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Role of Teachers in Building the Concept of Sustainable Development: Success or Failure

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Abstract

Sustainable Development (SD) is a rich, challenging and thought-provoking construct in social sciences. The main purpose of this paper was to identify and explore the role played by primary school teachers in building up the idea of sustainable development (SD) among students. This paper was intended to identify that how a teacher can successfully execute the concept of SD by influencing students' minds at the primary level. Quantitative survey technique were utilized for data collection. All the primary school teachers of Lahore division comprised the population of the study. Through multistage sampling technique, 352 primary school teachers were selected as participants of the study. A self-developed SD questionnaire incorporating four major factors (*teachers' awareness, pedagogy, curricular and co-curricular activities*) with Cronbach's alpha value = .93 was used to measure the role of teachers in building the sustainability concept among students at primary level. The results indicated a significant mean score difference among SD scores of teachers, sector wise (private and public). Furthermore, the results also reconnoitered the significant difference (p=.04) between the mean scores of female and male teachers in building up the SD concept in students' minds.

Keywords: economic indicators, environmental, social, sustainable development

Introduction

The idea or notion of sustainable development (SD) became popular after the publication of a report presented by "*World Commission on Environment and Development*" that signified the concept and importance of SD (Brundtland, 1987).

> "*Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (Brundtland, 1987, p.22).

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Sustainable development encourages a solid connection between individual activities and environment so that environmental, societal, and economic requirements can be fulfilled. The Secretary General of UNO assigned a task to the "*World Commission on Environment and Development*" in 1983 to "re-examine critical environmental and developmental problems around the world and formulate realistic proposals to address them." This idea was concluded in the Brundtland description titled "Our Common Future" published in 1987, which aimed to specify the needed pathway for sustainability at every stage and also helped to bring forth the concept of SD at the forefront, globally. This report alerted the world about the urgency of making progress to sustainable development without harming the environment and natural possessions (Brundtland, 1987). The *United Nations Environment Programme (UNEP), World Wide Fund for Nature (WWF), World Conservation Union* and *Caring for the Earth* programme paid significant attention to the practice of "living sustainably" which is described as follows:

> *"A kind of development that provides real improvements in the quality of human life and at the same time conserves the vitality and diversity of the Earth. The goal is a development that meets these needs in a sustainable way"* (Union & UNEP, 2013, p.8)**.**

The decade of *"Education for Sustainable Development"* (ESD) declared by the United Nations was an attempt to re-orient educational practices, policies and investments to bring them in line with the concept of sustainability (Wals, 2014). ESD contributed in allowing individuals to cope with the challenges of the present, future and motivated decision-makers to make full use of adjustments for the betterment of a viable world.

> "*When education for sustainable development emerged as a component of the educational agenda in the international arena, it was related with the considerable shift in the educational discussion about the purpose and nature of education and with the necessity to respond to crises caused by the recent idea of progress*" (Pavlova, 2013, p.734).

In another research study, Huckle discussed how *Education for Sustainable Development* invited the assumptions of leading educational discourse, especially regarding educational objectives, teaching methods and contexts. These strategies support people in acquiring the skills and capabilities required for implementing technological and scientific solutions to resolve environmental matters (Huckle, 1996; Huckle & Wals, 2015).

Sustainable Development in Pakistan

Since 1990s, the Pakistani government has prioritized the promotion of equitable and sustainable development. Especially, over the last few years, the government has been planning to develop Pakistan's SD strategies in their own context to manage sustainability issues at the national level. Pakistan has since developed its own National Conservation Strategy (NCG), which is a part of SD and determines the environmental improvement agenda of the country (Pearson & Degotardi, 2009). As described by Khan, who presented the Pakistani government with reforms related to environment friendly initiatives, the government of Pakistan initiated the National Cleaner Production Program to facilitate tanneries and industries, so they may successfully deal with ecological problems (Khan et al., 2012). Various studies also supported the reforms of the government concerning environmental conditions and found that the government of Pakistan considers Sustainable Development Goals (SDGs) more extensively than Millinium Developmental Goals (MDGs). So, Pakistan has intended to efficiently keep tabs on SDGs and formulate policies and actions at the state level through exploration, discourse, open strategy, commitment, trainings and involvement of stakeholders in policy-making (Zaidi et al., 2018). National ownership is guaranteed at all levels and the government encourages and facilitates the process of development of nationally defined sets of indicators that are most appropriate to Pakistan's national needs and priorities (Saeed, 2019). Schooling has been observed as a significant agent of revolution for changing lives, behaviors, and common mindsets (Khan & Khan, 2018). The role of education in exploring SD is imperious. At this point in time, when ESD has appeared as a component of the instructive plan, it has been related with an important shift in instructive discussion about the reason and nature of instruction and the emergencies brought about by the contemporary impression of development (Franchett et al., 2019).

