



Study of Awareness among Pre-Service Teachers towards the Concept of Education for Sustainable Development (ESD)

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Abstract

In the name of modern development, our actions are leading us into the black hole of the humanitarian crisis where the sustainability of life on Mother Earth is in question. Education for Sustainable Development (ESD) is a paradigm of thinking which focuses on reorienting the aims and content of pedagogical processes for a sustainable future. The critical review of literature suggested that despite of global consensus on urgency of enhancing the awareness among Pre-Service Teachers and inclusion of ESD in teacher education programmes, this area is yet to be introduced consistently and coherently in Pre-service teacher education in India. In this context, the present study aimed at knowing the awareness of Pre-Service Teachers towards the concept of ESD. The present study adopted Descriptive survey method and targeted 100 samples of Pre-Service teachers by stratified random sampling. The findings of this study suggest that while there is an average level of awareness among Pre-Service Teachers towards the concept of ESD (Education for Sustainable Development), there is need to promote the awareness of ESD (Education for Sustainable Development) among Student Teachers and integrate this into the curriculum of Teacher Education.

Introduction

Education is an important tool for achieving sustainability around the world. It is the only medium that enables people to understand work for and benefit from sustainable development. Sustainable development is a development that addresses the needs of the present without compromising the abilities of forthcoming generations to meet their specific needs. The basic principle behind sustainable development is a combination of economic, social and environmental conditions that are shared by all of us. Education for sustainability utilizes the entire education system to provide students with what they need to do to transform our societies to achieve a sustainable future. Sustainable development should also include an acknowledgment and respect for

the positive heritage and legacy of past generations. Education for Sustainable Development (ESD) is a dynamic concept that includes a new vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources. Consequently, education needs to be transformed into a constructive tool for creating awareness among students and citizens of the world. ESD uses transdisciplinary educational systems to develop ideas for permanent learning, nurtures respect for human needs that are compatible with sustainable utilization of natural resources and encourages an awareness of global solidarity. Education for sustainable development has come to be seen as a practice of learning how to make decisions that determine the long-term future of the economy, ecology and social welfare of all communities. Thus, ESD provides a way to maintain equilibrium between humans and nature.

Education for sustainable development (ESD) offers opportunities for learners to take part in independent debates about what is important to them personally and to their society in the future. It also develops and strengthens the capacity of individuals, groups, communities, organizations and countries to make judgments and choices aimed at making our world safer, healthier and more prosperous, thus improving the quality of life for millions of people throughout the world. It includes processes for example critical reflection, greater awareness and empowerment so that new visions, methods, tools and concepts can be explored. Hence a fundamental principle in developing sustainable development is the idea of each individual's involvement, responsibility and commitment to local and global discussions on a common future that gives democracy a central role in a sustainable future.

Since ESD is about creating awareness, skills and values, so that school students can take their place responsibly in society for sustainable development in the future the pedagogical methods to be followed should be different. The pedagogical situation should be created in such a manner that makes the students sensitive to the world around them and creates meaning from his surroundings and his own experiences. Thus, Education for Sustainable Development is a vision of education that seeks to balance human and economic security with cultural traditions and respect for the earth's natural resources. It highlights the characteristics of learning that will contribute to the evolution of sustainability.

Review of literature

Helen Kopnina (2012) this article explores the implications of the shift of environmental education (EE) towards education for sustainable development (ESD) in the context of environmental ethics. This article has two aims: to demonstrate the importance of environmental ethics for EE in general and ESD in particular and to argue in favor of a return to instrumentalism, based on the twinned assumptions that the environmental problems are severe and that education of ecologically minded students could help their resolution. Ravindranath (2013) explores pedagogical realm of ESD through his research paper. It concludes that ESD implores teachers to utilize dynamic pedagogical approaches. Helen Kopnina and Frans Meijers (2014) This article aims to explore the challenges posed by the conceptual framework and diversity of practice of education for sustainable development (ESD). The implications of plurality of ESD perspectives and methodological approaches as well variations in ESD practice will be addressed. Robert Laurie, Yuko

