



RESEARCH PAPER

Investigation of the Conceptual Understanding of Primary School Teachers regarding Sustainable Development Goals in Punjab

Imtiaz Ali* ² Prof. Dr. Ayaz Muhammad Khan

1. Ph. D Scholar, Division of Education University of Education Lahore, Punjab, Pakistan
2. Professor, Division of Education University of Education Lahore, Punjab, Pakistan

PAPER INFO	ABSTRACT
Received: June 30, 2021 Accepted: September 20, 2021 Online: September 23, 2021 Keywords: Conceptual Understanding, Financial, Economic, School Teachers, Social Sustainable Development Goals *Corresponding Author: ayaz@ue.edu.pk	Historically, the United Nations has challenged 195 nations to live sustainably to address the current needs of its people and the future of the nations through the Sustainable Development Goals Global Movement. This paper contributes to the existing knowledge about differences in teachers' conceptual understanding of sustainable development (SD) in Elementary schools about their professional experience and subject area. The paradigm of the research was interpretivism and the methodology was qualitative. The design was phenomenology research and the transcendental approach was adopted. The semi-structured interview was used for data collection and the 12 participants were selected for data collection. Data was collected till saturation. Thematic analysis using N-Vivo was conducted for data analysis. In the initial phase, five themes were noted and reported. The data was analyzed and the results reveal teachers' understanding of sustainable development goals and which indicates were poor.

Introduction

Historically, the United Nations has challenged 195 nations to live sustainably to address the current needs of its people and the future of the nations through the Sustainable Development Goals Global Movement. This study contributes to the existing knowledge about differences in teachers' conceptual understanding of sustainable development (SD) in Elementary schools about their professional experience and subject area. Education for sustainable development (ESD) is a teaching approach for learners to promote sustainable development (SD). (UNESCO 2005). In the worldwide discussion on ESD, a comprehensive viewpoint of SD was pushed by numerous members: 'To accomplish manageability natural issues are significant, yet additionally friendly and financial issues. An all-encompassing viewpoint of SD is viewed as a need since social and social variables are frequently the reason for natural issues. Then again, development is expected to meet people's social and monetary requirements to advance natural preservation (United Nations Educational & Organization, 2014).

For instance, literature found in a global examination that the cooperation of nearby occupants is social essential to acquiring development objectives that don't adversely influence biodiversity protection. Every single branch of knowledge, including the humanities and the sociologies, needs to deliver issues identify with the climate and sustainable development. Tending to supportability requires an all-encompassing, interdisciplinary methodology that unites the various orders and establishments while holding their unmistakable characters. Limited exploration exists about how SD is understood at the elementary school level. The main worldwide test of the current time frame is sustainable development (SD). Supportability is the most major issue of the current

time how to save our earth's typical setting and sources while producing accomplishment just as security on the side of occupants of a country. In the control of the United Nations (UN), the overall administrations need to show the premium to kindly purpose sustainable development in the previous few decades (Rieckmann, 2017; Saqib et al., 2020).

Literature Review

Sustainable development comprises three key dimensions social consistency, environmental responsibility, and economic capability. The three key dimensions of sustainable development have been categorized into fifteen themes. The social consistency theme comprises individual civil rights, harmony and individual protection, equity and equality, educational pluralism, inter-learning diversities and governance. The sustainability paradigm includes the social aspects of the empowerment of the people through cultural and educational perspectives. Innovative education and education for sustainable development (ESD) can be played a very vital responsibility in this practice. Education and political understandings have seen thriving acknowledgements and at the same time support background conscious, societal and reasonable community. The different national and international political advancements are evidenced by this. For example in 2005 the United Nations has been announcing the decade for education for sustainable development (UNDESD, 2005,2014) which is coordinated and led by UNESCO, in 2011 the United Nations Economic Commission for Europe (UNECE) also accepted its strategy in education for sustainable development (ESD) and the international management of leaders agreed 2030 program for sustainable development that includes of 17 sustainable development goals (SDGs), with particular objectives can be accomplished in 2030 (Nasreen, 2019; Saleem, Naseem, Ibrahim, Hussain, & Azeem, 2012).

In 2005 announcement of the United States Decade of Education for Sustainable Development (USDESD) accelerates the combination of the ESD philosophy into all levels of education. The teacher education institutions have been imagining the revolutionary mediator for engaging in the sustainable development goals the people are confronted with, disciplinary, novel and innovative actions are necessary for the implementation of sustainable development in education. The educational activities, methodology of teaching, the functional structure of infrastructure, cultural activities and available standards and beliefs inside institutions have been internal essentials of the teaching-learning, it is involved that integration of the ESD goals modifies and affects the educational system, concerns with curriculum, learners, learning outcomes, methods of teaching and the classroom organization as an alternative of complementary subject matter or theme adding on sustainability inaccessible topics and learning systems (Bergman, Bergman, Fernandes, Grossrieder, & Schneider, 2018; Cotton, Warren, Maiboroda, & Bailey, 2007).

