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DECREASING RANDOM BLOOD SUGAR LEVEL THROUGH YOGIC PRACTICES AND PHYSICAL EXERCISES: 12-WEEK PROSPECTIVE STUDY FOR COLLEGE MEN PLAYERS

Dr. Rajesh C. B.*& Dr. I. John Parthiban**

Abstract

The study was a 12-week prospective trial for college male athletes to lower random blood sugar (RBS) levels through yoga and physical activity. In order to do this, sixty (N=60) male athletes who were enrolled in different universities in Kerala, India's Palakkad District, were chosen at random to serve as subjects. They were split into four groups, each consisting of fifteen people, at random (n=15). First group engaged in yoga practices, the second group engaged in physical exercises, the third group engaged in both yoga and physical exercises, and the fourth group served as a control. Over twelve weeks, experimental groups were put through a three-day-per-week training schedule. The number of sessions each week was also limited to three, and the training time for physical exercises and yogic practices was limited to twelve alternate weeks. Blood samples were employed to evaluate random blood sugar, which was the dependent variable chosen for this investigation. Before and during the experimental period, a selection of dependent variables was assessed for every individual. ANCOVA was used for data collection and statistical analysis. Scheffe's post hoc test was utilised to assess the statistical significance of the difference between paired means. In every case, the significance threshold was kept at 0.05. Study found no significant differences between the experimental groups—Yoganic Practices, Physical Exercises, Combined Yogic Practices and Physical Exercises. Furthermore, findings demonstrated that in Random Blood Sugar test, the Combined Yogic Practices and Physical Exercises group (PEG) did better than the Yogic Practices and Physical Exercises group.

Keywords: *Physical Exercises, Yogic Practices, Random Blood Sugar, Combined Yogic Practices and Physical Exercises*

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Introduction

Sanskrit word yoga originates from root yuj, meaning "to yoke" or "to harness." In its earliest usage in Vedic Sanskrit, yoga referred quite literally to the act of yoking animals like oxen or horses. However, even in these ancient contexts, the term also carried a deeper, more symbolic meaning, implying the idea of using, applying, or putting something into action. Much like how we might say "harnessing energy" or "harnessing potential" today, yoga came to signify purposeful effort, engagement, or the application of one's abilities. All subsequent progresses of meaning of this term are post-Vedic. Sense of "exertion, endeavour, zeal, diligence" is present in Epic Sanskrit. Term "yoga" is used in a more technical sense to describe a system of contemplation or meditation that aims to achieve a "supreme state" and cessation of mental activity. This concept was introduced in early Buddhism (5th century BC) and was incorporated into Vedanta philosophy by 4th century BC *(Barbara, 1996)*.

Numerous compounds in Sanskrit contain yoga; however, the majority are not associated with technical or spiritual senses. In these terms, yoga assumes meanings of "union, connection, contact," "method, application, performance," and so forth. In particular, guna-yoga denotes "contact with a cord," cakra-yoga is a medical term that refers to the application of splint or similar tool through pulleys in the event of thigh dislocation, candra-yoga is an astronomical term that denotes "conjunction of the moon with a constellation," and pum-yoga has been grammatical term that denotes "connection or relation with a man."*(Wynne, 2007)*.

Any organised activity that necessitates continuous engagement is considered physical exercise. Exercise is a critical component of maintaining physical fitness. Without adequate exercise, it will be exceedingly challenging to adjust one's lifestyle to factors like diet, stress, and sleep.

Physical exercise is beneficial for preservation of an organically sound body, which is essential for maintaining an optimal level of health and physical fitness. Achieving as well as upholding physical exercise is beneficial in preventing the premature onset of a variety of medical conditions. Objective of exercise is to enhance endurance, strength, and functionality of heart, lungs, muscles by increasing blood circulation and oxygen intake. It contributes to development of spiritual and moral skills, emotional stability, tension reduction, and mental alertness. Numerous researchers have expressed their strong conviction that consistent physical activity is beneficial for maintaining a robust and healthy heart and preventing cardiovascular diseases *(Kamalesh, 1988)*.

Robert (1989) emphasizes that inactivity can lead to a decline in a person's physical condition, while regular and systematic movement helps to protect and sustain it. He describes exercise as the active use and strengthening of the body. Engaging in physical activity—whether light or moderately intense on a regular basis—helps develop physical fitness. This, in turn, enhances endurance, boosts strength, lowers cholesterol levels, and supports overall health and well-being.

Methods

The subjects of the research were sixty (N=60) male participants who have been selected randomly from a variety of colleges in Palakkad District, Kerala, India. The participants had been randomly assigned to 4 groups, each comprising 15 individuals "(n=15). Group - I took part in yogic practices, Group - II took part in physical exercises, Group - III took part in both yogic practices and physical exercises, and Group - IV served as the control group. Experimental groups" were subjected to a three-day-per-week training regimen for a period of 12weeks. Yoga and physical exercise instruction have been restricted to 12 alternate weeks and 3 sessions per week. Random blood sugar was the dependent variable chosen for this investigation, and it was evaluated employing blood samples.

Results

ANCOVA was employed to evaluate data on a few variables from experimental and control groups before and after experimentation to discover any differences in adjusted posttest means for selected criteria variables. A post-hoc Scheffe's test had been employed for assessing matched mean differences where f-ratio was significant. The significance criterion was always 0.05.

a) Random Blood Sugar

Results "of dependent 't'-test conducted on RBS levels of participants, comparing pre-& post-test values across Yogic Practices group, PEG, combined Yogic Practices and PEG, and Control group, are detailed in Table-1"

Table 1

The Summary of Mean and Dependent 'T' Test for the Pre and Post Tests on Random Blood Sugar of Experimental Groups and Control Group

Mean	Yogic Practices Group	Physical Exercises Group	Yogic Practices and Physical Exercises Group	Control Group
Pre- test mean	183.21	183.25	181.19	180.47
Post-test mean	169.11	168.15	156.22	180.67
't'-test	9.22*	6.89*	11.43*	0.16

Note: *Significant at 0.05 level. ("Table value required for significance at .05 level for 't'-test with df 14 is 2.15")

The random blood sugar pre-test means for groups practiced yoga, exercised, and did both yoga and physical exercises, as well as the control group, are 180.47, 183.21, 183.25, and 181.19, respectively, as shown in Table 1. Post-test averages are 169.11, 168.15, 156.22, and 180.67. For the Random Blood Sugar pre- and posttest means, the dependent t-ratio values are 9.22, 6.89, 11.43, and 0.16 for the Yoga Practices group, the PEG, the Yoga Practices and Physical Exercises group, and Control group, respectively.

At 0.05 level, a significant difference with df (14) requires a table value of 2.15. It has been determined that experimental

groups, including those who engaged in physical exercises, yoga practices, and physical exercises along with yoga practices, had significantly improved their random blood sugar levels.

Findings of ANCOVA on RBS of pre, post, as well as adjusted test scores of groups that practiced yoga, physical activity, and control as shown in Table 2

Table 2
Analysis of Covariance on Random Blood Sugar of Experimental Groups and Control Group

Test	Yogic ractices Group	Physical Exercises Group	Yogic Practices and Physical Exercises Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Pre Test Mean	183.21	183.25	181.19	180.47	Between	134.22	3	44.74	1.45
					Within	1728.03	56	30.86	
Post Test Mean	169.11	168.15	156.22	180.67”	Between	4527.11	3	1509.04	25.32*
					Within	3337.13	56	59.59	
Adjusted Post Test Mean	168.99	168.24	156.02	180.72	Between	5127.11	3	1709.04	44.14*
					Within	2129.51	55	38.72	

*Note: * Significant at 0.05 level of confidence, (Random Blood Sugar Scores in mg/dL)*
“Table value for df(3,56) at 0.05 level=2.76. Table value for df(3,55) at 0.05 level=2.78”

According to previously mentioned table 2, pre-test mean values on RBS of groups practiced yoga, exercised, combined yoga and exercise, and control were 183.21, 183.25, 181.19, and 180.47, respectively. At level of confidence (0.05) on RBS, pre-test scores’ gained “F” ratio (1.45) was <2.76 table value essential for significance for degrees of freedom (df) (3 and 56).

Groups participating in yoga, physical activity, yoga and physical exercise, and control had random blood sugar posttest means of 169.11, 168.15, 156.22, and 180.67, correspondingly. For significance at level of confidence (0.05), RBS post-test scores’ 25.32 “F” ratio exceeded 2.76 table value for df (3 & 56).

The corrected post-test averages on RBS for the Yoga Practices group, Yoga Practices “Physical Exercises group, PEG, and Control group are 168.99, 168.24, 156.02, and 180.72, correspondingly. Resulting “F” ratio for adjusted post-test scores for RBS was 44.14, which was greater than table value (2.78) for df (3 & 55) essential for significant at level of confidence (0.05).

Research findings show that groups that involved in physical exercise, yogic practices, a combination of both, and control group had significantly different adjusted post-test mean values of random blood sugar. Scheffé's post hoc test" have been utilized for determining which explicit group comparisons exhibit significant differences. Table 3 presents the results of this analysis.

Table 3

The Scheffe's Test for the Differences between the Adjusted Post-test Paired Means on Random Blood Sugar

Adjusted Post-test Means					
Yogic Practices Group	Physical Exercises Group	Yogic Practices and Physical Exercises Group	Control Group	Mean Difference	Confidence Interval
168.99	168.24			0.75	6.12
168.99		156.22		12.77*	6.12
168.99			180.67	11.68*	6.12
	168.24	156.22		12.02*	6.12
	168.24		180.67	12.43*	6.12
		156.22	180.67	24.45*	6.12

*Note: * Significant at 0.05 level of confidence*

Adjusted posttest "mean differences in RBS between the Yogic Practices group and the Physical Exercises group, the Yogic Practices group and the Control group, the PEG and the Yogic Practices group, the PEG and the Control group, and the Yogic Practices group and the Physical Exercises Group and the Control group" came out to be 12.77, 11.68, 12.02, 12.43, & 24.45, correspondingly, as shown in Table 3. At level of confidence (0.05), these results exceed RBS confidence interval value (6.12).

Table 3 further demonstrates that the corrected posttest means differences in Random Blood Sugar between the groups that practiced yoga and physical exercise were 0.75. This is below the 6.12 confidence interval value for RBS at level of confidence (0.05).

Investigation's outcomes discovered that groups participating in yogic practices and physical exercises, as well as those in control, exhibited significantly different random blood sugar levels. Furthermore, no statistically significant change in RBS between groups that practiced yoga and those that exercised.

According to aforementioned statistics, Exercise and Yogic Practices groups outperformed Control group, PEG, and "Yogic Practices group in RBS test.

The pre-& post-test mean values of Random Blood Sugar for groups that engaged in Yogic Practices, Physical Exercises, Yogic Practices and Physical Exercises combined, Control group" are graphically compared in Figure 1.

Study found no significant differences between experimental groups—Physical Exercises, Yogic Practices, Combined Yogic Practices, and Physical Exercises.

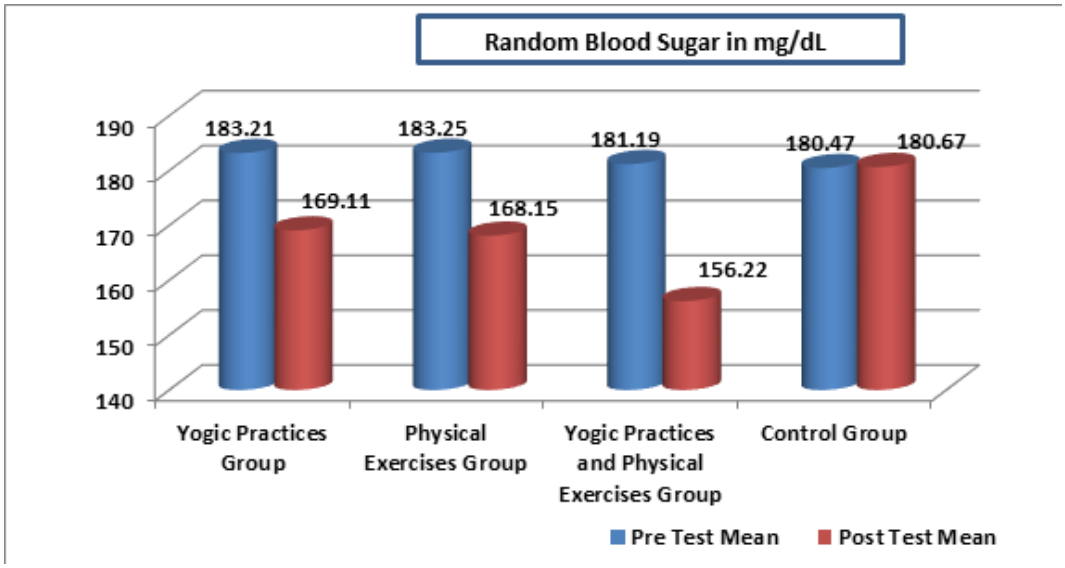

Figure 1 - The Pre and Post test Mean values of Yogic Practices group, Physical Exercises group, Yogic Practices group, and Physical Exercises group, and Control group on Random Blood Sugar

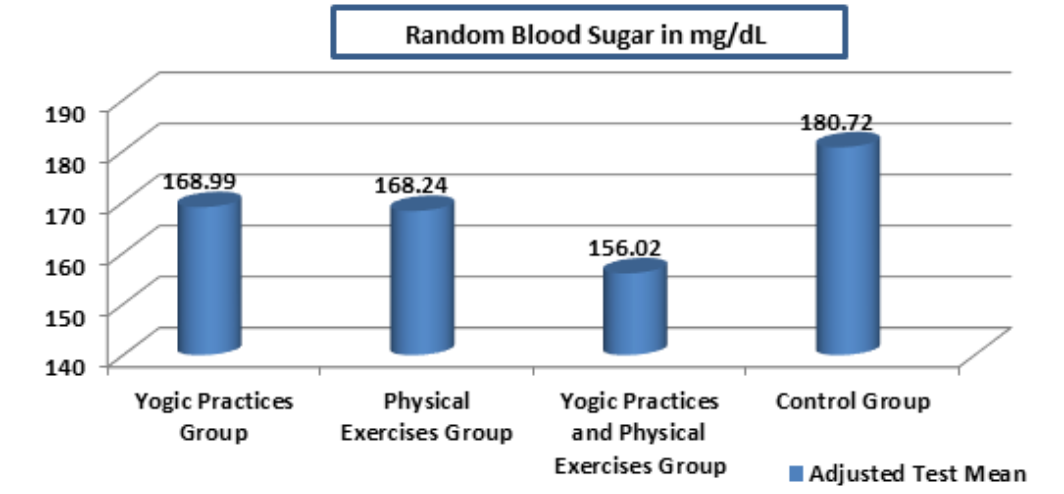

Figure 2. The Adjusted Post Mean Values of Yogic Practices group, Physical Exercises group, Yogic Practices group, and Physical Exercises group, and Control group on Random Blood Sugar

Conclusions

These results were obtained when the data was analysed.

