

OPERATIONALIZATION OF SUSTAINABLE DEVELOPMENT GOALS IN TEACHER EDUCATION PROGRAMS BY KEEPING IN MIND THE DOMAINS OF TEACHER COMPETENCY FRAMEWORK: AN INVESTIGATORY APPROACH OF PUNJAB

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Abstract

Competency standards focus on using teachers' professional knowledge and abilities in the workplace. Each competence standard describes a teacher's competency in that domain. The three major aspects along with their sub categories define instructor responsibilities and activities. These variables contribute to instructors' effectiveness with respect to get sustainability in teacher education. They're a random arrangement of instructional behaviours related to a single task, not a sequence that is further linked with SDGs that highlights the operationalization of SDGs in teacher education universities of Punjab. According to this framework, Teachers must excel in all three areas. Dimensions 1 and 2 are crucial to effective teaching and teacher-student interaction. 3 domain defines a successful teaching atmosphere by reflecting, innovating and transforming the current practices of teacher education programs for the sake of education leads to achieve sustainable development goals. The main aim of this paper was to investigate the Operationalization of Sustainable Development Concepts in Teacher Education Programs by keeping in mind the Domains of Teacher Competency Framework (INTEI). All public and private universities, offering teacher education in Punjab had been taken as a proposed population and scheme of studies of all teacher education programs were taken for the sake of content analysis through NVIVO 10 used for qualitative data analysis.

KEY WORDS: Sustainable Development Concepts, Sustainability, Teacher Education, Teacher Competency Framework, Scheme of Studies

Objectives

The Objectives were:

1. To explore how far teacher education institutes comply with sustainable development goals.
2. To investigate the operationalization of ESD metrics /goals in teacher education institutes of Punjab.
3. To extract the integration among teacher education, teacher competency framework (INTEI) and sustainable development goals.

Research Questions

The questions followed the research objectives were:

1. Do the curricular activities of teacher education institutes comply with sustainable development goals, Agenda 2030?
2. Which ESD metrics/goals are currently being operationalized in teacher education institutes?
3. Has the teacher competency framework(INTEI) been integrated with scheme of studies and sustainable development goals

Methodology

Theoretical Approach: An analysis of researches to support theoretical framework of research to match the content of teacher education programs with SDGs, generate findings and recommendations for the curriculum of teacher education programmes in the context of ESD.

Empirical Approach: Analyze the scheme of studies of public and private universities, offering teacher education programmes in Punjab. The current study is qualitative research followed by content analysis.

Unit of Analysis

- Scheme of Studies of Teacher Education Programs
- SDGs
- Domains of INTEI ESD Teacher Competency Framework

Introduction

Sustainable Development

SD is a well-known development slogan. Despite its popularity, many people are confused about its meaning, history, and implications for development theory and practice. According to the report, sustainable development is dependent on inter- and intergenerational justice in the environment, economy and society. To support human development, decision-makers must comprehend the linkages, complementarities, and trade-offs between these pillars. The UNs, governments, the commercial sector, and civil society organizations must all do more to support long-term development (Hylton, 2019).

Goals for a Sustainable Future

More than 150 educators, educationists, and practitioners attended the UN (Sustainable Development) Summit on September 25, 2015, to promote the 2030 Agenda for SDGs. SDGs are global. This is a global call to arms to combat poverty, inequality, and injustice and promote peace and prosperity for everyone. Each of the 17 SDGs affects a country's social, economic, and environmental well-being (UNDP, 2021).

Education for Sustainable Development (ESD)

The world is paying attention to the idea of Education for Sustainable Development (ESD) after the UN decade of Education for Sustainable Development (2005–2014). People all over the world saw how important it was to incorporate it into all levels of education (Durrani, Malik, & Jumani, 2019).

ESD Can bring Systemetic Changes.

Research and teaching institutions such as universities play an important role in discovering and spreading relevant information as well as inspiring future leaders to strive for a sustainable future, according to Barth and colleagues (2015). Sustainable development, according to academics, may help colleges better understand and deal with the complexity and ambiguity that come with diverse norms and values. Furthermore, it has the potential to bring about systemic change and influence the thinking and learning of future teachers (Leicht, 2018).

