

Perception of Sustainable Development: A Study Among Higher Education Students, Bangalore

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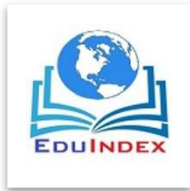
ABSTRACT

World is facing serious challenges in meeting human needs due to negligence and over exploitation of natural resources. Hence, it is important to consider sustainability in every aspect of human life. Sustainable development has been one of the core elements of modern era and it is a tool to be intertwined in our higher education system. Higher education system as a game changer would enhance the potential of young India to be competent with other nations. Including 'sustainable development' concept in their curriculum is of utmost important. Based on the review of literature, we find the research gap in studying the perception of 'sustainable development' among higher education students in Bangalore.

Keywords: Sustainable Developments, Higher Education, Curriculum, Students

Conceptual Clarity

Natural Environment is the source of every good fortune for human being to live and sustain. However, there is widespread awareness about environmental issues and serious actions are expected in every field of human life to deal with them, and education is one of the important areas which have been focused to take these issues into consideration. For a long period of time education is influenced by economic reforms to create human capital. In simple this kind of education makes humans to limit their ability to think and act, as a result they become indifferent towards their environment. The importance of educational role to uphold environmental concerns was recognized long ago. The education for sustainable development was proposed by the report of World commission on environment and development. Then it was moved forward through conference on environment and development in Rio de Janeiro in 1992, and the same received attention in world summit on sustainable development at Johannesburg in 2002. Then later

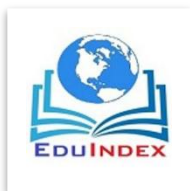


through series of conferences environmental education has converted into education for sustainable development, which includes other issues such as inequity, poverty reduction and alike. However this move received varied responses of some supporting it and others opposing it as it created vague definition of 'sustainable development', which goes beyond protecting ecology and natural environment. People who opposed it believed this kind of 'Education for sustainable development' in turn would favor free capital market. However, whether 'Education for sustainable development' is appropriate or not depends on its level of integration with environmental concerns and its outcome (Jickling & Wals, 2013).

In 21st century India is in lime light of global economy because of its varied strengths, one such strength is its demography which consist majority of young population. The UN's World Population Prospects 2019 report shows that India is projected to become the most populous country by 2027. Author and philosopher Mitchell Thomashow in his exploration of impact of book 'Silent Spring' written by Rachel Carson, referred to issue of correlation between raising 'population' and raising 'species extinction', in University of California in 2012. In 2018 UN 'sustainable goals' reported that climate change has the potential to aggravate the issues like rising hunger and human displacement. Therefore, the boon or bane of India's young demography depends on the productive ability of this population and opportunity available in terms of resources to uplift the economy. One of the important initiatives to deal with this is to have an environmental education in place, however it was already recognized as a significant issue to deal with by Supreme Court of India in 1991 and directed Central government and state governments to frame environmental course.

Literature Review

Bob Jickling & Arjen E. J. Wals (2008) have studied globalization effects on education and framing curriculum formation based on global economic reforms, which are just confined to business environment and its outcomes serves merely business world. Environmental educators and researchers oppose this type of educational system which takes profit motive alone into

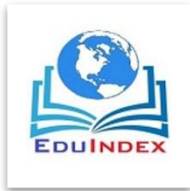


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consideration. UNESCO's focus on 'sustainable development' education draws attention for change in curriculum. The paper also distinguishes the 'Education for sustainable development' (ESD) and 'Environmental Science', and the paper shows the majority of respondents rejecting ESD over environmental education. Since ESD provides inadequate definition of 'sustainable development' and leads to ambiguity about the intention of 'sustainable development'. ESD limits the ability of an individual to question, participate and being creative, thus favors economical development without considering environmental implications. The paper shows ample of examples of ESD favoring business over ecology. Finally the paper has created heuristic to debate and discuss about the ESD and its deviation from environmental education. Finally the paper sought to infuse the meaning of ESD which includes environmental education based on references like 'A framework for environmental learning and sustainability in Canada' (Govt of Canada 2002), Silent Spring by Carson (1962) and 'Toward eco-justice pedagogy'.

