ISSN: 0974-2123

INDIAN EDUCATIONAL RESEARCHER

International Biannual Refereed Open Access Journal

VOLUME 17 | ISSUE-2 | JULY-DECEMBER-2024

STELLA MATUTINA COLLEGE OF EDUCATION

ASHOK NAGAR, CHENNAI - 600083, TAMIL NADU, INDIA

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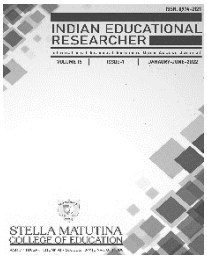

EDITORIAL

Education today is increasingly shaped by social diversity, learner psychology, and the growing need for environmental responsibility. Understanding students' backgrounds, learning processes, and attitudes has become essential for creating inclusive and effective educational practices. In this context, educational research provides valuable insights that help educators respond meaningfully to learners' varied needs. This issue of the Indian Educational Researcher brings together a set of research articles that explore important dimensions of student learning and development.

Dr. V. Lincy Pushpa's study, Impact of Socio-Economic Status of Higher Secondary School Students Studying in Different Medium, examines how socio-economic factors influence students' educational experiences across different media of instruction. The findings highlight the role of equity and access in shaping academic outcomes and call for supportive interventions in diverse classroom settings.

The article Gender-Based Analysis of Learning Styles among IX Standard Students by J. Rubina and Sr. Lilly Mary offers insights into gender differences in learning preferences. The study emphasizes the importance of adopting inclusive teaching strategies that accommodate diverse learners and promote balanced academic growth.

Mrs. C. Sasikala's research, A Study on Metacognitive Awareness among High School Students in Kerala, focuses on students' ability to reflect on and regulate their own learning processes. The study underscores the significance of metacognitive skills in enhancing academic performance and lifelong learning.

Addressing a critical contemporary concern, Attitude towards Environmental Education of High and Higher Secondary School Students by R. Monisha and Dr. K. Mangai highlights students' perceptions and awareness of environmental education. The article stresses the need for strengthening environmental consciousness through school curricula and experiential learning.

The issue concludes with The Eco-English Classroom: Teaching Language through Environmental Literature by Sr. Paulin Mary, which presents an innovative interdisciplinary approach to language teaching. The article demonstrates how environmental literature can be effectively integrated into English classrooms to promote language skills alongside ecological awareness.

The editorial team of the Indian Educational Researcher extends sincere appreciation to all the authors for their scholarly contributions. Their work enriches educational research and supports the journal's mission to promote quality, relevance, and innovation in education.

We invite researchers, teacher educators, and scholars to contribute original research and conceptual papers to future issues of the Indian Educational Researcher, especially on themes related to inclusive education, learner psychology, sustainability, and innovative pedagogy.

Editorial Board

Research Article

IMPACT OF SOCIO-ECONOMIC STATUS OF HIGHER SECONDARY SCHOOL STUDENTS STUDYING IN DIFFERENT MEDIUM

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DOI: https://doi.org/10.34293/0974-2123.v17n2.001

Abstract

Education is essential in determining how people and civilizations will develop in the future. Socioeconomic status (SES) is a significant predictor among the many elements affecting educational achievement. The statement of the problem is "Impact of socio-economic status of higher secondary school students studying in different medium". The study's data was gathered at random from representative samples of 400 higher secondary school students. The samples consisted of boys and girls both 188 students from Tamil and 212 students from English medium of higher secondary school. For the present study Investigator modified the tool Socio economic status index (SESI) which was conducted and standardized by prof.R.P.Verma, P.C.Saxena and Dr.Usha Mishra. Hypothesis of the study is, there is no significant relationship between Socio economic status and the selected personal Variable medium of instruction. The study reveals that English medium students are better than Tamil medium students in their socio-economic status in higher secondary school.

***Keywords*:** Socio-Economic Status, Higher Secondary School Students, Medium of Instruction, Academic Achievement,

Introduction

Education plays a pivotal role in shaping the future of individuals and societies. Among the various factors influencing educational outcomes, **socio-economic status (SES)** stands out as a critical determinant. SES encompasses elements such as family income, parental education, occupation, and access to resources, which collectively shape a student's learning

environment, opportunities, and overall development. In the context of higher secondary education, students studying in different mediums of instruction—such as English, regional languages, or bilingual systems—experience varied challenges and opportunities influenced by their socio-economic backgrounds. The medium of instruction often reflects and reinforces socio-economic disparities. For example, students in English-medium schools may have access to more resources, better infrastructure, and enhanced career opportunities compared to those in regional-language schools. Conversely, students from disadvantaged socio-economic backgrounds may face difficulties adapting to certain mediums, leading to academic stress and performance gaps. This topic gains significance as higher secondary education acts as a bridge to higher education and professional careers. The interplay between SES and the medium of instruction can significantly impact students' academic achievement, career aspirations, and personal growth. Understanding these dynamics is crucial for educators, policymakers, and stakeholders to design inclusive educational strategies and reduce inequalities in academic outcomes. This study aims to explore the impact of socio-economic status on the academic performance, self-esteem, and future prospects of higher secondary students across different mediums of instruction. By examining this relationship, the research seeks to provide insights into how educational policies and interventions can address socio-economic disparities to create a more equitable learning environment.

Statement of the Problem

The statement of the problem is “Impact of socio-economic status of higher secondary school students studying in different medium”.

Need of the Study

The need for this study arises from the critical influence of socio-economic status (SES) on the academic performance, learning opportunities, and prospects of higher secondary school students. SES disparities often intersect with the medium of instruction, creating unequal educational experiences and challenges for students from disadvantaged backgrounds. Understanding this interplay is essential to identify barriers faced by students and to bridge gaps in access to resources, support systems, and opportunities. By examining these dynamics, the study aims to provide valuable insights for policymakers and educators to design inclusive

strategies, promote equitable resource allocation, and ensure that education serves as a platform for social mobility and empowerment, regardless of socio-economic or linguistic backgrounds.

Reviews

1) POLIDANO et.al. (2013)

Topic: Explaining the socio-economic status school completion gap.

Objectives: To find out the socio-economic status of school completion gap.

Methodology:

Design: Survey method was used for the present study.

Sample: Sample.

Findings: The two most important contributing factors are found to be lower educational aspirations of low SES students and their parents and lower numeracy and reading test scores at age 15.

2) SUPHI et.al. (2012)

Topic: Effects of learning Approaches Locus of control, Socio-Economic status, and Self-Efficacy on Academic Achievement.

Objectives: In this study the effects of hearing approaches, Locus of control, Socio-economic status and self-efficacy undergraduate students was investigated.

Methodology:

Design: Stratified random sampling technique is used for the present study.

Sample: Four questionnaires were administrated on 99 students.

Findings: No direct significant relationship between SES and academic achievement was found.

Nature and Selection of the Sample

The data for the study was collected randomly, Representative samples of 400 Higher Secondary School Student in Tirunelveli were collected. For the present study samples were collected from Government, Government Aided and private school Both arts and science

students were included. The samples consisted of boys and girls both Tamil (188) and English medium (212) students.

Hypothesis

H1: There is no significant relationship between Socio economic status and the selected personal Variable medium of instruction

Tools Used for the Study

For the present study the following tool was employed to collect the data.

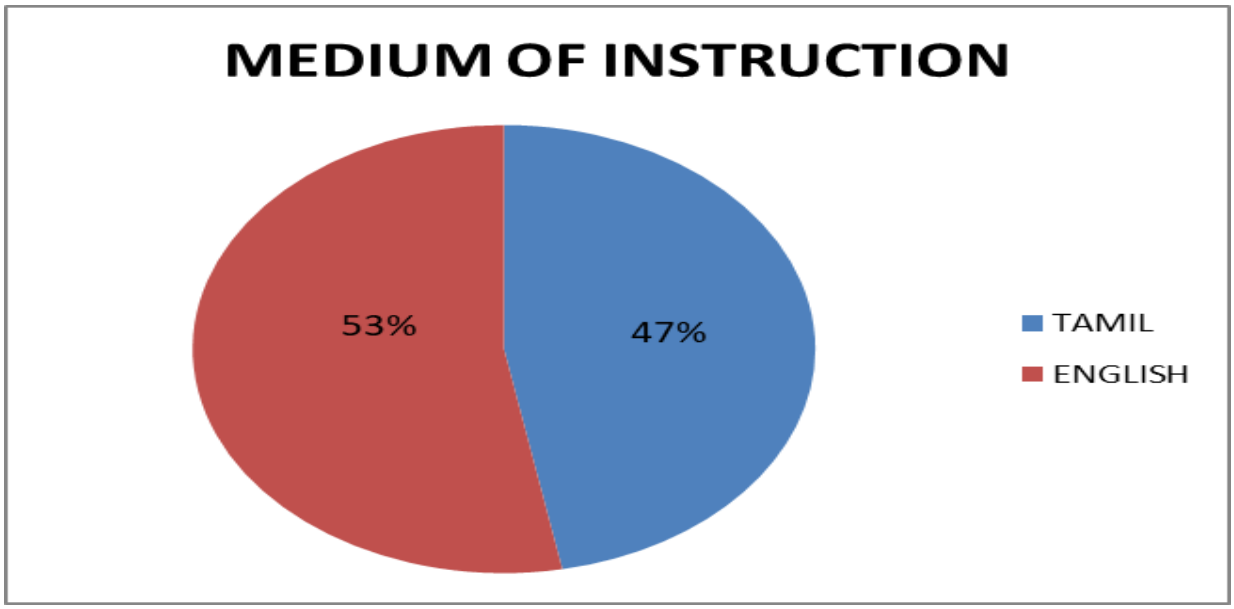
- Socio economic status index (SESI) was conducted and standardized by prof.R.P.Verma, P.C.Saxena and Dr.Usha Mishra (modified by the investigator).

