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Environmental Attitude among School Students: A Systematic Literature Review

Thulassi Raj L.[1], Pachayappan M.[2*] and Ganapathy S.[3]

[1]Vasavi College of Education, Puducherry, India., Email - thulassiraj@gmail.com
[2]Production and Operations Management, Xavier Institute of Management and Entrepreneurship, Chennai, India., Email – pachayappanvn@gmail.com
[3]PJP II College of Education, Puducherry, India.

ABSTRACT

For decades, combination of man and biosphere had brought in various revolutions in the environment, in which man had tried to overwhelm and exploit the natural resources. As a result, the present generation is left with pollution and other natural calamities. This had made the researches, environmentalists and educationalist to include the Concept of Environment and its related activities in all the aspects of school and college curriculum. Still the responsibilities towards a sustainable environment for a future generation needs to be improved, which could be done by increasing the environmental attitude among young generation to understand and be reflective in all aspects of life. Hence, as a preliminary initiative, in this paper an attempt has been made on systematic analysis of review of literatures from various Journals for a decade from 2005 to 2016, based on Environmental attitude with the help of text mining method for a better understanding of the pattern of work done in the concept. To understand the ebb and flow of research on the Environmental attitude an 'Identification pattern on the literature' had been done by the researchers. 109 articles were finalized for the study after required filtrations. The Methodology adopted for the study was Text mining using word cloud, word correlation and word cluster. Text mining method helps us to understand the required information in an effective pattern. This pattern finding employed in evaluating the decades work on environment attitude will improve the accuracy of understanding the knowledge gap of the years and help others to unravel the new areas for better sustainable research work. Bring clarity and focus to the research problem. It helps the researcher in finding the relationship between his research problem and the amount of knowledge existing in the area. It encourages the researcher to read thoroughly the area in which he decides to conduct the study. Contextualize the findings. The investigator becomes familiar with various trends and phrases in research, in his area and formulates a rationale for the development of the study to be undertaken by him.

KEYWORDS: Environmental attitude, School education, Text mining, Word Cloud, Word correlation, word cluster, Systematic Literature Review.

*Corresponding Author:

Murugaiyan Pachayappan*,
Assistant Professor, Production and Operations Management,
Xavier Institute of Management and Entrepreneurship, Chennai, India.
Email – pachayappanvn@gmail.com

1. INTRODUCTION

The impact of human on environment all over the world has increased which has led to exploitation of fossil fuels, natural habitats and nonrenewable resources. This in turn has led to major problems like global warming, environmental pollutions, and man-made calamities. These increasing problems have led the environmental researchers to talk about conservation and sustainability of natural resources for the future generation. Schools, colleges and universities have included Environmental Education as one of the essential course in their curriculum framework. This inclusion of environment courses has played a major role in increasing the level of awareness and attitude towards Environmental concepts. Many researches related to the study of Environmental attitude shows[1] that pro-environmental attitude significantly predicted pro-environmental behaviors and that environmental knowledge was a significant moderator for the relationship between environmental attitudes and environmental behaviors. The pre and post trip in-class activities to the residential environmental programme at the New Jersey School of Conservation of the seventh grade students had a positive impact only for students who received both the pre and post trip activity[2]. Iranian teachers had most favorable attitude in all the components except in wildlife whereas, Indian teachers had most favorable attitude only in wildlife[3]. Highly localized implications of environment development schemes and participatory approaches to resource management at the village level[4] coupled with greater efforts at education, are especially needed to achieve conservation and development goals. The students participated in the experiment have more environmental awareness knowledge levels and enjoyed the activities rather than the students who are educated by the traditional methods of instruction[5]. Undergraduate students had positive attitude towards the environment, and that female students were more sensitive towards environment than male students[6]. Other factors than environmental knowledge and awareness acted as stimulants to induce students` active participation in environmental protection and improvemental activities[7]. Environmental education increases knowledge and awareness about earth's environment integration of spiritual and religious traditions in environmental education and offers an alternative approach in curriculum design that encourages learners' environmental attitudes and behaviors to be transforme[8]. Educational status, age and gender, among others, were factors influencing solid waste management in secondary schools in Ibadan[9]. Significant relationships were observed between students' sex, age and class and their level of awareness, knowledge and practices of waste management. Undergraduate students had positive attitudes toward the environment as regard to their gender and faculty types[10]. It was emphasized that female students were more sensitive towards environment than male students. The environment was not the most important problem for university students on

a local or national scale[11]. As a result, the level of awareness was found to be higher than the level of attitude in the university students. However, gender was not found as an effective parameter on environmental attitude.

In the present paper, the literature in the field of Environmental attitude is collected from a population background of student's community and is further classified in to two categories as follows:

- Literature review from India.
- Literature review from abroad.