Sustainability in Teacher Education

Justice (2019) says that sustainability is about how human activities can meet human needs and wants without reducing or using up the productive resources available to them. As a result, this makes people wonder how they should live economically and socially to make the best use of the limited resources in the environment for human progress.

Teacher's Role to Get Sustainability in TE

According to J. Huckle (2012), modern educators who want to promote ESD should be able to critically analyze the structures and processes that influence both the development and the underdevelopment of the societies they teach about. These structures and processes can be found in the societies they teach about. Most significantly, they should take advantage of the usage of ICTs in the educational process in order to influence the mindsets of today's students in favour of the cultivation of ecological culture.

According to Filho & Pace (2016), preparing future experts for job after graduation is a significant component of higher education. Programs for ESD, however, to cover a larger audience and equip future professionals to handle an uncertain future.

At every stage of education, instructors and their training institutions are crucial agents that may promote and reorient education toward sustainability (ESD) (McKeown & Hopkins, 2014).

Skills Needed for Maintaining ESD

If we want to achieve sustainability in teacher education, we should work on improving our problem-solving and critical thinking abilities as well as our ability to work with others, as well as our ability to communicate effectively and to come up with new ideas. According to K. Shephard (2015), sustainability of the curriculum in higher education has not yet risen to the top of educational strategy priorities. There is still a lot of work to be done to make traditional ESD a part of higher education's overall agenda.

Teacher Education and SDGs

Teacher education may play a critical role in driving the essential societal transformation to attain the SDGs. We stressed the relevance of internationalization in terms of cultural capacity building during teacher education activities in the spirit of developing responsible global citizens capable of coping with contemporary issues and SDGs in this study.

When questioned about the competences the students aspire to achieve in their careers as teachers, many student teachers provided comments that were quite similar. Quality education and decent work and economic growth are of the most important SDGs, according to students. Aside from this, they noted the importance of cultural and transcultural understanding as well as sociopolitical knowledge (as a result of their exposure to different lifestyles, medical systems, historical perspectives, and various political ideologies such as environmentalism and feminism).

According to A. Leicht, J. Heiss & W. J. Byun(2018), teacher education programmes should emphasize and include environmental and development concerns such as poverty, climate change, and environmentally friendly production into their curricula in order to better educate future teachers for the ever-changing world. The ability to make decisions, think in a holistic manner, and take responsibility for both present and future generations are all part of this set of competencies.

Major Problems in operationalization of SDGs

- **Higher Education rather than Quality Education**

Higher education has been prioritized. Higher Education Commission (HEC) regulations aim to boost foreign-qualified Ph.D.s in Pakistan, although no substantial effort has been made to provide quality basic education in teacher education institutes to produce quality teachers.

- **Contradiction in Policy and Practice**

The government's published policies and implementation techniques contradict. In the government's education agenda, free elementary education and literacy are emphasized, although no achievements are made. Accelerating higher education is a priority. Higher education is for the affluent, whereas primary education is for the typical man. The man's resources are misallocated.

- **Theoretical Knowledge rather than Practical Learning**

We are preparing a young generation having Theoretical Knowledge. Students just learn the procedure orally and not able to put it in real life situations. This should be converted into practical learning because Practical learning develops real-world skills. Practical application makes what we learn last longer. It won't make study bored. Because it's practical, today's demand is of "hands-on learning." Practice makes perfect and ensure sustainable future of our young generation.

- **Financial Instability**

Poverty impairs children's learning abilities. Low-income children are at a disadvantage due to their living condition and their family's indifference in educating them. Poor children have less resistance to several diseases than rich youngsters. Low-income children are more prone to tiredness, headaches, illness, and the common cold. These youngsters often have trouble focusing on their studies and more often most of them leave the way to progress in the educational field.

- **Low-Standard Infrastructure of Public Institutes**

Some parents are forced to enroll their children in private institutes owing to a shortage of public educational institutes and a lack of skilled and trained teachers or financing to meet operational expenses. Academically, private students fare better. Government endeavors to promote public-private partnerships have often failed due to private sector tech support.