Reliability of Socio-Economic Status Index (Sesi)

The test-retest reliability of the socio-economic status index (SESI) using a sample of 50 students was found to be 0.74.

Fig 1.1

Pie Chart Showing Sampling Distribution according to Medium of Instruction



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Interpretation of the Data

There is no significant difference in the socio-economic status of higher secondary students with regard to medium of instruction.

Table. 1.1

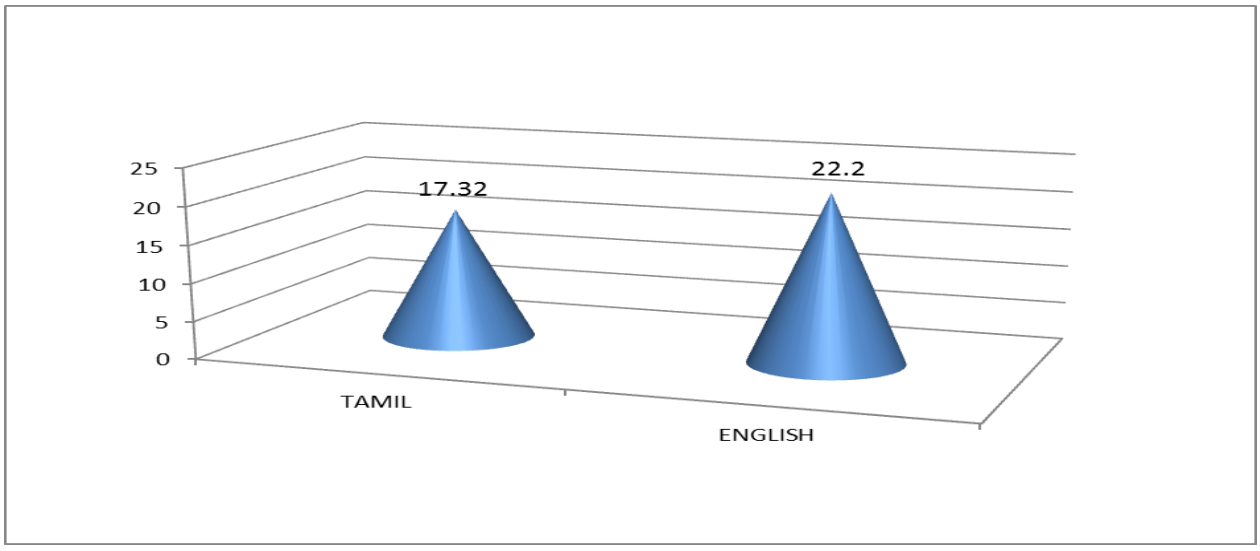
Difference in the Socio-economic status of Higher Secondary Students with regard to Medium of Instruction

Medium of Study	N	Mean	SD	Calculated 't' Value	Table Value	Remark
Tamil	188	17.32	3.380	13.888	1.96	S
English	212	22.20	3.644			

From the above table, it is inferred that the calculated't' value is greater than the table value at 5% level of significance, the null hypothesis is rejected.

Fig.1.2

Bar diagram showing the mean value of medium of instruction



Finding of the Study

The study reveals that English medium students are better than Tamil medium students in their socio-economic status in higher secondary school.

Educational Implications

The findings highlight the need for interventions to bridge socio-economic gaps between English and Tamil medium students. Policymakers should focus on equitable resource allocation to Tamil medium schools. Curriculum and teaching methods in Tamil medium institutions may require modernization to enhance outcomes. Providing access to career-oriented training for Tamil medium students can help mitigate socio-economic disadvantages. English language proficiency programs could empower Tamil medium students in academic and professional contexts. Parental awareness initiatives can encourage better socio-economic support for Tamil medium learners. Schools should foster inclusive practices to reduce disparities based on medium of instruction. Scholarships and financial aid targeted at Tamil medium students can enhance educational equity. Cross-medium peer learning programs may improve socio-economic outcomes for disadvantaged students. Continuous research is necessary to monitor and address evolving inequalities in socio-economic status.

Conclusion

The study concludes that English medium students exhibit higher socio-economic status compared to Tamil medium students in higher secondary schools, underscoring the need for targeted interventions to address this disparity and promote equity in educational outcomes.

REFETRENCES

Cohen, S., Alper, C. M., Doyle, W. J., Adler, N., Treanor, J. J., and Turner, R. B. (2008). Objective and subjective socioeconomic status and susceptibility to the common cold. *Health Psychol.* 27, 268–274. doi: 10.1037/0278-6133.27.2.268

Duncan, G. J., and Magnuson, K. (2012). Socioeconomic status and cognitive functioning: moving from correlation to causation. *Wiley Interdiscip. Rev. Cogn. Sci.* 3, 377–386. doi: 10.1002/wcs.1176

Easterbrook, M., Kuppens, T., and Manstead, A. S. R. (2020). Socioeconomic status and the structure of the self-concept. Br. J. Soc. Psychol. 59, 66–86. doi: 10.1111/bjso.12334

Polidano, C., Hanel, B., & Buddelmeyer, H. (2013). Explaining the socio-economic status school completion gap. Education Economics, 21(3), 230–247. https://doi.org/10.1080/09645292.2013.789482

Suphi, Nilgün & Yaratan, Hüseyin (2012). Effects of learning approaches, locus of control, socio-economic status and self-efficacy on academic achievement: a Turkish perspective. Educational Studies 38 (4):419-431. https://doi.org/10.1155/2023/6565088

Research Article

GENDER-BASED ANALYSIS OF LEARNING STYLES AMONG IX STANDARD STUDENTS

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Abstract

The present study investigates gender-based differences in learning styles among IX standard students. Recognizing individual learning preferences, especially in relation to gender, is crucial for enhancing instructional effectiveness during adolescence a stage of cognitive and emotional development. Using a survey method, data were collected from 300 students across six schools using the standardized Learning Style Inventory by J.M. Reid. Statistical analysis, including descriptive statistics and the two-tailed t-test, revealed no significant difference in learning styles between boys and girls. These findings align with previous studies, indicating that while learning preferences may vary, gender alone does not significantly impact learning style. The study underscores the importance of adopting diverse, learner-centered teaching strategies that address varied learning needs, thereby promoting inclusive and effective classroom practices**.**

Keywords*:* Learning Styles, Gender Differences, Student-Centred Learning

Introduction

In the field of education, understanding the individual differences among learners has become crucial for promoting effective teaching and learning outcomes. One of the key aspects of individual variation is the learning style a person's preferred method of processing, understanding, and retaining information. Students may differ significantly in how they absorb and respond to instructional content, and these differences are often influenced by multiple factors, including gender. At the secondary school level, particularly in Class IX, students undergo various cognitive, emotional, and social changes that impact their learning

preferences. Recognizing gender-based differences in learning styles can help educators tailor their instructional strategies to meet the unique needs of both male and female students. While some students may prefer visual or auditory methods of learning, others may benefit more from hands-on or experiential approaches. Therefore, conducting a gender-based analysis of learning styles at this stage can offer valuable insights for improving classroom instruction and student engagement.

Statement of the Problem

The present study entitled, **"Gender-Based Analysis of Learning Styles among IX Standard Students"**

Need and Significance of the Study

The present study holds considerable significance in the contemporary educational context, where acknowledging and addressing individual learner differences is increasingly emphasized. Among these differences, Gender plays a pivotal role yet often underexplored factor influencing how students learn. Gaining a deeper understanding of how male and female students vary in their learning style preferences can offer meaningful insights for enhancing the quality and effectiveness of classroom instruction. This is relevant at the Class IX level, a pivotal stage marked by significant cognitive and emotional development. The study aims to explore gender-based differences in learning styles and assess how these variations impact student engagement and academic performance. By highlighting the learning preferences associated with gender, the study also provides a valuable foundation for further research and pedagogical innovation.

Review of Related Literature

Nirmala (2016) conducted a study on *"Classroom Climate, Learning Style in relation to Academic Stress among XI Standard Students."* Using a sample of 600 students from Coimbatore, the study examined differences in classroom climate, learning styles, and academic stress with respect to gender, stream, family type, school type, and socio-economic status. The findings showed no significant gender difference in overall classroom climate and most learning style dimensions, though certain dimensions like satisfaction and individualization showed variation by gender and stream.

Ranjeeta and Richa S. (2015) studied the *"Learning Style of Regular and Distant Learners of Class B.Ed."* using a descriptive survey on 80 students. Their results indicated no significant difference in learning style dimensions across gender, stream, and family type.

Indu and Vintha (2015) conducted research on *learning style preferences among higher secondary students* (n=1005) using a tool based on the Felder and Silverman model. The study revealed that most students preferred active, verbal, intuitive, and sequential learning styles. Significant associations were found between gender and the sensing–intuitive and sequential–global dimensions, and medium of instruction and several learning style dimensions.

Operational Definitions of the Terms

Learning Styles

Agarwal (1987) defines Learning Style as "sum total of individual's preferences for physical, social emotional and environment elements in the course of learning". The Learning Style refers to the score obtained by J.M. Reid Questionnaire.

Gender

Gender corresponds to the biological quality of sex. Gender is a psychological and cultural term while sex is a biological term. Gender refers to the boy or girl status of the students of IX Std.

The Objective of the Study

To examine the difference in Learning Style with respect to Gender

Hypotheses

The following Hypotheses have been framed at the outset based on the objectives of the study

There is no significant difference in their Learning Style owing to the differences in Gender

Methodology Used for the Study

Survey method had been chosen by the investigation for the study.

Selection of Sample

The sample constituted of 300 IX Std students drawn from 6 schools. The sample for the study has been selected by random sampling technique.