Teacher's Role in ESD

Being an educator, it is not only to perform a job that contains a number of tasks; it also means operating inside the educational organization which is not entirely organized and never will be (Beccegato, 2001).

> *In spite of arguments that people's "beliefs" are important influences on the ways they conceptualize tasks and learn from experience . . . little attention has been accorded to the structure and functions of teachers' beliefs about their roles, their students, the subject matter / areas they teach, and the schools they work in* (Nespor, 1987).

Explaining the concept of ESD has been a greatest challenge for teachers. The varied extent of discussion about this notion can be viewed as the implication of SD in educational settings, the suitable parity of harmony, human rights, and promotion of social values in educational programs and the methods used for coordinating civilizations regarding what to be expected and prepared is considered as part of education (Gadotti, 2016). Some studies opposed ESD because it jeopardised their influence, whereas some others wanted that schools and educational institutions should take lead in promoting sustainability by involving educators (Sinakou et al., 2018). Teachers assume a key role in introducing the concept of sustainability among the young students. It is imperative that, an educator is responsible for the embellishment of socially and sincerely well-adjusted people (Sinakou et al., 2018). They should support young students to feel strongly about themselves, to demonstrate their feelings and confidence, to esteem themselves as well as other individuals (Rieckmann, 2018).

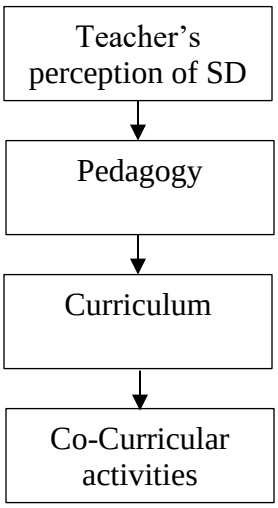
Significance of the Study

The following paper will be helpful for teachers, schools, society and the stakeholders to recognize the actual role of teachers as agents of SD. Moreover, it will explore new venues for decision-makers and prospective teachers in order to discover new patterns for the emerging demand of sustainability. This paper will also help to explore how teachers make their students learn about SD, how they utilize their capacities and abilities, what teaching methodologies they consider as most applicable, how helpful they find the implemented curriculum, the significance of co-curricular activities utilized to construct the SD concept, and how the above variables can be utilized to clarify these concepts.

Purpose of the Study

This paper analyzes the contribution of primary school teachers in offering SD patterns to their pupils, developing instructional content for knowledge transmission, arranging activities for building sustainability and collaborating with school management to achieve the desired outcomes. According to Rands (2009), teacher-as-facilitator plays a critical role in developing the teaching-learning situation and in monitoring a learning procedure which involves significant inquiry and formation of common identity. At the same time, the role of teacher is content-neutral, although not value-neutral. Certainly, it should be assumed that no instruction is ever valued impartial (Rands, 2009). In this research, the researcher seeks to define and develop an understanding of the role teachers play to build the SD concept at the primary level. From literature review,

the researcher has identified four fundamental factors with reference to the role of educators as agents of SD and these factors are as follows:



Keeping in view the above discussion, the aims of the current study are as follows:

1. To explore the perception of primary school teachers about their role as agents for SD at the primary level.
2. To identify the perceived responsibilities of primary school teachers as SD concept builders based on their gender
3. To identify the perceived responsibilities of primary school teachers as SD concept builders based on their sector (Public/ Private).

Research Hypothesis

The current study attempts to test the following hypothesis:

1. There is no significant difference between the perception of male and female primary school teachers about their role as agents for SD
2. There is no significant difference between the perception of public and private school teachers about their role as agents for SD

Research Design

The study is descriptive in nature and based on a positivist paradigm. For data collection, quantitative methodology was employed. A self-devised questionnaire was used to explore the perception of teachers and to identify the extent of their efforts for promoting the values of SD in primary schools.

Population

Primary school teachers of District Lahore constituted the target population of the study. There were 2817 primary school teachers in the public sector and 1275 teachers in the private sector. The researcher acquired this information from the authorized website of the Punjab School Education Department for public sector teachers, while the information about private school teachers was gathered from the Education Office situated at Hall Road, Lahore.