Teacher competency framework

Teacher competence frameworks include knowledge, abilities, and attitudes that enable effective teaching. In most societies, they are in varying stages of development. They guide the creation of the Initial Teacher Education (ITE) curriculum and establish goals for teachers' professional growth (TEACHER COMPETENCY FRAMEWORK). The minimal standards and indicators for each level of competency reflect excellent teaching and what is expected of good instructors using modern learning and human development theories (Myanmar, 2017).

There are many competency frameworks found in the educational world, but in this research, International ESD Teacher Competency framework (INTEI) had been integrated with curriculum of teacher education and sustainable development goals. This framework was supported by UNESCO and it was developed by experts of teacher education. Later on, it was approved in a meeting which was held in Okayama Japan in 2018 and in Bangkok in 2019, Thailand. The 3 domains along with sub domains, highlighting the relevance with SDGs are mentioned in the given table.

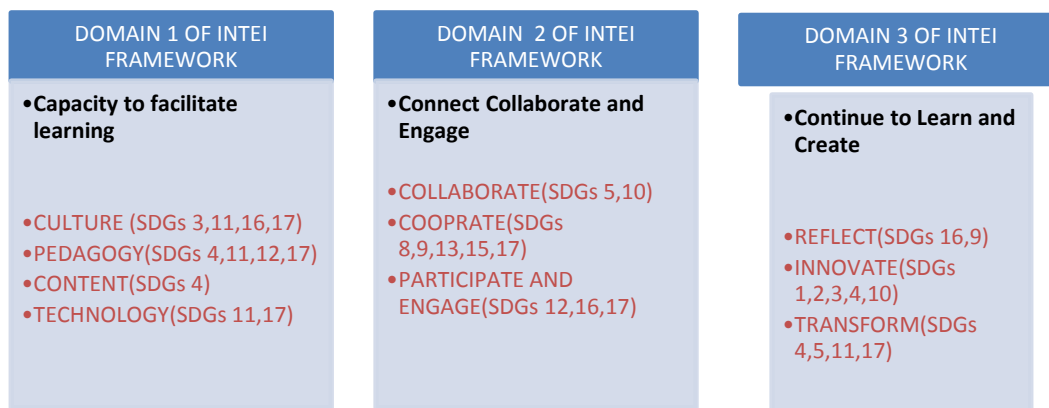


Figure:1 “Relevancy of SDGs and Domains and Sub Domains of Asia Pacific ESD Teacher Competency Framework”

The goals of the teacher education universities of Punjab, vision and mission of teacher education universities, domains and sub domains of Asia Pacific ESD Teacher Competency Framework, scheme of studies of teacher education programs and SDGs indicators were clustered in the form of nodes by using NVIVO 10.

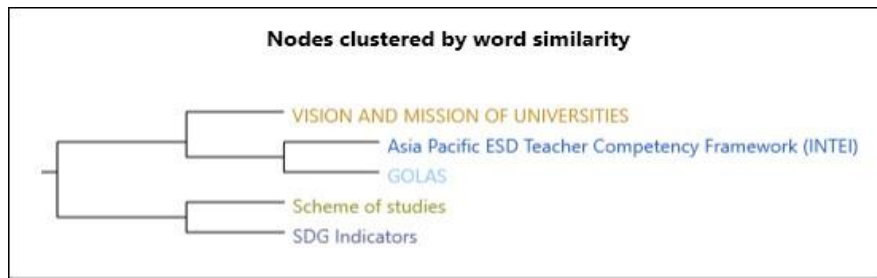


Figure:2 Nodes- Clustered

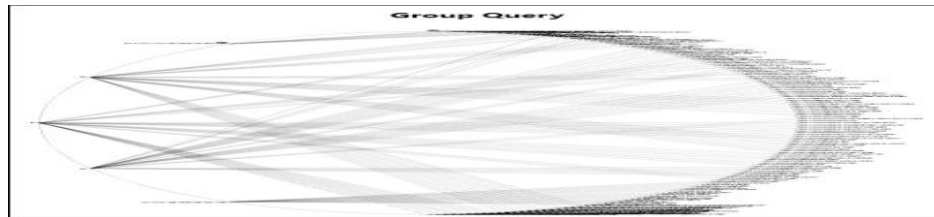


Figure:3 Group- Query

All the nodes based on goals of the teacher education universities of Punjab, vision and mission of teacher education universities, domains and sub domains of Asia Pacific ESD Teacher Competency Framework, scheme of studies of teacher education programs and SDGs indicators were analyzed by group query NVIVO 10 to check their compatibility with each other. The figure indicated that all the units of analysis were almost equally interrelated.