To follow the 8 Millennium Development Goals (MDGs), the structures, as well as a particular set of objectives and targets, were acknowledged. The present list of official MDGs indicators and targets was modified in 2007. MDG 2: Achieve universal primary education: To guarantee that kids all around, including the two young men and young ladies, will have the option to finish a full course of essential training by 2015. The Food and Agricultural Organization of the UN cases that almost 57 million grade young youngsters can't go to class; 80% of them live in rustic regions. This has made the metropolitan rustic information and instruction partition the present fundamental obstruction to accomplishing worldwide essential training by 2015 (Saqib et al., 2020).

The MDGs have been replaced by the SDGs Sustainable Development Goals; (Rieckmann, 2017).

Pakistan certified its obligation to the 2030 Agenda for Sustainable Development by receiving the Sustainable Development Goals (SDGs) as its public advancement plan through a consistent National Assembly Resolution in 2016. From that point forward, the nation has

gained significant ground by mainstreaming these objectives in public approaches and techniques, including the Five-Year Plan, common development methodologies and Pakistan's drawn-out advancement viewpoint. In 2018, the recently chosen Government planned and affirmed a National SDGs Framework that visualizes a public vision to organize and restrict SDGs. According to UNDP's Human Development Report 2018, Pakistan is ranked 150th out of 189 countries with an HDI value of 0.562 (with 1 being the maximum value). According to the educational indicators, only Afghanistan lags behind Pakistan in the context of regional comparison. All other regional countries have shown improvement in HDI in comparison to Pakistan (Bergman et al., 2018; Nasreen, 2019; Saleem et al., 2012; Saqib et al., 2020).

Sustainable development creating significance of education based on sustainable communities, societal fairness, equality, and sustainability is accredited countrywide and globally, through worldwide organizations for example the United States, UNESCO and UNICEF that are accepted a large number of policies and achievements procedures more than the previous two decades. The announcement of the United Nations Decade of Education for Sustainable Development (UNDEAD) 2005, 2014, is proceeding as a supporter of a combination of sustainable development goals in several learning perspectives and educational altitudes to be addressed and led by UNESCO. From an educational perspective the worldwide challenges which contemporary community has been tackled with sustainability. The sustainable development goals (SDGs) have been accepted by the worldwide societies in the United States reorganization of the significance of teaching-learning by establishing a particular SDG, on Quality education (SDG 4), and has defined goals and indicators that should have achieved in 2030. Sustainable development goals, (SDGs 4) is specifically related to quality education and the target of 4.7 of SDG 4 special focuses on education for sustainable development (ESD), and the understanding and ability of sustainability which have generated among all level of students to develop international citizenship which should be energetically participated in more sustainable society in 2030, and ensure that the sustainable development has obtained and endorsed knowledge, skills and attitudes essential to all the students at all the level of education including, sustainable development goals, sustainable standards of living, individual privileges, equality and equity, encouragement of pluralism and promotion of harmony among people and non-sadism culture in communities, international citizens and endorsement of intellectual harmony and participation for sustainable development goals in educational sectors. It is essential to continue relations among the numerous scopes of sustainable development while organizing and implementing ESD internationally so the people have the possibility to apply SD conception in their lives (Nolan, 2012; Tilbury, 2012; Rieckmann, 2018).

Pakistan has a great potential to incorporate Education for sustainable development at every level of instruction. (Farinha, Azeiteiro, & Caeiro, 2018).

By reviewing the literature on ESD in Pakistan, there is no focus on the implementation of ESDs at the school level. Very few studies were found on sustainable development in schools for better quality education (Farinha, Caeiro, & Azeiteiro, 2020). There is a dire need to connect the general actions and pedagogical activities of teachers with SDGs in schools. This study will provide research-based evidence about the basic understanding of teachers and head teachers of elementary schools regarding SDG. ESD is a mechanism to educate people and make awareness of SD. ESD is a means to transfer the 'appropriate' sets of knowledge, attitudes, values and behavior. Although sustainable development and ESD have to turn progressively more observable at all levels of education, due mostly to encouragement from global organizations such as the UN and UNESCO, these are still increasing notions. There is little harmony on how ESD should be implemented, regardless of an evident agreement that sustainability is something that should be followed through education. Furthermore, sustainability corresponds to multifaceted, complicated issues. Approaches to environmental and developmental problems are deep-rooted in insecurity, though the predictability of improbability and unpredictability are hardly ever