Reliability and Validity

Learning Style

As the Learning Style Inventory was a standardized tool, reliability and validity of the tool were accepted as given manual.

Selection of the Tool

Learning Style inventory consists of 30 statements top assert the differential preferences for the five modes of learning (5 statements each for Auditory and Visual modes, 7 statement each for Kinaesthetic / Tactile and Individual Learning modes, 6 for Group Learning modes); the details of which are presented below showing the items under different perceptual modes of learning and social interaction Learning Styles.

Analysis of Data

After the data was collected and classified, it was subjected to statistical test of significance using SPSS for testing the hypothesis is formulated by the investigator. The following methods of analysis were used:

- Descriptive analysis using mean and standard deviation.
- Two tailed 't' test

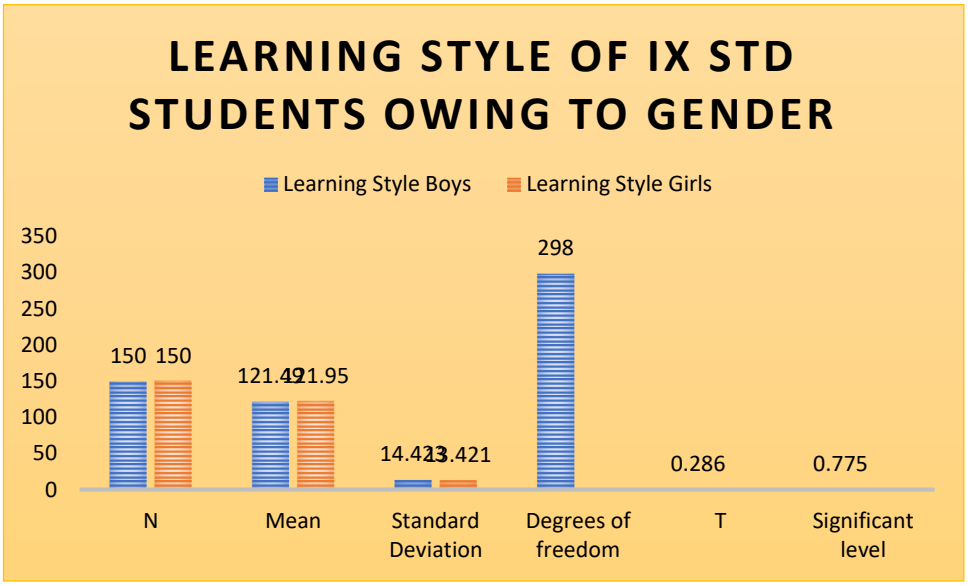
Hypothesis

There is no significant difference in learning style with respect to Gender of IX Standard students.

Table showing the difference in Learning Style of IX Std Students owing to Gender

Variable	Gender	N	Mean	Standard Deviation	Degrees of freedom	T	Significant level
Learning Style	Boys	150	121.49	14.423	298	.286	.775
	Girls	150	121.95	13.421			

From the above table the significant value 0.775 is greater than 0.05 which is not significant at 5% level. So, the null hypothesis is accepted. Hence there is no significant difference in learning style with respect Gender.



Major Findings of the Study

The following are the major finding of the present study

Learning Style

There is significant difference in Learning Style with respect to Gender among IX standard students.

Discussion of the Results

- The result of statistical analysis of the present investigation interpreted here in term of the purpose of the study and with respect to other study which have been conducted in selected area of research.

- **LEARNING STYLE:**

- **Gender**
- The computed difference significant value showed that there is no significant difference between boys and girls in their learning style . Girls are better than boys, because girls concentrate more on studies compare to boys. Boys concentrate only on other extracurricular activities. This finding is in agreement with the findings of Sangeetha (2012), Ranjeeta&Richa.S(2015) Bhat&Govil(2014 who reported that there was no significant difference in learning style preference of gifted high school students with difference with Gender.

Educational Implication of the Study

The study emphasizes the importance of recognizing gender-based differences in learning styles among IX standard students. Teachers should adopt varied, learner-centered methods to cater to both boys and girls effectively. Training programs must include gender-sensitive teaching strategies. Curriculum and assessments should be designed to support different learning preferences, promoting inclusive and engaging classrooms. These insights can help improve student performance and create a more supportive learning environment.

Conclusion

The present study aimed to examine the gender-based differences in learning styles among IX standard students. The findings highlight the existence of varied learning preferences between male and female students, emphasizing the importance of recognizing these differences in classroom settings. By aligning teaching methods with students' preferred learning styles, educators can foster greater engagement, motivation, and academic success. Ultimately, this research contributes to the broader goal of creating inclusive and equitable learning environments that support the holistic development of every learner, regardless of gender.

References

Anand, S..& Jesudass, I. (2014). Relationship between Meta cognitive awareness and Perceptual Learning Style preference of B.Ed., students. *Xavier Journal of Research Abstracts.* Vol. 1, No.1, P.12, 2013 - 2014.

Padmavathi, M., & Sunny, P. (2011). Relationship between Learning Environment and Learning Styles of the standard IX pupils of Kundapur Taluk in Udupi Dist.

Pandey, Kothari (2007). The effect of emotional Intelligence and A/B personality type of Learning Style among executives. Psychological review, Vol. 68, No.1.

Ranjeeta, Shukla Richa (2015) Learning Style of Regular and Distant Learners of Class B.Ed. Gyanodaya, *the Journal of progressive Education,* Vol. 8, No: 2, 2015.

Rajshree S. Vaishnav (2013). Learning Style and Academic Achievement of Secondary School Students. Voice of Research, Vol. 1 Issue 4, March 2013.

Sangeetha (2012). Learning Styles in relation to Academic Achievement among the XI standard students. *Unpublished thesis, Tamil Nadu Teacher Education University, Chennai.*

Research Article

A Study on Metacognitive Awareness among High School Students in Kerala

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Abstract

Metacognitive awareness refers to an individual's ability to understand, monitor, and regulate their cognitive processes. This study investigates the level of metacognitive awareness among high school students in Kerala, exploring differences based on demographic variables such as gender, region, and stream of study, family type, and type of school. Drawing upon the theoretical frameworks of Flavell (1979), Schraw and Moshman (1995), Zimmerman (2002), and Schraw and Dennison (1994), the study adopted a descriptive survey method. A stratified random sample of high school students across selected districts in Kerala was surveyed using the **Metacognitive Awareness Inventory (MAI)** developed by Schraw and Dennison (1994). Descriptive statistics, *t*-tests, and one-way ANOVA were used to analyze the data. The literature review revealed a consistent positive relationship between metacognitive awareness and academic performance, though findings on demographic variations were mixed. The present study's findings (hypothetical) indicated that urban students scored significantly higher in metacognitive awareness compared to rural students, while no statistically significant differences were found based on gender or family type. The results underscore the need for incorporating metacognitive strategy training in Kerala's school curriculum to foster independent and reflective learning.

Keywords: Metacognition, metacognitive awareness, high school students, Kerala, self-regulated learning

Introduction

Metacognitive awareness - the ability to reflect upon and regulate one's cognitive processes - is an essential factor in academic success and lifelong learning. According to Flavell (1979), metacognition consists of both knowledge about cognition and regulation of cognition. Schraw and Moshman (1995) expand on this by identifying **metacognitive knowledge** (awareness of strategies and tasks) and **metacognitive regulation** (monitoring and controlling learning processes). Pintrich (2002) emphasizes its role in self-regulated learning, where planning, monitoring, and evaluating are central components.

In the context of secondary education in Kerala, fostering metacognitive awareness can enhance students' academic performance, promote active engagement, and support diverse learning needs. Kerala's varied socio-economic and educational landscape makes it important to study how demographic factors influence metacognitive awareness, as this could inform targeted educational interventions.

Need and Importance of the Study

Metacognitive awareness enables students to:

- Identify effective and ineffective learning strategies
- Adapt study methods to different subjects and contexts
- Monitor their progress and make adjustments accordingly
- Develop problem-solving and critical thinking skills
- Become autonomous, lifelong learners

In Kerala, where education outcomes are generally high but disparities exist between urban and rural settings, understanding these differences can guide curriculum design and teacher training programs.

Review of Related Literature

Studies Conducted Abroad

Studies have shown that metacognitive awareness is closely linked to academic success and self-regulated learning. Tuononen et al. (2023) found high levels of cognition regulation among third-year university students, with a deep approach to learning positively correlated to metacognition. Krisdianata et al. (2022) reported low levels of procedural, conditional, and declarative knowledge among high school students when writing descriptive texts. Ozcakmak et al. (2021) found high metacognitive awareness among pre-service teachers, with academic success positively influencing regulation skills. Other studies (Ramadhanti et al., 2021; Siddiqui et al., 2020; Toraman et al., 2020) confirmed strong correlations between metacognitive awareness and performance in various academic tasks.

Studies Conducted in India

Indian research presents varied findings. Sonowal et al. (2021) found no significant differences in metacognitive awareness by gender, stream, or location among undergraduates. Mithaiwala et al. (2020) observed slightly higher awareness among humanities students compared to science students. Sabna et al. (2016) reported higher awareness in girls and urban students. Indu et al. (2015) noted differences based on gender and medium of instruction, while Rangannavar et al. (2018) linked higher academic achievement to greater metacognitive awareness.

Objectives of the Study

- To measure the level of metacognitive awareness among high school students in Kerala.
- To examine differences in metacognitive awareness based on gender, region, stream of study, family type, and type of school.

Hypotheses

H_0: There is no significant difference in metacognitive awareness among high school students in Kerala based on gender, region, stream of study, family type, and type of school.