1. Groups participating in "yoga, physical exercise, yoga and physical exercise, and control group" all had significant differences in indicated criterion variable on RBS.
2. The RBS levels of Experimental groups, which included Yogic Practices group, PEG, and Yogic Practices and PEG, were significantly reduced.
3. The Yogic Practices and PEG was able to lower random blood sugar levels more successfully than Yogic Practices, Physical Exercises, Control groups.

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EXPLORING DIGITAL FINANCIAL LITERACY AMONG PROSPECTIVE TEACHERS

Revathi T.S.* & Prof. (Dr.) Smitha R.**

Abstract

Digital Financial Literacy is the ability to utilize digital financial instruments and services effectively for managing money, making payments, accessing credit, and engaging in other financial activities. Teachers can assist students in the utilization of financial tools, including web-based financial services, conduct safe financial transactions over the internet, and make good financial decisions. This paper investigates the digital financial capability of prospective teachers. This paper examines the impact of gender, subject matter specialization, and educational qualifications on the digital financial literacy of future teachers. The purposes of this research are to assess the level of digital financial literacy among prospective teachers and to examine the significant variations in their levels across differences such as gender and subject specialization. A scale of digital financial literacy was employed to assess a sample of 121 prospective teachers in the Kottayam district in Kerala. The results reveal that the majority of future educators have only a moderate level of digital financial literacy, with no significant differences by gender, subject matter, or level of education. Educational implications underscore the importance of skill development workshops, ongoing professional education, and incorporating digital financial education into the curriculum so that teachers are better equipped and students learn vital financial management skills.

Keywords: *Digital Financial Literacy, Prospective Teachers, Digital Competency.*

Introduction

The advancement of technology and its greater integration into daily life can enhance society. Well-being of people who have both access and the necessary competencies (Brey, 2018). "Technology has also changed financial systems, resulting in the growth of the fintech sector, which covers digital financing, digital investments, digital money, digital payments, digital insurance, and digital financial guidance"

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(Gomber, Koch, & Siering, 2017). "Digital Financial Literacy (DFL) is the capability to use digital financial tools, platforms, and services efficiently to control personal finances, make smart financial choices, and secure oneself from financial dangers in a more digitized economy. It encompasses a good understanding of online banking, digital payment, financial safety, and good financial conduct in digital settings" (OECD, 2021). Digital Financial Literacy also encompasses fundamental financial concepts like budgeting, saving, investment, and credit, which empower individuals to make well-informed decisions that improve their financial health. Digital Financial Literacy has lately been characterized as "the knowledge, skills, confidence, and competencies to safely use digitally delivered financial instruments and services and make informed financial decisions" (Alliance for Financial Inclusion, 2021). "It is a cross-dimensional notion, which incorporates financial and digital literacy along with access and usage dimensions related to digital financial services" (Lyons & Kass Hanna, 2021)Even though it is usually thought of as applicable only for mature adults, Digital Financial Literacy must be developed at an early age so that people can acquire the ability to make effective financial decisions, steer clear of debt traps, and achieve financial security. Financially literate people are better positioned to manage expenditure, use debt intelligently, save, and pursue financial objectives. Additionally, Digital financial literacy empowers individuals to avoid pitfalls such as excessive debt and insufficient emergency funds while leveraging opportunities such as wealth-building investments.

A secure future, economic growth, and financial stability at the individual level all rely on financial literacy. With education and constant practice, Digital Financial Literacy provide individuals with the necessary ability to tackle financial issues confidently. "Knowledge of digital products and services is required to use digital finance effectively "(Morgan, Huang, & Trinh, 2019). Digital financial Literacy is most crucial in education, as it equips students with the necessary knowledge to make individual financial decisions and prepare for their future.

Incorporating Digital Financial Literacy into curricula ensures that students have a strong foundation of knowledge about budgeting, saving, investing, and prudent borrowing, and thus prepares them for actual financial challenges in life. Financial education online educates young people to make smart choices, stay away from debt traps, and create achievable financial objectives. Additionally, early financial literacy education promotes responsibility, intellectual thinking, and autonomy, leading young people to gain long-term financial stability.

"Financial literacy involves several aspects, with both knowledge acquisition and the capacity to employ such knowledge being important" (Zait & Bertea, 2014). "Digital literacy, described as the capacity to use technology in identifying, creating, evaluating, and disseminating information, requires a mix of cognitive (knowledge-based) and technical skills "(Alexander et al., 2016). The Organization for Economic Co-operation and Development (OECD, 2018) explained in detail some aspects of digital financial products and services, emphasizing the significance of awareness

about digital financial risks, consumer protection rights, and redressal mechanisms.

It takes more than just simple money management to become financially secure and healthy.

Financial data can be easily accessed online, yet adults are often not digitally and financially literate enough to be able to make best use of these tools (Panos & Wilson, 2020). Digital Financial Literacy (DFL) is not only important for individuals managing their finances, but also for future educators who will directly affect students' knowledge of financial issues. As financial systems keep changing and increasing in complexity, Digital Financial Literacy continues to be a crucial skill for people of all ages and backgrounds. Future teachers, who are in that middle ground between being students to being teachers, must acquire. Key financial competence involves well-managing individual financial resources and equipping students with the knowledge and skills to make sound financial decisions in a digital Understanding the digital financial competences of prospective teachers is crucial for implementing specific financial education strategies across teacher education programs. By pursuing further education and training, future educators can establish a solid base of financial understanding and become better equipped to guide their students toward financial literacy and lead their own secure, prosperous, and fulfilling lives.

Need and Significance of the Study

"Technological revolutions and rapid digitization of financial services have ushered in a broad number of innovative and revolutionary Digital Financial Services (DFS) launched into the market". (Alliance for Financial Inclusion,2021). DFS means having the capability to access and avail monetary services through digital channels at any given time (Pazarbasioglu et al., 2020). The global advent of DFS has revolutionized the financial arena, uniting finance and technology. Digital competence is needed to navigate the complexities of financial digital offerings and services. financial knowledge (DFL).

"Financial digital literacy is crucial today in the complex financial climate as it gives individuals the knowledge and skills to utilize their resources effectively. It encompasses budgeting, saving, investing, and managing debt, all necessary for financial stability and security"(Lusardi & Mitchell, 2023). "People who are financially literate face less financial stress, are better prepared for unexpected expenses, and can plan for retirement, eventually enhancing their general wellbeing"(Kozina & Metljak, 2022). Furthermore, expertise in digital competence and financial literacy predicts good financial habits, including saving, borrowing, and risk management strategies. However, some studies suggest that digital money services might encourage impulsive shopping habits. (Panosm& Wilson, 2020).

Overall, financial literacy remains low, indicated by poor record-keeping, poor cash management, poor saving habits, and little awareness of financial initiatives (Kamal Gupta, 2014). Understanding monetary concepts such as interest rates, credit, and investments is important, as it enables one to make sound decisions and avoid risky investments that could undermine their monetary health. Financial literacy promotes economic and social stability since those who are economically literate are less likely to rely on government subsidies and more

likely to invest in the economy. Although it is very important, research in digital financial literacy is still inadequate, and there is a lack of standardized procedures for defining, measuring, and developing it (Morgan, Huang, & Trinh, 2019). The increasing complexity of the financial world makes it necessary to research digital financial literacy, particularly to allow individuals—especially young students—to make informed financial decisions (OECD, 2020).

Teaching youth basic financial matters and skills at an early age is paramount to their future financial health and security. It makes them a critical target group for financial literacy training (Lusardi & Mitchell, 2014). Financial literacy in the digital age is more than mere money management; it is a critical life skill that encourages prudent borrowing, savvy investment decisions, and good financial habits (Xiao, 2016). Therefore, understanding its importance in schooling and analyzing ways to integrate it into school curricula is crucial to prepare students to deal with future financial opportunities as well as pitfalls (OECD, 2021). Integrating digital financial literacy into the curriculum equips students with essential skills such as budgeting, saving, investing, and consumer rights and financial risks knowledge (Atkinson & Messy, 2012). These abilities equip them with confidence and independence to deal with real-life financial situations. Global organizations, including the OECD, emphasize the need for digital financial literacy in supporting economic growth and alleviating financial instability (OECD, 2018). Standard definitions and measurement tools for digital financial literacy can facilitate the formulation of policies and global financial inclusion efforts. (Klapper, Lusardi, & Van Oudheusden, 2015). Early exposure to online financial education facilitates long-term planning, rational thinking, and financial responsibility in young learners (Mandell & Klein, 2009).

This enhances the state of readiness of their finances, reduces vulnerability to debt traps, and lays the foundation for sustainable economic habits. Prospective teachers, just like other professionals, must be efficient with their finances, including budgeting, saving, investing, and exercising proper credit management. A good grasp of financial literacy allows them to avoid money pitfalls such as excessive debt, poor spending patterns, and financial turmoil. Setting strong financial practices at the beginning of their careers can ensure long-term financial stability. To make good use of digital financial platforms, one has to acquire technical as well as cognitive skills with advancing digital financial literacy. (OECD, 2021). Protection of financial interests in the digital age requires knowledge about consumer rights, channels for compensation, and financial threats on the net. (Lusardi, 2019).This paper seeks to evaluate the digital financial literacy capacity of prospective teachers and suggest recommendations.

Objectives

1. To identify the level of digital financial literacy among prospective teachers
2. To find out the significant difference in the digital financial literacy of prospective teachers with respect to gender, subject of study, and educational qualifications.

Hypothesis

1. There is no significant difference in the digital financial literacy of prospective

teachers with respect to gender, subject of study, and educational qualifications.

Sample of the study

A sample of 121 prospective teachers has been taken from St John the Baptist's College of Education, Nedumkunnam, Kottayam.

Tool used for the study

To study the Digital Financial Literacy of prospective teachers, with the help of digital financial literacy scale was prepared with the guidance of supervising teacher

Results and Discussion

Statistical techniques, including mean, standard deviation, t-test, f-test, and other appropriate statistical techniques, were applied to analyse and interpret the data. The following findings were obtained based on the following

- To determine the level of digital financial literacy among prospective teachers.
- To classify the total sample into three groups: high, average, and low based on their level of digital financial literacy.

Table 1
Number and percentage of the level of Digital Financial Literacy among prospective teachers.

	Frequency	Percent
Low	14	11.6
Average	88	72.7
High	19	15.7
Total	121	100.0

Table 1 indicates that the majority of prospective teachers possess an average level of digital financial literacy. The percentage of prospective teachers who possess a low level of digital financial literacy is 11.6 % and 15.7% of prospective teachers possess a high level of digital financial literacy It can be tentatively concluded that the majority of the prospective teachers have an average level of digital financial literacy.

Table 2
Data and results of the test of significant difference in the mean score on Digital Financial Literacy of prospective teachers with respect to gender.

	Gender	N	Mean	SD	t	P value
Digital Financial Literacy	Male	12	39.67	4.185	1.02	0.307
	Female	109	38.22	4.683		

Table 2 indicate the mean score of Digital Financial Literacy of prospective teachers based on gender. The obtained t-value of 1.02 for digital financial literacy based on gender indicates that the difference between the mean scores of male and female participants is minimal and statistically insignificant. This suggests that gender does not have a substantial impact on the level of digital financial literacy among the respondents. The p-value is 0.307 is much higher than the conventional significance level (usually 0.05), indicating that the difference in mean scores between males and females is not statistically significant. So, there is no statistically significant difference in the Digital financial literacy scores between male and female participants.

Table 3

Data and results of the test of significant difference in digital financial literacy of prospective teachers with respect to the Optional Subject.

ANOVA Optional Subject					
Optional subjects	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	101.985	4	25.496	1.192	0.318
Within Groups	2482.015	116	21.397		
Total	2584.000	120			

The obtained F value of Digital Financial Literacy based on optional subjects is 1.192, and the corresponding p-value is 0.318. A typical threshold for significance is 0.05. Since the p-value (0.318) is greater than 0.05, it suggests that the differences between the means of the groups are not statistically significant at the 5% level. That means there is no significant difference in the Digital Financial Literacy of prospective teachers based on the optional subject.

Table 4

Data and results of the test of significant difference in Digital Financial Literacy of prospective teachers with respect to the Educational Qualification.

ANOVA Educational Qualification					
Educational Qualifications	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.5	2	9.75	0.452	0.637
Within Groups	2544.8	118	21.57		
Total	2564.3	120			

The F-statistic is 0.452, and the corresponding p-value is 0.637.A common threshold for significance is 0.05. Since the p-value (0.637) is greater than 0.05, this suggests that the differences in Digital Financial Literacy between different educational qualification groups are not statistically significant. That means that there is no significant difference in the Digital Financial Literacy of prospective teachers based on their educational qualifications.

Key Findings

The key findings of the study are the following

- The majority of prospective teachers (72.7%) possess an average level digital financial literacy, while 15.7% demonstrate a high level, and 11.6% exhibit a low level digital financial literacy.
- The analysis shows that there is no statistically significant difference in Digital Financial Literacy scores

between male and female prospective teachers.

- The analysis indicates that there is no statistically significant difference in Digital Financial Literacy among prospective teachers based on their optional subjects.
- The analysis indicates that there is no statistically significant difference in Digital Financial Literacy among prospective teachers based on their educational qualifications

Recommendations

Integration of Digital Financial Literacy in Teacher Training Courses

Most future teachers possess only average levels of digital financial literacy. Teacher training courses can have formalized modules of digital financial literacy covering the topics of budgeting, saving, investing, consumer protection, and digital financial security.

Financial Skills Development Programme

Teacher trainees can be organized for workshops and seminars on digital financial literacy to ensure a growth in financial skills and knowledge.