Table 1

Number of Schools in Lahore

	Male	Female	Total
Number of Schools	348	268	616
Number of Teachers	1178	1639	2817

Source: Punjab School Education Department website

Table 2

Gender Wise Number of Schools

Category	Schools (Boys)	Schools (Girls)	Total
Schools	158		158
Teachers	1275		1275

Sample of the Study

Random sampling technique was used to obtain a truly demonstrative sample from the selected population. In Lahore District, there were 4092 registered primary school teachers in both public and private sectors. Using the sample size calculator[1] at 5% margin of error about the parameter estimation at 95% confidence level, the researcher selected 352 primary school teachers from the target population. The nominated sample of the current study is illustrated in the table given below.

Table 3

Sector Wise Distribution of Primary Teachers

	Frequency	%	%	Total %
Public	255	72.4	72.4	72.4
Private	97	27.6	27.6	100.0
Total	352	100.0	100.0	

Table 4

Gender Wise Division of Teachers

	Freq.	%	%	Total %
Male	126	35.8	35.8	35.8
Female	226	64.2	64.2	100.0
Total	352	100.0	100.0	

Instrument

Based on the literature, a questionnaire was developed with four main factors including "Teachers' Perception" (their knowledge, awareness, competencies about SD), "Pedagogy" (what kind of teaching methodologies they use and consider as most useful), "Curriculum" (to what extent the implemented curriculum is helpful in concept building) and "Co-Curricular Activities" (how far they consider co-curricular activities important in bringing conceptual clarity). These four major factors further comprise subfactors which constitute the three basic pillars of SD (social, environmental and economic). The questionnaire was devised in the national language to make it more comprehensive and easy to answer.

Internal Consistency of the Instrument

To quantify its internal consistency, the questionnaire was pilot tested and the values of Cronbach's alpha for the factors are given below.

Table 5

Reliability Measures

Factors	No of Items	Cronbach's Alpha
A. Teachers' Perception	07	.740
B. Pedagogy	12	.896
C. Curriculum	1113	.797
D. Co-curricular Activities		.906
E. Total	43	.932

Analysis and Interpretation of Data

The procedure for analyzing data enables the researchers to comprehend the collected information. The most common assumption about analysis is that it investigates and organizes data in a way that permits the researchers to identify themes, discover relationships and draw explanations or generate theory from data (Richter et al., 2017). The obtained dataset was analyzed through SPSS version 21.

Data Normality

To ensure that the obtained data was normally distributed, Shapiro-Wilk's test ($p > 0.05$) was applied. Typical Q-Q plots and visual review of histogram demonstrated that the data was approximately normally distributed.

Table 6

Data Normality Test

Sector	Kolmogorov-Smirnov[a.]			Shapiro-Wilk		
	Statistic	Df	Sig	Statistic	Df	Sig
Public	.065	242	.014	.988	242	.035
Private	.071	110	.200*	.987	110	.393

Descriptive Statistics

Descriptive statistics such as mean and standard deviation of variables provide an overview of the given data. Likert scale questions were used to manifest the

representation of data by providing a range of suitable options ranging from 'strongly disagree' to 'strongly agree'.

Table 7

Descriptive Statistics of Key Variables

Key variables	N	Min	Max	Mean	SD	Variance
Teachers' Awareness	352	13.00	32.00	23.9375	4.11537	16.936
Pedagogy	352	24.00	60.00	44.7528	8.17813	66.882
Curriculum	352	17.00	53.00	35.6477	6.18847	38.297
Co-curricular Activities	352	24.00	64.00	48.6392	9.14760	83.679
Total Factors	352	88.00	192.00	149.3068	21.46254	460.641

Table 7 depicts the mean value of teachers' responses regarding their perception of SD which is 23.93. It indicates that they possess a clear vision about the SD concept and mean value = 44.75 indicates that a large number of teachers use different techniques to teach the sustainability concept to their students. Mean response value of all teachers depicting the presence of sustainability concept in the implemented curriculum is 35.64 and it shows that there is a valueable amount of content which helps teachers to clarify the concepts about SD. Further, mean response value of teachers' responses is 48.63 and it indicates that they consider co-curricular activities in promoting sustainability among students.

Correlation

Bi-variate Pearson product-moment correlation coefficient was performed to explore the association between the four major factors of the study. To guarantee that there was no violation of the assumption of linearity and normality, preliminary analysis was performed.

The results depicted in Table 8 revealed that a positive correlation was found between pedagogy and teachers' perception with (r = .35). While, (r = .52) shows a strong correlation between curriculum and teachers' perception, (r = .39) indicates a medium correlation between pedagogy and curriculum. However, (r = .62) demonstrates that there is a strong correlation between co-curricular activities and teachers' perception. A strong correlation was also found between pedagogy and co-curricular activities with (r = .83). Furthermore, the value of (r = .72)

indicates a strong correlation between co-curricular activities and curriculum with n = 352 (p <.0005).