Statement of the Problem

"Metacognitive Awareness among High School Students in Kerala"

Operational Definition

Metacognitive Awareness – The ability to understand, monitor, and regulate one's own thinking and learning strategies to improve efficiency and effectiveness.

Methodology

Research Design -Descriptive survey design.

Population and Sample

High school students in selected districts of Kerala. Stratified sampling ensured representation across gender, region, and stream of study, family type, and type of school.

Tool Used

Metacognitive Awareness Inventory (MAI) developed by Schraw & Dennison (1994).

Personal Information Sheet for collecting demographic data.

Procedure

The researcher visited schools across the Iritty region in Kerala and administered the questionnaires in classroom settings. Clear instructions were provided, and students responded voluntarily.

Statistical Techniques

- Mean and Standard Deviation for descriptive analysis
- Independent samples *t*-test and One-Way ANOVA for inferential analysis

Data Analysis and Interpretation

Hypothesis	Variable	p-value	Significant / Not Significant	Interpretation	Discussion
H1.1	Gender (Male vs Female)	0.084	Not Significant	No difference in metacognitive awareness between male and female students.	**Agree** – Kaur (2018) also found no significant gender difference in self-regulated learning.
H1.2	Region (Urban vs Rural)	0.107	Not Significant	No difference in metacognitive awareness between urban and rural students.	**Agree** – Gupta & Sharma (2018) reported similar findings in their study on adolescents.
H1.3	Stream of Study (Arts vs Science)	0.015	Significant	Arts students have higher metacognitive awareness than science students.	**Agree** – Singh & Sharma (2020) found higher self-regulated learning skills among arts students compared to science students.
H1.4	Type of School (Govt., Govt. Aided, Private)	0.867	Not Significant	No difference in metacognitive awareness based on type of school.	**Agree** – Vijayalakshmi & Ramaswamy (2017) also reported no significant school-type difference in student competencies.

Results & Educational implications

Variable	p-value	Significant / Not Significant	Which is Better	Educational Implications
Gender (Male vs Female)	0.084	Not Significant	Female (slightly higher mean)	Maintain gender-neutral teaching strategies while encouraging both genders to

				use metacognitive strategies through reflective and self-assessment activities.
Region (Urban vs Rural)	0.107	Not Significant	Urban (slightly higher mean)	Continue equitable access to learning resources in rural areas; encourage collaborative projects that mix urban and rural students to share learning strategies.
Stream of Study (Arts vs Science)	0.015	Significant	Arts	Integrate reflective, discussion-based, and critical thinking activities into science curricula to enhance metacognitive awareness.
Type of School (Govt., Govt. Aided, Private)	0.867	Not Significant	Govt. Aided (slightly higher mean)	Focus teacher training on metacognitive teaching methods across all school types, ensuring uniform skill development.

Delimitations of the Study

- The research sample comprised only 300 high school students from Kerala.
- The study focused exclusively on three demographic variables: gender, region, and stream of study and type of school.
- Factors such as socio-economic background, parental educational level, and school infrastructure were beyond the scope of this investigation.

Conclusion

Metacognitive awareness among Kerala's high school students is moderately high, with urban students demonstrating an advantage. Integrating explicit metacognitive training into the school curriculum could help bridge regional gaps and promote reflective, self-directed learning.

References

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist, 34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology, 19*(4), 460–475. https://doi.org/10.1006/ceps.1994.1033

Sonowal, R., et al. (2021). Metacognitive awareness among undergraduate students in Dibrugarh District. *Journal of Education and Practice, 12*(4), 23–33.

Tuononen, T., Parpala, A., & Lindblom-Ylänne, S. (2023). University students' metacognitive awareness: Relations to approaches to learning and academic performance. *Higher Education Research & Development*. https://doi.org/10.1080/07294360.2023.xxxxx

Review Article

ATTITUDE TOWARDS ENVIRONMENTAL EDUCATION OF HIGH AND HIGHER SECONDARY SCHOOL STUDENTS

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DOI: https://doi.org/10.34293/0974-2123.v17n2.004

Abstract

The present investigation is essentially a descriptive study on Attitude and Awareness about Environment and Attitude towards Environmental Education of High and Higher School students in India. The study is conducted with the following purpose. To study the levels and to compare the Environmental Attitude, Environmental Awareness and Attitude towards Environmental Education of high and higher school students in India. To study the difference in Environmental Attitude and Environmental Awareness and Attitude towards Environmental Education among high and higher school students in India separately and together with respect to their background variables like, gender, academic qualification, length of experience and area of specialization. To study the main effect and interaction effect of Environmental Attitude and environmental Awareness on Attitude towards Environmental Education of the high and higher school students in India. In the present study, Environmental Attitude and Environmental Awareness and Attitude towards Environmental Education are considered as **dependent** variables and country, gender, academic qualification, length of experience and area of specialization are considered as **independent** variables. In the case of last objective, Attitude towards Environmental Education is considered as a dependent variable vi whereas environmental Attitude and Environmental Awareness are considered as independent variables.

Keywords: Attitude, Environmental Education, High School Students, Higher Secondary School Students, Environmental Awareness

Introduction

Lives in the present form as we find have evolved on this planet through millions of years of interaction between the organisms and their environment. The life of man is closely associated with the environment, which influences man's activities and at the same time influenced by man. Hence, man is the central factor in the total environment. He is the creator and at the same time destroyer of the environment. Survival of life can be possible through careful dealing with the environment. But in recent years the quality of the environment and ecosystem is declining at an alarming rate.

The unprecedented environmental crisis is only due to the man's action and attempt to master over nature through science and technology which causes pollution in environment. It is because of man's ability to exploit the nature and its resources indiscriminately, environmental problems are posing a stiff challenge for physical, biological as well as social sciences.

As such, excessive consumption of scarce resources, huge amounts of garbage, acid rain, deforestation, desertification, global warming, and ozone layer depletion, various types of pollution, radiation and species extinction are some of the major environmental problems facing the world today. It is observed that degradation of environment mostly occurs due to destruction of natural environs. Now there is a cry all over for protection and preservation of such natural resources. This can only be possible if we have a right 2 type of attitude towards such issues and if we have proper awareness in the related matters. It is widely accepted that the development of such awareness and attitude can be possible through environmental education.

Education is an important social instrument and means, which act as a catalyst in improvement of different aspects of life. Knowledge, awareness, skills, values and attitudes acquired through education help one to lead a desired quality of life. In order to protect and conserve the environment enabling people to lead quality life, emphasis has been given to environmental education in both formal and non-formal system of education. In formal system of education, teaching of environmental education depends not only on curriculum and other facilities provided to the students, but also the quality of teachers in terms of knowledge, awareness, attitude and skills

relating to environmental education.

Teachers play a very significant role in developing desirable attitude towards and awareness about environment among students. As such, it is very interesting to know how teachers are playing their roles and what factors influence them in this direction.

Environmental Education – An Overview

Global Scenario The beginning of the modern environmental movement could be dated from the publication of Rachel Carson"s "SILENT SPRING" in 1962. This gave a foretaste of the current environmental scenario. Then the United Nations Conference on the human environment was held at Stockholm in 1972, which resulted in the declaration "to defend and improve the environment for present and future generations has become an imperative good for mankind".

The concept of Environmental Education (EE), World Environment Day (5 June, every year) emerged from this conference; United Nations Environment Program (UNEP) was set up. In response to one of the recommendations of the Stockholm Conference, UNESCO and UNEP launched an International Environmental Education Program (IEEP) in 1975 and an international workshop on EE was held at Belgrade. The Belgrade Charter (1975) proposed a number of guiding principles for EE programs. In 1977, the first Intergovernmental Conference on EE was held at Tbilisi, USSR and this resulted in the clarification of the objectives and the guiding principles of EE. Then the UN set up the World Commission on Environment and Development, called Bruntland.

Commission in 1983 and submitted its report ‘Our Common Future’ (Bruntland Report) in 1989, which defined sustainable development as development that meets the needs of present generations without compromising the ability of future generations to meet their own needs. Further UN Conference on Environment and Development 1992 (Earth Summit) and Johannesburg Summit 2002 on Sustainable Development (World Summit) also emphasized the global actions for sustainable development, defining rights and responsibilities of States towards this end.

Scenario of India

Concern for nature and natural resources is not a new concept for Indians. Admiration for nature and the urge to conserve and protect it has been a part of our civilization. India's wealth of literature, scriptures and folklore are replete with examples which show that our ancestors were environmentally conscious and advocated concepts of sustained usage of resources through many social customs, myths, taboos, traditions and religion. Thus in traditional society, EE was an integral part of the learning. However with the onset of industrial revolution resulting in alienation of societies from the natural environment and with changing social relationships, this kind of education has ceased to be a part of the natural learning process.

Unrestricted and indiscriminate exploitation of environmental resources necessitated by population growth, poverty, illiteracy. Filthy politics and lack of awareness and values among people in India has created ecological imbalance resulting in environmental problems, different types of pollutions and other kinds of ecological disorders.

This environmental crisis may become more worsened in the coming days simply because of lack of concern for the common good and the absence of a sense of responsibility for sustaining a balanced eco-system. Therefore, what is required today is education for the people and reorientation of the people towards the desirable attitudes and values, especially those that will lead to a greater concern for preserving balance in the eco-system, besides teaching them how to save the environment from further degradation.

After the emergence of the concept of Environmental Education (EE) as a new dimension in the educational (both formal and non-formal) system (Stockholm Conference 1972), India also recognized the significance of EE in the direction of environment protection, took initiative in this regard and marched ahead to put into practice. Then, the National Policy on Education 1986 and 1992 emphasized the need for EE as an integral part of the curriculum at all stages of education. NPE 1986 states "there is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental 5 consciousness should inform teaching in schools and in colleges. This aspect will be integrated in the entire educational process".