Practice with Digital Financial Platforms

Through practice training programs, future teachers may be trained to utilize digital financial platforms, such as digital payments, online banking, and investment applications.

Improving Knowledge of Financial Risks and Consumer Rights

Since there is a growing demand for digital financial services, teacher trainees could be advised on anti-financial fraud measures, consumer protection acts, and redressal mechanisms to improve their financial safety. In the future, as digital financial services are more likely to grow, teacher trainees can be empowered with the appropriate knowledge to mitigate financial risks and ensure consumer rights.

Improving Critical Thinking and Decision-Making Skills of Students

Financial literacy training instills critical thinking by making learners analyze information, evaluate risks, and make informed decisions. Educators with financial literacy can use these skills in the classroom to develop students' decision-making capacity. These skills are transferable and lead to students' success in other areas of study and life, facilitating the overall objectives of education.

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BRIDGING RATIONAL INQUIRY AND EXPERTISE: EXPLORING THE LINK BETWEEN SCIENTIFIC TEMPER AND PROFESSIONAL COMPETENCY

Mahitha N. P.* & Prof. (Dr.) K. P. Meera**

Abstract

We live in a scientific and technologically advanced period. Man's material and non-material development has been significantly altered by science. A new intellectual temperament known as "scientific temper" has been cultivated by science and technology. The term "scientific temper" refers to a mindset that avoids prejudice and preconceived ideas while using reasoning. Analysis, debate, and discussion are essential components of a scientific attitude. Working together with people both within and outside of higher education is one way to demonstrate and improve teaching abilities. Humanising people and fostering a more progressive, cultured, and civilised society are the real goals of education. Teaching is an art, so only a skilled, knowledgeable, and experienced teacher can significantly impact education and society. Training teachers are developing their teaching skills during their training. To effectively carry out the duties that society has entrusted to him, a future educator must have certain abilities. The title of the study that the investigator has done is "Bridging the Rational Inquiry and Expertise: Exploring the Link Between Scientific Temper and Professional Competency". The main objectives of the study is to find the level of Scientific Temper in Prospective Teachers and to find the relationship between Scientific Temper and Professional Competency among Prospective Teachers. Survey method was adopted for the study. The investigator has taken a sample of 100 B. Ed students. Random sampling technique was used for the study. A rating scale to measure Scientific Temper and another rating scale to measure Professional Competency among Prospective Teachers was prepared by the investigator. To analyse the data Preliminary Analysis, Percentage Analysis and Correlation Analysis was used. The study concluded that there exists a substantial relationship between Scientific Temper and Professional Competency of Prospective Teachers.

Keywords: *Scientific Temper, Professional Competency, Prospective Teachers*

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Introduction

"It shall be the duty of every citizen of India to develop the scientific temper, humanism and the spirit of inquiry and reform" -Article 51-A(h).

Scientific temper is a lifestyle that employs the scientific method, which involve asking questions, observing, experimenting, formulating hypotheses, analysing, and sharing. It demands a scientific methodology and a scientific mindset. Jawaharlal Nehru introduced the term scientific temper in India in his book The Discovery of India. According to Nehru (1964) "the scientific approach and temper are, or should be, a way of life, a process of thinking, a method of acting and associating with our fellowmen". Furthermore, he stated that scientific temper is not only manifested by professional scientist or specialist but should also be manifested by common people in India (Pandey, 2019). According to Krishnan and Bhuvaneshwari (1990), scientific temper is the ability to see cause and effect relationships in one's life situations, appreciate the usefulness of science in day-to-day functions, be adventurous, have an experimental bent, be intellectually honest, be objective, be open-minded, challenge superstitious beliefs, and be receptive to change. A mind looks for truth and believes it when it is demonstrated. Therefore, the scientific temper is a way of trusting only facts that are backed up by pertinent data. These arguments are supported by observation, logical interpretation, and conclusions drawn from experiments or experiences that can be repeated in comparable circumstances. A scientific mindset is characterized by curiosity, logical ability, objectivity, critical thinking; an emphasis on empirical evidence, open-mindedness, the capacity to distinguish fact from speculation, self-limitation awareness, and an interest in innovative developments (Kour, 2015). Scientific temper can be regarded as an integral component of the educational system. From the first lessons to the curriculum transaction, it must be ingrained in the young and should be a significant part of the curriculum at every level (Biswal & Pandey, 2022).

Need and Significance of the study

A scientific mindset is crucial to the growth of any country, but it is more critical for those where there is a strong belief in miracles and supernatural entities and powers. India is the nation that obstinately clings to superstitions and mindlessly adheres to ancient rituals and traditions without even attempting to understand their importance and relevance throughout time (Pandey, 2019). A person with the proper mindset may work effectively, and a person with a scientific mindset will advance social change. A teacher can effectively engage in the social revolution by adopting a scientific mindset. To comprehend the environment we live in and to enhance the standard of living in society, students today must have a positive attitude toward science. One may cultivate a positive outlook and the capacity for innovation via education. The fundamental elements that influence a teacher's behaviour are their knowledge and attitudes. Maintaining teaching abilities requires ongoing competence growth and information update. One approach to exhibit and further enhance teaching skills is through collaboration with others, both inside and outside of higher education. The true purpose of education is to humanise people and to make society

more progressive, enlightened, and civilised. Since teaching is an art, only a qualified, astute, and experienced educator can make a significant contribution to both education and society. During their training, trainee teachers are gaining teaching abilities. A prospective teacher must acquire these competencies in order to fulfil the responsibilities assigned to him by the society in an efficient way. To aid in personality development, the instructor should be proficient in educational ideas and possess a progressive outlook grounded on scientific reasoning. The development of teaching competencies and a scientific mindset are crucial for aspiring teachers, since they will undoubtedly shape the next generation (Kavitha & Venkateswaran, 2014).

Objectives

1. To find the level of Scientific Temper among Prospective Teachers.
2. To find the relationship between Scientific Temper and Professional Competency among Prospective Teachers.

Methodology

Method

The present study investigates the relationship between professional competency and scientific temper among prospective teachers. Survey method was used in this study.

Sample

The study was carried out on a sample of 100 B. Ed students. Random sampling technique were used in the study.

Tools Used

The investigator constructed and standardised a scientific temper scale and a professional competency scale with the help of the supervising teacher. The details of the tools is given below.

Scientific Temper Scale

A Scientific Temper Scale of Prospective Teachers. (by Mahitha & Meera,2023). The scale consists of 46 statements with dimensions Curiosity, Intellectual honesty, Aversion to superstitions, Objectivity and Critical mindedness. The scale contains both positive and negative statements. The scale consists of 32 positive statements and 14 negative statements. The reliability of the scale was established through test- retest method. The reliability coefficient obtained was 0.81.

Professional Competency Scale

A Professional Competency Scale of Prospective Teachers. (by Mahitha & Meera, 2023). The scale consists of 48 statements with dimensions Instructional Competency, Organisational Competency and Evaluative Competency. The scale contains both positive and negative statements. The scale consists of 36 positive statements and 12 negative statements. The reliability of the scale was established through test-retest method. The reliability coefficient obtained was 0.72.

Statistical Techniques Used

To get trustworthy generalisations from data both preliminary analysis and inferential analysis were used for data analysis.

Preliminary Analysis

In preliminary analysis mean. Median, mode, standard deviation, skewness and kurtosis of the data were calculated.

Percentage Analysis

The percentage of the prospective teachers having high, average and low scientific temper were calculated using percentage analysis.

Karl Pearson's Correlation

Karl Pearson's product moment correlation were used to find the relationship between scientific temper and professional competency among prospective teachers.

Major Findings and Discussions

The findings and discussions constitute the crucial component of the research. Findings and discussions show the contribution of research to the field of teacher education.

Analysis of level of Scientific Temper among Prospective Teachers

The level of Scientific Temper among Prospective Teachers was calculated by using percentage analysis.

Table 1
Data and results of level of Scientific Temper among Prospective Teachers

Variable	Number	Mean	SD	Score	Number	%	Level
Scientific Temper	100	186.31	19.48	< 166.8	18	18	Low
				166.8-205.8	66	66	Medium
				>205.8	16	16	High

Table 1 revealed that out of 100 Prospective Teachers 18 (18%) prospective teachers have low level of Scientific Temper, 66 (66%) have medium level of Scientific Temper and 16 (16%) have high level of Scientific Temper.

Analysis of relationship between Scientific Temper and Professional Competency among Prospective Teachers

The extent of relationship between Scientific Temper and Professional Competency was calculated by using Karl Pearson's correlation.

The correlation coefficient between Self Concept and Professional Competency among Prospective Teachers is 0.46 which shows a positive moderate relationship.

Table 2
Data and Results of Pearson's correlation coefficient between Scientific Temper and Professional Competency among Prospective teachers

Variables	N	Mean	SD	R
Scientific Temper	100	186.31	19.48	0.46
Professional Competency	100	187.69	17.54	

Table 2 revealed that the relationship between Self Concept and Professional Competency among Prospective Teachers is substantial as the r value is 0.46.

Conclusion

The Indian Republic's founding fathers placed a high value on the development of "scientific temper" among its people, and they appropriately reflected this in our constitution. The temperament of a scientist is innate. It must be internalised rather than just taught (Maqbool, 2014). The study concluded that different prospective teachers have varying levels of Scientific Temper. The study showed that majority of the prospective teachers have medium level of Scientific Temper. The study also concluded that there exists a substantial relationship between Scientific Temper and Professional Competency of prospective teachers. The higher the level of scientific temper the greater the professional competency of prospective teachers. The higher scientific temper leads to better professional competency of prospective teachers. This leads to social development of the country.

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SOCIAL ENTREPRENEURSHIP SKILL AND PROSPECTIVE TEACHERS: AN AWARENESS STUDY

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Abstract

In today's rapidly changing world, Social Entrepreneurship has emerged as a powerful tool for addressing societal challenges. Social Entrepreneurship is the process of building sustainable structures, systems, and practices that consistently deliver social value. So, Social Entrepreneurship has a crucial role in resolving social problems and enhancing the quality of life. Raising awareness about Social Entrepreneurship among the public is essential to create a culture of innovation, responsibility, and active involvement in social change. It is equally important to educate future educators about the contribution of Social Entrepreneurship in fostering societal change because Prospective teachers play an important role in forming the next generation's mindset, values, and attitudes toward social responsibility. This study investigates the level of awareness of the Social Entrepreneurship Skill of prospective teachers and explores the influence of Gender, Subject and Educational Qualification. The study aims to identify the level of awareness of Social Entrepreneurship skills among prospective teachers and to examine the significant difference between Social Entrepreneurship Skill awareness based on the variables such as Gender, subject of study and Educational Qualification. A sample of 105 prospective teachers from Kottayam District in Kerala was assessed with the help of Social Entrepreneurship Awareness Scale. The findings reveal that the majority of prospective teachers have an average level of awareness in the Social Entrepreneurship Skill, with no significant difference based on Gender, Subject specification and Educational Qualification. Educational implications include integrating Social Entrepreneurship skills into teacher training, modifying teaching methodologies, and connecting classroom learning with societal needs.

Keywords**:** *Social Entrepreneurship Skills, Prospective teachers*

Introduction

In today's ever-changing environment, Social Entrepreneurship serves as a powerful tool to address social challenges through sustainable and innovative business

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models. In contrast to traditional businesses that focus primarily on profit-making, Social Entrepreneurship integrates financial sustainability with social impact and focuses on resolving key societal problems such as poverty, education, healthcare, and environmental sustainability. The concept has gained global recognition, yet public awareness and understanding remain limited in many communities.

"Social Entrepreneurship is an emerging area of study, but there is still disagreement over what it includes, such as its definitions, domain, forms, and boundaries." (Peredo and McLean, 2006). The term "Social Entrepreneurship" was initially introduced in 1980 by Bill Drayton, founder of Ashoka, an international organization of leading social innovators. (Kumar, 2013). The term "Social Entrepreneurship" refers to a "process or behavior". "social entrepreneurs" refers to the "individuals who focus on the founding of the initiative", while "social enterprise" refers to the "tangible outcome of Social Entrepreneurship".

Social Entrepreneurship is interpreted both broadly and narrowly across studies, resulting in a lack of consensus within the existing literature. In a narrow sense, Social Entrepreneurship is viewed as a non-profit effort that looks for new ways to fund and manage strategies that benefit society. (Austin, 2006). Alternatively, other perspectives on Social Entrepreneurship define it more broadly, including social enterprises perceived as "organizations seeking business solutions to social problems". (Thompson and Doherty, 2006). Several researchers specifically agree that having a social mission is a key component of Social Entrepreneurship.

From this perspective, Social Entrepreneurship is a process intended to:

- approach major community problems and initiate meaningful change.
- catalyse social development
- support the needs of the disadvantaged group
- support societal well-being, focusing particularly on marginalised and underprivileged groups.
- generate and share progressive social outcomes.

Hence, these definitions collectively suggest that Social Entrepreneurship serves to address social issues and enhance well-being. The European Commission (2011) also offered a more comprehensive view of Social Entrepreneurship, which defines a social enterprise as "an operator in the social economy whose main objective is to have a social impact rather than make a profit for their owners or shareholders." Social Entrepreneurship differs significantly from conventional entrepreneurship, which is centered on generating new value and making money.

Need for the Study

"Social Entrepreneurship is important for the wealth and competitiveness of a nation" (Smelser and Swedberg, 2010). Hayton et al. (2002) argued that "entrepreneurship is a special stimulus associated with the economic institutions that will adopt the principle of causability effect" (Widiyanto, 2014). "Entrepreneurship requires both knowledge and art to run" (Jack and Anderson, 1999). Likewise, Putta (2014) directs attention toward the government's role in encouraging entrepreneurship, which is crucial for a nation's economic advancement. So, more

attention needs to be given to it than to large enterprises.

Social Entrepreneurship has positively impacted various aspects of human life, including art, culture, and technology, by embracing the value of fostering societal advancement. Social Entrepreneurship is an initiative focused on social concerns that influence the entrepreneurial climate and the country's economic development. An essential aspect of Social Entrepreneurship involves recognizing societal issues and driving transformative social initiatives.

