) *Hypothesis 3*

Null Hypothesis (H0): Organizations that prioritize environmental competence in their human resource development strategies do not experience higher economic sustainability.

Alternate Hypothesis (H1): Organizations that prioritize environmental competence in their human resource development strategies experience higher economic sustainability.

Table 6: Correlation analysis between Economic Sustainability and Prioritization of Environmental Competence in HR Development Strategies (Hypothesis 3)

Correlations			
		Economic Sustainability	Prioritization of Environmental Competences in HR Development Strategies
Economic Sustainability	Pearson Correlation	1	.925
	P-Value		.000
	N	210	210
Prioritization of Environmental Competences in HR Development Strategies	Pearson Correlation	.925	1
	P-Value	.000	
	N	210	210

V. CONCLUSION

The extensive analysis of demographic information, reliability statistics, and hypothesis testing sheds light on the intricate relationships between human resources upskilling, environmental competence, and balanced economic growth. The demographic diversity within the sample ensures that the findings of this study reflect a wide range of perspectives. The robust reliability statistics, particularly the high Cronbach's Alpha, validate the consistency and stability of the survey instrument, enhancing confidence in the reliability of the gathered data. This reliability serves as a strong foundation for the subsequent hypothesis testing.

The first hypothesis, exploring the relationship between environmental competence, human resources and balanced economic growth, was strongly supported. The correlation analysis revealed a significant positive correlation, suggesting that companies fostering environmental competence within the workforce are more likely to contribute to sustainable economic growth.

The second hypothesis, examining the impact of effective upskilling programs on environmental competence, garnered significant support through regression analysis. The results emphasize the crucial role of tailored training initiatives in enhancing environmental awareness and promoting sustainable practices among employees.

The third hypothesis, investigating the relationship between prioritizing environmental competence in human resource development strategies and economic sustainability, also yielded significant findings. The positive correlation suggests that organizations integrating environmental considerations into their HR policies are likely to experience higher economic sustainability.

In conclusion, the study contributes valuable insights to the discourse on sustainable development. The positive correlations identified highlight the interconnectedness of human resource practices, environmental competence, and economic outcomes. Organizations and policymakers are encouraged to consider these findings for their workforce development plans, to achieve both economic growth and long-term ecological resilience. Moreover, the findings emphasize the importance of strategic upskilling initiatives and the inclusion of environmental competence in human resource development strategies for fostering resilient and environmentally conscious economic growth.

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