acknowledged by international and national institutions, such as the UN and UNESCO (Farinha et al., 2018). Therefore, as educators at the local level work towards sustainability, their approaches to ESD are varied. Implementation is sporadic, largely depending on the efforts of individual actors or local institutions (Nikel 2007). It is significant to gain deeper insight into what these experienced teachers and leaders are doing in ESD and how they pursue sustainability, despite challenges. The idea of SD can in the writing be distinguished to incorporate or zero in distinctively on three unique measurements: an environmental measurement, a monetary measurement, and a social measurement. The natural measurement stresses keeping up organic variety, feasible environmental cycles and flexibilities. With a concentration on biological measurement, it is contended that the improvement of society ought to be subjected to nature. An exemplary academic apparatus inside this structure is the 'biological impression,' which is a normalized proportion of human interest for characteristic capital that might be appeared differently in relation to the planet's natural ability to recover. The analysis of a limit centered around the natural measurement comes from those that embrace a more human-centric viewpoint of SD.

With a concentration at monetary measurement, advancement is likened to financial development. Subsequently, the monetary viewpoint is absolutely human-centric. Improvement without a developing economy is viewed as an abnormality among the individuals who embrace a financial viewpoint of SD. The transcendent view among neoclassical financial experts is related to keeping up or expanding absolute capital, they contend it is feasible to substitute regular capital for artificial capital and that monetary development subsequently is feasible to support uncertainly. The social measurement accentuates value between people of various populaces just as among present and people in the future, alongside security and great wellbeing. Social measurement has regularly been perceived as the most vulnerable 'mainstay' of SD with regards to its scientific and hypothetical underpinnings (Lehtonen 2009). The interest of this measurement can be credited to the way that economy has not had the option to tackle questions in regards to joblessness and social minimization in formative issues.

A fundamental initiative has been taken by Education for Sustainable Development that addresses the aim of poverty, social injustice and damage related to environment by education. It is taken as an instrument to transform the different behaviors of people. The principles and standard of living by attentiveness of sustainability and ensuring sustainable development for the people in the world (Kelsemeht al.,2018). With increasingly intricate and unified world with a real danger such as growing demand of education and climatic changes go beyond the knowledge obtained and skills needed to find opportunities for jobs (Leichtetal.,2018). The UN described that education should promote the ESD plan by maintaining consultative conferences and meetings in the world. Education systems in all over the world have been relocated to include Education for Sustainable Development (Sharp, 2002; UNESCO, 2012& Dhindsa, 2017). The education in Swedish institutions have to promote teaching of sustainability. Finland devised the curriculum integrate for the sustainability in the content and Manitoba has introduced sustainability in different the provinces (McKeown, 2013). Education for Sustainable Development used in informal education in the world, extensive academic research is limited and surprisingly unusual in previous literature. These examining the impact of Education for Sustainable Development often views natural phenomena as biological (Aleixo, Leal, & Azeiteiro, 2018).

According to Alexie al. (2018) the dimension of environmental education of sustainability focus on economic and social magnitude of sustainability. Modern evidences from the Portugal indicated that graduate areas hold more Sustainable Development Goals than degrees related to undergraduate (Alexie al., 2020). Regulation adds social qualities that are the part of authoritative norms. The examination showed monetary and administration gives possibly basic to seeing how associations incorporate SD exercises (Randles and Lash, 2015). Notwithstanding, ongoing proof illustrate that in certain nations

as Portugal are the key entertainers have responsibility from governmental establishments in actualizing Sustainable Development (Fahrenheit al.,2018). Moreover, it was found that in spite of the fact that partners accept that Sustainable Development is necessary for all other areas and courses. In any case, there is an overall absence of exploration in higher education (Alexie al.,2017). Consequently, in associations, particularly in HEIs the job of financial and governance subject in receiving Sustainable Development requires further examination (Vargas al., 2019). The writing on the Education Sustainable Development is the continually developing adjusting the sustainability is needed as supportability challenges our experiences on the most proficient method to cope with them move over the long haul.

Education for Sustainable Development (ESD) represents the principal approaches to react the calls development needed for sustainability. This idea immediately grows to be a global development. Now days the education for sustainable development is getting more consideration as the successful instrument (Leal Filho, 2018). Education for Sustainable Development centers around creating aptitudes among understudies and people to urge and rouse them to take part in manageable conduct by thinking about present and future financial, political, social and natural effects of both locally and universally (Hopkins & McKeown, 2002; Rieckmann, 2018). As expressed by Leal Filho (2015), Education for Sustainable Development is the educational process exemplify by different approaches and strategies pointed toward encouraging mindfulness about the issues pertaining practical turn of events". As per the meaning of UNESCO described by the Hopkins (2012).