1.1 Literature review from India

Students environmental attitude in India and Iran. The level of environmental attitude of Iranian students more than their counterparts in India. Gender has influence and in both the countries girl students showed better attitude than boy students towards environment. In both the countries type of school management has influence on environmental attitude of students. Iranian government school students show better attitude towards environment than private school students whereas Indian private school students show better attitude towards environment than government school students. Emphasising on various co-curricular activities in schools which will encourage to help in developing students environmental attitude[12]. Effects of pre and post activities associated with a residential environmental education experience on students' attitude expressed the insight of the effects of using classroom activities before and after a residential environmental education experiment to reinforce or alter students' attitudes towards the environment. Additional activities conducted at the students' schools may be effective in causing students to consider their relationship with the environment and in increasing positive attitude towards it[2]. Environmental attitude among the high school students, related to their Sex, Locality and types of schools. The study was conducted in Davangere district of Karnataka. The sample of the study comprised of 1440 students of standard IX studying in urban and rural areas and in different types of schools selected by stratified random sampling. The tool used for the study is Taj Environmental Attitude Scale prepared by Haseen Taj, 2001. The data were analysed and revealed that, 1) the gender does not play any role on Environmental attitude. 2) The students belonging to urban background are comparatively better in terms of their environmental attitude as compared to the students belonging to rural background. 3) The students of private schools have more favourable environmental attitude than the students of government schools. 4) Gender and locality have interaction effect on Environmental Attitude of the secondary school students. 5) Gender and types of secondary schools does not have any interaction

effect on Environmental Attitude of the secondary school students. 6) Locality and types of schools have interaction effect on Environmental Attitude of the secondary school students[14].

Attitude of adolescent boys and girls towards environmental issues. Taj Environmental Attitude Scale was administered to 280 subjects selected on the basis of random stratified sampling procedure. The subjects were 18-20 years old male and female undergraduate students from the constituent colleges of Punjab Agricultural University, Ludhiana. The scale specifically studied the environmental attitude over the six dimensions *viz.*, Health and hygiene, Wild life, Forests, Polluters, Population explosion and Environment concerns. Data were analyzed using frequencies and percentages. Results revealed that almost an equal number of adolescents possessed favourable and unfavourable attitude towards environmental issues. Across the two sexes, majority of boys had unfavourable environmental attitude whereas, more number of girls had a favourable environmental attitude. In depth analysis across varying dimensions of environmental issues revealed that the adolescents were most aware regarding the causes and consequences of population explosion and environmental concerns. However, they had poor knowledge regarding the importance of afforestation and the harmful impact of various polluters[15].

Environmental awareness level, attitudes, and participation among Lovely Professional University students, (LPU, Phagwara). It attempted to find out students level of knowledge and awareness on environment, their attitudes towards the environment as well as their participation level in environmental protection and improvements. The study was primary data base and hence questionnaire method of data collection was employed. A total number of 250 questionnaires were administered, students` responses were scored, and the data was analyzed using SPSS statistical software employing descriptive statistics. The sampling technique used was stratified random sampling in which students were sampled at random around the university so as to ensure an unbiased representation of the total population under study. Results from the study revealed high level of environmental knowledge and positive attitudes towards the environment among the students, but low level participation in environmental protection activities. This implies that, other factors than environmental knowledge and awareness may be the stimulants to induce students` active participation in environmental protection and improvement activities[16]. Environmental awareness among senior secondary school students of Aligarh city of Uttar Pradesh. The author found that there is no significant level of awareness among senior secondary school students, but they could be made aware if proper guidance and counselling is given to them about environment and environment related awareness programmes. It is however should be well realized that the key to successful implementation of any awareness programmes are the teachers and the teacher should also

be themselves aware of the environment and the Environmental Education programmes being conducted in various senior secondary schools. Many studies have been done on measuring the attitude of the students towards environment and its awareness but, very few studies have been undertaken on the awareness aspect of senior secondary school students towards the environment. The results of the present study would have its positive implications on the environmental awareness of students' fraternity, not only for the senior secondary school students of Aligarh city, but also it would have its positive relevance and serious educational implications for the other senior secondary school students of India as well[17].

Environmental attitude of secondary school students of Hyderabad city of Andhra Pradesh state. The sample of 200 secondary school students for this study was selected through stratified random sampling. The collected data were subjected to statistical analysis. The results of this research were in favour of girls of senior secondary schools, students of private secondary schools and students of secondary schools of urban locality. It's inferred that secondary school students those studied in private schools and schools of urban locality in Hyderabad city of Andhra Pradesh state have better environmental attitude than their counterparts senior secondary students[18].

1.2 Literature review from Abroad

The School Civic Clubs to improve Botswana Children's environmental knowledge, attitudes and practices. The Civic Clubs were introduced into ten Primary schools in Botswana. Using this informal approach, the children were given requisite training in civic and environmental issues, and they engaged in various activities for a period of six weeks. Data collected were analyzed using descriptive analyses. Findings indicate a significant change in the knowledge and attitudes of the pupils after their exposure to the club activities. Teaching children environmental issues through the School Civic Clubs was explored in the study, and the findings seem to demonstrate the effectiveness of this approach as against the more theoretical class-room-based teaching currently going on in schools. The use of the Civic Clubs in promoting environmental education was therefore advocated by the study, both in Botswana and in other countries[19]. The similarities and differences among Grade 7-12 science teachers from three different countries (U.S, Bolivian, and Turkish) with respect to their attitudes toward environmental education (EE) and instructional practices. The instrument employed explored how teachers' knowledge, instructional practices, decision-making process, and cultural features influenced their EE attitudes and praxis. significant differences were found between these three countries with respect to teacher's knowledge about global environmental issues, teachers rationales for including environmental education in their science classroom instruction. In addition,

there were differences regarding the resources that teachers reported drawing on as they included EE in their classrooms. Finally, there was agreement regarding teachers'goals and objectives in science classrooms with respect to EE and the most important global environmental problems/threats[20].