Dees (1998) argues that "Social Entrepreneurship is a combination of a great spirit in the social mission with discipline, innovation, and determination, similar to those found in the business world. Social enterprise initiatives do not merely aim for profit but focus on doing business for social purposes." "Social Entrepreneurship brings about social change through innovative ideas, upholding moral and social conscience, and motivating individuals" (Young and Grinsfelder, 2011; Haynes, 2012). The notion of Social Entrepreneurship, according to Sullivan Mort et al. (2003), highlights traits and personal competencies that involve risk-taking, proactiveness, innovation, and alertness to emerging opportunities. "The birth of the social enterprise is expected to be led by social change agents that contribute to solving social problems" (Dahles et al., 2010). "Social Entrepreneurship plays a prominent role in community participation and commitment to the economic development of the nation" (El Ebrashi, 2013).

Social Entrepreneurship contributes significantly to a nation's social and economic progress. To understand this distinctive integration, education in Social Entrepreneurship holds a crucial role. It has a positive impact on shaping students' entrepreneurial aspirations. While earlier this form of education was confined mainly to business studies, it has now expanded to include students from a variety of academic disciplines "The significance of education and training for entrepreneurship development has been widely acknowledged" (Fayolle, 2013; Herman & Stefanescu, 2017; Li & Wu, 2019; Ndofirepi, 2020).

Raising awareness about Social Entrepreneurship among the public is crucial for fostering a culture of innovation, responsibility, and active participation in social change. When individuals are informed about the potential of social enterprises, they are more likely to support, invest in, or establish ventures that contribute to economic and social development. Additionally, increased public awareness can lead to stronger consumer demand for ethically produced goods and services, greater policy support, and enhanced cooperation among key stakeholders such as governments, corporations, and nonprofit entities. It is essential to assess the awareness of Social Entrepreneurship among youth, as it fosters the Indian economy's overall development.

However, to sustain this awareness and translate it into meaningful action, it is equally important to educate future educators - prospective teachers - about the influence of Social Entrepreneurship in fostering social change. Prospective teachers are instrumental in shaping the next generation's mindset, values, and attitudes toward social responsibility. If equipped with knowledge about Social

Entrepreneurship, they can integrate its principles into their teaching, inspire students to think critically about social issues, and encourage them to develop innovative solutions. Teachers who understand the significance of Social Entrepreneurship can promote interdisciplinary learning, encourage student-led community projects, and instill a problem-solving approach in education. Moreover, they can act as catalysts for change by incorporating sustainable development goals (SDGs) into their curriculum, thereby preparing students to become responsible global citizens. This study aims to assess the level of awareness among prospective teachers regarding Social Entrepreneurship skills.

Objectives

1. To identify the level of Social Entrepreneurship skill awareness among prospective teachers
2. To find out the significant difference in the Social Entrepreneurship skill awareness of prospective teachers with respect to Gender, Subject of study and Educational qualifications

Hypothesis

1. There is no significant difference in the Social Entrepreneurship skill awareness of prospective teachers with respect to Gender, Subject of study and Educational qualifications.

Methodology

The purpose of the study is to find out the awareness of Social Entrepreneurship skills among Prospective teachers, so the Normative survey method was found suitable for the study. In the present study the investigator adopted the survey method.

Sample of the study

A sample of 105 prospective teachers was taken from St. John the Baptist's College of Education, Nedumkunnam, Kottayam.

Tool used for the study

To study Social Entrepreneurship skill awareness of prospective teachers with the help of Social Entrepreneurship Awareness Scale prepared under the guidance of supervising teacher.

Results and Discussions

Statistical techniques including mean, S.D, t-test, f-test and other suitable statistical techniques were used for the analysis and interpretation of data. The following findings were obtained:

To determine the level of Social Entrepreneurship skill awareness among prospective teachers.

To classify the total sample into three groups: high, average and low based on their level of Social Entrepreneurship skill awareness.

Table 1

Number and Percentage of the level of Social Entrepreneurship Skill Awareness among Prospective teachers.

	Frequency	Percentage
High	15	14.3%
Average	78	74.3%
Low	12	11.43%
Total	105	100%

Table 1 shows that majority of prospective teachers possess average level of Social Entrepreneurship Skill Awareness. The percentage of prospective teachers who

possess low level of Social Entrepreneurship Skill Awareness is 11.43% and 14.3% of prospective teachers possess high level of Social Entrepreneurship Skill Awareness, there for it can be tentatively concluded that majority of the prospective teachers have an average level of Social Entrepreneurship Skill Awareness.

Table 2

Data and results of test of significant difference in the mean scores on Social Entrepreneurship Skill Awareness of prospective teachers with respect to the Gender.

	Gender	N	Mean	Std. Deviation	t	P value
Social Entrepreneurship Skill Awareness	Male	16	42.3	4.76	0.722	0.472
	Female	89	41.5	3.64		

Table 2 shows that the mean score of Social Entrepreneurship Skill Awareness of prospective teachers based on gender. The t-value of Social Entrepreneurship Skill Awareness based on Gender is 0.722 suggests that there is a very small difference between the mean scores of males and females in Social Entrepreneurship Skill Awareness. The p-value is 0.472 is much higher than the conventional significance level (usually 0.05), indicating that the difference in mean scores between males and females is not statistically significant. So there is no statistically significant difference in the Social Entrepreneurship Skill Awareness scores between male and female participants.

Table 3

Data and results of the test of significant difference in Social Entrepreneurship Skill Awareness of the prospective teachers with respect to the Optional Subject

ANOVA Optional Subjects					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.1	4	7.52	0.511	0.728
Within Groups	1470.9	100	14.71		
Total	1501	104			

The obtained F value of Social Entrepreneurship Skill Awareness based on optional subjects is 0.511and the corresponding p-value is 0.728. A typical threshold for significance is 0.05. Since the p-value (0.728) is greater than 0.05, it suggests that the differences between the means of the groups are not statistically significant at the 5% level. That means that there is no significant difference in the Social Entrepreneurship Skill Awareness of prospective teachers based on optional subject.

Table 4
Data and results of the test of significant difference in Social Entrepreneurship Skill Awareness of the prospective teachers with respect to the Educational Qualification

ANOVA Educational Qualification					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.0	1	24.0	1.67	0.199
Within Groups	1477.0	103	14.3		
Total	1501.0	104			

The F-statistic is 1.67, and the corresponding p-value is 0.199. A common threshold for significance is 0.05. Since the p-value (0.199) is greater than 0.05, this suggests that the differences in Social Entrepreneurship Skill Awareness between different educational qualification groups are not statistically significant. That means that there is no significant difference in the Social Entrepreneurship Skill Awareness of prospective teachers based on their educational qualifications.

Key Findings

The key findings of the study are the following:

- The majority of prospective teachers (74.3%) have an average level of Social Entrepreneurship Skill Awareness, while only a small percentage exhibit high (14.3%) or low (11.43%) awareness.
- The analysis shows that there is no statistically significant difference in Social Entrepreneurship Skill Awareness scores between male and female prospective teachers. The t-value (0.722) and p-value (0.472) indicate that gender does not play a significant role in determining Social Entrepreneurship Skill Awareness among the participants.
- The analysis indicates that there is no statistically significant difference in Social Entrepreneurship Skill Awareness among prospective teachers based on their optional subjects. The obtained F-value (0.511) and p-value (0.728) suggest that the variations in mean scores across different optional subjects are not significant at the 5% level.
- The analysis indicates that there is no statistically significant difference in Social Entrepreneurship Skill Awareness among prospective teachers based on their educational qualifications. The obtained F-value (1.67) and p-value (0.199) indicate that variations in mean scores across different qualification groups are not significant at the 5% level.

Recommendations

- Social Entrepreneurship concepts should be incorporated into teacher training programs to enhance awareness and skill development.
- Regular workshops, seminars, and hands-on training sessions should be organized to provide practical exposure to Social Entrepreneurship.

- Prospective teachers should be given opportunities to engage in real-life Social Entrepreneurship projects, case studies, and community-based initiatives.
- Prospective teachers should be encouraged to develop creative solutions for social issues through entrepreneurship-oriented assignments and projects.
- Educational policymakers should recognize the importance of Social Entrepreneurship in teacher education and develop policies to promote its inclusion.

Conclusion

In today's world of increasing social challenges, Social Entrepreneurship plays an important role in creating long-lasting positive change in society. The findings of this study indicate that while prospective teachers demonstrate an average level of awareness regarding Social Entrepreneurship skills, there is still a significant need to strengthen their understanding and engagement with the concept. As future educators play a significant role in shaping the mindset and values of upcoming generations, integrating Social Entrepreneurship education into teacher training programs becomes essential. By doing so, we can empower teachers to cultivate socially responsible learners who are equipped to think critically, act innovatively, and address real-world problems with compassion and creativity. The study emphasizes that raising awareness among teacher trainees not only contributes to their professional development but also fosters a wider impact - shaping classroom practices, student perspectives, and ultimately, community transformation. Therefore, promoting Social Entrepreneurship awareness among prospective teachers is not just an educational enhancement; it is an investment in a more socially responsible and progressive society.

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A STUDY ON CONCEPTUAL DIFFICULTIES IN LEARNING CHEMISTRY AMONG SECONDARY SCHOOL STUDENTS

Dr. Alie Molly Verghis* & Ms. Drishya Unni S.**

Abstract

Chemical education, formally recognized as a distinct academic discipline, encompasses the systematic study of pedagogical approaches and learning processes in chemistry across various educational levels. The foundational concepts of chemistry must be firmly established during initial instruction, as these early experiences critically shape students' perceptions of the subject's accessibility. When fundamental principles are effectively communicated, students develop confidence in their ability to master chemistry; conversely, inadequate early instruction often leads to disengagement and passive learning behaviours.

Empirical observations reveal consistent challenges in three core areas: (1) accurate representation of chemical symbols and formulas, (2) proper formulation of chemical equations, and (3) effective balancing of chemical equations. These competency gaps frequently serve as barriers to student achievement and enthusiasm for the subject. This action research was intended to understand and overcome these difficulties through the implementation of different strategies. The study was conducted on a sample of 33, 8th standard students in CMS High School, Puthuppally. An action plan was formulated to improve their ability to understand chemical reactions, balance chemical equations, write chemical symbols and chemical formulae. After the implementation of the action plan, a post-test was conducted and the results of pre- and post-tests were compared. The statistical techniques used were mean, standard deviation and percentage analysis. A significant difference was found between the pre-test and post-test scores of students implying that the action plan was effective.

***Key words**: Chemical symbols, Chemical formulae, Chemical equation, Balancing Chemical equations, Visual Aids, Simulations, Flash Cards*

Introduction

"The Great aim of Education is not knowledge but Action."
- Herbert Spencer

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Educational quality has emerged as a central concern in global educational discourse and reform initiatives. While conventional teaching methods remain prevalent in many classrooms, contemporary pedagogical alternatives are increasingly accessible to educators. Teachers occupy a pivotal position in this context, responsible for effectively mobilizing resources and stimulating student engagement to facilitate successful learning outcomes.

At the secondary level, science education is typically organized into three principal disciplines: physics, chemistry, and biology. The fundamental objectives of science instruction include fostering scientific literacy, nurturing curiosity, enhancing observational skills, and developing logical reasoning abilities among students. Nevertheless, certain scientific concepts and phenomena present particular comprehension challenges due to their inherent complexity.

Chemistry occupies a particularly crucial position in the science curriculum, serving as an essential foundation for students pursuing scientific disciplines. Its applications span diverse fields including medicine, pharmaceuticals, physics, biology, and technological innovation. However, secondary students frequently encounter significant difficulties with chemistry due to its abstract nature. The discipline's conceptual framework, comprising numerous theoretical constructs, often proves challenging as it requires students to mentally visualize molecular-level processes to comprehend even fundamental definitions or reactions.

Need and Significance of the Study

Chemistry is widely regarded as one of the most challenging science disciplines due to its complexity and abstract nature. Despite its difficulty, it remains an essential subject in school and higher education curricula. A primary obstacle students encounter is mastering chemistry's unique language—a specialized system of symbols, formulas, and terminology. With 118 elements, countless equations, and numerous technical terms, the subject demands both memorization and conceptual understanding. Chemical formulas and symbols serve as the foundation of chemistry, yet students often struggle to retain and apply them effectively.

Another common challenge lies in balancing chemical equations, which requires more than rote memorization. Students must comprehend the underlying reactions between elements to construct equations accurately. Research supports innovative teaching methods to address these difficulties. For instance, Sulcius & Teleshov (2013) demonstrated that using white and color-coded paper cards enhances learning in introductory chemistry. Similarly, Ridzauan & Iksan (2016) found that students who employed coloured blocks to visualize equation balancing outperformed peers taught through traditional methods, as evidenced by significant post-test improvements.

The problem was identified during the evaluation of answer sheets of diagnostic tests conducted during teaching. The researcher observed that students experienced serious problems when writing chemical equations

even though this is a basic requirement in chemistry. Without the proper writing of the chemical equation, students cannot subsequently solve or analyse equations. An action research was planned so as to bring out an immediate solution to the problem. The researcher tried to analyse the conceptual difficulties in understanding chemical reactions, balancing chemical equations, writing chemical formulae and symbols. Balancing chemical equations is a basic skill in chemistry. If the mistakes are not corrected, it will be difficult for higher secondary level science students to achieve in chemistry. This should be strictly avoided. So, the investigator wanted to find out the students who are facing difficulty in balancing chemical equations and to make them familiar with balancing chemical equations. The researcher tried to implement new strategies to solve the problems among the students through preparing an action plan.

Objectives of the Study

The major objectives of the study are

- To identify the problems faced by secondary school students in balancing chemical equations.
- To find out the difficulties faced by secondary school students in writing chemical formulas and chemical symbols correctly.
- To prepare and implement an action plan to provide appropriate teaching strategies to solve the problems faced by secondary school students in balancing chemical equations and in writing chemical formulae and chemical symbols correctly.
- To analyse the learning outcome of the students after the implementation of the action plan.

Action Hypotheses

- There will be significant difference in the mean achievement scores of the students before and after the execution of the action plan.
- There will be a significant difference between pre-test and post-test scores of secondary school students before and after the intervention.