Word Frequency Query

education	learning	sub	domain	goals	universities	esd	communic	related	like	relevancy	taught	trends	communit	ntei				
			partnership	society	computer	ict	content	sdg4	national	good	issues	life	pacific	sdg11	strong			
	community	sdg							classroom	asia	counsel	institution	justice	leadersh	methods	mission		
			teaching	domains					competenc	assessm	critical	pakistar	build	collabora	curricula	global		
teacher	management	quality			skills	peace	main		courses	cities	graduat	respons	internatio	psycholog	social	teachers		
			development	research									learn	thinking	becom	chang	citizen	
educational	school	studies			engage	scheme	planning		develop	engagem	guidanc	sustain		level	well	compar	conn	consu
			technology	sdg17	points	sustainable	program		information	environ	health	system		offering	action	conflict		contempora

Figure:4 Word- Frequency Query

The word frequency query showed that most of the Teacher Education Institutes were focusing on the operationalization of SDGs through their curricular and co-curricular activities. They were offering those contents which could be helpful in bringing sustainability in teacher education and in the future of our pupil teachers as well.

Nodes compared by number of items coded

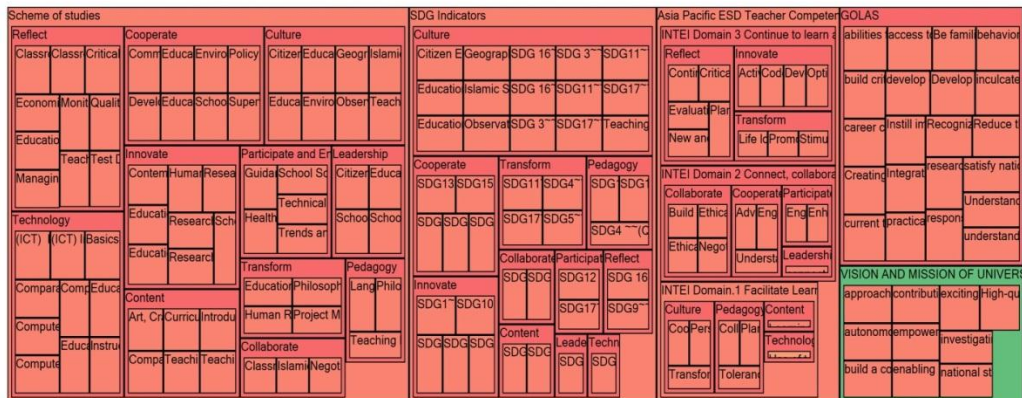


Figure:5 Nodes Compared by Number of Items Coded

All the content related to five units of analysis: 1) goals of the teacher education universities of Punjab, 2) vision and mission of teacher education universities, 3) Domains and Sub Domains of Asia Pacific ESD Teacher Competency Framework, 4) scheme of studies of teacher education programs, and 5) SDGs indicators were coded under the same headings on the basis of domains of ESD teacher competency framework: culture, pedagogy, technology, content, collaborate, cooperate, participate and engage, Leadership, reflect, innovate and transform. The above figure highlighted the integration among SDGs, INTEI and TE (Goals and Vision).

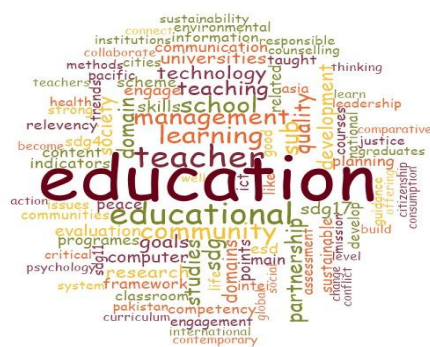


Figure:6 Word Frequency Query

After comparing the number of coded item, word frequency query had been run. This query showed the most frequently used word Teacher Education surrounded by content of scheme of studies and points of SDGs indicators.