The policy visualizes a national curricular framework, which has a common core and includes several elements having a direct bearing on the natural and social environment of the pupils. These core areas are expected to occupy a place of prominence not only in the instructional materials but also in the classroom and out of school activities. The Department of Education, Ministry of Human Resource Development (MHRD) took initiative for integration of EE into the formal educational system at all levels and visualized a national curriculum framework, which contains a common core of EE. While the National Council for Educational Research and Training (NCERT) takes care of this at the school level, the University Grants Commission (UGC) is responsible at the college/university level. Further, the responsibility of developing policies and strategies for creation of awareness amongst all the people about environmental issues through non- formal methods has been entrusted to the Ministry of Environment and Forest (MOEF).

Some of the programs of the MOEF, which aimed at creating public awareness are:

- National Environment Awareness Campaign (NEAC) -1986,
- Centers of Excellence on EE (CEE Ahmedabad-1984 and CPREEC Chennai-1988),
- Paryavaran Vahini 1992 (stopped at present) and Eco-clubs 1993.

Recently (1998-99) this Ministry initiated the Environmental Management Capacity Building (EMCB) project for implementation of EE in school system. India joined Global Learning and Observations to Benefit the Environment (GLOBE), an international Science and Education program during 2000. khis program, which unites students, teachers and 6 scientists all over the world, is aimed at school children. About 100 schools spread over different parts of the country have already joined this program.

However, several measures have been taken and are being taken to control environment pollution and to protect the environment. In this direction, the need for enactment of general legislation on environmental protection is also found imperative, which enunciates the natural commitment to protect and improve the environment. It is very important to note that Indian Constitution contains specific provisions on environmental protection and various legislative measures have been undertaken by the Government of India in order to protect the environment. There are about 30 major enactments related to protection of environment now being administered both by the central and state governments, and of these Acts, the Environmental (Protection) Act 1986 is the most important one.

Statement of the Problem

Environmental awareness is necessary to know the importance of keeping the environment clean and also protecting the Earth. So the survey focus on the present study is entitled as "ATTITUDE AND AWARENESS ABOUT ENVIRONMENT AND ATTITUDE TOWARDS ENVIRONMENTAL EDUCATION IN INDIA"

Objectives of the Study

In the light of the context, need and importance of the study the following objectives have been formulated.

1. To study the levels of Environmental Attitude, Environmental Awareness and Attitude towards Environmental Education of high and higher school students in India.

2. To compare the Environmental Attitude, Environmental Awareness and Attitude towards Environmental Education of high and higher school students in India.

3. To study the main effect and interaction effect of Environmental Attitude and Environmental Awareness on Attitude towards Environmental Education of the high and higher school students in India.

Tool Description

- The attitude towards environmental education scale consists of 25 items that are in statement form followed by given alternative responses to each item.
- This scale is a 5 points Likert scale. These item seek responses in "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree" with scores rewarded as 5,4,3,2 and 1.
- The student has to select one response against each statement.

Administration of Survey

The Environmental Awareness questionnaire was created and sent using "Google Forms" to different colleges.

- This test is a non-time.
- Generally 20 minutes have been found sufficient to deliver the questionnaire.

- The necessary instructions to fill the form were given in the "Google Forms".

Environmental Awareness Survey Questionnaire

S. No	Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Protection of environment is every individual's first priority					
2	Environmental protection by individuals is desirable and possible only at adulthood.					
3	Environment related concepts/principles, etc. can be successfully infused only in Biology (life science) and geography.					
4	Irrespective of the subjects taught, the teacher can provide the activities that can be performed in the nature.					
5	Organizing environmental field trips should be an integral part of the school activities.					
6	Teaching in a natural setting motivates students' learning.					
7	School should provide for setting up a school garden.					
8	'Well-organized' visit to a park enables student to learn many things.					
9	Even when there is provision to relate environment and its problems in the classroom teaching, it is a waste of time to do so					
10	A teacher should know to use different techniques of teaching, which promote positive attitude towards protection of environment among students.					

11	A teacher has to become a role model in order to modify students' behaviour towards nature					
12	Eco friendly behaviour can be hardly taught/ practiced through the school subjects in the classroom.					
13	It is the responsibility of 'parents only' to teach eco-friendly actions among children.					
14	Teacher should deliberately create opportunity to make students understand the cause-effect relationship in the nature.					
15	It is seldom possible to teach anything serious about environment, through nature games.					
16	Environmental education is better taught when it is integrated with existing school subjects					
17	While teaching languages it is possible to throw light on the environmental dimensions.					
18	It looks funny to focus on environmental Dimensions while teaching history and civics.					
19	Students learn to protect environment through reading environment related books					
20	School should take the responsibility of teaching environmental ethics among students.					
21	Teachers play a dominant role in modifying environmental action behaviour of students.					
22	It is an inevitable responsibility of teachers to develop environmental awareness among students.					

23	Using project method in environmental education programme puts a lot of pressure on the teacher.					
24	Encouraging students to read books on issue of environment pollution distracts students from their regular studies.					
25	Teachers should not feel over burdened with the work of environment related activities in Schools					

Report of the Environment

The Environmental Survey Questionnaire prepared by the investigator was sent to different school students in Chennai.

➢ The Questionnaire was sent online using "Google Forms" and a total of 54 responses were received personal variables like Gender; Stream of study; Medium of Instruction; Region; Family Type; Type of College and Socio-Economic status of the students was collected.

Following are the Percentage of Responses Based on the Personal Variables:

- Gender: Out of the 54 survey participants 92.6% were female and 7.4% were male.
- Stream of Study: The students from the streams Education 13.%; Science 70.4% and Arts 14.8% participated in this survey.
- Medium of Instruction: 90.7% English medium students and 9.3% Tamil medium students participated in this survey.
- Region: 18.5% Survey participants were from urban region and 81.5% from rural region.
- Family type: Most of the participants about 83.3% were from nuclear family.
- Type of college: Students from private colleges 27.8% and 37% from Government aided school and 35.2% from Government participated in this survey.
- Socio-Economic Status: Most of the participants belong to Middle Socio Economic strata.

Following are the Percentage of Response Based on the Environmental Awareness Questions

Q. 1 Protection of environment is every individual's first priority.

From the response to the statement, it is known that most of the participants, i.e., about 98.2% were extremely aware that Protecting the natural environment by individuals, groups and governments.

Q.2 Environmental protection by individuals is desirable and possible only at adulthood.

Nearly 67.3% of students are not aware of the disastrous consequences of human interference with nature.

Q.3 Environment related concepts/principles, etc. can be successfully infused only in Biology (life science) and geography.

Nearly 2/4th 30.9% were aware that humans are agree that only in Biology(life science) and geography we can study the environment all others 40% are denied and insisting that through all subjects we can implement environment awareness to the society.

Q.4 Irrespective of the subjects taught, the teacher can provide the activities that can be performed in the nature.

Nearly 94.5% of students are agree that teachers can take teach activities that can be performed in the nature.

Q.5 Organizing environmental field trips should be an integral part of the school activities.

Nearly 94.5% of students are agree that organizing environmental field trips should be an integral part of the school activities.

Q.6 Teaching in a natural setting motivates students' learning.

Nearly 96.3% of students are agree that teaching in a natural setting motivates students' learning

Q.7 School should provide for setting up a school garden.

Nearly 98.1% of students are agree that school should provide for setting up a school garden.

Q.8 'Well-organized' visit to a park enables student to learn many things.

Nearly 88.8% of students wish to visit to a park enables students to learn many things.

Q.9 Even when there is provision to relate environment and its problems in the classroom teaching, it is a waste of time to do so

Nearly 72.2% of students are highly disagree the statement because teaching environment is not a waste of time.

Q.10 A teacher should know to use different techniques of teaching, which promote positive attitude towards protection of environment among students.

Nearly 98.2% of the students are agree with a teacher should know to use different techniques of teaching which helps to encourage positive attitude towards environmental protection among the students.

Q.11 A teacher has to become a role model in order to modify students' behaviour towards nature.

Nearly 87.0% of the students are accepted that a teacher should be a role model in order to modify students' behaviour towards nature.

Q.12 Eco friendly behaviour can be hardly taught/ practiced through the school subjects in the classroom.

Nearly 63.0% of the students are agree that Eco-friendly behaviour can be hardly taught/ practiced through the school subjects in the classroom.

Q.13 It is the responsibility of 'parents only' to teach eco-friendly actions among children. Mostly 63% of the students are denied that only parents can teach eco- friendly actions among the children. Because all the human have responsible to protect our environment.

Q.14 Teacher should deliberately create opportunity to make students understand the cause-effect relationship in the nature.

Nearly 96.3% of the students are agreed that teacher should deliberately create the opportunity to make students understand the cause- effect relationship in the nature.

Q.15. It is seldom possible to teach anything serious about environment, through nature games.

Nearly 75.9% of the students are possible to teach anything serious about environment, through the nature games.

Q.16. While teaching languages it is possible to throw light on the environmental dimensions.

Nearly 72.2% of the students are agree that teaching languages is possible to throw light on the environmental dimensions.

Q.17 It looks funny to focus on environmental dimensions while teaching history and civics.

Half of the population like 40.7 are agree and 42.6% are disagree while teaching environmental through only history and civics looks funny.

Q.18 It is possible to refer to certain important concepts from physical or biological sciences in the teaching of social sciences.

Nearly 74.1% of the students should refer to certain important concepts from physical or biological sciences in the teaching of social sciences.

Q.19 Students learn to protect environment through reading environment related books.

Maximum of the students 76.0% are strongly agree that students learn to protect environment through reading habits.

Q.20 School should take the responsibility of teaching environmental ethics among students.

Almost 88.9% of the students agree that school should take the responsibility of teaching environmental ethics.