Table 8

Correlation between Factors

Variables	1	2.	3.	4.	5
1. Teachers' awareness	1	.350**	.523**	.366**	.623**
2. Pedagogy		1	.396**	.714**	.838**
3. Curriculum			1	.465**	.725**
4. Co-curricular				1	.881**
5. Total	.				1

** "*Correlation is significant at the 0.01 level*" (2-tailed)

Independent Sample t-Test

The role of teacher was further explored on the basis of dissimilar variables like gender and sector.

Comparison on the Basis of Sector

Independent sample *t*-test was applied to calculate the mean score difference between teachers from public and private sectors and the values are as follows:

Table 9

Independent Sample t-test on the Basis of Sector

	Public (255)		Private (97)		T	Df	P
	M	S. D	M	S. D			
TRSD	156.07	15.15	160.74	14.60	-2.71	350	.007

The above values indicate a significant difference between the level of awareness of teachers from the private and public sectors regarding their role as agents for SD, so the null hypothesis is rejected. For private sector (M= 160.74, SD=14.60) and for public sector (M=156.07, SD=15.15), *t*(350)=-2.71, p= .007, 95% CI, with the difference in Mean = -4.60, -8.06 to -1.28.

Comparison on the Basis of Gender

Teachers' role for promoting the concept of SD was also compared on the basis of gender. Independent sample *t*-test was applied to identify the mean score difference between female and male teachers as agents for SD and the values are as follows:

Table 10

Independent Sample t-test on the Basis of Gender

	Male (126)		Female (226)		T	Df	P
	M	S. D	M	S. D			
TRSD	152.33	14.54	161.44	14.37	-5.85	350	.000

The above values reveal a significant difference between the perception of female and male teachers regarding their role as agents for SD. For male teachers (M=152.33, SD=14.54) and for female teachers (M=161.44, SD=14.37), *t*(350)= -5.85, p=.000, 95% CI, with the magnitude of difference in mean = -9.11, -12.17 to -6.05.

Results and Findings

The findings determined that the set of data was approximately normally distributed and Shapiro-Wilk's test indicated the significance level p > .05 (Razali & Wah, 2011). Further, histogram, Q-Q plots and boxes demonstrated that data was normally distributed. The relationship between four major factors was examined using Pearson product-moment correlation coefficient. To ensure that there was no violation of the suppositions of linearity, homoscedasticity, and normality, a preliminary analysis was performed and a positive correlation was found among the four factors. The questionnaires were distributed among the female (64.2%) and male (38.5%) participants, while sector wise distribution determined that private sector teachers were 27.6% and public sector teachers were 72.4% of the total participants. Moreover, independent sample *t*-test was applied to identify the mean score difference between the perception of female and male as well as private and public school teachers and a significant difference was found between the perception of male and female school teachers. For female teachers (M=161.44, SD= 14.37) and for male teachers (M=152.33, SD=14.54), *t*(350) = -5.85, p =.000, 95% CI, with the magnitude of difference in mean (-9.11,

-12.17 to -6.05). Similarly, a significant difference was also found in the perception of private and public sector teachers. For the private sector (M=160.74, SD=14.60) and for the public sector (M=156.07, SD=15.15), *t*(350)= -2.71, p = .007, 95% CI, with the magnitude of difference in mean = -4.67, -8.06 to -1.28. Therefore, it can be concluded that as compared to male teachers, female teachers from both sectors possess a clear vision and idea about their role as promoters of sustainability values at primary level.

Discussion

This research aimed to explore the role of primary school teachers as agents of SD among students with respect to their own perception about this notion, their pedagogy, how helpful they believe the implemented curriculum is, and with the help of co-curricular activities they support their students in developing the concept of susutaniability.

From the point of view of those teachers who are involved in SD and other environmental exercises, these findings are surprising. The researchers expected a higher level of familiarity with issues of sustainability and a more prominent contribution in educational programs. The results revealed that our language for sustainability (including abbreviations such as EE, SD, and ESD) was essentially not a piece of most scholars' vocabulary. Without a doubt, many of the teachers utilized the language in simplest possible ways and use well-known environmental perspectives (such as the significance of re-cycling paper). This discovery runs counter to the proposal of Walls and Jickling who stated that "sustainability talk possibly unites various groups in the society scanning for a typical language to examine environmental issues" (Jickling & Wals, 2012). However, the participants of this study showed a significant amount of understanding and awareness of their role as agents of SD. Indeed, female primary school teachers were found to be more clear about their role for promoting sustainability. Attention should be given to the training of teachers especially male teachers who are the key agents in promoting the values of SD.

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