The Education Policy 1998–2010 focus on expanding center around the nation current circumstance. This principal objective of approach was change schooling system stand on cutting the edge advancement of culture, business in evolving requirements of ecological instruction. The NCS propose the updating educational plan and blend ecological variables into Bachelor and Master level of instructive organizations. Likewise proposed to set up a free climate separation in all horticultural and designing areas (Alvi& Aziz, 2002; Mughal et al., 2011). The curriculum reforms in Pakistan are predictable to ensure the superficial and structural changes that are necessary to adapt the needs of people and strong understanding of the nature of the surrounding and the interface of the environment with different people and the interdependence. Requirements concerning the development of setting partition with in agriculture and engineering university areas were projected to produce positive consequences to grasp the upshot of sustainable development. There is an increasing focal point on environment and sustainable development (Mughal al.,2011). Pakistan needs to focus on the significance sustainable development goals in contents, curriculum and education system. For this purpose, the measures have been taken to improve the education standards and levels (Qureshi, 2019). Specifically, they need to integrate biodiversity themes in Pakistan's ecology areas, natural resources and the changes in the climate. Conversely, the research on the Education for sustainable development its effectiveness and significance for country development and economy is limited in Pakistan (Mirza, 2015).

Material and Methods

The methodology of the research section constructs accessible clarification about the research paradigm, research design, population, sample and the instrument of the study. This paper contributes to the existing knowledge about differences in teachers' conceptual understanding of sustainable development (SD) in Elementary schools about their professional experience and subject area. Education for sustainable development (ESD) is a teaching approach for learners to promote sustainable development (SD). The paradigm of the research was interpretivism and the methodology was qualitative. The design was phenomenology research and the transcendental approach was adopted. The semi-structured interview protocol was used for data collection. The 12 participants were

selected for data collection using the purposive sampling technique. The data was collected till saturation.

Table 1
The selected participants for the study

<i>Sr. #</i>	<i>Participant District</i>	<i>Gender</i>	<i>Age</i>	<i>Experience</i>
1.	Bahawalnagar	Male	35	36
2.	Rahim Yar Khan	Male	40	40
3.	Kasur	Female	32	30
4.	Lahore	Male	51	41
5.	Gujranwala	Male	37	37
6.	Gujrat	Female	40	42
7.	Kasur	Male	44	45
8.	Lahore	Male	35	30
9.	Gujranwala	Male	30	30
10.	Lahore	Male	36	35

The instrument for quantitative data analysis was developed and pre-tested under validity and reliability criteria. The expert validity was ensured and the Cronbach alpha was also tested.

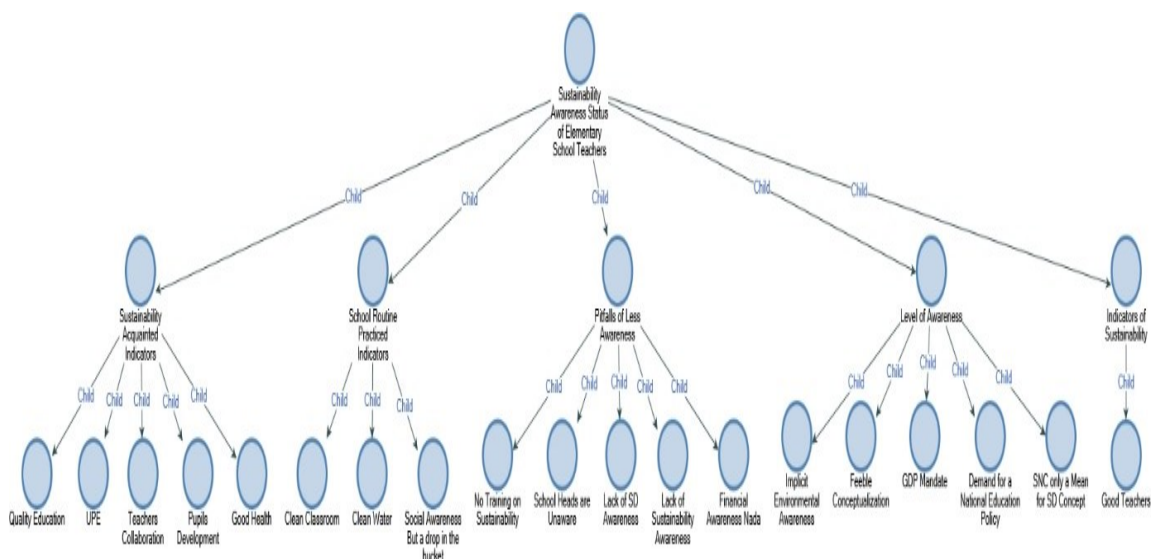
Data Analysis

The data was collected using google form and self-approach. The collected was entered into SPSS and initially scrutinized for missing values. It was assessed that 6 questionnaires were not filled and the respondents who accept but responded were not saved. So, the final 294 respondents' data was finalized for further analysis.