Methodology in Brief

Action research is a type of research which is used to solve immediate problems in the teaching- learning process of the aspects related to the classroom environment. The study is solely based on a learning environment in which the teacher is initiating the process or procedures. Implementation of classroom action research has great potential to improve learning. Action Research is a methodological approach designed to examine and address problems simultaneously. As noted by Khatun and Salahuddin (2006), this form of research has been effectively utilized by educators to enhance both their instructional practices and professional development. The researchers highlight several key benefits for teachers, including improved observation of student behaviours, obtaining constructive feedback, validating their teaching methodologies, and reducing reliance on external sources unrelated to their pedagogical processes. Pine (2009) further elaborates on the advantages of action research, emphasizing how it

enables teachers to develop customized instructional strategies, establish themselves as pedagogical experts, and gain valuable insights through systematic data collection. Specifically, Pine identifies five critical areas of professional knowledge that action research fosters: self-awareness, student understanding, curriculum mastery, instructional techniques, and theoretical foundations.

The investigator realised that students have difficulty in understanding chemical reactions, balancing chemical equations, writing chemical symbols and chemical formulae. This was identified as a problem and an action plan was prepared for overcoming it.

The study was conducted on a sample of 33 8th standard students in CMS High School, Puthuppally. Initially a pre-test was conducted from which it was clear that all student's performances were poor. Therefore, an action plan was formulated to improve their ability to understand chemical reactions, balancing chemical equations, writing chemical symbols and chemical formulae. The 10-days action plan to address conceptual difficulties among secondary school students in understanding chemical reactions, balancing chemical equations, writing chemical symbols, and chemical formulae included the use of visual aids to explain the concept, students work in pairs to match reaction types with examples, use of experiments and simulations to demonstrate chemical reactions, related group work, explaining the rules for balancing equations (e.g., law of conservation of mass), writing chemical symbols (e.g., one or two letters), use of visual aids to illustrate the rules for balancing equations, writing chemical formulae (e.g., subscripts, coefficients), use of flashcards to reinforce chemical symbols, group work to write chemical symbols for compounds, work in pairs to write chemical formulae for simple compounds, giving assistance and providing feedback after each group activity or individual activity, administering a summative test to assess student understanding, and review of test results to evaluate the effectiveness of instructional strategies. Assessment and Evaluation included observing student participation during group work and practice and reviewing student worksheets and quizzes for accuracy. Rubric was also used to assess understanding and to provide feedback. The statistical techniques used were descriptive statistics like mean, standard deviation and percentage analysis.

Result and Discussion

As part of the Action Research, a pre-test was administered to determine the learner's knowledge and difficulties in understanding chemical reactions, balancing chemical equations and writing chemical symbols and chemical formulae. The maximum score of the test was 10. It was conducted for 33 students. The topics covered were chemical reactions, chemical equations, chemical symbols and chemical formulae. The level of questions were average. In order to evaluate whether the action plan was effective, a post test was conducted based on the same topic. The tests were conducted for 10 marks. The answer scripts where scored and analysed. The scores in the pre-test and post-test is given in Table 1

Table 1
Comparison of Pre-test and Post-test scores of students

Class Interval	Number of students (Pre-test)	Percentage of students (Pre-test)	Number of students (Post-test)	Percentage of students (Pre-test)
0-2	2	6.06	0	0
2-4	10	30.30	0	0
4-6	21	63.63	0	0
6-8	0	0	7	21.21
8-10	0	0	26	78.78

It is clearly evident from Table 1 that the performance of students has improved after the implementation of the action plan. In the pre-test, all students scored below 6. But after the implementation of the action plan, it was seen that most of the students scored above 8. There were improvements in terms of understanding chemical reactions (High achievement), writing chemical symbols (high achievement), writing chemical formulae (more than average) and balancing chemical equation (average to low). A diagrammatic representation of the data is given in Fig. 1

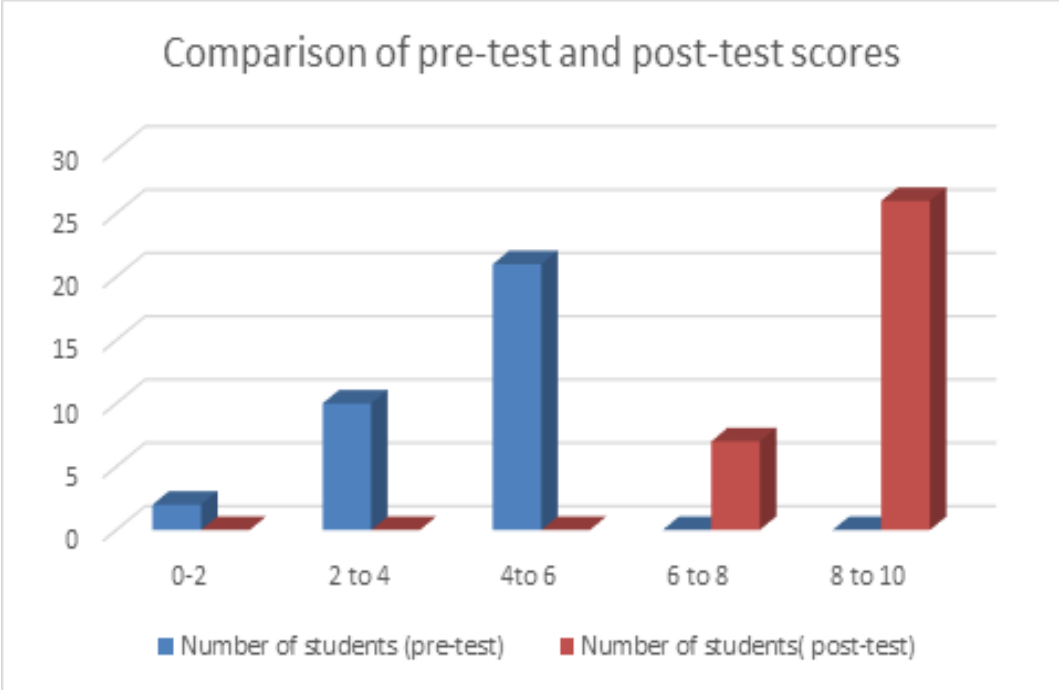

Fig.1 Comparison of Pre-test and Post-test scores of students

The standard deviation and mean values of the scores obtained in pre-test and post-test were also calculated and the values obtained are given in Table 2

Table 2
Mean and SD of pre and Post-test scores

Test	Mean	SD
Pre-test	3.636	1.526
Post-test	8.96	15.57

This result shows that the standard deviation value is high for post-test. Thus, the variability among the scores of students is high. The mean value of scores in post-test is 8.96 where the maximum score of the test is 10. The findings demonstrate that the students' performance improved significantly, reaching above-average to excellent levels following the implementation of the action plan. This success can be attributed to the effective intervention strategies derived from established research, including:

Understanding chemical language – Clarifying key terms (ions, atoms, molecules, symbols, and formulas) enhanced comprehension.

Motivational techniques – Increased student engagement and active participation in lessons.

Activity-based learning – Hands-on methods reinforced conceptual understanding.

Step-by-step instruction – Enabled students to write chemical formulas and balance equations accurately.

Supporting this approach, Hamerská et al. (1999) emphasize the importance of incorporating diverse representations in chemistry education to strengthen both procedural skills and conceptual mastery.

Student feedback further confirmed the intervention's success, revealing heightened self-confidence and a clear grasp of core topics—chemical reactions, equation balancing, and formula writing. Notably, learners exhibited sustained enthusiasm, eagerly anticipating each session of the action plan.

Conclusion

Tests and classroom activities revealed that most students had a weak foundation in fundamental chemistry concepts, particularly the essential elements of chemical language. The action research conducted to address this issue proved effective, as evidenced by the results. Furthermore, the process enhanced the researcher's professional skills while providing valuable insights into self-improvement and teaching refinement. Participants also benefited, as the study incorporated well-researched strategies to tackle key challenges. Overall, action research serves as a powerful tool for personal and collective growth, benefiting both individuals and the broader educational community. By identifying gaps in traditional teaching methods and the integration of digital tools, this study advances chemistry education strategies, promoting a deeper and more cohesive understanding of chemical principles among learners.

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REMEDIATION OF SPELLING ERRORS IN ENGLISH AMONG STUDENTS AT SECONDARY LEVEL - AN ACTION RESEARCH

Ardra Lal* & Dr. Elizabeth Joshua**

Abstract

Despite the crucial role spelling proficiency plays in effective communication and academic success, many secondary-level students continue to struggle with spelling accuracy due to the complexities of the English language. This action research investigated the spelling challenges faced by these students, such as inconsistencies in spelling rules, silent letters, and confusion with homophones, and developed a targeted intervention to address these issues. The intervention utilised engaging strategies like interactive spelling activities, digital tools, and competitive spelling games to enhance student participation and reinforce correct spelling patterns. The study involved 46 students from HSS Chettikulangara, with a sample of 16 students selected for detailed analysis. Data were collected through pre- and post-intervention assessments, and the comparative analysis revealed a significant improvement of over 50% in spelling proficiency, demonstrating the effectiveness of the implemented strategies.

Keywords**:** *Gamified Learning Strategies, Spelling Proficiency, Remediation of Spelling Errors, Action Research*

Introduction

The ability to spell accurately is a fundamental component of mastering the English language, essential for effective written communication and overall academic success. Beyond simply transcribing sounds into letters, proficient spelling ensures clarity, coherence, and credibility in one's writing. A strong foundation in spelling enables students to express their ideas more confidently, fosters critical thinking, and supports the development of advanced literacy skills. Despite its importance, many students continue to struggle with spelling due to inconsistencies in English spelling

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rules, silent letters, homophones, and the influence of informal digital communication practices.

Action Research, as a dynamic method of inquiry, is specifically designed to identify real-world challenges within an educational setting and develop immediate, practical solutions. As Lewin (1946) described, "Action Research is a way of learning about yourself by learning about others; research and learning are part of the same process." This approach involves a cycle of diagnosing issues, implementing targeted strategies, and evaluating their effectiveness, thereby fostering continuous improvement. Corey (1953) emphasized that Action Research plays a pivotal role in refining school practices and encourages educators to actively engage in enhancing teaching and learning outcomes.

In this Action Research, gamified and interactive strategies were employed to address the spelling challenges faced by secondary-level students. Techniques such as spelling games, digital tools, and personalized spelling exercises were introduced to create a more engaging and student-centered learning environment. The study aims to explore the impact of these innovative methods in improving spelling proficiency, with the results evaluated for their broader applicability in similar classroom settings. Through this process, both student achievement and instructional practices are expected to be significantly enriched.

Need and Significance of the Study

In today's educational environment, spelling proficiency is a critical component of students' academic success, particularly at the secondary level where written communication becomes increasingly complex. The ability to spell correctly not only enhances clarity and precision in students' written work but also builds their overall confidence in using the English language. However, due to the irregularities and complexities inherent in English spelling, many secondary students continue to struggle despite years of instruction. This study arises from the urgent need to address these persistent spelling errors, which, if unremedied, can hinder students' academic performance and their ability to express themselves effectively.

The significance of this study is further emphasized by the growing gap between formal spelling skills and the casual, often abbreviated, language students use in digital communication. With the rise of informal texting and social media language, student's exposure to incorrect spelling forms has increased, making structured spelling instruction more necessary than ever. Traditional methods such as rote memorization have proven insufficient in engaging students or addressing the root causes of their spelling challenges. Therefore, this study aims to introduce dynamic and practical interventions tailored to students' learning needs, thereby promoting lasting improvement in their spelling abilities.

Moreover, enhancing spelling proficiency at the secondary level has broader implications beyond the classroom. Proficiency in spelling contributes significantly to students' overall literacy development, impacting their reading fluency, writing clarity, and critical thinking skills. It prepares them not just for academic achievements but also for future professional opportunities where written

communication skills are highly valued. Correct spelling reflects attention to detail and professionalism, traits that are crucial for students' success in higher education and competitive work environments.

Ultimately, the study is significant because it explores innovative strategies to remediate spelling errors, aiming to transform traditional spelling instruction into a more engaging, reflective, and effective process. By focusing on action research methodologies, the study seeks not only to solve a practical classroom problem but also to contribute valuable insights to the broader field of educational practice. As noted by Gentry (2004), "Spelling is a reflection of the individual's understanding of language, and it significantly impacts one's ability to communicate clearly and effectively". Thus, this study holds the potential to make a meaningful difference in students' academic journeys and communication skills.

Objectives of the Study

The objectives of the study are as following:

1. To identify the common spelling challenges faced by students in English and analyse their underlying causes.
2. To develop and implement effective strategies and interventions for improving English spelling proficiency among students.
3. To improve students' spelling accuracy and overall language skills.
4. To foster students' confidence and independence in spelling through sustained practice and application of learned strategies.

Hypothesis of the Study

The plan of action will help to overcome spelling errors and enhance spelling proficiency.

Methodology in Brief

The Action Research was conducted among 8th standard students of H.S.S. Chettikulangara to address their difficulties in spelling proficiency. A Pre-Test was administered to identify students struggling with spelling, including their ability to spell commonly used words, apply spelling rules, and recognize word patterns. The test to evaluate spelling proficiency—both Pre-Test and Post-Test—included 25 multiple choice questions. Out of 46 students, 16 were identified as the sample group based on their low performance. These students demonstrated issues such as frequent errors with homophones, silent letters, and difficulties applying basic spelling rules.

A plan of action was developed to address these challenges, incorporating strategies like Chunking, Doubling Rule, Dropping Rule, CEI Rule, Y Rule, and forming words from root words. These were taught through interactive methods using flashcards, PowerPoint presentations, activity cards, worksheets, and word-building games to create an engaging learning environment.

A Post-Test using the same set of questions as the Pre-Test was conducted to evaluate the effectiveness of the strategies. A percentage analysis compared the results, revealing notable improvement in spelling accuracy, with most students successfully applying the strategies taught.

Results and Discussion of the Study

The investigator observed that students were facing difficulties in spelling proficiency, particularly in accurately identifying and applying correct spelling patterns. To diagnose the key problem areas, a Pre-Test was conducted. Following the implementation of a targeted Action Plan aimed at the remediation of spelling errors, a Post-Test was administered. A comparative analysis of the results from the Pre-Test and Post-Test was carried out to evaluate the effectiveness of the action plan and to highlight any remaining areas that require further attention.