Stuart Kirsch (2010) examines corporate oxymoron of mining activity in his research paper 'Sustainable Mining'. Despite of harmful effects of mining activity, it had been promoted as a corporate oxymoron by labeling it as a 'sustainable mining'. Here author refers 'sustainability' as mode 2 knowledge production which establishes relationship between science and society unlike earlier knowledge production of mode 1 which separates both of these. The mode 2 knowledge production brought out the concepts like biodiversity, sustainability which combines economic interest with environmental concerns. The paper emphasis on how the word 'sustainability' lost its real intended meaning over the period of time particularly in relation to ecology. The current meaning of 'sustainability' has its roots in the 1972 United Nations Conference on Human Environment in Stockholm, accordingly it referred as "to maintain the earth as a place suitable for human life not only now but for future generations". This meaning of sustainability underwent changes through different conferences and summits. In 1992 Environmental and Development conference Rio de Janeiro promoted growth centered approach; accordingly small sites could be promoted as conservation areas for biodiversity. This approach favored mining

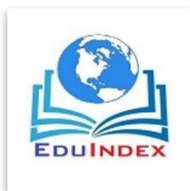


industry to indulge in unrestricted development and at same time promoting conservation projects to silence its critics.

The author cites the example of one of the first mining companies which integrated sustainability into corporate audit was Canadian firm Placer Dome in 1997 and issued annual sustainability reports for all its major projects. The report highlighted sustainability as maintaining profitability and contributing some share of it for the development of local community. Less attention was given to ecology and the term 'sustainability' has been narrowed down and this is considered as weak sustainability. In contrast strong 'sustainability' gives importance to interdependence of human economies and the environment.

Maik Adomßent, Daniel Fischer, Jasmin Godemann, Christian Herzig, Insa Otte, Marco Rieckmann and Jana Timma (2014) have conducted empirical study on higher education for sustainable development with respect to management education, sustainable consumption and perspectives from Central and Eastern Europe: In the area of 'management education' the paper understands medium term effects of the MBA programme on sustainable development in Germany and based on the study the author suggest various competencies to be imparted for students to become sustainable managers, they are done through interdisciplinary and trans disciplinary methods. In addition other methods like real life problem solving, addressing community needs and so on. Sustainable consumption is one of the key areas where higher education institutions promote by integrating research on 'sustainable development', curricular teaching and campus improvement by linking to local requirement. The study also sheds light on issues prevailing in Central and Eastern European countries on higher education for 'sustainable development' and strategies adopted to recognize the importance of 'Education for sustainable development'.

Archana Singh, Rajiv Divekar and Roshan Kazi (2019) have reported son environmental understanding level, attitude and practices gap of students in Indian Higher Education. The study was based on primary and secondary data to understand the influence of identified variables and

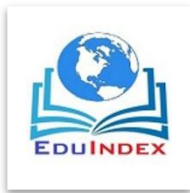


used interpretive structural modelling (ISM) to analyze the interactions of identified variables and their influence on each other. Such as level 1 variable: Indian environmental education and environment activism, level 2 variable: Environment Knowledge and level 3 variable: Sustainable development attitude and environmental governance which promote environmentally responsible behavior. As per the study environment governance influence sustainable development attitude, environment Knowledge drives education, activism, governance and sustainability and environment education and environment activism influence each other and are interconnected and lead to environment knowledge. Finally study finds that there is still gap between understanding and practices of environment studies due lack of attention and development of curriculum in relation to 'sustainable development'.

Meena Laiphrakpam, Sayam Aroonsrimorakot and Aribam Rama Shanker (2019) have summarized on awareness of environmental education among students from India, Japan and Thailand for sustainable development. The study with respect to India reveals that the previous curriculum did not have formal inclusion of environmental education, but Indian Government remodeled the national policy on education to include environmental education in collaboration with NGOs. India is also taking support of various international bodies, they are United Nations Educational, Scientific and Cultural Organisation (UNESCO), United Nations Environment Program (UNEP), Ministry of Environment and Forestry (MoEF) and the Centre for Environmental Education (CEE). With these steps the current education system gives great importance to environmental education and its concepts have been implemented in many schools and colleges.

Rationale of the study

Sustainable development has become significant objective in recent years and imparting this concept to students would play major role in reshaping the world. However, students lack real understanding of 'sustainable development' due ineffective embodiment of this concept in higher education. This paper focuses on studying the perception of sustainable development among



higher education student. This paper also attempts to propose an effective model to learn the concept of learning 'sustainable development'.

Operational definition of Higher Education: As per our study 'higher education' includes undergraduate and postgraduate programs. They are B.Com, BBA, BCA, BA, M.Com and MSW.