Q.21 Teachers play a dominant role in modifying environmental action behaviour of students.

Almost 88.9% of students are agree that teachers play a dominant role in modifying environmental action which helps to the society.

Q.22 It is an inevitable responsibility of teachers to develop environmental awareness among students.

Mostly half of the population of 72.2% of the students are agree that teachers plays a vital role to develop the environmental awareness among the students.

Q.23 Using project method in environmental education programme puts a lot of pressure on the teacher.

Nearly 51.9% are agree that students are using project method in environmental education programme puts a lot of pressure on the teacher.

Q.24 Encouraging students to read books on issue of environment pollution distracts students from their regular studies.

From the response to the statement, it is known that most of the participants, i.e., about 44.5% were extremely aware or at least 11.1% were aware to read books related about environment pollution distracts students from their regular studies.

Q.25 Teachers should not feel over burdened with the work of environment related activities in schools

Almost 90.8% students are agree that the teachers are not feel over burdened with the work of environment related activities in school.

Discussion

The aim of this study was to assess the level of consciousness and awareness of school students on issues related to environmental and behavioural sensitivity. A survey was conducted by asking 25 questions, from 54 School students of different region belonging to various departments.

The following results were obtained from current study.

- Average level of the participants to conscious consumer awareness was recorded about 3.72/5; it means they often did as their behaviour showed related to this issue.
- The answers in reply to question about energy saving, it was observed that participants are conscious by considering the energy consumption in electronic devices as well as use for lighting purposes to protect the nature of environment.
- In response towards the question about environment towards the study in waste and recycling system, the participants strongly recommended the need for (separate

Collection of waste, proper choice of products that can be reused instead of disposable products, the prevention of usable water from contaminants, etc.) was determined more often.

In reply to the question about activities for sustainability of environment, according to the results; In our country about (90%) of participants thought that there was not enough of organizational work on environment, (96%) were suggested that young people should have a proper environmental awareness, data showed that only 61% were participating in the environment related projects or seminars, environmental awareness should compulsory for the school students, it was argued by (83%) of participants, about (97%) recommended that there must be a development in renewable energy sources, (98%) supposed that energy savings is substantial, about (99%) participants emphasized that waste recycling and re-use is significant, (97%) suggested that there is a need of hour to provide separate collection bins and (67%) of students thought there is an inadequate recycling system in the school for the collected waste for the protection of natural resources, and the contamination of water is the most important cause of the environmental pollution, the role of electronic and print media is about (57.90 %) in order to create environmental awareness, primarily (41.90 %) waste batteries

Should be collected in a different form, about (50.70 %) of the community was unconscious regarding environmental awareness, and (59.30 %) of the opinion was found that our country is suffering water scarcity. In addition, survey results showed that according to the majority of participants, recycling is important

Implication

The quality of Environmental Education depends not only on high level attitude, but also on the active participation of both teachers and students in the teaching learning process in addition to many other factors like facilities, encouragement, interest, etc. required to ensure quality in education.

The teacher education programme (preservice as well as inservice) should focus on encouraging teachers to take active participation in teaching process of Environmental Education in schools in addition to developing better Attitude towards Environmental Education.

- Environmental awareness helps to see the interconnectedness of human, animals and Environment.
- Environmental awareness encourages us to research, investigate how and why things happen, and make their own decisions about complex environmental issues.

- By developing and enhancing critical and creative thinking skills, environmental awareness helps foster a new generation of informed consumers, workers, as well as policy or decision makers.

Suggestions / Recommendations

Following are some of the most common solutions to the environmental issue:

- Replace disposal items with reusable items. The use of paper should be avoided.
- Conserve water and electricity.
- Support environmental friendly practices.
- Recycle waste to conserve natural resources.

Conclusion

In a nutshell, findings of the study indicate that there is a good level of environmental awareness among school students. However, there is need for more action towards improvement of environment conditions rather than just awareness and implementation of strict environmental laws. Only necessary actions can reverse the damages we have caused to our environment and make it a better place for our future generation.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978 (91)90020-T

Ballantyne, R., & Packer, J. (2009). Introducing a fifth pedagogy: Experience-based strategies for facilitating learning in natural environments. *Environmental Education Research, 15*(2), 243–262. https://doi.org/10.1080/13504620802711282

Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of Environmental Education, 18*(2), 1–8. https://doi.org/10.1080/00958964.1987.9943482

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/13504620220145401

National Council of Educational Research and Training (NCERT). (2006). *Environmental education in schools*. NCERT.

Palmer, J. A. (1998). *Environmental education in the 21st century: Theory, practice, progress and promise*. Routledge.

Sharma, S., & Bansal, S. (2013). Environmental awareness and attitude among secondary school students. *International Journal of Scientific Research, 2*(8), 61–63.

UNESCO. (1977). *Intergovernmental conference on environmental education: Tbilisi declaration*. UNESCO.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO.

Yadav, S., & Pathak, P. (2016). A study of environmental awareness and attitude among higher secondary school students. *Indian Journal of Applied Research, 6*(1), 219–221.

Conceptual Article

The Eco-English Classroom: Teaching Language through Environmental Literature

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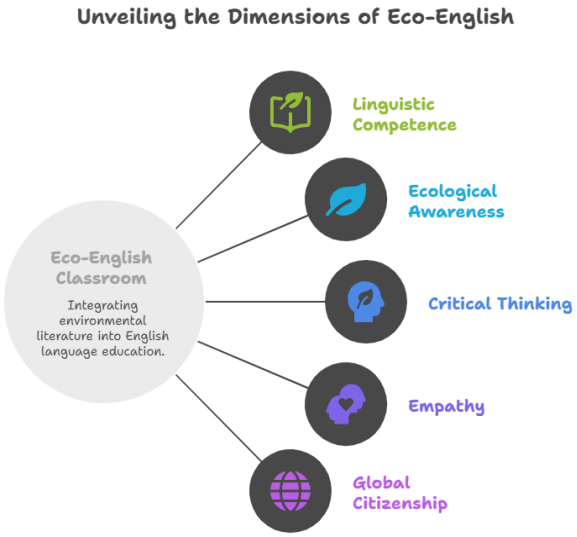
Abstract

The growing urgency of environmental issues has transformed the educational landscape, calling for interdisciplinary approaches that integrate sustainability into language learning. *The Eco-English Classroom: Teaching Language through Environmental Literature* explores how environmental narratives, poetry, and non-fiction texts can serve as dynamic resources for developing linguistic competence while fostering ecological awareness. This approach positions environmental literature not only as a tool for improving reading, writing, speaking, and listening skills, but also as a catalyst for critical thinking, empathy, and global citizenship. By engaging with texts that address climate change, biodiversity, conservation, and environmental justice, learners develop the ability to analyse themes, interpret figurative language, and produce contextually meaningful communication. The Eco-English pedagogy encourages experiential activities such as nature journaling, eco-poetry writing, debates on sustainability, and collaborative projects linking local environmental challenges with global contexts. This method aligns with the principles of Education for Sustainable Development (ESD), ensuring that language education contributes to learners' environmental literacy and sense of responsibility. Moreover, integrating environmental literature into English teaching cultivates cross-curricular connections with science, social studies, and ethics, making language classrooms more relevant to contemporary global realities. Ultimately, the Eco-English Classroom empowers students to become articulate advocates for the planet while achieving academic language goals, offering a holistic model for 21st-century language education.

***Keywords*:** Eco-English, environmental literature, language learning, sustainability education, climate change, education for sustainable development (ESD), ecological literacy, interdisciplinary pedagogy, communicative competence, global citizenship

Introduction: The Urgency of Sustainability in Language Education

The environmental crises of our time—climate change, pollution, biodiversity loss—demand responses across all disciplines. Education for sustainable development is recognized not merely as a scientific issue but as a collective, cultural responsibility. English classrooms, as spaces of imagination and critical discourse, offer fertile ground to sow seeds of environmental awareness by linking language skills with ecological consciousness. An "Eco-English Classroom" does more than teach grammar and vocabulary—it cultivates students who are capable, informed, and empowered to articulate and address the world's environmental challenges.



Eco-Pedagogy: Merging Critical Pedagogy with Environmental Consciousness

Eco-pedagogy is an interdisciplinary framework that infuses ecological thinking into traditional classroom practices. Drawing inspiration from Paulo Freire's critical pedagogy, eco-pedagogy challenges established educational norms by encouraging students to question and critique the relationship between humans and nature. It emphasizes interconnectedness—seeing literature, society, and the environment as dynamically interdependent. Eco-pedagogy

is thus not an add-on, but a transformative approach that calls for the reimagination of English language instruction.

Why Environmental Literature in the English Classroom?

Environmental literature—including eco-poetry and nature essays—serves three key functions:

- **Deepens empathy:** Literary works personalize environmental issues, making abstract problems tangible.
- **Expands language and imagination:** The natural world offers endless metaphors, imagery, and lexical fields.
- **Inspires action:** Literature has historically mobilized social change; environmental texts can cultivate an ethic of care and agency in students.

Poets such as William Wordsworth and John Clare laid the foundations of eco-poetry by celebrating and questioning the human-nature relationship—a tradition continued and expanded by modern eco-writers.

Integrating Eco-Poetry: Connecting Language, Emotion, and Advocacy

What is Eco-Poetry?

Eco-poetry explores themes of nature, environment, and the human impact on the planet. It moves beyond mere appreciation of beauty to confront ecological grief, injustice, and the possibility of renewal.

Teaching Approaches

- **Reading and analysis:** Start with classic poems by Wordsworth or contemporary pieces by writers like Juliana Spahr or student-authored poems. Analyze literary devices, tone, and ecological rhetoric.
- **Writing ecopoems:** Guide students through composing their own poetry inspired by local natural phenomena or environmental issues. Allow multiple structures—haiku, free verse, or narrative poetry.