Table 1
Comparison of the Percentage of Pre-Test and Post-Test

Sl. No.	Name	Percentage of Pre-test scores	Percentage Post-test scores
1.	Avani R	16%	80%
2.	Ananya Vinod	12%	72%
3.	Abhishek A	8%	64%
4.	Aarush Raj	20%	88%
5.	Akshitha Das	16%	80%
6.	Sooryanath	12%	76%
7.	Adithyan R	8%	64%
8.	Abhinav H	12%	72%
9.	Ankith Anilkumar	20%	92%
10.	Adithya S Kumar	16%	80%
11.	Arjun Pramod	4%	68%
12.	Akash A	8%	72%
13.	Amaljith B	12%	80%
14.	Aswin Anil	4%	64%
15.	Rithunanda	8%	72%
16.	Sandra Binu	16%	84%

Upon comparing the percentage of marks obtained in the Pre-Test and Post-Test, as presented in Table 1, it was observed that there was a significant improvement in students' spelling proficiency. The analysis revealed that all 16 students demonstrated a marked increase in their scores, with many showing improvements of over 50 percentage points. These results indicate that the action plan was successful in enhancing the students' ability to spell correctly and apply appropriate spelling rules. Further reinforcement and periodic revision may help maintain and build upon these gains.

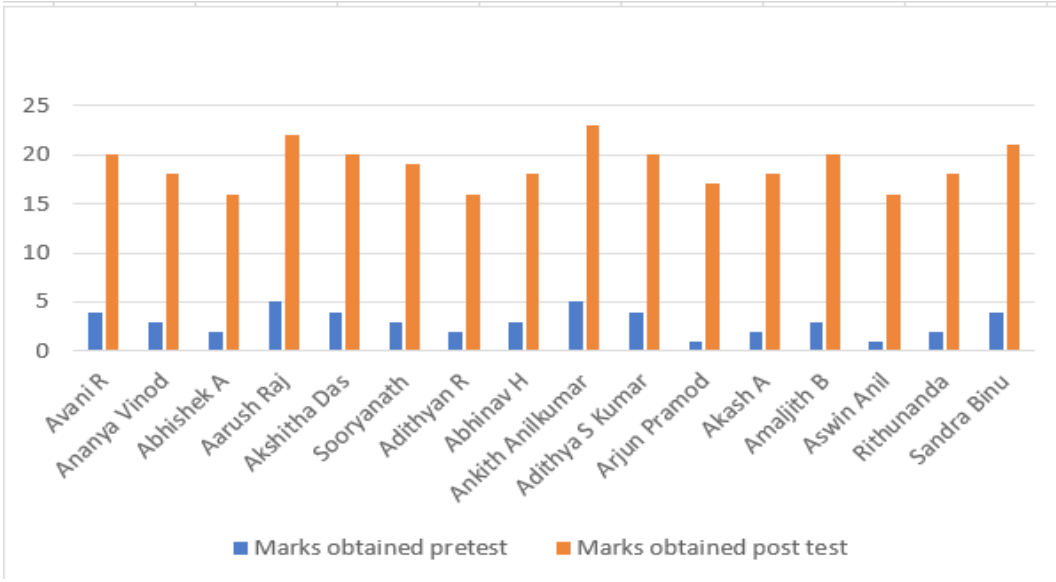

Figure 1: Comparison of Pre-Test and Post-Test scores

A bar diagram is constructed as part of this study based on the marks obtained by the 8th-grade students in the Pre-Test and Post-Test. The names of the 16 students are listed out along the x-axis, while the marks scored are numbered along the y-axis. The blue bars indicate the scores obtained by the students during the Pre-Test while the orange bars represent the scores obtained in the Post-Test. The progress made by the students before and after the execution of the plan of action can be clearly seen from the graph.

Educational Implications

1. This study will assist teachers in identifying and addressing the specific spelling difficulties faced by students, enabling more targeted interventions.
2. The findings of this research can enhance the effectiveness of teaching strategies, improving student engagement and learning outcomes.
3. By focusing on spelling proficiency, the study highlights the importance of nurturing language skills, thereby boosting student confidence and their overall interest in learning English.

Conclusion

English is a core subject that requires a solid foundation in fundamental language skills, as each area of proficiency—reading, writing, and communication—builds on the other. Spelling, a fundamental component of literacy, often presents challenges for secondary-level students due to inconsistencies in English spelling rules and lack of phonetic awareness. To address these issues, a well-structured action plan was implemented, incorporating targeted strategies. These interventions helped

students overcome common spelling difficulties, enhanced their confidence, and significantly reduced spelling errors. The study demonstrated that action research is a highly effective approach for identifying and addressing spelling challenges, and that carefully designed interventions can lead to meaningful improvements in student's overall language proficiency.

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SUBSTANCE ABUSE AMONG SECONDARY SCHOOL STUDENTS

Josna K. John*

Abstract

Substance Abuse among Secondary School Students has emerged as a pressing issue with profound implications for adolescent health, academic performance, and overall development. This paper explores the important factors responsible for substance abuse such as Family Environment, Peer Pressure, Academic Stress, Media Influence, Easy Accessibility and consequences of substance use among adolescents, with a particular focus on the Indian context. Drawing on both national surveys and international research, it examines key influences such as peer pressure, family dynamics, academic stress, media exposure, and substance accessibility. The study also explores the stages of substance use—from initiation to addiction—and provides a detailed review of existing literature. A set of targeted objectives guides the investigation, aiming to generate evidence-based recommendations for prevention and intervention. The findings underscore the need for school-based awareness programs, parental involvement, and comprehensive support systems. This paper contributes to the growing field of adolescent mental health and education by offering actionable insights for educators, policymakers, and health professionals.

Key words**:** *Substance Abuse, Peer Pressure, Academic Stress, Media Influence, Substance Accessibility*

Introduction

Substance Abuse among Secondary School Students is a critical issue affecting the health, education, and well-being of adolescents across the world. The period of adolescence is marked by curiosity, identity formation, emotional instability, and the strong influence of peer groups, making students more susceptible to experimenting with drugs, alcohol, and tobacco. The school environment, which should ideally foster academic and moral development, is increasingly becoming a site where students are exposed to various substances. In developing countries like India, the rapid socio-cultural transitions, coupled with technological exposure and weakened family bonds, have further exacerbated this issue. This study seeks to explore

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the patterns, causes, consequences, and preventive measures related to Substance Abuse among Secondary School Students.

Meaning of Substance Abuse

Substance Abuse refers to the excessive and harmful use of psychoactive substances, including alcohol, tobacco, and illicit drugs, which affect the user's physical and mental health. Among adolescents, it typically involves the use of substances in a manner that deviates from accepted medical or social norms, leading to adverse outcomes in health, academic performance, and social behavior. According to the World Health Organization (2014), Substance Abuse during adolescence significantly increases the risk of developing chronic addiction and other health complications later in life.

According to W.H.O. 1969:-

- **A drug** is any substance that, when taken, into the living organism, may modify one or more of its functions,
- **Drug Abuse** is the persistent or sporadic excessive use of a drug inconsistent with, or unrelated to, acceptable medical practice,
- **Drug Dependence** is a state – psychic and sometimes also physical – resulting from interaction between a living organism and a drug, characterized by behavioral and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effect, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present, a person may be dependent on more than one drug.

Prevalence of Substance Abuse among Secondary School Students

Substance Abuse among adolescents has emerged as a pressing public health and educational challenge worldwide. The period of secondary education, typically spanning the ages of 12–18, is marked by rapid biological, psychological, and social changes, making students more susceptible to experimentation with psychoactive substances such as alcohol, tobacco, cannabis, and other drugs (UNODC, 2018).

- **Global Prevalence**

According to the World Drug Report published by the United Nations Office on Drugs and Crime (UNODC), approximately 5–7% of adolescents globally have experimented with some form of illicit drug, with cannabis being the most common substance used in this age group (UNODC, 2018). The World Health Organization (WHO) estimates that about 13–15% of adolescents in low- and middle-income countries have used alcohol before the age of 15, and approximately 10% have experimented with cigarettes or other forms of smoked tobacco (WHO, 2021).

- **Regional Variations**

In India, the prevalence of Substance Abuse among school students has been increasing alarmingly. According to the Ministry of Social Justice and Empowerment and the All India Institute of Medical Sciences (AIIMS), about 14.6% of children and adolescents (aged 10–17 years) have experimented with alcohol, while approximately 9.8% have tried smoking cigarettes (National Drug Dependence Treatment Centre & AIIMS, 2019). Similar trends have been observed across other South Asian nations, indicating

that peer pressure, media influence, and easy availability of substances contribute to rising usage rates (Khan et al., 2020).

- **Implication for Education and Policy**

The growing prevalence of Substance Abuse among Secondary School Students compromises their academic performance, mental health, and social adjustment. As such, early intervention through school-based prevention programmes, community involvement, and national policies is critical. Educators and policymakers must collaborate to implement evidence-based prevention strategies that foster resilience, life skills, and awareness about the dangers of Substance Abuse.

In light of the rising incidence and profound impact of Substance Abuse among Secondary School Students, it becomes essential to investigate its prevalence and consequences to inform effective prevention and intervention strategies. The increasing incidence of Substance Abuse among Secondary School Students poses serious challenges to educators, parents, and public health systems. Adolescents who misuse substances are more likely to engage in risky behaviors, drop out of school, and suffer from long-term psychological and physical issues. A national survey conducted by Ambekar et al. (2019) revealed that 14.6% of children aged 10 to 17 in India have used some form of intoxicant. Despite these alarming statistics, awareness among students, parents, and teachers remains low, and school-based intervention programs are often inadequate. Hence, there is an urgent need to investigate the extent of substance abuse among students, identify contributing factors, and develop effective prevention and intervention strategies.

The following review of related literature provides an evidence-based foundation for understanding the prevalence, causes, and consequences of Substance Abuse among Secondary School Students, and guides the formulation of effective interventions.

Volkow et al. (2016) conducted a review study titled adverse health effects of marijuana use. The study employed a meta-analysis of clinical and epidemiological data to examine the cognitive and health-related effects of marijuana on adolescents. The findings revealed that marijuana use during adolescence is associated with impairments in memory, learning, and attention, with long-term consequences for brain development.

Ambekar et al. (2019) presented a national report titled Magnitude of substance use in India, based on a large-scale household survey conducted across India using stratified random sampling. The study found that 14.6% of children aged 10 to 17 had used some form of intoxicant, with tobacco and alcohol being the most common substances. Peer pressure and lack of parental supervision were identified as key risk factors.

World Health Organization (2014) published a report titled Health for the world's adolescents: A second chance in the second decade. This comprehensive global review utilized secondary data analysis and expert consultations. It emphasized the importance of health education and early school-based interventions in reducing the risk of Substance Abuse during adolescence.

Kelly and Westerhoff (2010) conducted a quantitative study titled Does it matter how we refer to individuals with substance-related conditions? The researchers used

a randomized experimental design to test the impact of different terminologies on public perception. The findings indicated that stigmatizing language (e.g., "addict") increases social distance and reduces empathy, suggesting the need for stigma-free educational campaigns in schools.

Factors responsible for Substance Abuse

Several factors are responsible for Substance Abuse among Secondary School Students. The following are the important factors are:

1. Peer Pressure: The desire to fit in or be accepted by peers often leads students to experiment with substances. Such peer pressure, when combined with adolescent curiosity and emotional sensitivity, significantly increases the risk of early initiation and continued use of addictive substances.
2. Family Environment: Lack of parental supervision, family conflicts, or substance use by family members can influence adolescent behavior. These factors create an environment where experimentation with drugs is more likely to occur, making early intervention and strong family support vital for prevention.
3. Academic Stress: High expectations and poor coping mechanisms may drive students to use substances as a form of escape. Without effective support systems and resilience-building strategies, this pressure can intensify, increasing the risk of long-term dependence and academic decline.
4. Media Influence: The widespread glamorisation of drug use through movies, music videos, and social media content often portrays substance use as trendy, exciting, or a symbol of status. This can make students believe that using drugs is normal or popular, leading them to experiment without fully understanding the risks and consequences involved.
5. Easy Accessibility: The easy and widespread availability of drugs within communities, neighbourhoods, or even near educational institutions significantly lowers the barrier for initial exposure. This makes it easier for students to obtain and experiment with drugs, thereby increasing the likelihood of regular use and eventual dependence.

Elements of Substance Abuse

Major elements of Substance Abuse are as follows:

- Initiation: First exposure to substances, often influenced by peers or curiosity. This early experience can lead to repeated use and the risk of addiction later on.
- Experimentation: Trying out substances occasionally without a fixed pattern. At this stage, use may seem harmless, but it can quickly develop into a regular habit if left unchecked.
- Regular Use: Increased frequency of use, often linked with developing dependence. This phase often affects the student's behavior, academic performance, and overall well-being.
- Dependence: Physical or psychological need for the substance to function. At this point, stopping becomes challenging, and students may experience serious withdrawal symptoms and academic setbacks.

- Addiction: Complete loss of control over substance use, despite harmful consequences. At this stage, recovery often requires intensive intervention, medical support, and long-term rehabilitation.

Consequences of Substance Abuse

Substance Abuse during adolescence has profound and multi-dimensional repercussions, affecting students' academic performance, mental health, physical well-being, and future prospects. The vulnerability of this age group—characterized by identity exploration and emotional volatility—amplifies the potential for long-term adverse outcomes (National Institute on Drug Abuse [NIDA], 2021). Consequences of Substance Abuse among Secondary School Students are as follows:

1. Academic Consequences

Research consistently shows that students engaged in substance use are more likely to exhibit declining academic performance, irregular school attendance, higher dropout rates, and diminished aspirations for higher education. Cognitive impairments associated with alcohol and drug use interfere with memory, attention, and executive functioning, making learning and information retention challenging (National Center for Biotechnology Information [NCBI], 2020).

2. Psychological and Emotional Impact

Adolescent substance abuse is linked to increased levels of depression, anxiety, aggression, and low self-esteem (World Health Organization [WHO], 2021). Chronic use of psychoactive substances can precipitate long-term mental health disorders, including schizophrenia and addiction, making recovery more challenging and costly for both families and society.

3. Social and Behavioral Consequences

Students who abuse substances are more prone to risky behavior, including aggression, vandalism, and involvement in illegal activities (UNODC, 2018). Such behavior not only damages peer relationships but also exposes students to environments with heightened risk for violence, exploitation, and trauma.