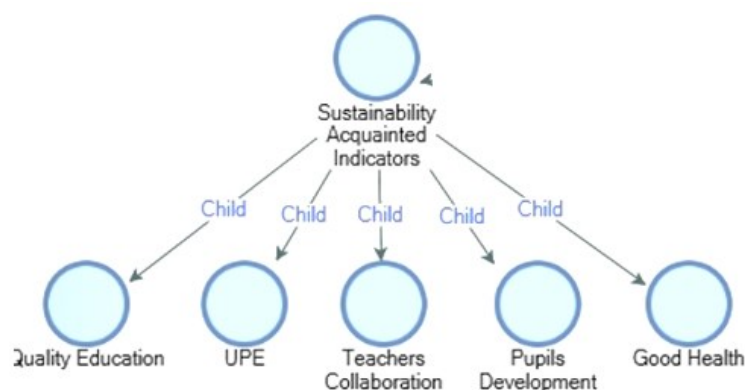
Sustainability Awareness Status of Elementary School Teachers

1. Levels of Awareness
2. Sustainability Acquainted Indicators
3. Pitfalls of Less Awareness
4. Indicators of Sustainability
5. School Routine Practiced Indicators

Sustainability awareness status of elementary school teachers was explored using thematic analysis through N-vivo. The given presented the detail of the finalized themes.



Themes



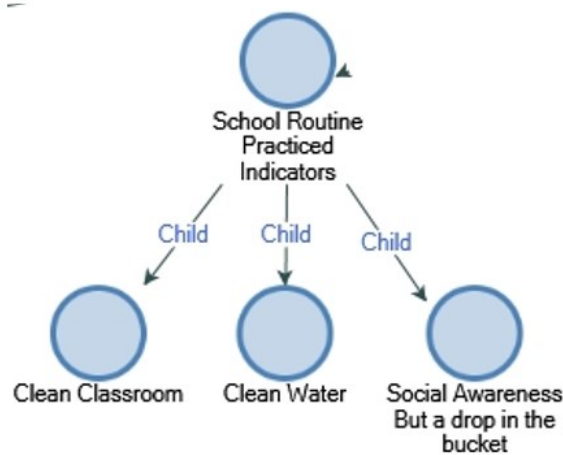
Sustainability Acquainted indicators the theme was finalized based on various sub-themes as shown in the figure. It was assessed that elementary teachers were not directly aware of sustainability or SDGs but they indirectly know the indicators of sustainability such as quality education UPE, teachers' collaboration pupil development and good health of the children. But they did not aware that these are the indicators of sustainability because these are the quality indicators prescribed by the department. It shows that the education department is implementing sustainability practices to some extent but the direct awareness of the teachers is poor.

As for the development in education, I know that overall input and output of school resources including teacher performance, revision of curriculum, and more schools are part of education development while sustainable development is quite a new term for me and cannot differentiate it from development. As for the development in education, I know that overall input and output of school resources including teacher performance, revision of curriculum, and more schools are part of education development while sustainable development is quite a new term for me and cannot differentiate it from development. I partially know or think that the current development at raising the quality of life of only the present generation because development aims to provide more resources and directions to attain better outcomes. As for development, my concepts are pretty clear that development aims at raising the quality of education but for present generations, I have no idea that development can affect future generations too.

Participants A

Yes! Development is used for only present generation while sustainable development also has their goals in future. Development may have short term goals but SD have long term goals including 2030 agenda. Yes! these development aims at raising the quality of life for present generations Yes! SD aims at developing the quality of life for future generations focusing on all dimensions of life including economic, social, environmental dimensions. Being a teacher, I didn't have any depth information about these goals but attending different conferences and training has increased my knowledge about these and their worth for our sustainability Yes, I know it's a long-term vision of SD branching from all its goals that must have been met till 2030.