Objectives of the study

Primary Objective:

- To Study the perception of higher education students with respect to sustainable development in Bangalore

Secondary Objectives:

- To understand if curriculum facilitates to learn and practice sustainable development
- To understand the student's preferential model of learning sustainable development

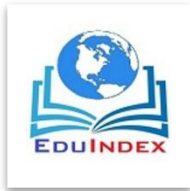
Mode of Enquiry: The mode of this paper is quantitative in nature.

Study Design: Keeping in view of the above mentioned objectives, descriptive research design has been used.

Sampling Strategy: Non probability sampling is used.

Data Collection: The research is conducted to study the three important variables **perception** of higher education students on SD, **curriculum facilitation** to learn SD and student **preferred methods** to learn SD through a model. To understand all these variables both primary and secondary methods of data collections were followed. Under primary method of data collection convenient samples of 300 were chosen. These samples include wide spectrum of population from three different colleges.

Questionnaire Design: Structure questionnaire method is followed to collect primary data. The first two questionnaires consist of demographic details, followed by other questionnaires, bipolar questionnaires are used to check awareness level, influence level and model requirement. Dichotomous questionnaire is used to know the sources from which student heard of SD, likert



scaling questionnaire is administered to understand the student requirement of model to learn SD in an effective way. It ranges from most preferred to least preferred and finally there was a section where the respondent could describe their perception of SD.

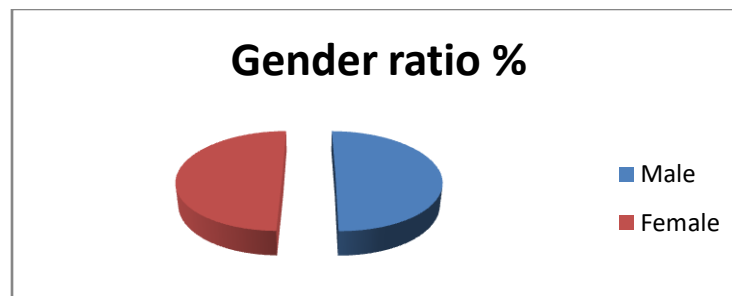
Data Analysis and Interpretation of Objectives

Data Analysis: Descriptive statistics was applied to analyze and interpret the data.

Table 1- Table representing the Gender of the respondents

Gender	No of respondents	%
Male	125	50.2
Female	124	49.8
Total	249	

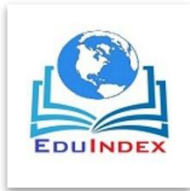
Source: Primary Data



As shown in the above table the population considered for the study is 249 students from three different colleges in Bangalore. Among them 50.2% (125 respondents) are male and 49.8% (124 respondents) are female.

Table 2- Table representing the age groups of the respondents

Age Group	No of respondents	%
17-20	126	51
21-25	123	49



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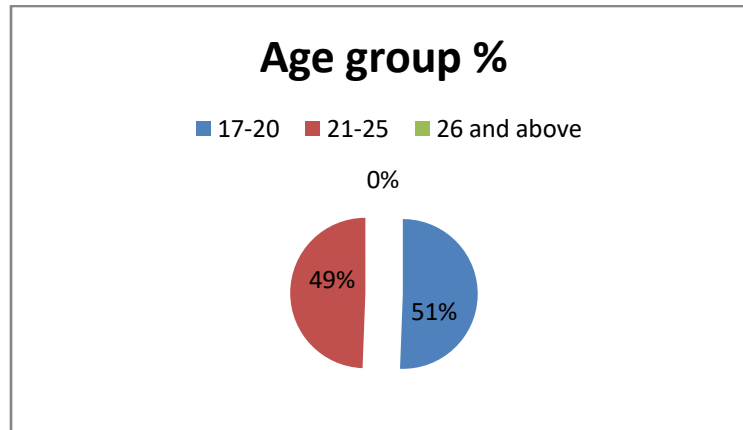
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26 and above	0	0
Total	249	

Source: Primary Data

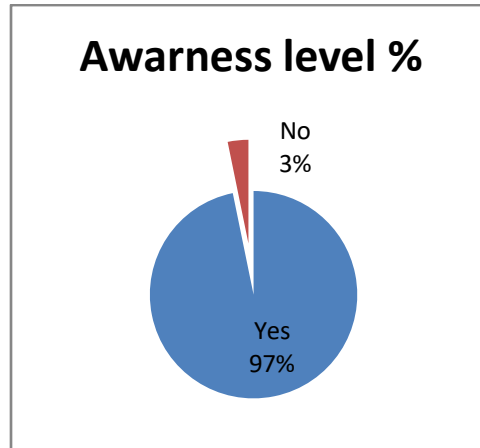
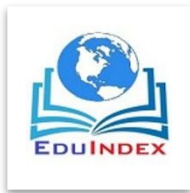


Analysis: As shown in the table 2 the sample considered for the study is 249 students from select colleges in Bangalore. Among them 51% (126 respondents out of 249) are between the age group of 17-20 years, 49% (123 respondents out of 249) are of the age group 21-25 years.