4. Physical Health Implications

Substance Abuse during adolescence can interfere with neurodevelopment, leading to long-term neurological and hormonal imbalances. Common consequences include respiratory illnesses (in the case of smoking), liver and cardiovascular damage (from alcohol), and heightened vulnerability to infectious diseases due to risky behaviour and weakened immunity (National Institute on Drug Abuse [NIDA], 2021).

5. Impact on Family and Community

The fallout from adolescent Substance Abuse extends beyond the individual, straining family dynamics and causing emotional, financial, and social burdens. At a community level, increased juvenile crime, diminished workforce productivity, and rising healthcare costs are significant consequences (Ministry of Social Justice and Empowerment & AIIMS, 2019).

Suggestions for Reducing Substance Abuse

The following are certain suggestions to reduce the incidence of Substance Abuse:

1. School-based Awareness Programs: These programs should be implemented as an integral part of the curriculum to educate students about the health, social, and legal implications of substance abuse. By embedding drug education within regular classroom instruction, schools can foster informed decision-making and cultivate a culture of prevention.

2. Parental Involvement: Active engagement of parents in students' lives plays a crucial role in preventing substance abuse. When parents maintain open communication, set clear expectations, and participate in school activities, they help reinforce positive behaviour.

3. Peer Mentorship: Training selected students as peer counsellors can create a supportive network within the school, making it more accessible for at-risk students to seek help. These peer mentors can serve as role models, facilitating open conversations and promoting a positive, substance-free school culture.

4. Counselling Services: Establishing in-school counselling services ensures that students have access to professional support when grappling with issues related to substance use. Timely intervention by trained counsellors can aid in early detection, recovery, and the overall emotional well-being of students.

5. Strict Policies: Developing and rigorously enforcing policies against the possession and use of substances within school premises sends a strong message about the institution's commitment to a safe and healthy environment. Such policies, combined with awareness and rehabilitation efforts, can effectively deter students from experimenting with harmful substances.

Conclusion

Substance Abuse among Secondary School Students is a multifaceted issue requiring urgent attention. It not only disrupts the academic journey of students but also places them at risk of lifelong addiction, health problems, and social marginalisation. A coordinated effort involving schools, families, and community stakeholders is essential to curb this menace. Through awareness, early intervention, and supportive educational environments, students can be guided toward healthier and more productive lives.

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THALASSERY CRICKET- A RICH LEGACY OF TWO HUNDRED YEARS

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Abstract

The town of Thalassery in the Kannur District of Kerala, India, holds a significant place in the history of cricket in the country. It was in Thalassery that the British officers, led by Sir Arthur Wellesley, popularised and taught the game to the local people during the late 18th century, showcasing the influence of imperialism on the sport. The roots of cricket in Thalassery can be traced back to the 1790s when British officers, judges, traders, and planters frequently visited the town. It is said that after enjoying a sea bath, these officers would engage in a game of cricket with the locals. The venue for these matches was the Thalassery Maidan, a municipal stadium with a sloping ground towards the sea. In 1860, Europeans residing in Thalassery formed the Tellicherry Cricket Club, which was initially exclusive to white members. However, after India gained independence, the club's name was changed to Town Cricket Club, making it one of the oldest cricket clubs in the country. Historical records and research highlight the rich and enduring tradition of Thalassery cricket, spanning over two centuries. This legacy serves as a testament to the early introduction and influence of the sport by the British in India. In conclusion, Thalassery, a relatively lesser-known town in Kerala, played a pivotal role in the beginning and popularization of cricket in India. The historic data and evidence emphasize the impact of imperialism and the enduring legacy of cricket in Thalassery, making it a significant part of India's cricketing heritage.

Key words: *Cricket, Tellicherry, Imperialism*

Introduction

Thalassery has a rich tradition in cricket, which no other town or city in Kerala can claim. To the people of Thalassery, cricket is a passion, even before television conquered our living rooms; cricket had captured the imagination of Thalassery. It was the British officers stationed at Thalassery (formerly Tellicherry) who had

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popularised and taught the nuances of the game to the people of Thalassery. History shows that cricket in Thalassery is a product of imperialism, dating back to the 1790's. In the 19th century, Thalassery was a key administrative centre and judicial capital of Malabar, Nilgiris, Coimbatore and south Karnataka. It was frequently visited by British officers, judges, traders and planters. Some of them enjoyed a sea bath and afterwards a game of cricket against natives. In 1860 Europeans formed a club (Tellicherry Cricket Club) which had only whites as its members. After independence, the clubs' name was changed to Town Cricket Club and the club can be considered as one of the oldest cricket clubs in India

History says that Lord Wellesley was here in Thalassery as the commander of forces in the last decade of the 18th century. In his biography it is mentioned that "wherever he went he took his cricket kit with him. In this context Late Moorkoth Ramunny comes to this conclusion that Thalassery cricket is 200 years old and is the first centre to play cricket even before Bombay, Calcutta or Madras. Lord Wellesley probably didn't have enough players in his establishment to play a match. So, he got his peons, dhobies, fisherman and others to make up numbers. He was impressed by the strong throwing arms of dhobis residing in Palissery. Thus, cricket became a common man's game here while in other parts of India it was the game of elite class. The trolley pullers, the head load workers, salesmen and the middle class were the people who promoted and practiced the art of cricket in this town. The people of Thalassery learned cricket by watching the game sitting under the huge shady tree in front of the Cosmopolitan club. The older people recount with nostalgia the cricketing fields of their generation. The younger generation listens to these stories with a sense of pride and owe.

Arthur Wellesley played cricket for fun and as pastime, but the people in Tellicherry since then played it in good competitive spirit. Before the arrival of railway, a team used to go on foot to Cannanore to play cricket. In the pre-independence period, teams from Madras and Salem paid frequent visits to Thalassery to play against native clubs. As more players started playing the game, two more clubs by name, Sports Club and Excelsior, were given shape. In 1947, one more club by name United Athletic Club was formed under the guidance and control of A.C.M Abdulla who himself was a player and coach. British planters who were stationed at Coorg came to Thalassery once in a month to play cricket against the teams here. Planters included in their team players who play county cricket in England. It speaks of the highly competitive spirit with which the game was played in those days. In 1935 a district match was played between natives and Europeans by covering the entire ground with screen because the entry was restricted by payment. Teams from different parts of India made seasonal visits to play against Thalassery XI. Playing a match against Tellicherry XI was considered as a matter of prestige for Vijayanagar, Hyderabad, Madras and Coorg. To mark the 200th year of tellicherry cricket, a match was organized in March 2002 between an Indian Veterans XI led by Krishnamacharia Srekkant and Sri Lankan Veterans XI led by Arjuna Ranathunga.

Earliest written record on the history of Thalassery cricket

Moorkoth Ramunny makes a vital response to a newspaper citation that goes back to 1890 about a cricket match

played between Cannanore and Tellicherry. Malayala Manorama, one of the oldest news papers in India and a leading one from Kerala, reported in one of its 1890 editions that the players from Tellicherry walked 21 kms to play a match against Cannannore. Though the exact citation of the newspaper report is missing in Ramunny's narration, he adds a significant first-hand source that secures the information. "My father Late Moorkoth Kumaran, a well-known Malayalam writer, played in that match. He used to say that they started long before the dawn. The team was accompanied by a number of youngsters who carried the kit in turn. After the match, they returned to Tellicherry by midnight. That was the interest, love and dedication to a foreign game, officially reported in a news paper a hundred and twelve years ago. The players were common people, dhobies, fisher folk, shop keepers and laborers. It was not the monopoly of elite families of Tellicherry. Perhaps this is the first place in India where cricket was and is still played by local common people, who had learnt the game from the Englishmen" (Ramunny 2002 C: 21).

Challenges to do research on memory and history over local sport

A major challenge for writing athletic history is the absence of 'reliable' historic records or scholarly writings on sport, especially in the case of small-town sporting cultures in India. Though sport and its sociological significance have been well established in the inquiries about culture and society in much of the west, the domain has not yet made any critical intervention in exploring the cultural dynamics such as caste, gender and colour in the Indian context.

Cricket in the sub continent along with other sporting cultures could be subject to analytical scrutiny. The linkages between cricket and society in the debates of post colonial India evidently was never something new as Ramachandra Guha observed (Author of A Corner of a Foreign Field: The Indian History of a British Sport, London: Picador, 2002)

Present Cricket in Thalassery

A stadium exclusively for playing cricket was inaugurated in 2008 at Conor Vayal near Thalassery Municipal Stadium. The summer coaching camps hosted by CDCA (Cannanore District Cricket Association) for identifying new talents among kids was highly useful. The "She League" organized by CDCA exclusively for girls to promote women cricket has already received a lot of appreciation. Above all, District League Matches are conducted every year in which fifty teams affiliated to CDCA either as clubs or institutions categorized into five divisions namely A, B, C, D and E. Talent Hunt School league matches are also organized yearly exclusively for nearby six schools. The New stadium hosted the first Ranji Trophy match on 3rd November 2009 between Kerala and Andhra Pradesh in which S. Sreesanth, former Indian Player from Kerala also played.

History of Kerala Cricket Association (KCA)

The Travancore-Cochin cricket team represented the Indian state of Travancore-Cochin in the Ranji Trophy from 1951–52 to 1956–57. After the formation of new state of Kerala in 1956, the Travancore-Cochin team was superseded by the Kerala Cricket Team, beginning

with the 1957–58 Ranji Trophy. Kerala has always been in the forefront in its bid to foster sporting talent in India. Though Keralites in general support football over any other sport, there were a few pioneers in cricket as well.

The Mambally family of Clincher, contributed greatly to the enrichment of the game. P.M Raghavan, who led the first Travancore-Cochin team in the Ranji Trophy in 1951, was a hard-hitting batsman and an astute captain. K.V. Kellappan Thampuran was the backbone behind the great achievements of the Tripunithura Cricket club, formed in 1935. It was he who was the master brain behind the limited over format. Col.Godavarma Raja of the Travancore royal family was responsible for putting Kerala on the sports and tourist map of India. The Kerala Cricket Association emerged from the Travancore-Cochin Cricket Association formed by him in 1950. He was the first from the state to become the vice-president of the BCCI. There were certain inbuilt problems that hindered the progress of Kerala cricket. Due to the monsoons, the season could only start in October as opposed to June-July in other states. The absence of decent turf pitches and of finance were further handicaps. Gradually, however, things made a turn for the better and through the sixties, Kerala participated in the various inter-school and age group tournaments run by the BCCI. KCA has shown that its administrators are brilliant organizers. Tinu Yohannan and Sreesanth have proved that Kerala has the potential to produce very talented Test cricketers. Kerala has produced two Indian Test cricketers namely Tinu Yohannan and S. Sreesanth while Sanju Samson has represented India in T20Is and ODIs.

Board of Control for Cricket in India (BCCI)

The Board of Control for Cricket in India is the national governing body of cricket in India. Its headquarters is situated at Cricket centre, Wankhede Stadium in Mumbai. BCCI was established in 1928 and former Indian right arm medium pace bowler Roger Binny is the newly elected President of the board.

Recommendation and Conclusion

It is evident from the available data that Thalassery have had a rich and historical tradition of cricket in India. To maintain the legacy of Tellicherry cricket following measures may be taken with the help of KCA and BCCI.

1. Conduct more Coaching Camps: Partnering with business firms, organize coaching camps in rural areas to introduce cricket to the local population. These camps can provide training, equipment, and guidance to aspiring players, helping them develop their skills and passion for the sport.
2. Orientation programmes: Organize orientation programmes for students and parents to create awareness about the benefits of playing cricket. These programs can highlight the physical, mental, and social advantages of cricket, such as promoting teamwork, discipline, and a healthy lifestyle.
3. Construction of an International Standard Cricket Stadium: Building an international standard cricket stadium in Thalassery will not only attract professional matches and tournaments but also inspire and motivate the younger generation to pursue cricket as a career. The stadium can become

a hub for cricket enthusiasts, creating opportunities for talent development and local employment.

4. Strengthening the Existing Cricket Academy: Increase the intake of players at the existing Cricket Academy in Thalassery. This can be achieved by expanding infrastructure, hiring qualified coaches, and providing scholarships or financial aid to deserving candidates. By enhancing the academy's capacity, more young players can receive proper training and guidance to reach their potential.
5. Increase Playing Facilities: Construct additional cricket pitches and facilities for net practice in schools and colleges in and around Thalassery. This will ensure that budding cricketers have access to quality playing surfaces and training infrastructure. Encouraging schools and colleges to integrate cricket into their sports curriculum will foster a culture of cricket in the region and nurture talent at a grassroots level.

Implementing these initiatives can help popularise cricket in rural areas, create opportunities for aspiring players, and contribute to the overall development of the sports in Thalassery.

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FOSTERING INCLUSIVITY IN EDUCATION: LEGAL SAFEGUARDS FOR THE DIFFERENTLY ABLED

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Abstract

Achieving social justice, equity, and the overall development of students with disabilities all depend on promoting inclusivity in the classroom. The goal of inclusive education is to help students with disabilities reach their full potential by removing obstacles that prevent them from participating and succeeding. To guarantee that people with disabilities are not denied access to education because of institutional, social, or physical impediments, legal protections are essential. This paper looks at the Indian legal system and pertinent international agreements that support the right of people with disabilities to receive an inclusive education. To comprehend how they require accessibility, reasonable accommodation, and non-discriminatory practices, key provisions of the Rights of Persons with Disabilities Act, 2016, the Right of Children to Free and Compulsory Education Act, 2009, and the duties under the United Nations Convention on the Rights of Persons with Disabilities are examined. The discrepancy between the goals of legislation and the reality on the ground is highlighted by addressing issues including poor infrastructure, a shortage of qualified teachers, a lack of assistive technology, and attitudes that hinder progress. The study highlights that legal protection is a transformative instrument for creating inclusive learning environments rather than just a compliance mechanism by combining policy research and legal principles It concludes that a multi-stakeholder strategy combining strong legal enforcement with awareness-raising, capacity-building, and community involvement is necessary for the successful implementation of inclusive education. Enhancing diversity in classrooms, empowering students with disabilities, and fostering an inclusive and fair society may all be achieved by fortifying legislative protections and making sure they are implemented.

Keywords

Inclusive Education, Assistance, Accessibility, Legal Protection, Enforcement

Introduction

Education is widely recognised as a basic human right and serves as a powerful driver of social inclusion, personal empowerment, and national development.