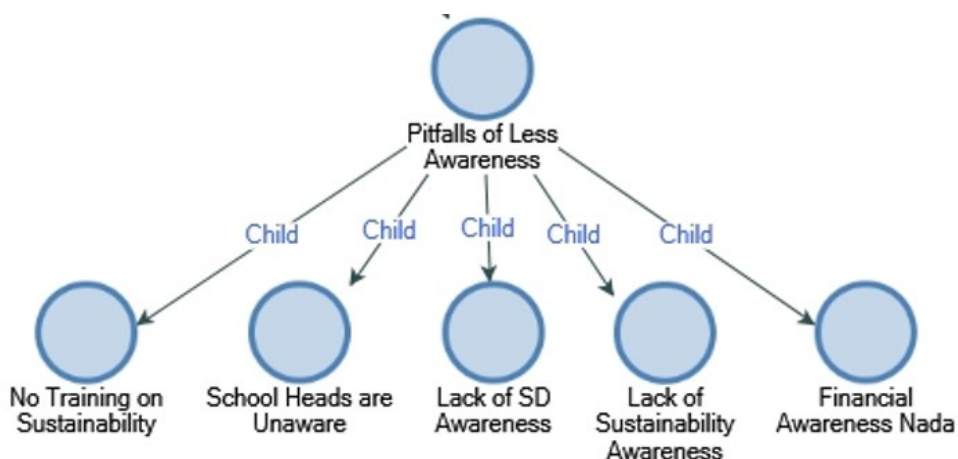
Participants B



School daily routine practised indicators of sustainability was the second theme of this analysis. It was assessed that clean classroom clean water was the indicator of good health SDGs. These indicators are being practised in the elementary schools of Punjab and teachers are ensuring but to some extent. It was also witnessed that every school has a clean water plant. The neat and clean classrooms availability is also ensured by the schools. However, some schools lack this one. But the direct teachers are unaware of the SDGs requirements. Just they are fulfilling the departmental rules and regulations.

National Education Policy in the current era concentrate on the water problems also including the quality of education and no rigid punishment towards the students and but all this is attained through the school head and administration teachers are not responsible for it. I do know about the environment which is basically our ecosystem, and it should be pollution free, and this can only be done to use fewer vehicles and machines only by this environment become pollution free but as for environmental sustainability, I have no idea about it. As for the word social, it defines the people in society who are responsible for any state's effective growth, but I have no idea what is social Sustainability. Economic is the main pillar of any developed and non-developed country because it gives the backbone towards the country's financial growth and helps GDP to give state peoples a way of living while economic sustainability it not in my knowledge. Sustainable development is a new concept here and not many people are even familiar with such a concept and approach, so government should introduce it at all levels and provide more assistance to give training and seminars to provide knowledge on such concept only by this huge chunk of people will definitely go for such approach.

Participants D



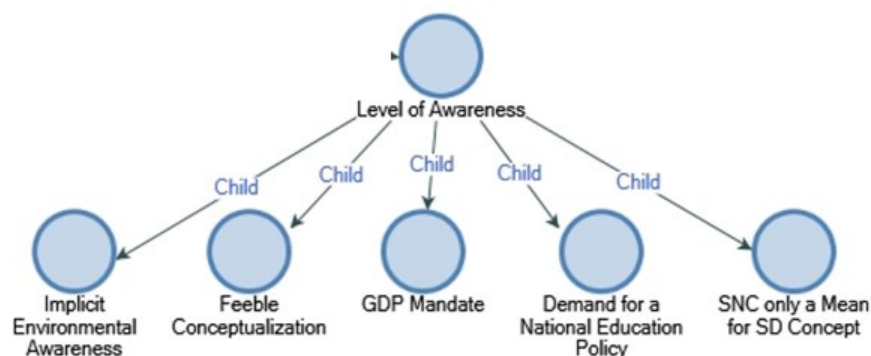
Pitfalls of less awareness theme indicate the most ignored SDGs or indicators in the perception of elementary school teachers. It was explored that most of the fields of sustainability. It was explored that there was no training on SDGs received by any teachers. Schools' heads are also unaware of their 2030 agenda of sustainability. Further, it was also explored that there was a lack of social and environmental sustainability however some indicators known by the teacher but the SDGs with their core agenda were the most ignored aspect. The most alarming point is that even not a single participant aware of the economic aspect or even any indicators of financial SDGs. The supporting empirical evidence is here:

My head partially knows about sustainable development goals, but my head does elaborate and address fast development towards personal assessment and better student outcomes, and lastly express to give more attention towards effective achievements. National Education Policy in the current era concentrate on the water problems also including the quality of education and no rigid punishment towards the students and but all this is attained through the school head and administration teachers are not responsible for it. I do know about the environment which is basically our ecosystem, and it should be pollution free, and this can only be done to use fewer vehicles and machines only by this environment become pollution free but as for environmental sustainability, I have no idea about it. As for the word social, it defines the people in society who are responsible for any state's effective growth, but I have no idea what is social Sustainability. Economic is the main pillar of any developed and non-developed country because it gives the backbone towards the country's financial growth and helps GDP to give state peoples a way of living while economic sustainability it not in my knowledge. Sustainable development is a new concept here and not many people are even familiar with such a concept and approach, so government should introduce it at all levels and provide more assistance to give training and seminars to provide knowledge on such concept only by this huge chunk of people will definitely go for such approach.