Table 3- Table representing the respondents perception level of SD

Perception Level	No of respondents	%
Yes	241	97
No	8	3
Total	249	

Source: Primary Data

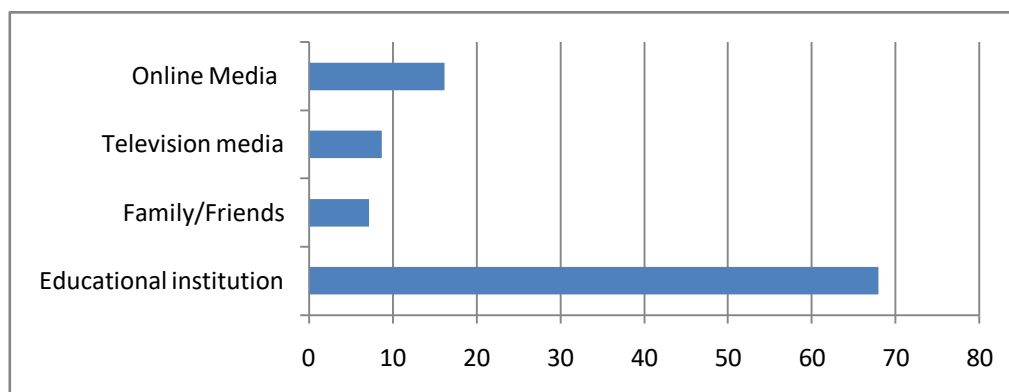


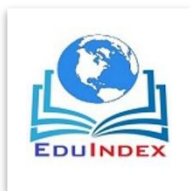
Analysis: As shown in the above table 3, 97% (241 students) are aware of the term SD and 3% (8 students) have not heard of the term 'sustainable development'. It states that the majorities of students from select colleges of Bangalore have heard and are aware of the term 'sustainable development' through one or other means.

Table 4- Table representing the sources through which the term 'SD' is heard by student

Sources	%
Educational institution	68
Family/Friends	7
Television media	9
Online Media	16

Source: Primary Data



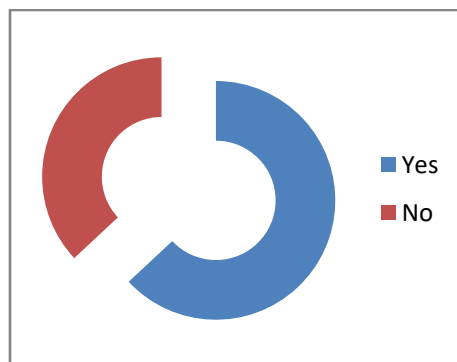


Analysis: As shown in the table 4, 68% (218 students) have learned about the term ‘sustainable development’ through educational institution, 16% (52 students) from online media, 9% (28 students) from television-media and 7% (23 students) from through family/friends. The table also indicates that the majority of students from selected colleges of Bangalore have learned the concept ‘sustainable development’ from educational institutions, which is noteworthy.

Table 5- Table representing the curriculum involvement in imparting sustainable development

Curriculum Involvement	%
Yes	63
No	37

Source: Primary Data



Analysis: As shown in the table 5, 63% students have agreed that their curriculum facilitates to learn SD, 37% of students have not agreed with their curriculum. Hence, it is important to understand the constraints of curriculum to facilitate the learning of SD more effectively.