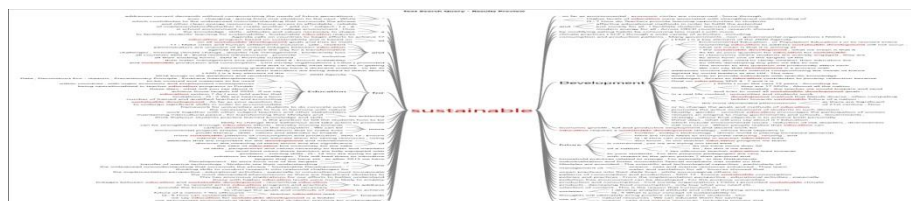


Figure:7 Text Search Query(Education for Sustainable Development)

Results Discussion

The goals, vision and mission of universities offering teacher education in Punjab comply with sustainable development goals, Agenda 2030. The result on the basis of content analysis are being discussed in the given paragraphs.

SDG1 and 2: There are hardly many institutions that offer financial help or scholarships to students with modest incomes. They offer aid in the surrounding community by assisting in the start-up of sustainable enterprises through the provision of necessary education, research, or resources, and by hosting University employment fairs to assist students who are currently without work. All of this necessitates the modern educational issue and trend of co-designing effective solutions to the difficulties of poverty and hunger is an example of this movement.

SDG3: It is related to good health and wellbeing that is not fully operationalized but somehow the content related to Health, Physical Education, ethics and Islamic values are being taught for the good health wellbeing of pupil teachers, but on the whole the health related content has not been found properly. But in few universities, this aspect has been covered through Health awareness seminars related to different diseases. The mobilization of resources and the dissemination of information on human rights are helping to improve people's health and well-being.

SDG4: Quality Education has been operationalized through the teaching practice of pupil teachers in schools so that they may encounter real life situations in the field of teaching profession. They get best practice for planning and implementing the content. Quality Education is also linked with ICT skills. The current teacher education universities also offering the contents like Basics of Information & Communication Technology, Computer Applications, Educational Statistics and Computer Application, instructional Technology for Computer Studies & Data Analysis, Educational Technology and ICT, Computer Assisted Language Learning, Comparative Education, Computer Literacy,(ICT) Instructional and Communication Technology in Education,(ICT) Information and Communication Technology in Education.

Active participation in professional development is an essential component of high-quality education, which can be accomplished by studying Research Methods in Educational Planning and Management, Educational Planning and Evaluation, Research Methods in Education, and Educational Psychology, among other related fields.

SDG5: The term "Gender Inequalities" refers to an ethically sound place of employment, which is essential for fostering trust among pupils in order to successfully mediate disagreements. For this, the TE universities are offering contents like Negotiations and Conflict Management, Islamic System of Education, Classroom Management to reduce gender inequalities among learners to make their way of living sustainable.

SDG8 : Reasonably good Performance and Economic Progress Promote towards changes in policies and procedures at the community, national, and worldwide levels in order to strengthen the industry, innovation, and infrastructure of institutions that provide teacher education .SDG 8 related content are: School Organization and Effectiveness, Educational and Vocational Guidance and Counselling, Policy Formulation, Analysis and Implementation, Supervised School Experience / Observation / Visits etc.

SDG9: Public and private universities that offer teacher education are able to accomplish new and evolving trends as a result of the practice of critical self-reflection, Classroom Assessment, Quality Assurance in Education, Teacher Education in Pakistan, Critical Reasoning, and Reflective Approaches. Teaching the content of Monitoring and Evaluation in Educational Planning and Management, Managing Educational Resources, Economics and Financing of Education, Educational Assessment and Evaluation, Classroom Assessment, Test Development and Evaluation, and plan of action, Evaluation and Continuous Improvement all help to promote Industry, Innovation, and Infrastructure. This is done through the implementation of Educational Planning and Management, Educational Monitoring and Evaluation, and Educational Continuous Improvement.

SDG10: Through the Research Project and the School Management, TEIs are working to develop transdisciplinary and Trans sectoral collaboration with the goal of eliminating disparities.