Nonoyama-Tarumi, Rosalyn Mckeown and Charles Hopkins (2016) studies carried out in 18 countries to identify contributions of education for sustainable development (ESD) to quality education. Kalathaki (2017) carried out a case study-based research with synthesis of many interesting approaches, actions and constructive elements of a school project on environmental education which designed and applied to meet the principles and methodology of education for the sustainable development. ESD promoted positive attitudes towards environmental sustainability. Didham, R.J. and Ofei-Manu, P. (2020) conducted a case study research work on establishment of a monitoring and evaluation (M&E) framework to confer how collaborative research partnerships can be carried out on education for sustainable development (ESD) with the participants from seven nations of Asian region. Edwards, D. B. J., Sustarsic, M., Chiba, M., McCormick, M., Goo, M., & Perrin, S. (2020) the goal of the research reported on here is to contribute to the discussion around strategies for working towards and monitoring SDG4. Jakob (2020) conducted a study to determine the views of pre-service teachers regarding education for sustainable development. The study showed that pre-service teachers have positive attitudes towards Sustainable Development, but not in all areas. Ferguson, T., Roofe, C., & Cook, L. D. (2021) this research utilized a survey design to gather views from 296 teachers from 12 high schools in rural and urban areas of Jamaica. Emblen-Perry, K. (2022) this paper presents the findings of a three-year research study into enhancing case-based learning within education for sustainability. Mulyadi, D., Ali, M., Ropo, E., & Dewi, L. (2023) this study analyzes the relationship between perceptions of teacher ESD competence and ESD implementation in Junior High Schools (JHS). Thoriq, A., & Mahmudah, F. (2023) the results of this research can be utilized by schools not at the university level so that they can be a reference in the development of the school curriculum.

Low literature reviews show the awareness of Students Teachers towards ESD. An analysis of ESD goals by UNESCO reveals a significant inadequacy in the operationalization of the ESD output. To address this shortcoming, knowing the awareness of Pre-Service teachers and the conceptual framework, need and implementation of ESD is taken for study.

Need of the study

India is the second most populous and the seventh largest country. Its richly diverse physical geography requires no elaboration. India is a mega diversity country, with a whopping percentage of the world's biodiversity on meagre 2.4 per cent of the earth's surface. With most of the major types of biomes and climates; India has a stupendous range of biodiversity. However, the growing population causes faster depletion of natural resources and ecological degradation issues including water scarcity; receding forests and wetlands and soil erosion. These are grave long-term sustainability problems.

On the economic front, poverty, population pressures, employability, unemployment and resource depletion remain a challenge although India has notable accomplishments in areas of MSMEs, recreation industry, food security and women empowerment. Under such circumstances, it is therefore important that we initiate change to improve living conditions, yet reduce the pressure on planet. Choices made now will directly impact prospects in future. Alternative models of technology exist and even improved models will follow. But

along with these models we need tangible outcome. Education is a key enabler to realize this target. ESD is a tool and technique to a holistic learning process that continues lifetime for an individual and community.

India celebrates all her resources including the human resource, also evident through its scriptures, culture and traditions. — “Education for life, education through life, education throughout life” this quote by father of the nation Mahatma Gandhi resonates in the SDG 4. India had committed herself to this long before it became a global war cry. In 1972, at the UN’s first world conference on environment, India linked declining environment with persisting poverty. Various education commissions, the National Policy on Education-1986 and more recently, NEP 2020 has stressed upon the urgency to develop sensitivity towards nature and natural resources, economic welfare and a just society. The Supreme Court of India in its landmark judgement of 2003 directed — “environment education to be an integral part of the school curriculum from classes I to XII”.

Research Questions

Following research questions stimulated the investigator to conduct the present study in the field of education-

1. Are Pre-Service teachers aware from the concept of “Education for Sustainable Development (ESD)?”
2. Are Pre-Service teachers of Central and State University aware about the concept of “Education for Sustainable Development (ESD)?”
3. Have male and female Pre-Service teachers aware from the concept of “Education for Sustainable Development (ESD)?”

Objectives of the study

1. To know the level of awareness of Pre-Service teachers towards the concept of Education for Sustainable Development (ESD).
2. To compare the awareness of Pre-Service teachers of Central and State University towards concept of Education for Sustainable Development (ESD).
3. To compare the awareness of male and female of Pre-Service teachers towards concept of Education for Sustainable Development (ESD).

Null Hypothesis

Ho1. There is no significance difference between the awareness of Pre-Service teachers of Central and State University towards concept of Education for Sustainable Development (ESD).

Ho2. There is no significance difference between the awareness of male and female Pre-Service teachers towards concept of Education for Sustainable Development (ESD).

Research Methodology

Research Design

The present study was based on Quantitative research approach in which descriptive survey method was used in the study.