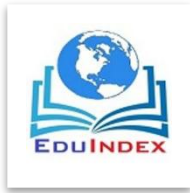
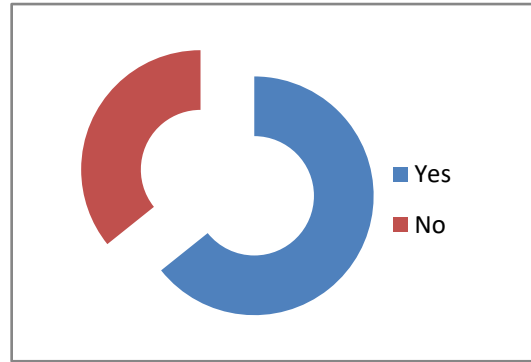


Table 6- Table representing the Students influenced by their educational academy in reference to SD

Student's response	%
Yes	64
No	36

Source: Primary Data

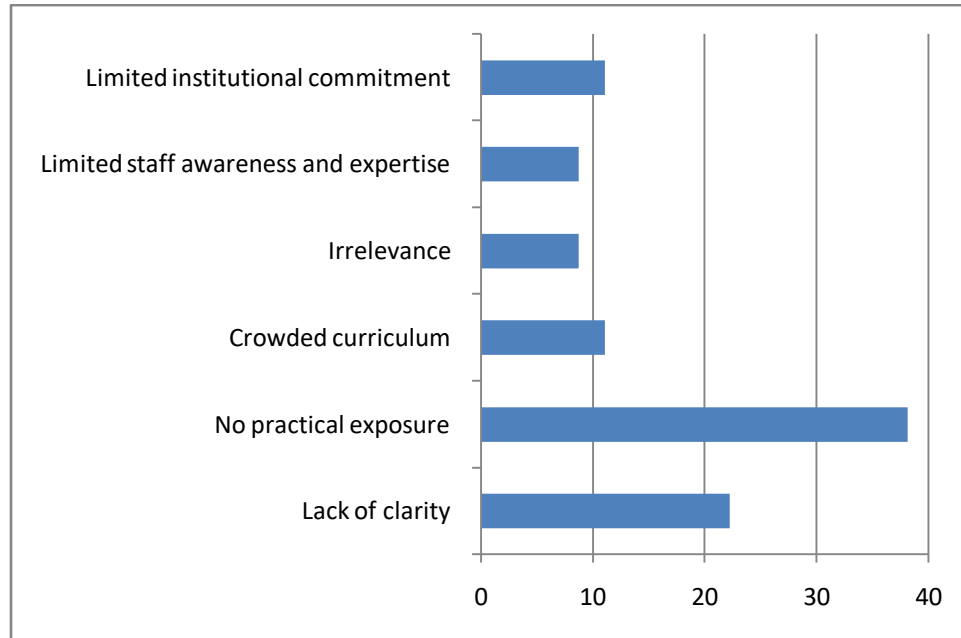
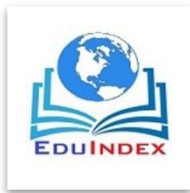


Analysis: In the table 4, 64% students have said that they have been influenced to practice 'sustainable development' by their educational academy and 36% students have said that they not been influenced to practice 'sustainable development'.

Table 7- Table representing the constraints of the educational academy in influencing students to practice SD

Constraints	%
Lack of clarity	22
No practical exposure	38
Crowded curriculum	11
Irrelevance	9
Limited staff awareness and expertise	9
Limited institutional commitment	11