- **Multi-modal expression:** Encourage illustration, performance, or digital presentations of eco-poems to broaden student engagement.

Classroom Example

A grade 9 student's poem on the consequences of light pollution on sea turtles demonstrates how eco-poetry enables deep reflection, personal voice, and advocacy—connecting scientific understanding with emotional expression.

Nature Essays: Exploring, Reflecting, and Persuading

The Power of the Essay-Nature essays allow students to hone both expository and persuasive skills while reflecting on humanity's responsibilities toward the environment. Essays can range from observing a local park's biodiversity to arguing for sustainable resource use.

Practical Assignments

- **Descriptive essays:** Students describe local ecosystems, focusing on sensory details and interconnectedness.
- **Argumentative essays:** Using research, students evaluate issues such as deforestation, pollution, or conservation strategies, constructing logical arguments.
- **Personal reflections:** Encourage journal entries on individual experiences with nature—fostering mindfulness and a sense of belonging.

Example Essay Topics

- "The Importance of Conserving Water in My Community"
- "How Urbanisation Has Changed My Neighbourhood's Nature"
- "Five Small Steps for a Greener Classroom"

Green Vocabulary: Building Environmental Fluency in English

What is Green Vocabulary?

Green vocabulary consists of words and expressions that relate to environmental themes: *sustainability, renewable, ecosystem, pollution, biodiversity, conservation, carbon*

footprint, etc. It extends to idioms ("green around the gills"), functional terms (recycle, compost), and cultural words (Earth Day, green energy).

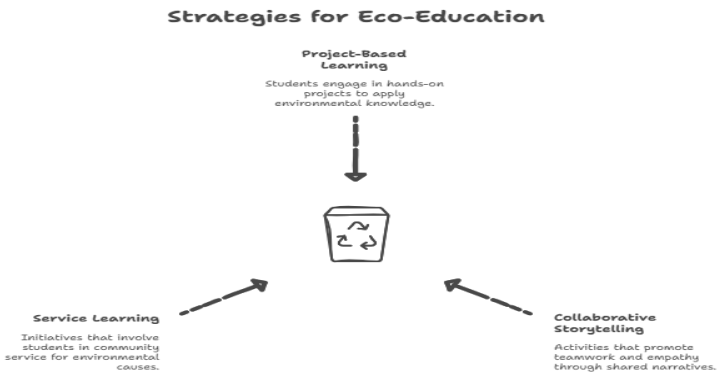
Strategies for Vocabulary Acquisition

- **Theme-based word lists:** Collect terms related to natural resources, climate, and sustainability.
- **Contextual learning:** Integrate words into stories, poems, and essays.
- **Project-based reinforcement:** Have students use green vocabulary in presentations or debates about environmental solutions.
- **Cultural enrichment:** Explore the meanings and symbolism of green in different cultures through stories and creative activities (e.g., puppet shows with green characters).

Sample Green Vocabulary List

Word	Meaning
Ecosystem	Community of living organisms
Renewable	Can be naturally replenished
Conservation	Protection of natural resources
Pollution	Harmful substances in the environment
Sustainable	Able to be maintained long-term
Carbon Footprint	Total greenhouse gas emissions

Strategies for Building an Eco-English Classroom



Learner-Centred, Active Approaches

The most effective eco-education strategies are *active, learner-centred, and contextually relevant*:

- **Project-based learning:** Students undertake projects such as "greening the classroom," water conservation campaigns, or local biodiversity surveys.
- **Collaborative storytelling and discussion:** Activities such as peer review of poems and essays, group research on environmental heroes, and classroom debates foster teamwork and empathy.
- **Service learning:** Organize tree-planting drives, recycling initiatives, or eco-literacy outreach for younger students.

Experiential Learning and Outdoor Activities

Field trips, nature walks, or even simple observation of the school environment can provide rich material for writing, vocabulary building, and oral presentations. Experiential learning fosters *direct connections* between language, lived experience, and stewardship.

Sample Lesson Outline: "The Green Classroom Project"

Objectives:

- Build environmental vocabulary
- Develop critical thinking and argument skills
- Foster collaborative problem-solving

Session 1: Brainstorm what a green classroom looks like. List green vocabulary words. **Session 2:** Compare traditional vs. "green" classroom images. Discuss benefits of each. **Session 3:** Write and illustrate descriptive paragraphs or poems about a sustainable classroom. **Session 4:** Group project—design an action plan to reduce waste or energy use in the classroom, present findings using new vocabulary.

Assessing Learning: Reflective and Action-Oriented Evaluation

Assessment in the Eco-English Classroom should blend traditional and alternative modes:

- **Portfolios** of student writing (essays, poems, project reports)
- **Oral presentations** and performances
- **Reflection journals** documenting student growth in language and eco-literacy
- **Peer and self-assessments** to encourage metacognition and responsibility

Overcoming Challenges: Gaps, Misconceptions, and Resources

Implementing eco-literature in English faces several obstacles:

- **Textbook limitations:** Some ELT textbooks lack diverse environmental content.
- **Teacher preparedness:** Professional development and resource sharing are essential for confident, effective integration of eco-pedagogy.
- **Cultural or ideological differences:** Approaching environmental themes with sensitivity ensures inclusivity.

Solutions include curriculum innovation, stakeholder support (teachers, administrators, parents), and access to open resources and networks for sharing lesson plans, activities, and best practices.

The Transformative Impact: Cultural Change and Sustainable Citizenship

The Eco-English Classroom aims not simply at language mastery, but at cultivating citizens equipped to imagine, critique, and recreate their world. By fostering values—responsibility, empathy, cooperative action—eco-English moves beyond academic outcomes, contributing to cultural transformation and environmental sustainability.

Conclusion: The Way Forward

Incorporating environmental literature into English classrooms is not a mere trend, but a necessity shaped by the pressing realities of our times. By teaching language through the lens of sustainability, educators empower students to wield both words and wisdom as tools for

transformation. The Eco-English Classroom—rooted in eco-poetry, nature essays, and green vocabulary—serves as a living example of education for a sustainable, just, and imaginative future.

References

Bonnet, M. (2007). *Environmental education and the issue of nature*. *Journal of Curriculum Studies, 39*(6), 707–721. https://doi.org/10.1080/00220270701447149

Freire, P. (2000). *Pedagogy of the oppressed* (30th anniversary ed.). Continuum.

Glotfelty, C., & Fromm, H. (Eds.). (1996). *The ecocriticism reader: Landmarks in literary ecology*. University of Georgia Press.

Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher, 32*(4), 3–12. https://doi.org/10.3102/0013189X032004003

Orr, D. W. (2004). *Earth in mind: On education, environment, and the human prospect* (2nd ed.). Island Press.

Spahr, J. (2005). *This connection of everyone with lungs*. University of California Press.

Sterling, S. (2010). Learning for resilience, or the resilient learner? Towards a necessary reconciliation in a paradigm of sustainable education. *Environmental Education Research, 16*(5–6), 511–528. https://doi.org/10.1080/13504622.2010.505427

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000247444

Wordsworth, W. (2004). *Selected poetry*. Oxford University Press. (Original works published 1798–1850)

Conceptual Article

TEARS, JOY, AND RECALL: THE EMOTIONAL CHEMISTRY OF MEMORY

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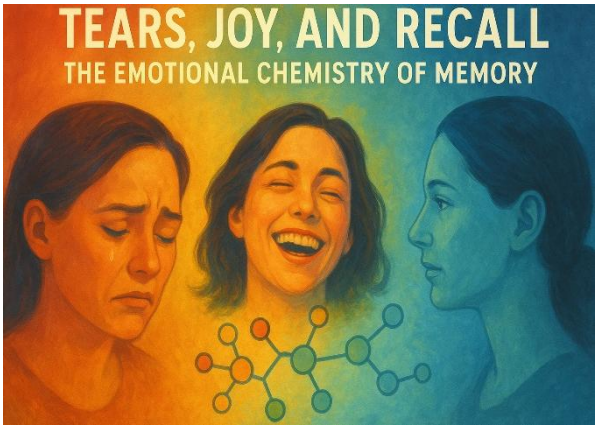
DOI: https://doi.org/10.34293/0974-2123.v17n2.006

Abstract

Memory is not a passive record of events but an emotionally driven process shaped by the interplay of brain structures and neurochemicals. This article explores how emotions such as joy, fear, and sadness influence memory formation, consolidation, and retrieval. The amygdala and hippocampus, along with neurotransmitters like dopamine, serotonin, and cortisol, act as key mediators in strengthening or distorting memories. Positive emotions enhance learning and cognitive flexibility, while negative emotions can create vivid flashbulb memories or fragmented recollections in cases of trauma. The paper also highlights the broader role of emotional memory in identity, therapy, mental health, and social connection. Ultimately, emotions serve as both the glue and the filter of memory, shaping not only what we remember but also how those memories guide our behaviour and resilience

***Keywords*:** Emotion, Memory, Emotional Arousal, Recall, Emotional Chemistry

Introduction



Memory isn't a passive recording of events; it's a dynamic, emotionally charged process. The intensity of an emotion, whether it's joy, sorrow, or fear, significantly influences how memories are formed, stored, and retrieved. This article explores the fascinating link between our feelings and our ability to remember. Drawing on insights from

psychology, neuroscience, and cognitive science, we'll look at the brain structures and chemical messengers that make some memories vivid and long-lasting, while others fade away.

The Science behind Emotion and Memory

At the heart of emotional memory is the intricate relationship between two key brain structures: the **amygdala** and the **hippocampus**. The amygdala, often called the brain's "emotional gatekeeper," processes feelings like fear and joy. When we experience something highly emotional, the amygdala becomes active and signals to the hippocampus, which is responsible for creating new memories, to pay close attention. This communication enhances the encoding of the event, making the memory more vivid and enduring.