The effects of Multiple Intelligences strategy and traditional methods of instruction on elementary students' environmental awareness knowledge levels and their attitudes towards the environment using pre/post-test control group research model in 2009 – 2010. It was found out that the multiple intelligences instructional strategy activities were more effective in the positive development of the students' attitudes and their environmental awareness knowledge levels. It is also revealed that the students who are educated by Multiple Intelligences instructional strategy have more environmental awareness knowledge levels and have a higher motivation level than the students who are educated by the traditional methods of instruction. It was also found out that the students participated in the experimental process in which multiple intelligences strategy was applied they enjoyed the activities, had great fun and they became more aware of the environmental issues[5].

Undergraduate students' attitudes towards environment at the end of the course "Environment, Human, and Society". In direction of this basic aim, environmental attitudes of university students were examined according to the gender and faculty type factors. The research was applied at Pamukkale University in School of Foreign Languages during the spring term of 2008-2009 education years. A questionnaire consisting of 2 parts titled "personal information" and "measuring attitude towards environment" was utilized as the means of collecting data. As a result of the study, it was concluded that undergraduate students had positive attitudes toward the environment as regard to their gender and faculty types. It was emphasized that female students were more sensitive toward environment than male students. universities for all programs should provide an education program covering environmental science to nurture conscious and sensitive graduate students toward environment[6]. Environmental attitudes among primary school children living in the ancient town, in line with the local features of the area, and to direct the attention of EE researchers and decision makers to the importance of local features in developing effective EE and a sustainable future. Environmental attitudes among primary school students in Ancient Halicarnassus were analyzed by means of grouping percent frequencies of each item of Environmental Attitude Questionnaire (EAQ). It was found that it was easy for the participants to agree with general terms related to the environment. However, the participants found difficulty agreeing on items that require some background knowledge of environmental issues and those items related to the human-environment - development relationship. It was inferred, as a conclusion, that the reason the

participants experience difficulty agreeing on such items is a lack of knowledge on environmental issues, which results in difficulty making a choice between environment and economy[21].

The environmental attitudes and environmentally responsible behaviors of the undergraduate students of Abant Ýzzet Baysal University toward environmental issues. In addition, the effects of the faculty in which the students are enrolled, locality and gender on the determined environmental attitudes and environmentally responsible behaviors of the students were investigated. The data were gathered from 507 students in 2005. To explain the environmental attitudes and environmentally responsible behaviors of undergraduate students toward environmental issues, factor analysis was used with Varimax Rotation method. To determine the changes of the environmental attitudes and environmentally responsible behaviors of the students with regard to the faculty, locality and gender, one-way analysis of variance was used. According to the results, students highly support the environmental attitudes and highly participate only in consumerism behaviors. Finally, it was determined if faculty and gender had an effect on the environmental attitudes and behaviors of the students[22].

The environmental attitudes, knowledge and actions of students in an introductory environmental science course with a spiritually infused curriculum at a community college. The quantitative data was collected from students in a survey of environmental attitudes, knowledge, and actions. Qualitative studies were conducted using a focus group to complement the quantitative data. Environmental education increases knowledge and awareness about earth's environment and teaches skills that lead to action that will ensure stewardship of all aspects of earth's environment. Integration of spirituality and religious traditions in environmental education offers an alternative approach in curriculum design that encourages learners' environmental attitudes and behaviors to be transformed[8]. The differences between government and private schools students' attitude towards environment across gender at the secondary level, in Karachi, Pakistan. The study provides ample evidence that the overall attitude of students show that Pakistani students are moderately engaged with environmental issues. There were significant differences between government and private schools students' attitude towards environmental issues. The study also explores that there is no significant difference in environmental attitude across gender. The results of the study give us the overall impression of moderate attitude of students towards environmental issues. Rethinking needs to be done regarding curriculum content and structure, teaching methods, teacher education and in-service training, and development of suitable resources[23].

These studies have made the author to investigate on the literatures of environmental attitude for a timeline of ten years from 2006 to 2016 and carry out an 'Identification- pattern in the literature'. Thus this paper will bring a 'bird's eye view' of understanding the existing research gap in the environmental attitude and guide the other research scholars to navigate through new dimensions of the same concept. Further the rest of the paper is organized as follows. In the next section 2, the methodology adopted and the tools used for analysis are briefed. In section 3 the design of the content and descriptive analysis explored via, word cloud to identify the frequency of the words present in the literature collected, heat map defines the extracted phrases correlation, and finally word cluster analysis is implemented to identify the relationship between the words from the review collected. In section 4 presents about research gap. Section 5 provides conclusion and navigation for further research.