Source: Primary Data

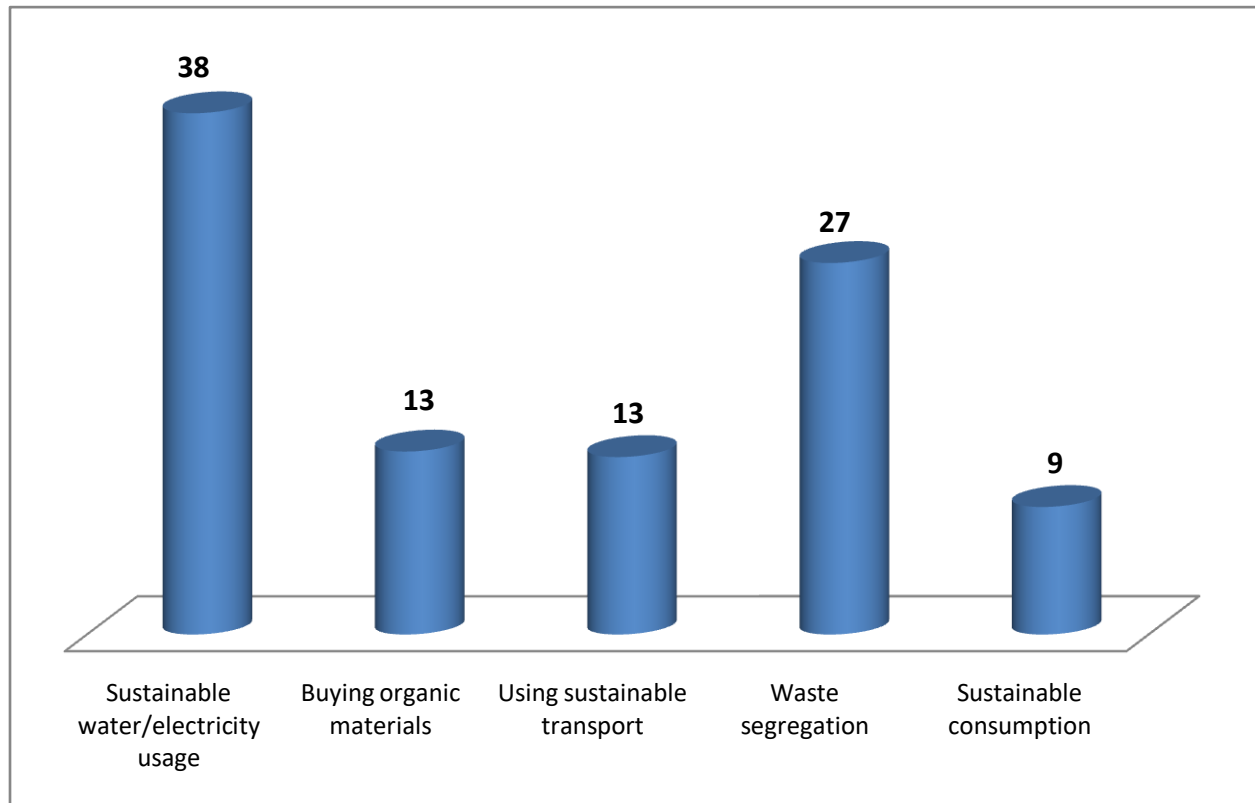
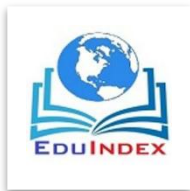


Analysis: The above table 7 shows that 38% of students have not been influenced to practice 'sustainable development' due to lack of practical exposure to real world issues and followed by other limitations which are lack of clarity in curriculum, crowded curriculum, limited institutional commitment, irrelevance and lack of staff awareness and expertise. Hence addressing these issues in curriculum would enhance the learning effectiveness of 'sustainable development'.

Table 8- Table representing the medium of practicing 'Sustainable development'

Mediums	%
Sustainable water/electricity usage	38
Buying organic materials	13
Using sustainable transport	13
Waste segregation	27
Sustainable consumption	9

Source: Primary Data

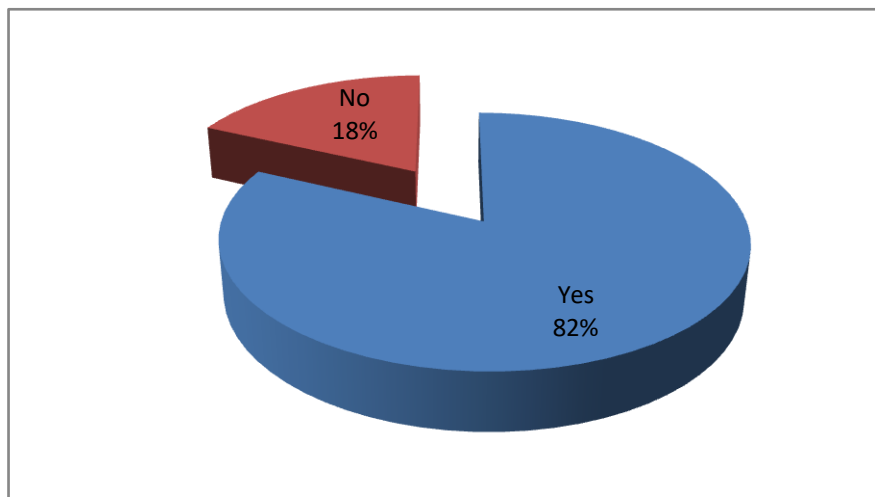
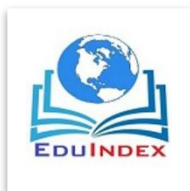


Analysis: The above table 8 shows that the majority of respondents practice sustainability in conserving water and electricity, followed by waste segregation. The least preferred response is 'sustainable consumption'. This signals educationalist to ensure that the learning of sustainable development has a holistic approach by integrating the greater concerns of ecology and inculcating eco-friendly habits.