The brain's chemistry also plays a crucial role. When we feel strong emotions, our bodies release a flood of hormones and neurotransmitters that act as chemical "glue" to bind feelings to facts.

- **Stress Hormones:** During stressful or exciting events, hormones like **adrenaline** and **cortisol** are released. These signal the amygdala and hippocampus to create a stronger, more lasting memory. This is an evolutionary adaptation; our ancestors needed to remember dangerous situations to survive. However, extremely high levels of cortisol can impair the hippocampus, leading to the fragmented and fuzzy memories often associated with trauma.
- **Feel-Good Chemicals:** Joyful or rewarding experiences trigger the release of **dopamine**. This neurotransmitter reinforces the neural pathways associated with the positive experience, making it more likely we'll remember it and seek it out again. This is why we can so vividly remember things like winning a competition or a first kiss.

The Role of Positive and Negative Emotions

Both positive and negative emotions can enhance memory, but they do so in different ways.

- **Joy and Positive Affect:** Positive emotions aren't just pleasant—they also help us remember things more clearly. The release of dopamine during happy experiences enhances learning and cognitive flexibility, which helps create rich and detailed memories.
- **Fear, Sadness, and Trauma:** Negative emotions, especially fear, can lead to **flashbulb memories**—vivid, detailed, and seemingly perfect recollections of shocking public events.

However, not all negative experiences are remembered accurately. In cases of severe trauma, the brain may suppress or distort memories as a protective mechanism.

Emotion and Memory Retrieval

The influence of emotion extends beyond just forming memories; it also affects how we retrieve them. The **mood-congruent memory effect** suggests that we are more likely to recall memories that match our current emotional state. For example, if you're feeling sad, you're more likely to remember other sad events from your past. This phenomenon means that emotions can act as powerful retrieval cues, but it can also create a feedback loop that perpetuates negative emotional states, which is often seen in conditions like depression and anxiety.

The Broader Role of Memory and Emotion in an Individual

- **Identity and Reflection**: Memory not only stores past experiences but also weaves them into a coherent sense of self, enabling reflection and guiding choices for the future.
- **Therapy and Recovery**: Emotional memory acts as both a challenge and a resource in therapy. While painful recollections may resurface, carefully engaging with them can promote healing, as seen in treatments for PTSD.
- **Mental Health**: It's because our memory is malleable, it can be reshaped. Techniques that amplify positive recall or reframe negative experiences open new paths for managing depression, anxiety, and trauma.
- **Learning and Adaptation**: Emotions strengthen memory consolidation, making lessons tied to strong feelings more enduring. This connection helps individuals adapt, avoid past mistakes, and cultivate resilience.
- **Social Bonds**: The shared emotional memories nurture empathy and trust, reinforcing relationships and cultural identity across generations.

The Link between Emotion and Recall

The connection between emotion and memory isn't just about forming memories; it's also about retrieving them. When we feel a similar emotion to one we experienced in the past, it can act as a retrieval cue, bringing back the associated memory. For instance, the smell of a particular perfume might bring back a memory of a loved one because that scent is strongly

linked to the emotion you felt when you were with them. This is known as **mood-congruent memory**, where we tend to recall memories that match our current emotional state.

This powerful interplay of tears, joy, and recall highlights the intricate dance between our feelings and our minds. Our memories aren't just a record of events; they're a deeply personal and emotional archive, shaped by the very feelings that make us human.

The Role of Neurotransmitters

When we experience a strong emotion, our bodies release a flood of neurotransmitters and hormones. These chemical messengers are what create the powerful link between our feelings and our memories.

Stress Hormones: The Double-Edged Sword

- **Adrenaline** and **cortisol** are released during stressful or exciting events. These hormones signal the amygdala and hippocampus to create a stronger, more enduring memory. This is an evolutionary adaptation; our ancestors needed to remember dangerous situations to survive.
- However, chronic or overwhelming stress can have the opposite effect. Extremely high levels of cortisol can actually impair the hippocampus, making it difficult to form new memories and leading to the fuzzy, fragmented recollection often associated with trauma.

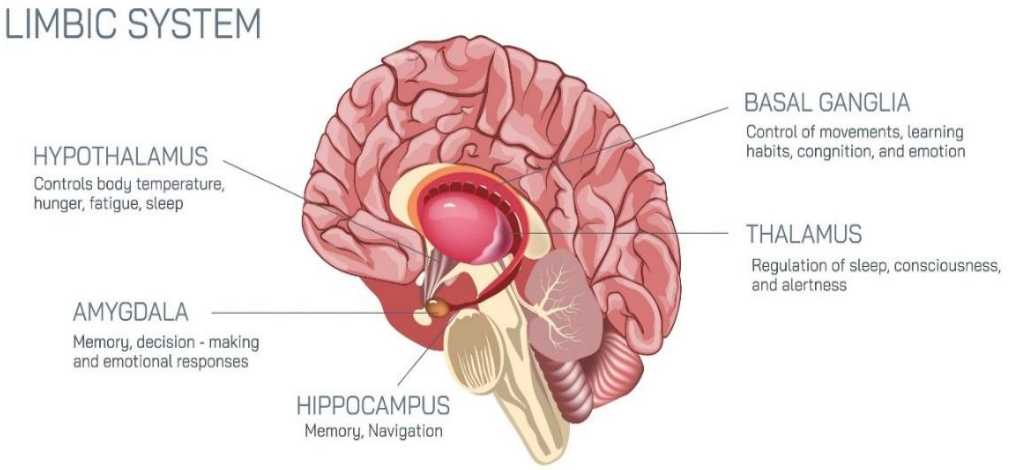
The Feel-Good Chemicals: Dopamine and Serotonin

- **Dopamine**, often called the "pleasure chemical," is released when we experience something rewarding or joyful. It reinforces the neural pathways associated with that positive experience, making it more likely we'll remember it and seek it out again. This is why we vividly remember things like a first kiss or winning a competition.
- **Serotonin** also plays a role in mood and emotional regulation. While its link to memory is more complex, a balanced level of serotonin is crucial for overall cognitive function and helps us form more stable, positive memories.

The Amygdala: Our Emotional Memory Gatekeeper

At the heart of emotional memory lies the **amygdala**, a small, almond-shaped structure deep within the brain. It acts as our brain's emotional "gatekeeper." When we experience something highly emotional, the amygdala becomes highly active. This heightened activity

signals the nearby **hippocampus**, the brain's main memory-forming centre, to pay close attention and store the details of the event. Think of the amygdala as a spotlight, illuminating the key moments that are tied to strong feelings so the hippocampus knows exactly what to encode and save.



This is why we can often recall details of highly emotional events with such clarity, even years later. For example, you might not remember what you had for breakfast two weeks ago, but you can probably recall exactly where you were and who you were with when you heard a life-changing piece of news.

The Emotional-State Dependent Recall

The influence of emotion extends beyond the formation of memories to their retrieval. The mood-congruent memory effect describes our tendency to recall memories that are consistent with our current emotional state. For example, when feeling sad, a person is more likely to remember other sad events from their past. This phenomenon suggests that emotions can serve as powerful retrieval cues, activating neural networks associated with similar past emotional states. This feedback loop can perpetuate an emotional state, as recalling sad memories can intensify feelings of sadness

Conclusion

Emotions act as both a **glue** and a **filter** for our memories. They bind moments into durable recollections while filtering our past through the emotional states we occupy in the present. The synergy between the amygdala, hippocampus, and various neurochemicals ensures that the most significant moments of our lives are engraved into our minds with

remarkable clarity. Understanding this dynamic relationship gives us valuable insights into learning, therapy, and human behaviour. To remember is not just a cognitive act—it is an emotional one as well.

References

Ashby, F. G., Isen, A. M., & Turken, U. (1999). A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review, 106*(3), 529–550. https://doi.org/10.1037/0033-295X.106.3.529

Cahill, L. (2000). A neurobiological perspective on emotion and memory. In J. C. Borod (Ed.), *The emotional brain: Integrating affective and cognitive processes* (pp. 31-48). Oxford University Press.

Christianson, S. Å. (1992). Emotional stress and eyewitness memory: A critical review. *Psychological Bulletin, 112*(2), 284–309. https://doi.org/10.1037/0033-2909.112.2.284

Joëls, M., Pu, Z., Wiegert, O., Oitzl, M. S., & Krugers, H. J. (2006). Learning under stress: How does it work? *Trends in Cognitive Sciences, 10*(4), 152–158. https://doi.org/10.1016/j.tics.2006.02.002

LaBar, K. S., & Cabeza, R. (2006). Cognitive neuroscience of emotional memory. *Nature Reviews Neuroscience, 7*(1), 54-64.

McGaugh, J. L. (2004). The amygdala modulates the consolidation of memories of emotionally arousing events. *Journal of Physiology, 98*(4), 485-492.

McGaugh, J. L. (2004). The amygdala modulates the consolidation of memories of emotionally arousing experiences. *Annual Review of Neuroscience, 27*, 1–28. https://doi.org/10.1146/annurev.neuro.27.070203.144157

Phelps, E. A. (2004). Human emotion and memory: Interactions of the amygdala and hippocampal complex. *Current Opinion in Neurobiology*, *14*(2), 198–202.

Roozendaal, B., & McGaugh, J. L. (2011). The memory modulatory systems revisited. *Neurobiology of Learning and Memory*, *96*(4), 578–592.

Shapiro, F. (2001). *Eye movement desensitization and reprocessing (EMDR): Basic principles, protocols, and procedures* (2nd ed.). Guilford Press.