2. REVIEW METHODOLOGY

The data used in this analysis include articles published in the topic Environmental attitude from 2005 to 2016, collected from Scopus, Google Scholar, and Web of Science, a total of 430 articles were collected, after a careful filtration 109 articles were selected. Filtrations like article without abstract, research notes and relevancy to Environmental attitude concept were applied for selecting the article. These articles include both foreign and Indian authors within the stipulated time. The literatures collected were based on the studies related to Environmental attitude for a decade, covering from 2005 to 2016. For a better understanding of the ebb and flow of the study, the researchers have classified the collected reviews to four datasets. The datasets were classified based on the year of publication in the respective journals viz 2005-2007, 2008-2010, 2011-2013 and 2014-2016.

These un-structured data were then structured by following steps.

I. ***Text processing:*** This involves removal of punctuations, numbers, whitespace, removal of English stop words and stemming and making all the words to lower case.

II. ***Creating Document Term Matrix (dtm):*** The above modified text phrases of the data set were converted to matrix, for carrying out data analysis.

III. ***Collecting meaningful phrases:*** Here the researches have fixed the length of the phrases between 5 to15, this criterion helps to select word phrases having minimum of 5 characters to a highest of 15 characters. The researchers have also fixed the frequency of

word occurrence from a minimum of 2 documents to the maximum of documents present in each set of collections.

IV. ***Text mining:*** After the above said data refining the data set is run for word cloud.

V. ***Word Cloud:*** Running word cloud helps to identify the most frequent phrases occurring in the dataset which in turn extends to find the flow of research context from period to period.

VI. ***Word Correlation:*** Further the researcher find the correlation of selected phrases in the dataset. These help to find the association between the phrases and understand the research domain in various contexts.

VII. ***Word cluster:*** A major action in picturizing the overall word clusters (module) between the datasets and also explores the uniqueness and similarities between the datasets in the research.

3. ANALYSIS AND RESULT DISCUSSION

The researches have adopted text analysis methodology to study the flow of research on Environmental Attitude from the collected literature data. The collected review of literature is an un-structured data. Data processing is done by R-Studio 3.3.1 using 'tm' package, then latter processed data is analysed by using 'qdap' package to obtain word cloud and word correlation matrix. Finally, word cluster is done by a Graph visualization manipulation tool Gephi 0.9.

3.1 Word cloud

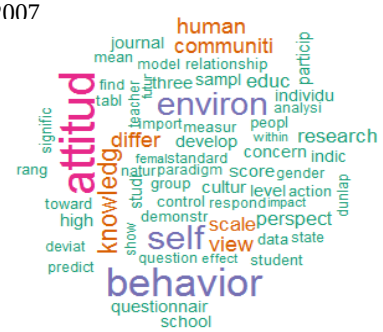
Word cloud is more aesthetically pleasing, eye catching and engaging and conveys a lot of information. Rivadenira, Green, Muller (2007) suggested a basic methodology to evaluate 'Tag Clouds'. They identified four tasks that clouds can support. They are searching, browsing, impression forming and recognition and matching. In the present case, impression forming or gisting seems the most relevant task and almost all the research performed, to date, have focused on the other tasks. Bateman, Gutwin and Nacenta (2008), identified nine visual features that may influence the effectiveness of clouds. They are (a) font size, (b) font weight, (c) colour, (d) intensity, (e) number of pixels, (f) tag width, (g) number of characters, (h) tag area and (i) position.

The phrases that have occurred in the word cloud are the most frequent words (that appear repeatedly and in higher frequency utilization in the document) used by the writers. Those words which are having higher frequency are visualized bigger, bolder and in captive colour in comparison to the low frequency words. The expression of same colour in the cloud represents the exhibition of

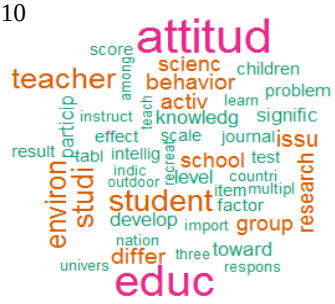
words in the same interval. In the present study, word cloud expresses the information highly related to concepts of environmental attitude. The entire document was classified into four datasets.