Population of the Study

In the present study population means the Pre-Service teachers(pursuing B.Ed. course) of a Central University, FOE (Faculty of Education), BHU and its affiliated college i.e., Vasanta College for Women, Rajghat, Varanasi and a State University, MGKVP (Mahatma Gandhi Kashi Vidyapith) – main campus, Varanasi.

Samples & Sampling Techniques

Stratified random sampling of probability sampling technique was used. In which different strata were males & females and Central & State University. A total number of 100 Students Teachers (pursuing B.Ed. course) of a Central University, FOE (Faculty of Education), BHU and its affiliated college i.e., Vasanta College for Women, Rajghat, Varanasi and a State University, MGKVP (Mahatma Gandhi Kashi Vidyapith) – main campus, Varanasi.

Statistical Techniques

Descriptive statistics: Mean and S.D. were used to find out the nature of data.

Inferential statistics: t-test was used to test the significant differences between the mean scores of Education for Sustainable Development (ESD) Awareness with respect to gender and type of university.

Tools of Data Collection

An ESD awareness Questionnaire tool is developed by the researcher by using google form in order to collect information for the present study. This questionnaire has 28 objective type questions. All the questions are given options in which respondents has to response on the appropriate answer.

Pre-Service teachers awareness about Education for Sustainable Development (regarding Sustainable Development and ESD knowledge, plan, Aspects and its Educational practices) has taken as dependent variable and these are measured on 4-point Likert scale.

Analysis of data

Descriptive statistical Analysis to know the level of awareness of Pre-Service teachers towards the concept of Education for Sustainable Development (ESD).

In this area, the investigator tabulated all the scores of each of the variables regarding ESD (Education for Sustainable Development) and found out the measures of central tendencies i.e., Mean, Median, Mode, Standard Deviation, Skewness and Kurtosis for knowing the tendency of the sample and the normality of the sample. The details of the results are shown in the table and graphs given below.

Table 4.1

Statistics

score		
N	Valid	100
	Missing	0
Mean		82.1700
Std. Error of Mean		1.63868
Median		86.7000 ^a
Mode		87.00 ^b
Std. Deviation		16.38677
Variance		268.526
Skewness		-2.112
Std. Error of Skewness		.241
Kurtosis		7.250
Std. Error of Kurtosis		.478
Range		103.00
Minimum		8.00
Maximum		111.00
Sum		8217.00

Mean, Median, Mode, Standard Deviation, Skewness and Kurtosis of ESD (Education for Sustainable Development) among Pre-Service teachers of Central University, FOE (Faculty of Education), BHU and its affiliated college i.e., Vasanta College for Women, Rajghat, Varanasi and a State University, MGKVP (Mahatma Gandhi Kashi Vidyapith), Varanasi.

Table 4.1 shows the preliminary analysis of the variables in the samples. It is clear that the obtained mean of ESD (Education for Sustainable Development) Awareness for Pre-Service teachers is 82.17. The maximum score of each tool used for measuring ESD (Education for Sustainable Development) Awareness is 111 for Student Teachers. Both the mean scores are above average. In the case of standard deviation, it is 16.38677. This is illustrated clearly using histograms with a normal curve.