SDG11:Efforts to get Sustainable cities and communities are being done through public and private universities of teacher education as these universities are teaching content: • Ecology and the Environment, Geographical features, Public Awareness-Sharing and Involvement, Social Studies Education, Positioning oneself as a global citizen, Introduction to Inclusive Education, Teaching of Teaching Of Applied Electricity, Teaching of General Electronics.

SDG12: Responsible consumption and production in the field of education has been operationalized through pedagogy. For the sake of improving pedagogy language skill are being taught in teacher education universities, which may help them to be ready or cope up with uncertain conditions during

teaching and learning process. Skills in Guidance and Counseling, as well as Technical Writing and Public Speaking improve the learner's ability to think for themselves in order to foster sustainability.

SDG13: Awareness about Climate Action has been provided through environmental education to enable the candidates Acquire an awareness of, and a commitment to, environmental problems.

SDG15: Studies in both Communication and Development moreover Practical Life Skills has also been taught to students to get awareness about life on land.

SDG16: Peace ,Justice & Strong Institutions has been operationalized through the teaching of subject Education in Pakistan in the form of quality education which may lead the country into peace and makes its institutions strong. For the sake of educational peace, there should be cooperation among institutions to build up a strong nation. Individuals, schools, and communities are brought together by peace, justice, and strong institutions via the School Community, School Administration Educational Leadership, Management, School, Community, and Teacher Citizenship. Education and Participation in Community Activities. The practice of critical self-reflection, Classroom Assessment, Quality Assurance in Education, Teacher Education in Pakistan, Critical Reasoning and Reflective Approaches are enabling public and private universities that provide teacher education to accomplish new and developing trends.

SDG17: Partnership for the goals has been operationalized by providing the content related to Educational Psychology & Guidance. This goal is the transformation of attitudes. For this purpose teacher education universities are providing Observation - based Visits and Instructional Practices, Philosophical perspectives of Educational Planning and Management, Comparative Education, Art, Craft and Calligraphy. This is also linked with Collaboration between internal and external stakeholders to achieve the desired goals set by the teacher education universities to promote learning for sustainability. This helps the pupil to learn in a way that is both active and responsive to the community and society. Themes such as Education, Society, and Teaching, as well as Current Problems and Trends take an active role in the community.

Conclusion

Lifelong learning is being stimulated as a result of Education for Sustainable Development, which is a cause that is driving collective change in teacher education institutions. Most of the SDGs are being operationalized in teacher education programs as the scheme of studies have content related to SDGs except three SDGs 6, 7 and 14. SDG6 has no proper content to teach but it is being operationalized through green campus activities etc. Scholarships, free housing and transportation, and financial help for low-income students aren't enough to solve the problem of poverty. It is imperative that low-income students' latent talents and abilities are discovered so that they may be used to improve the health and well-being of university students and then showcased in intra-university exhibits to help them earn money through their own efforts. Courses in cooking (becoming a chef) that teach students how to create a variety of dishes using just the food resources that are available should also be accessible, especially for female students. Food waste may be avoided in this way. But in most of the areas of studies students are being equipped with theoretical knowledge rather than practical skills. So, ESD not only be achieved through content but it must be aligned with practical work for the sake of sustainability in Teacher Education.

Recommendations

1. Modern ESD teachers should objectively examine the structures and processes that impact the growth and bad governance of teacher education institutes.
2. The faculty of education should use ICTs to modify the attitude of future generations in favour of cultivating sustainable culture.
3. Governments should guarantee an equitable opportunity to effective and quality learning at all education and training levels.
4. Authorities, intergovernmental institutions, and democratic society networks should strengthen national control of the 2030 Plan of Action.

5. There should be more focus in achieving quality education benchmarks, agreements, and reflective methods through national and international instructional consultation and curriculum standardization.
6. Innovative finance options should be developed to improve education sector resources.
7. Coordination structures and organizations should share experiences and manage resources to help governments monitor and report activities.
8. Teacher education institutions and research organizations should lead SDGs research, seminars, and awareness programmes.
9. Government should encourage public-private partnerships to enhance education.
10. Governments should promote public-private concord through shared standards, quality, and regulatory frameworks.
11. Public and private schools should use a uniform curriculum framework for general and professional education.

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