- Dataset from 2005 to 2007
- Dataset from 2008 to 2010
- Dataset from 2011 to 2013 and
- Dataset from 2014 to 2016

2005 to 2007



2008 to 2010



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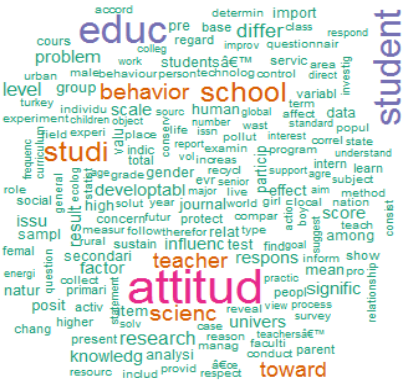

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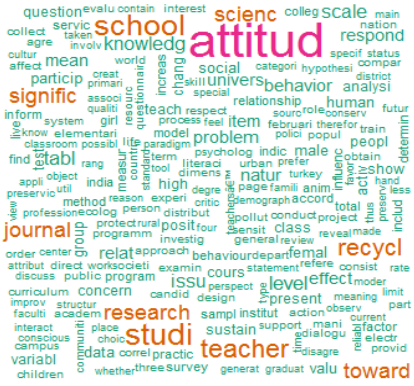

2005 to 2016

Figure. 1 Comprehensive Word Clouds of Environmental Attitude data sets

The word cloud for the dataset 2005-2007 is expressed in Figure-1. The hub of phrases such as *attitude, behavior,* appear distinctly large and captive colors which, shows that the researcher work were available to the Attitude of the Environment and the behavior of students involved. Following this *questionnaire, school, research, perspective* is projected which clearly posts the usage of questionnaire in school research is carried out.

In Figure-1 of 2008-2010 *attitude, educ, teacher, student, environment* is highlighted which shows that the concepts on Environment attitudes has started looking into the other sectors as well. The term teacher is not present in the Figure-1, which has started to appear from Figure-1 of 2008-2010 and the other figures as well which shows that the role, of the, teachers is also taken into consideration. In Figure-1 of 2011-2013, other new terms like *development, univers, particip, issu, result, and technology* have appeared which shows that the researchers have also considered certain other concepts for studying the Environmental Attitude.

Figure-4 of 2014-2016, has revealed added terms like *social, conserv, effect, factor,* which express that the researchers in the dataset has emphasized on the upcoming concepts of environmental attitude. In the Figure-5 of 2005-2016, terms like *attitud, school, education, factor group, participation, score, behaviors,* are highlighted than other terms which shows that the researchers of the collected articles from Journals have given much concentration to the terms stated. The researchers must have obtained these concepts probably from their earlier existing articles of study.

As we can see that in all the Figures the term "*attitude*" is the most prominent term. The other terms like "*educ-student-environ-behavior*" are also closely prominent and they form an important phrase of hub. The extracted high frequency phrases which were prominent in all the data sets were already stated above. This brings us the inference that much research was found in environmental attitude, and various factors related during the decade of study were taken into account. But in all the sets of literature collected very few studies are related to environmental practices, participations, sustainability, remedial measures and technology. In each set of classification there appears distinctive extracted phrases viz. behavior, teacher, student, school which express that increased number of research activity are in synchronization with those phrases. This evaluation helps us to identify the research trends and research priority of the decade (2005-2016). This could help the other research scholar to understand the research gap and frame the required dimensions for improving sustainable environmental attitude.

3.2Word Correlation

Analytics is the science of processing raw information to bring out meaningful insights. Analysis of the decade's study (2005-2016) on the Environmental attitude, express the phrases of hub in the word cloud Figure-5, which are mostly frequent and revealing in the study. These informative and most frequently occurring phrases are used for executing word correlation. The condition applied for this word cloud of study plays an important role to identify the similarities of words within the literature of each year. The word selection condition is the word presents minimum in three years and maximum in four years. This condition will remove the words which are frequently used in the literature for more than four years as well as omit the words which are not frequently used in the literature. By executing this word selection condition, which filtered and resulted totally 520 words from the overall literature data and it is shown in figure-5. From this figure-5, the manual selection of words is conducted and these words are inputted to identify the correlation between the words in the collected literature and expressed in the form of heat map in the figure–6.