Figure 4.1

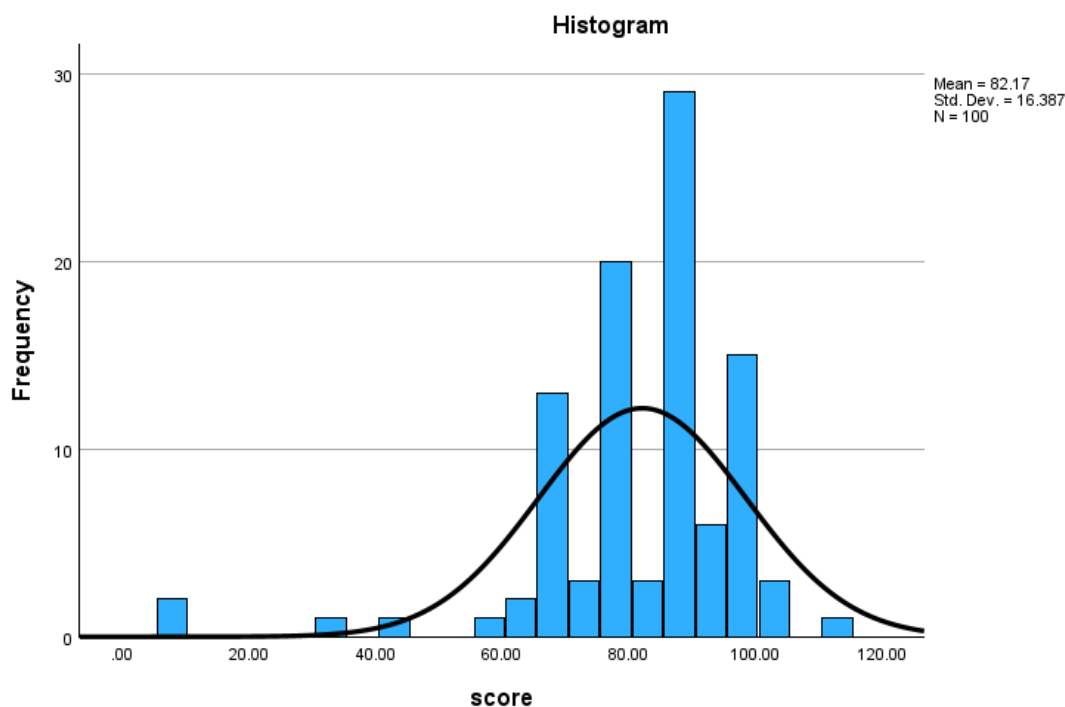


Fig.4.1. Level of ESD (Education for Sustainable Development) Awareness among Pre-Service Teachers.

Table 4.1 shows that the mean (M) and standard deviation (σ) being 82.17 and 16.38677 respectively for all Student Teachers, now a range being decided of **(Mean + SD and Mean-SD)**

Mean=82.17

SD=16.38

(Mean + SD=82.17+16.38=98.55)

(Mean-SD=82.17-16.38=65.79)

Table 4.2

Range	Below 65.79 Less Awareness	65.79-98.55 Average Awareness	Above 98.55 High Awareness
No. of Student Teachers	15	68	17

Awareness of Pre-Service teachers towards the concept of ESD (Education for Sustainable Development)

Above descriptive analysis in Table 4.2 shows that the number of Pre-Service teachers having slightly less awareness is 15, and number of Pre-Service teachers having high awareness is 17, where maximum of the Pre-Service teachers are having average awareness towards the concept of ESD (Education for Sustainable

Development) i.e. 68. Therefore, this data helps in finding the awareness of Pre-Service teachers towards ESD (Education for Sustainable Development).

Inferential statistical analysis objective wise:

- ✓ To compare the awareness of Pre-Service teachers of Central and State University towards concept of Education for Sustainable Development (ESD).

Table 4.3

		Group Statistics			Std. Error
TYPESOFUNIVERSITY		N	Mean	Std. Deviation	Mean
score	CENTRAL	50	80.2000	18.93490	2.67780
	STATE	50	84.1400	13.26959	1.87660

Mean and Standard Deviation of both Central and State University.

Table 4.4

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
score	Equal variances assumed	.431	.513	-1.205	98	.116	.231	-3.94000	3.26990	-10.42901	2.54901
	Equal variances not assumed			-1.205	87.777	.116	.231	-3.94000	3.26990	-10.43847	2.55847

t value of Central and State University.

Table 4.5

Types of University	N	Mean	SD	t-value	0.05 level of significance
Central	50	80.20	18.93	- 1.205	Not Significant
State	50	84.14	13.26		

Mean, t-value, and SD with respect to type of university.