Table 9- Table representing student's preference about another model of learning 'Sustainable development'

Student's response	%
Yes	82
No	18

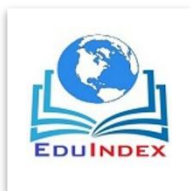
Source: Primary Data



Analysis: Table 9 shows that the majority of respondents have expressed their opinion for another model to learn 'sustainable development', this portrays that there are shortcomings in current model of learning 'sustainable development' and thus framing a new and dynamic model to learn 'sustainable development' is significant.

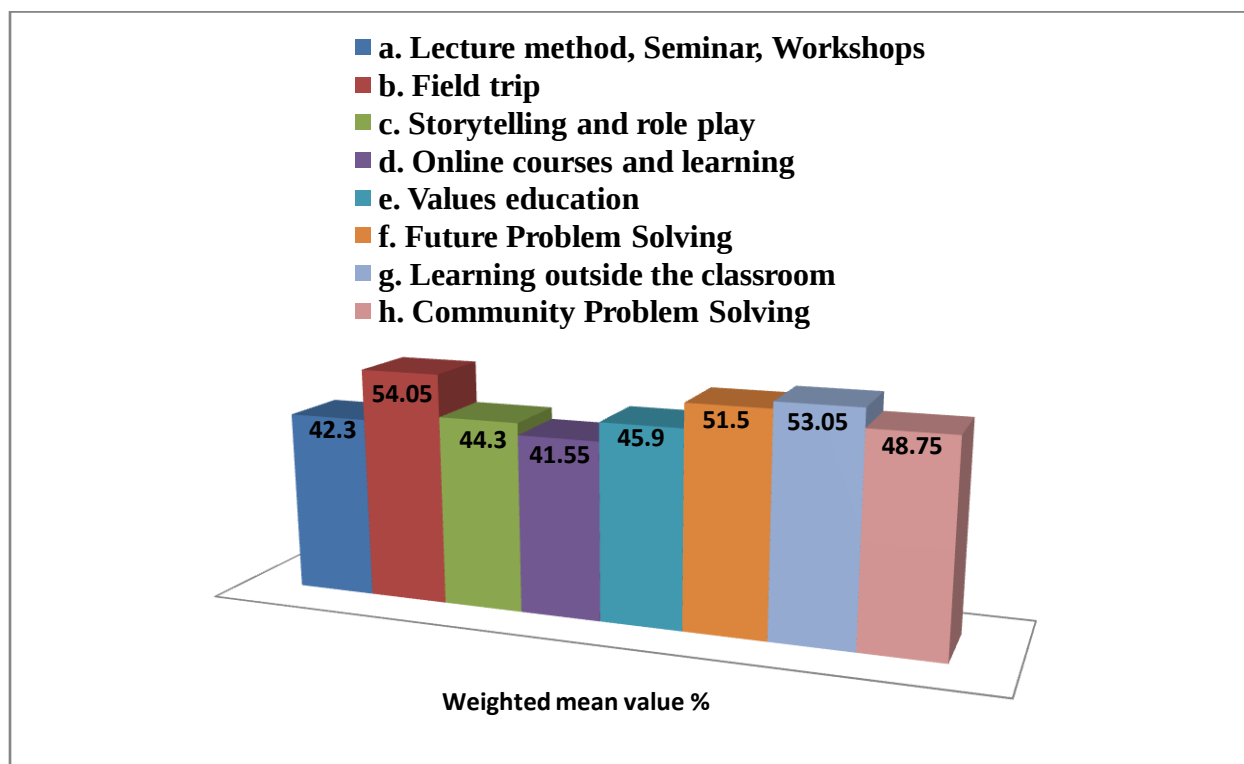
Table 10 - Table representing student's range of preference for different model

Model/Preference						Weighted score	Weighted mean value %	Rank
a. Lecture method, Seminar, Workshops	29	32	60	46	37	4230	42.3	7
b. Field trip	10	10	13	47	124	5405	54.05	1
c. Storytelling and role play	24	32	38	70	40	4430	44.3	6
d. Online courses and learning	26	43	52	56	27	4155	41.55	7
e. Values education	13	24	57	68	42	4590	45.9	5
f. Future Problem Solving	9	10	26	76	83	5150	51.5	3
g. Learning outside the classroom	11	13	14	52	114	5305	53.05	2
h. Community Problem Solving	20	12	33	67	72	4875	48.75	4



Weight	10	15	20	25	30	5150		
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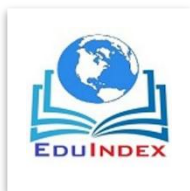
Source: Primary Data



Analysis: As per the responses received from the sample we can infer that ‘field trip’ is the most preferred mode of learning, which is immediately followed by ‘learning outside the classroom’ and the third most preferred mode is ‘future problem solving’.