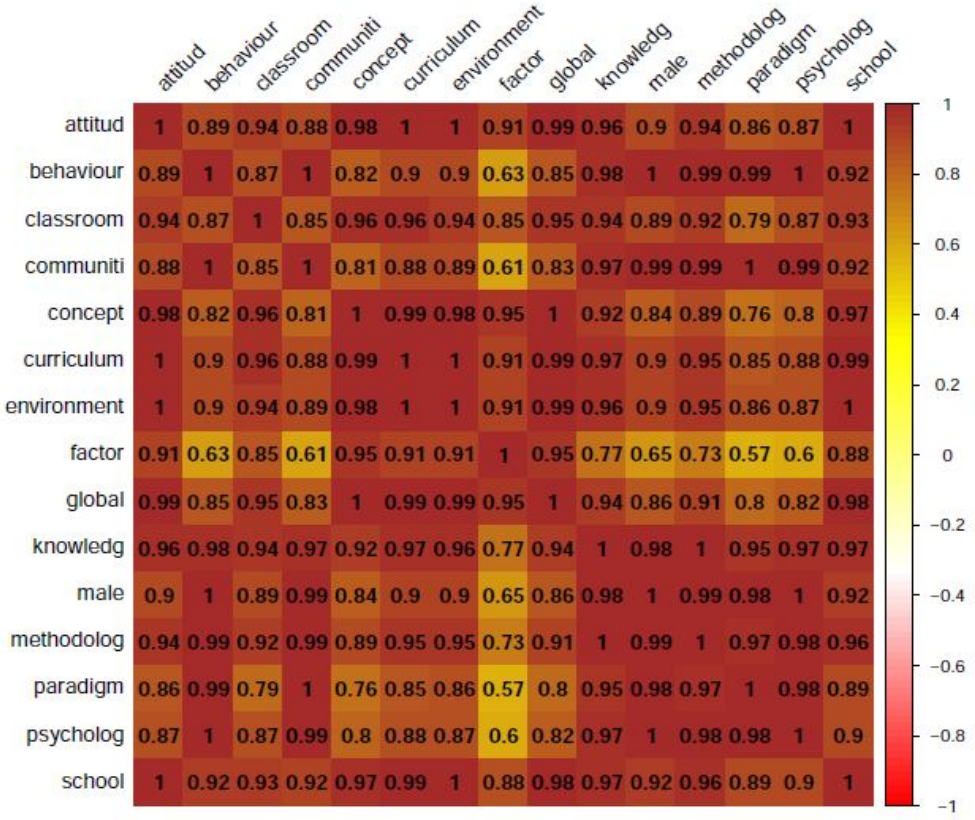

Figure – 2 Word Correlation

The Correlation heat map figure helps us to understand the weightage of phrases in the particular decade of study (2005-2016). This helps the researchers to study the close approachability of the phrases and their relationship. Simultaneously helping the researcher to analyse the other side of less association phrases and its remoteness in the study. Table-1 represents the list of selected words and their corresponding highly correlated words (r=1).

Table-1. List of words and the highly positively correlated words.

List of Words	Highly Positively correlated		
Attitude	*Curriculum*	*Environment*	*School*
Behaviour	*Community*	*Male*	*Psychology*
Classroom	-		
Community	*Behaviour*	*Paradigm*	
Concept	*Global*		
Curriculum	*Attitude*	*Environment*	
Environment	*Attitude*	*Curriculum*	*school*
Factor	-		
Global	*Concept*		
Knowledge	*Methodology*		
Male	*Behaviour*	*Psychology*	
Methodology	*Knowledge*		
Paradigm	*Community*		
Psychology	*Behaviour*	*Male*	
School	*Attitude*	*Environment*	

From the above it can be identified that these correlation words form the contextual backbone for most of the literatures collected. This relation expresses the phrases are more conducive and shows the contextual flow of study within the stipulated period.

From this it can be inferred that most of the research studies of the decade talking about the relation of environmental attitude in the curriculum and its implementation in the school. It also adds that very less relation exists among the domains viz, environmental community behavior, global concept, knowledge level teaching-learning methodology, classroom performances, and the factors influencing environmental attitude, which the new research scholars can look into as the research gap for their further investigation purpose.

3.3 Word Cluster

Most frequently occurring phrases in the set of literatures collected for the study is expressed in the form of an Overall Word Cluster using Gephi in the Figure-7. It also helps us to understand the phrases across the set of literatures and to analyse the generation gap between the set framed by the researcher. We can clearly see from the image that there are four main clusters within this text. This cluster represents the hub of phrases that are most frequently expressed in different set of literature framed by the researcher. It emphasizes not only the most frequently mentioned phrases, but also takes into account the local contextual relevance. The most frequent hub of phrases that occur across all the four classified collected literature is given separately. There are four groups of clusters (colour code viz, Blue- word phrases present in all four data sets, Green- present word phrases in combination of three data sets, Orange- present word phrases in combination of two data sets and Pink- present word phrases in one data set) formed based on the word frequency in the review process, in the cluster of blue color represents the extraction of phrases from all the four data sets which is expressed in Figure 8.

Figure-8 represents the degree of phrases in all the four data sets of literature classifed. The word cluster had expressed many words. The words that are found to be significant for the present study are picked and expressed, which are as follows *"age, alpha, attitud, behavior, community, ecology, environment, gender, global, health, higher, instrument, interest, knowledg, likert, paradigm, questionnair, relationship, sampl, scale, school, student, survey, teacher, technolog, content, enhance"*. Therefore, the domains of this zone had been much emphasized during the decade's study on environmental attitude. Hence this zone of phrases plays least priority for future research.

The cluster of orange color represents the extraction of phrases form any of the two data sets combination which is expressed in Figure 9. Figure-9 represents the degree of phrases in the two sets of collected data the significant phrases are stated as follows "*ethic, attribut, cronbach, discipline, European interview, principl, anova, ,consum, possess, real, prospect"*. This zone represents the necessity of research in the study, but they are not considered as much by researchers.