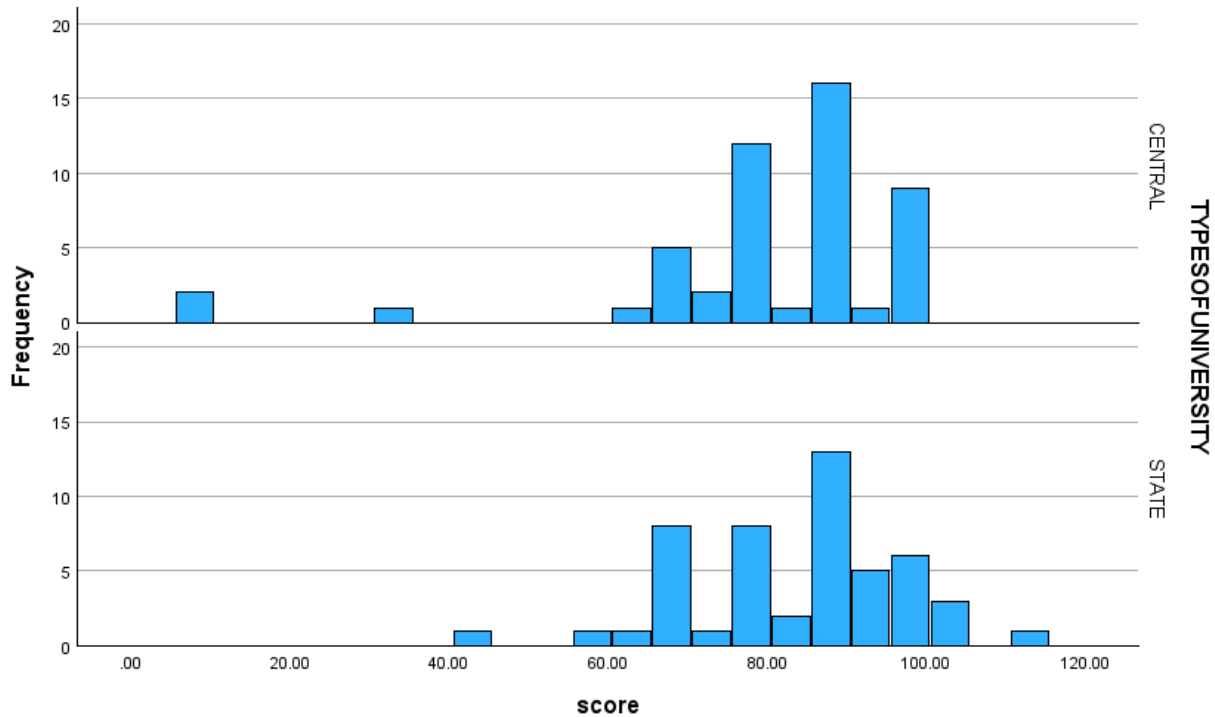
Fig. 4.2**Bar Graph representing Mean, t-value, and SD with respect to type of university.**

Table 4.5 reveals comparison of Central and State University's Student Teachers' awareness towards the concept of ESD (Education for Sustainable Development). The Mean and SD of Central University's Pre-Service teachers are 80.20 and 18.93 respectively whereas, the Mean and SD of State University's Pre-Service teachers are 84.14 and 13.26 respectively. The t-value found -1.205 which is not significant at 0.05 level of significance indicates that the awareness of ESD (Education for Sustainable Development) among Pre-Service teachers of Central and State University do not differ significantly towards the concept of ESD (Education for Sustainable Development).

- ✓ To compare the awareness of male and female Pre-Service teachers towards concept of Education for Sustainable Development (ESD).

Table 4.6**Group Statistics**

	GENDE R	N	Mean	Std. Deviation	Std. Error Mean
score	MALE	50	83.3400	14.37204	2.03251
	FEMAL E	50	81.0000	18.25332	2.58141

Mean and Standard Deviation of both Male and Female Student Teachers.

Table 4.7**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
score	Equal variances assumed	.001	.974	.712	98	.239	.478	2.34000	3.28554	-4.18005	8.86005
	Equal variances not assumed			.712	92.887	.239	.478	2.34000	3.28554	-4.18454	8.86454