The least preferred options are ‘Lecture/Seminar/Workshops’ and ‘Online courses’, this throws light upon the fact that students prefer non conventional method of learning and teaching ‘sustainable development’.

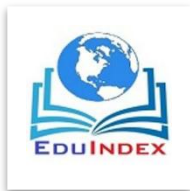
Findings of the study



- Our research shows that a majority of the students are aware of the concept sustainable development. The study leads us to understand that these students are exposed to this concept via their respective educational institutions. This exposure highlights the fact that we academicians have a vital role to play
- Based on the survey the study points out that the respondents practice sustainability by conserving essential resources, waste segregation, avoiding single use plastic and planting trees in collaboration with NGO's and the government. The least preferred response is 'sustainable consumption'. This signals educationalist to ensure that the learning of sustainable development has a holistic approach by integrating the greater concerns of ecology and inculcating eco-friendly habits.
- The study finds that lack of practical exposure is the main limitation of the current conventional model of learning sustainable development and majority of the students prefer a non-conventional model which has a realistic exposure such as, 'field trip', 'learning outside the classroom' and 'future problem solving'

Suggestions

As per our study and literature review we suggest the following methods to teach and learn Sustainable Development. *The Personal approach:* In this approach a faculty has to be competitive and expertise in teaching sustainable development. Therefore, teachers have to be provided with in-house learning facilities of the concept 'sustainable development'. In-house learning facilities include learning through online courses like Udemy, arranging seminars and workshops to interact with experts. Equipping faculties is the foremost step to make effective learning of sustainable development. The current curriculum is based on reductionist approach, according to this approach concepts of particular discipline is not explained holistically. It is important to note that 'sustainable development' is not limited to specific topic, therefore it has to be integrated in every discipline and adopting a holistic approach while teaching this concept is important.



Defining sustainable development: From the study we understand that majority of respondents follow Brundtland definition 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This definition implies that students have to be equipped with skills and knowledge to live and work sustainably. However, few believe this is not followed in reality and based on the study we find a lot of interesting facts in accepting or not accepting this definition. It depends on who defined it, let say commerce department has come up with particular definition of 'sustainable development' it may not suit humanities department students. Therefore it is necessary to have a debate on the definition and framing the definition through a holistic approach would give us the real meaning of 'sustainable development'.

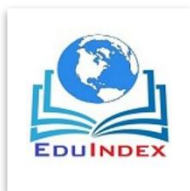
Ms. Rachel Carson in her book 'Silent Spring' did not use the word 'Sustainability', but her reference to the importance of balance of life (web of life) and living within that balance without disrupting it, indicates the importance of sustainable life style. These direct and indirect references to the meaning of 'sustainable development' have to be debated among students to develop critical thinking, since environment is dynamic and complex to understand.

Connecting to Reality: In our study we find, 'field trip' is the most preferred mode of learning, which is immediately followed by 'learning outside the classroom' and the third most preferred mode is 'future problem solving'. These three combined methods can help students to get the sense of wonder of our nature to learn its complex environment and its connection to humanity. Through field trip we can focus on solving community problems in respect of environment and facilitating students to interact with local people to learn the environmental practices adopted in agricultural activities. In addition, exposing students to real life problems and encouraging them to find solution would enhance the experience of learning sustainable development.

Limitations of Research

The study is confined only to select colleges in Bangalore which include few disciplines; therefore scope of the sample can be extended for further research.

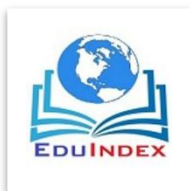
CONCLUSION



The study understands the interdependence of economic activities and environmental concerns. However, in current education system 'sustainable development' in higher education is taught through reductionist method. In addition this model has other serious shortcomings such as lack of practical exposure, lack of clarity of the concept, etc. Keeping these concerns the Current education model should prepare pupils to face economic challenges by considering environmental implications. Therefore the current model has to be developed in a holistic approach and include experience based learning.

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