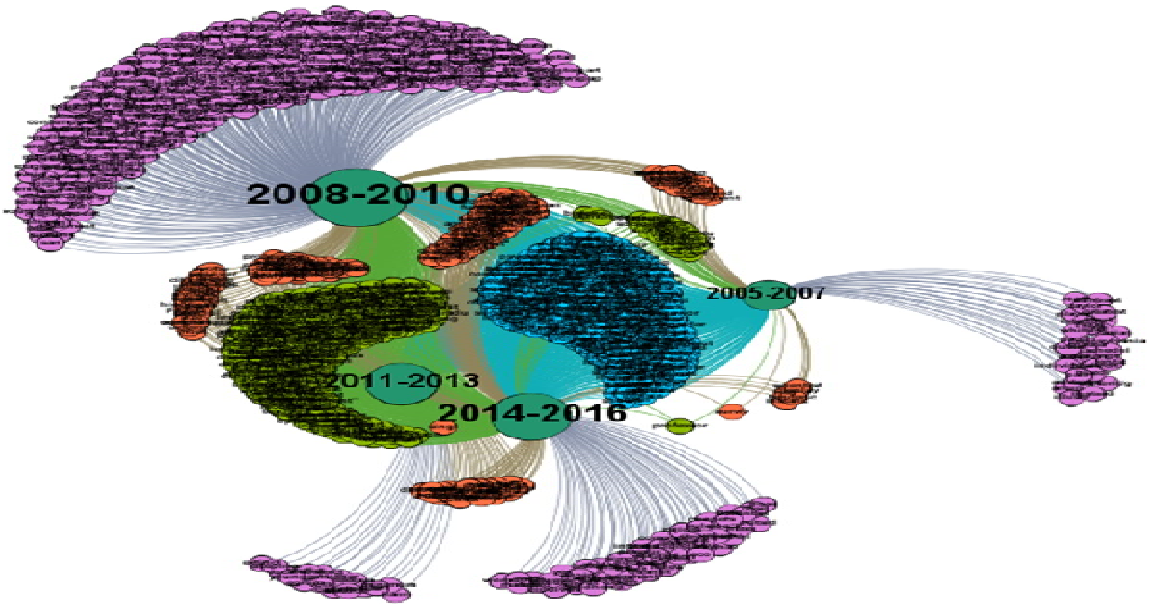

Figure-3 Overall Word Cluster of 2005-2016

From the word clusters it's significant that in which areas the researchers have given much of emphasis to the stated words in the particular decade of study. The present researchers are in need to understand and determine the research priorities made used by the earlier researchers. This would improve on understanding the literature gap of the works done on Environmental attitude.