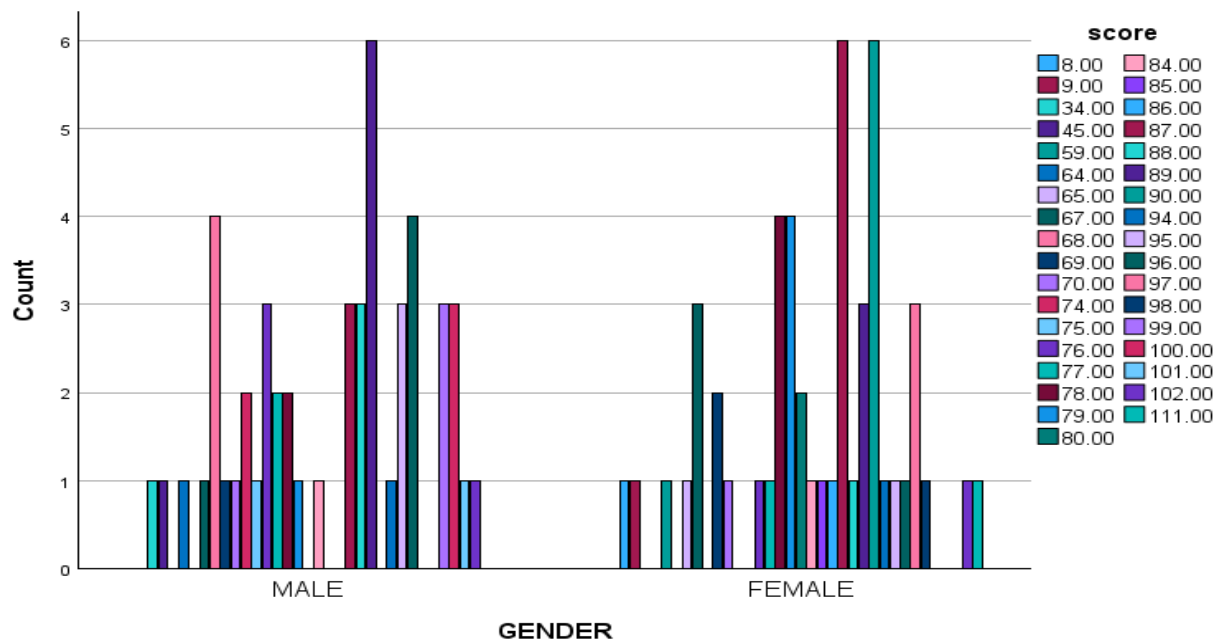
t-value, significance difference and Confidence level of Male and Female Student Teacher.

Table 4.8

Gender	N	Mean	SD	t-value	0.05 level of significance
Male	50	83.34	14.37	0.712	Not Significant
Female	50	81.00	18.25		

Mean, t-value, and SD with respect to Gender.

Fig. 4.3



Histogram of Mean, t-value, and SD with respect to Gender.

Table 4.8 reveals Comparison of awareness of male and female Pre-Service teachers towards the concept of ESD (Education for Sustainable Development). The mean and SD of Male Pre-Service teachers are 83.34 and 14.37 respectively whereas, the mean and SD of Female Pre-Service teachers are 81.00 and 18.25 respectively. The t-value found 0.712 which is not significant at 0.05 level of significance indicates that awareness of Male Pre-Service teachers does not differ significantly from the awareness of Female Pre-Service teachers towards the concept of ESD (Education for Sustainable Development).

Conclusion

The study brought out that the how the Pre-Service teachers awareness is essential to perceive ESD as a dimension of quality education to prepare students for the present and the future world. The findings of the study reveals that there is an average level of awareness among Pre-Service teachers (pursuing B.Ed. course) of Central University, FOE (Faculty of Education), BHU and its affiliated college i.e., Vasanta College for Women, Rajghat, Varanasi and a State University, MGKVP (Mahatma Gandhi Kashi Vidyapith) – main campus, Varanasi. It also shows that there is no significance difference between the awareness of Pre-Service teachers of Central and State University towards concept of Education for Sustainable Development (ESD). As well, it was found that there is no significance difference between the awareness of male and female of Pre-Service teachers towards concept of Education for Sustainable Development (ESD)

Discussion

The findings of this study suggest that while there is an average level of awareness of Pre-Service teachers towards the concept of ESD (Education for Sustainable Development), there is need to promote the awareness

of ESD (Education for Sustainable Development) among Pre-Service teachers and integrate this into the curriculum of Teacher Education.

The study brought out that the how the Pre-Service teachers awareness is essential to perceive ESD as a dimension of quality education to prepare students for the present and the future world. The teacher education institutions are willing and positive to pragmatically connect the goals of SDGs and the ESD competencies framework. Their awareness and perceptions were closely linked to the design and execution of the EPs in their curriculum.

We must understand the intensity of profound ripple effect of Indian teachers as they are the ones who are responsible for molding the minds of a demographically young country, with approximately 1.37 billion people, hence, shaping the destiny of the mankind for a sustainable future from their classrooms. Enabling teachers with ESD is the most significant step in our journey for a sustainable development, because they are the ones who nurture the nascent minds of tomorrow. The essence of the power of a teacher, of a Guru is beautifully expressed in an Indian mantra as: "*Guru Brahma, Guru Vishnu, Guru Devo Maheshwara; Guru Sakshat Param Brahma, Tasmai Shri Guravay Namah*" which means Guru is the supreme God who creates, sustains knowledge and destroys the weeds of ignorance for our betterment.

With this thought, let us empower our teachers with ESD so that they are able to direct the thinking, hence blossoming the educated minds for a constructive and a sustainable future.

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