Participants A

I partially know or think that the current development at raising the quality of life of only the present generation because development aims to provide more resources and directions to attain better outcomes. As for development, my concepts are pretty clear that development aims at raising the quality of education but for present generations, I have no idea that development can affect future generations too. Because of the single national curriculum and education policy of Pakistan, I do know about a few goals which are part of it and should be achieved but those goals are just part of state aims and objectives did not implement in sectors. Because of the single national curriculum and education policy of Pakistan, I do know about a few goals which are part of it and should be achieved but those goals are just part of state aims and objectives did not implement in sectors.

Participants E

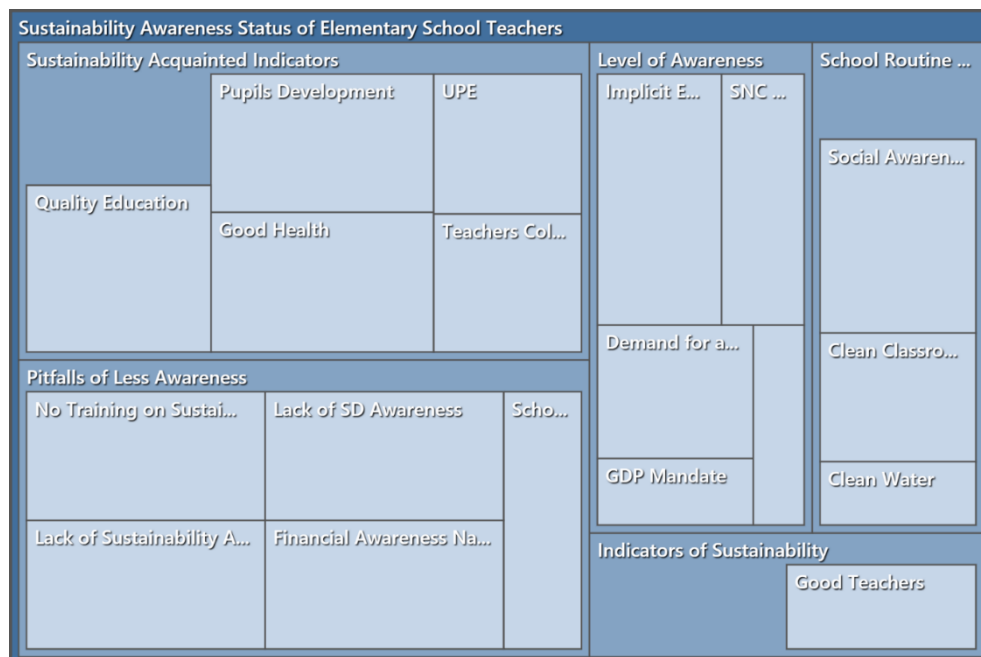


Level of awareness was an acquired level of understanding regarding SDGs by the elementary school teachers in Punjab. As the teachers have feeble conceptualization regarding the SDGs. However, some teachers are aware of sustainable development goals. They just know the term at the knowledge level. They said they hear this term during SNC training but what does it mean they do not understand? The teacher who knows the term demands a separate policy regarding sustainable development goals. It was explored the SNC is only a means of SD awareness.

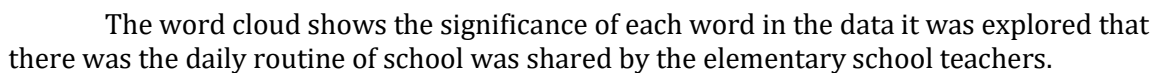
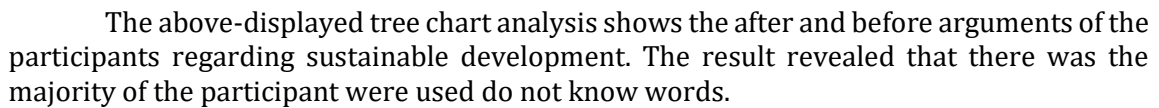
Yes, I know it's a long-term vision of SD branching from all its goals that must have been met till 2030. No, no such training has not been held at school education department or any other organization for SD knowledge. No as they have no knowledge about these SD goals it's difficult for them to speak and share information about these new genre of sustainable development goals. No, there is no proper policy or any Government document that properly address and concentrate on sustainable development goals. The balance and Harmony among the different environmental factors of the society for better interaction among environmental resources and human usage for life better development. Societal need and expectations should be met in maintained way for better development and growth of the society. The Harmonic Economy that ensures present and future generations wellbeing and sustainability in economy at all levels. By Managing and conducting conferences and seminars regarding SD at all levels for local people and students. Conducting researches based on SD and ESD will enhance its understanding.