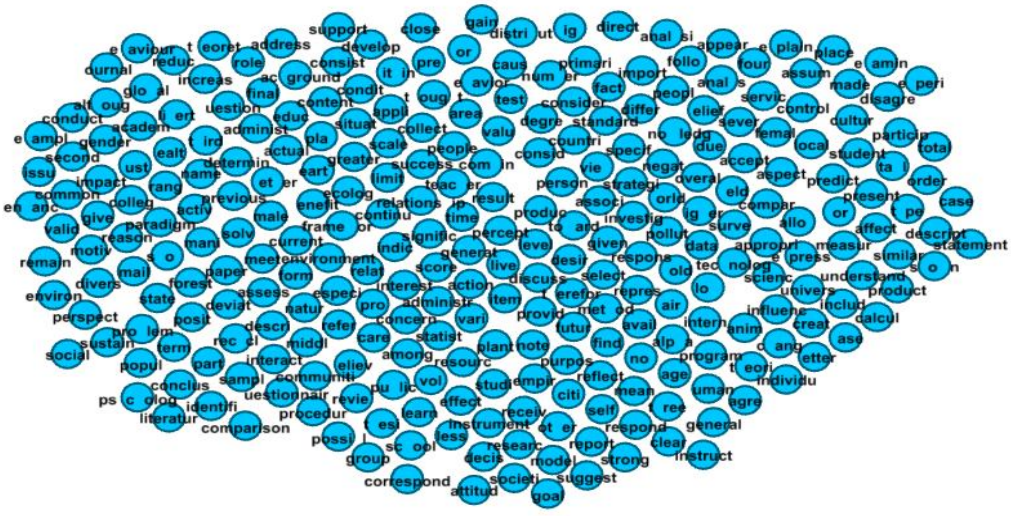

Figure. 4 Degree of phrases in four data sets

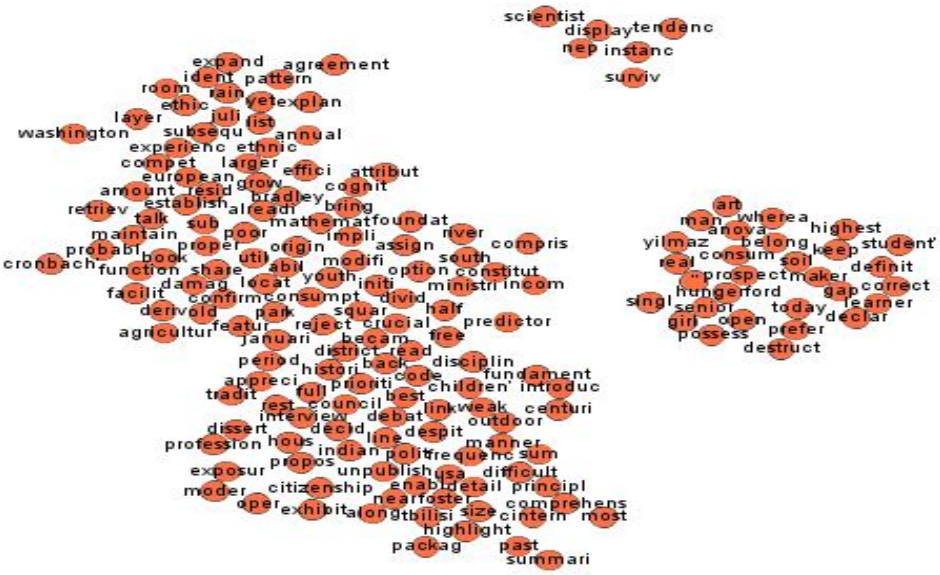

Figure.5 Degree of phases in two data sets

4. RESEARCH GAP

It can be inferred from the decade's review of Indian studies on Environmental attitude that various dimensions related to the concept such as conservation, awareness, pollution, population explosion and sustainable development were done at a cognitive level of higher secondary school students in a restricted sampling size. The studies done so far are at the knowledge and understanding level of school students. This has not lead to the desirable level of promotion of Environmental attitude in the society. The studies also include the traditional method of teaching the environmental concepts which is still practiced and which leads only to the level of cognition of the environment. In the present scenario, the problems in the environment have increased to a level that immediate action by all levels of people have to be taken. Studies highlight that necessary actions have been taken to implement the recent circumstances of the environment to the school children's by implementing them in their curriculum. The teachers and the policy makers of the school must ensure that the updating of knowledge on environmental concepts and issues reaches the students in a significant way. This could be overcome by framing the teaching objectives of the Environmental concepts at a higher order of thinking skills. This will facilitate the students' community to practice the learned concepts about environment in the real life situation.

Scrutiny of the earlier literatures throws light on the existence of many studies done on Environmental Attitude. These studies have focused their issues on surveying the environmental attitude level, among higher secondary school students. The studies have emphasized the role of demographic values in the awareness and understanding of the environmental attitude. Very less study focus on the importance of Environmental practices and participation of the school children's

in their learning period. Less information on the concepts of conservation and sustainable development dimension were done. Studies were limited to higher secondary level, which could be extended to other level of learning community. The objectives of teaching learning needs to be improved to the other levels of thinking skills so as to determine and understand the implication of Environmental concepts in their curriculum. Very less study was done to understand the global scenario of Environmental Attitude.

5. CONCLUSION

We have presented here a formal approach to identify the phrases of hub for understanding the pattern finding of the literature collected on the Environmental attitude. The initial text data were processed into a kind of data that can be represented as a graph, so that textual analysis tools can be applied to the data and that certain metrics can be calculated. Represent the data visually as a graph and identify the most influential phrases as a whole and distinct that function as a junction in pattern finding from the literature collected. Using the data explore the relations between the contextual clusters can be done which will help identify the pattern finding among the decade's collected literature. This study will throw light in identifying semantic relations and the influential phrase hub from the literature collected. This will also help us to properly infer the subjective cognitive process into the fabric of the text, which can be especially useful for comparative analysis of several texts or for avoiding overlaying semantic, affective, and ideological layers over the textual structure.

According to the results obtained from the clustering of the environmental phrases, the majorities of researches have a frequency rise in *attitude, behavior, community, ecology questionnair, relationship and, sample,* which tells about the pattern existed during the decade. Similar frequency decrease in the phrases, *ethic, attribute, cronbach, technology and discipline,* leads platform to be studied further. Hence the environmental policy makers must encourage researchers on environmental ethics, environmental technology and environmental participation related topics.

Applying word correlation to the extracted environmental phrases adds to determine the pattern in the study. According to the observation above, it can be concluded that there is implementation of environmental attitude at school level only at the knowledge level teaching-learning methodology and male students exhibit an increased community behavior towards the environmental activities. Similarly, we can also find other areas such as classroom activities, factors related to environment, global concepts and paradigm for environment, in which the teachers must pay attention to emphasis these concepts at a global level.

Finally, our approach is a way to visually represent a text as a gestalt. A text represented as a gestalt or a diagram allow for a more holistic perception of voluminous literature collected on particular concept of study. Making use of the word cloud in text mining throw light in various areas were the research scholars, policy makers and academicians can make use of the less frequently occurring extracted phrases for further research analysis.

Using the above methodology for analyzing the literature and determining the pattern helps the research scholar and policy makers to take right decision in improvising the level of environment attitude based curriculum for a sustainable future.

The foregoing discussion confirms that environmental attitude can play a significant role in reducing the imbalance in the nature. To overcome the research gap in the study the following subjects are recommended for the future research:

a. Comparing the strategies implemented in teaching learning process to improvise the environmental sustainability across the globe.
b. Applying proper environmental practices at all levels of the curriculum.
c. Analyzing the students' level behavior towards environment in their daily life practices.
d. Evaluating the research gap in other dimensions of environment for a proper framework and process in the study.
e. Emphasizing the implementation of the latest amendments in the environmental policy for better environmental practices by the students.

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