Participants B

Last but not least good teachers was also an indicator of sustainability but this was a unique case reported by only one participant during the data collection and note taking process it was observed that teacher share that good teacher can make possible the sustainable nation.



The hierarchy chart indicates the significance of each theme. This analysis shows the significance of the themes based on empirical evidence. It was assessed that pitfalls of less awareness are the most significant themes.



Word Frequency

561

Generations	11	5	0.89
Growth	6	5	0.89
Idea	4	5	0.89
Life	4	5	0.89
Policy	6	5	0.89
Sustainable	6	5	0.89
Social	6	5	0.89

The above table shows the Weighted Percentage and frequency of each word in the data set. It was explored that sustainable development was the least used word by the participants.

Discussion & Recommendations

It was assessed that most of the respondents who participated in the study were unaware while exploring the understanding of the teacher regarding sustainable development at the elementary level. It is recommended that there should be more studies to test the findings of this exploration. It was also assessed that the economic aspect of sustainability was mostly ignored. Aleixo (2019) conducted a study in 2018 titled Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability. The study was conducted in a portal and explored that suitability can be achieved by the means of education. The findings of the current study also revealed to us that teachers with more sustainable understanding can better teach their students. The heads should be trained to implement the Sustainable development agenda. And the teachers as well. The less awareness about the SDGs was an alarming situation which indicates that this is a big challenge for the school education department and Govt make to the necessary steps for the teacher's awareness regarding SDGs. The school education department should prolong the teacher training session about the role of education and sustainable development. The indicators must be practised in the daily retain of school. All the day-to-day activities of the school must be monitored based on these indicators. Department must schedule training and teacher trainers and the ratio of sustainability may be increased in this way.

References

- Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2018). Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal. *Journal of cleaner production*, 172, 1664-1673.
- Bergman, Z., Bergman, M. M., Fernandes, K., Grossrieder, D., & Schneider, L. (2018). The contribution of UNESCO chairs toward achieving the UN sustainable development goals. *Sustainability*, 10(12), 4471.
- Cotton, D. R., Warren, M. F., Maiboroda, O., & Bailey, I. (2007). Sustainable development, higher education and pedagogy: a study of lecturers' beliefs and attitudes. *Environmental Education Research*, 13(5), 579-597.
- Farinha, C. S., Azeiteiro, U., & Caeiro, S. S. (2018). Education for sustainable development in Portuguese universities: The key actors' opinions. *International Journal of Sustainability in Higher Education*. 19(5) 912-941
- Farinha, C. S., Caeiro, S. S., & Azeiteiro, U. (2020). Universities speak up regarding the implementation of sustainable development challenges: The case of Portugal. *International Journal of Sustainability in Higher Education*. 21(3) 465-503
- Khan, A. M., Jamshaid, A., & Ramzan, A. (2019). Educators, As Agents of Sustainable Development in Pakistan. *Journal of Educational Research*, 22(2), 1-14.
- Mirza, M. S. (2020). Teacher Educators' Preparedness for Re-Orienting Teacher Education Programs for Sustainable Development in Pakistan. *Journal of Research & Reflections in Education (JRRE)*, 14(1). 1-14
- Nasreen, A. (2019). The World of a School Principal: A Qualitative Study of Secondary School Principals' Selection, Capability, and Current Practices in the Province of Punjab. *Bulletin of Education and Research*, 41(2), 161-179.
- Rieckmann, M. (2017). *Education for sustainable development goals: Learning objectives*: Unesco Publishing.
- Saleem, F., Naseem, Z., Ibrahim, K., Hussain, A., & Azeem, M. (2012). Determinants of School Effectiveness: A study at Punjab level. *International journal of humanities and social science*, 2(14), 242-251.
- Saqib, Z. A., Zhang, Q., Ou, J., Saqib, K. A., Majeed, S., & Razzaq, A. (2020). Education for sustainable development in Pakistani higher education institutions: An exploratory study of students' and teachers' perceptions. *International Journal of Sustainability in Higher Education*. 21(6)1249-1267
- United Nations Educational, Scientific and Cultural Organization, (2014). UNESCO roadmap for implementing the global action programme on education for sustainable development. Unesco Paris.