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It makes it possible for people to learn new things, grow as people, contribute to society in meaningful ways, and live independent lives. It inspires people to get involved in civic affairs and make significant contributions to their local communities. Furthermore, by changing people, communities, and entire societies, it is essential in promoting social change. It is a potent instrument that molds attitudes, values, and behavior rather than just being a process of learning. Through education, people can question established conventions, promote equality and justice, and become more conscious of their rights and obligations. In fact, it promotes social mobility, which lowers inequality and promotes inclusivity by enabling individuals from underprivileged backgrounds to rise in social and economic standing. Additionally, it fosters democratic ideals like liberty, acceptance, and involvement and serves as a stimulant for innovation and modernisation, bridging the gap between the past and the present. Therefore, education serves as a basis for the continuous process of social transformation as well as a tool for personal growth.

People with physical disabilities encounter numerous obstacles in the field of education both domestically and internationally. These include inadequately trained teachers, a general lack of understanding and sensitivity within the educational system, a lack of assistive technologies, and a lack of barrier-free infrastructure. The general lack of understanding and awareness of disabilities is one of the main, yet sometimes disregarded, causes of their exclusion from the educational system. Particularly in rural or impoverished places, parents and guardians might not be aware of or comprehend their child's handicap. Disabilities are frequently misinterpreted as indicators of retribution, bad luck, or incapacity. Consequently, parents may choose to keep their child out of the public eye, be reluctant to send them to school, or believe that education is unneeded or impossible for them. Families, communities, educators, administrators, legislators, and even colleagues are all impacted by this disparity. The ramifications of this lack of awareness are far-reaching and significantly contribute to the exclusion of differently abled from mainstream education. Socioeconomic inequality and a pervasive mindset of neglect and exclusion in India exacerbate these issues.

The National Family Health Survey (NFHS, 2019–21) estimates that 63 million individuals in India are disabled, or roughly 4.52% of the country's total population. India's overall literacy rate (Statistical Profile, 2017) was 74.5% in the 2011 Census, while the literacy rate for disabled people was 54.5%. When broken down by gender, rural-urban area, and disability kind, the picture becomes even more alarming. For instance, disabled women have significantly lower literacy rates compared to their male counterparts, and rural disabled populations are worse than those in urban areas. Due to recent initiatives in inclusive education and early childhood interventions, the literacy rate of disabled children of age group 5 - 10 is higher compared to that of children age group 10 - 18. Retention is still a big issue. The greatest out-of-school groupings among children aged 6 to 13 are those with special needs (Prachi Salve,2017). There are an estimated 13.69 lakh out-of-school children in urban India and 46.95 lakh out-of-school children in rural India (National Survey, 2014). Male and female impaired literacy rates differ significantly, by more

than 17 percentage points, according to the literacy rate. Therefore, establishing an inclusive, equitable, and just society requires granting right to education for differently abled people.

The nation has passed a number of progressive legislations over the years, including the Rights of Persons with Disabilities Act, 2016 and the Right of Children to Free and Compulsory Education Act, 2009, with the goal of guaranteeing inclusive and high-quality education for kids with special needs. Despite these legal frameworks, a number of obstacles keep them from being implemented effectively, including denial of admission and equal opportunity, lack of qualified staff or special educators, inaccessible grievance redressal authorities, weak and inconsistent legal remedies, and a lack of knowledge about legal rights. This paper examines the effectiveness of Indian legal system in integrating the differently abled children to the main stream of the society through the promise of inclusive education as envisioned in the Constitution and disability rights laws be fully realised for every child in India.

2.1. Barriers Leading to Exclusion

Prejudice, ignorance, or sympathy are frequently the foundations of societal attitudes on disabilities. Peers, teachers, and even their own families may ridicule, reject, or isolate disabled children, which can lower their self-esteem and cause them to stop attending school. Furthermore, due to the high costs associated with special needs and transportation, low-income families may prioritise the education of their non-disabled children.

Neglect or marginalisation in the classroom frequently results from a lack of sensitive and inclusive teaching strategies. Despite the existence of policies that support inclusive education, their implementation is frequently lacking. Ineffective implementation may result from schools' failure to dedicate resources for inclusive practices or adhere to accessibility standards. Low reading rates, high dropout rates, and a lack of employment options stem from the fact that many physically challenged people are either denied formal education or get it in an environment that does not meet their specific needs.

One major obstacle that keeps disabled students from attending mainstream schools is the pervasive lack or insufficiency of necessary services, assistive technology, assistive equipment, and other essential assistance. The lack of basic facilities, services, and appropriate assistive technologies in many schools and educational institutions makes it physically difficult or impossible for students to attend classes on a daily basis.

Due to physical or mental impairments that prevent them from doing daily tasks, children who are differently abled are frequently left out of the regular education system. Special schools were established for them in order to provide them with the support and space they need to realise their full potential after it was realised how vulnerable they were to the traditional education system. With specialised staff, learning resources, and curricula, they are especially made to address the needs of kids with unique disabilities. They are able to achieve better outcomes as a result of inclusive and special education practices.

A paradigm shift from exclusion and isolation to inclusion and integration has occurred in recent decades as a result of

worldwide campaigning, rising human rights awareness, and modifications to legislative frameworks. All children, including those who require special education, receive an education in the same classroom as normal students, giving them equal access and opportunities. This includes, speech therapy, occupational therapy, counseling, assistive technology etc. As a result, they are supported for sharing the same curriculum rather than being isolated from their peers. Nonetheless, some children need individualised teaching and additional assistance to achieve their goals; therefore, India's education system should maintain special schools as part of a broader inclusive education framework. In order to provide a comprehensive and inclusive learning environment, inclusive education thus promotes the integration of all children in the same classroom with the proper assistance and accommodation. It also promotes collaboration between educators, parents, and other professionals.

2.1. Inclusive Education: International Jurisprudence

Although it makes no specific mention of people with disabilities, the 1948 UN Declaration (Art, 26) established the groundwork for the right to education by declaring that "everyone has the right to education." However, it establishes the standard for equitable, nondiscriminatory access to education. It emphasises that education should aim to promote respect for human rights and freedoms, along with the holistic development of each individual. The Convention on the Protection of Cultural, Social, and Economic Right (Art.13) reassures that every individual can claim education as a right and emphasises how crucial it is that education be available to everyone, especially to those who are disadvantaged and at risk, such as people with disabilities.

Every child's right to education is guaranteed by the Convention for the Protection of the Child (Art.28). It acknowledges the right of children facing disabilities to special care, additional backing and education that promotes their dignity and full inclusion (Art. 23). In 1994, UNESCO adopted a statement in Salamanca that is regarded as a significant shift in international educational policy. It said that all students, regardless of their linguistic, social, emotional, intellectual, physical, or additional difficulties, schools should make accommodations for them. It promoted the view that inclusive education is the most effective means to challenge discriminatory attitudes, foster inclusive communities, and enhance the efficiency of educational institutions. The Salamanca Statement is a significant policy document that is supported by numerous nations, including India, despite not being a legally binding agreement.

In 2006, the UN enacted a convention to particularly protect the rights of people facing disabilities, which requires State Parties to ensure the full and equal enjoyment of all human rights by individuals facing various disabilities. The convention in 2006 acknowledged a number of their rights and began to view them as subjects with rights rather than as recipients of medical care, social protection, or charitable donations. They are regarded as individuals with the capacity to stand up for their rights, make life decisions, and actively engage in society.

The convention explicitly stated its intention to promote respect for freedoms,

human rights, and human diversity as well as the complete development of human dignity and self-worth to guarantee their successful participation in society and to completely develop their character, skills, inventiveness, and physical and mental well-being (Art.24(1)). Furthermore, the Convention mandates state parties to guarantee that differently abled people are not denied access to mandatory, free secondary or primary education, nor are they excluded from the general education system. Like everyone else, they enjoy equal access to admirable, inclusive, and cost-free education at secondary and elementary level.

For them to receive an effective education, the State should offer the support they need through the general education system, including accommodation and tailored support programs that optimise their social and intellectual growth. In order to support their full and equal involvement in education and as community members, it also helps people with disabilities acquire life and social development skills (Art. 24(3)).

The state must take appropriate measures to achieve these objectives, including supporting the linguistic identity of the deaf community, encouraging mentoring and peer support, promoting the learning of sign language, and ensuring access to Braille, alternative scripts, formats, communication methods, orientation, and mobility skills. Furthermore, state parties are obligated to ensure that education for individuals and children who are blind, deaf, or deaf blind is delivered using the languages and communication methods best suited to each person, in environments that foster both social and academic development.

The states must also take the required actions to train professionals and personnel who work at all educational levels, as well as to hire teachers who are certified in Braille and sign language, particularly teachers with disabilities (Art. 24(4)). This kind of training must cover disability awareness, the use of appropriate augmentative and alternative forms of communication, instructional strategies, and resources to serve people with disabilities. States Parties are required to ensure that people with disabilities can engage in lifelong learning, general tertiary education, vocational training, and adult education on an equitable basis and without discrimination. States Parties are required to ensure that individuals with disabilities have appropriate accommodations in order to accomplish Art. 24(5).

The UNCRPD represents a dramatic change from a charity-based strategy to a rights-based approach, as well as from segregation to inclusion. Goal 4 of the UN 2030 Agenda for Sustainable Development states that everyone should have access to inclusive, high-quality education and chances for lifelong learning. It seeks to remove educational inequalities, especially those affecting people with disabilities, and it highlights the necessity of renovating and constructing child-sensitive -disability and gender based educational amenities (Target 4.A., 4.5) The SDGs represent a worldwide commitment to attaining inclusive education by 2030, despite the fact that they are not legally obligatory.

Despite its lack of legal force, the SDGs represent a worldwide pledge to attain inclusive education by 2030.

3.1. Constitutional Protection

In India, every child from six to fourteen years old are acknowledged to have the fundamental right to education. Within the limits of its financial resources, it directs the State to put in place efficient procedures to ensure that everyone including disabled has the right to education and assistance (Constitution of India, Art. 41) It requires the state to advance the educational goals of the underprivileged, including those with impairments (Art. 46). As a result, the state has an obligation to provide them with free, mandatory education that does not discriminate based on their disability. Furthermore, parents have a fundamental obligation to give all children, including those with disabilities, access to school (Art. 51A).

However, because of ingrained social stereotypes, inaccessible infrastructure, and poor policy execution, access to education continues to be a challenge for those with physical disabilities. Access to educational institutions is only one aspect of the physically disabled person's right to education; other aspects include equal opportunities, inclusive settings, and the removal of any obstacles that stand in their way.

4.1. Legal Framework

Since it lays out the framework, establishes entitlements, channels resources, and clarifies and even articulates policy, legislation plays a crucial position in guarding the education rights of differently abled young people. Without appropriate legislation, it is difficult to accomplish the objectives (Singh, 2008). A rights-based approach to disability is adopted by the historic 2016 Act. It reframes education as a right rather than a charity or welfare program, and one of its fundamental tenets is the protection and advancement of inclusive education for people with disabilities. Children with disabilities were included in the 2012 modification to the RTE Act, which acknowledged their eligibility for free and mandatory education under the Act.

4.1.1. Guaranteeing non-discrimination

In order to guarantee a dignified existence free from discrimination, the laws grant people with disabilities a number of rights and entitlements. Like everyone else, disabled people have the right to claim equality, to lead a dignified life, and to be treated with integrity (2016 Act, Sec 3). As a result, their personal freedom shouldn't be restricted or subjected to prejudice because of their impairment. The government ought to act to make the most of these individuals' abilities and guarantee that they are accommodated in a suitable manner.

The 2016 Act establishes inclusive education as a right, defines the term in a way that benefits students with disabilities, guarantees their ability to learn alongside one another, and instructs the system to be adaptable to meet their various learning requirements (Sec. 3). Every disabled kid has the claim of free, mandatory primary education at a local school, under the RTE Act. Additionally, children with disabilities who were not accepted into school at the proper age are entitled to special education. By recognising children with disabilities as part of a disadvantaged group, private unaided schools are mandated to reserve 25% of their entry-level seats for them (RTE Act, Sec.12(1)(c)). The 2016 Act requires that all students receive vocational training without discrimination and that

curricula and instructional strategies should be created to meet each student's needs (Sec. 31). It is the right of disabled children to get the assistance they require to partake in the educational process and should not be charged any fees. People with baseline disabilities are granted a five percent reservation in all government and government-aided higher education institutions (2016 Act, Sec. 32).

4.1.2. Role of Educational Institutions

All educational institutions under government or local authority jurisdiction are required by the 2016 Act to offer inclusive education for differently abled. They are receptive to reasonable accommodation and tailored help, and they must admit them without discrimination. The government should guarantee that these schools have easily accessible buildings, campuses, and facilities. Equal opportunities for education, sports, and leisure should be offered. All government-controlled or locally controlled educational institutions are required by the 2016 Act to support all initiatives and offer services to guarantee inclusion as a means of overcoming impairments. They must accept them without discrimination and respond to personalised assistance and acceptable accommodation. The government should make sure that these schools have facilities, campuses, and buildings that are easily accessible. Equal opportunities should be given to education, sports, and leisure (2016 Act, Sec. 16).

4.1.3. Responsibilities of the Government or Local Authorities

In order to identify children with impairments and determine and address their specific needs, the government and local authorities are required to survey school-age children every five years. To promote inclusive education, they must set up a sufficient number of resource centers and teacher training institutes in addition to providing personnel and professional development. They ought to encourage the use of appropriate communication formats, alternate modes, and other tools that allow them to engage with their community. Until the age of eighteen, students with qualifying disabilities should be eligible for free scholarships, books, other educational resources, and suitable assistive technology. To satisfy their demands, appropriate changes should be made to the curriculum and testing procedures, and research should be encouraged to enhance learning (2016 Act, Sec. 18). The government should offer policies and initiatives to help people with disabilities find work, particularly for self-employment and vocational training (Sec. 19). The government should encourage and guarantee that differently abled people engage in adult education and continuing education programs on an equal basis with everyone else (Sec. 18).

4.1.4. Redressal Mechanisms at National and State Level

The ongoing creation of an all-encompassing policy for the full enjoyment of rights and empowerment of individuals with disabilities will be facilitated by the Central and State Advisory Boards on Disability. All government departments or organisations and other non-governmental establishments that deal with issues pertaining to people with disabilities have their operations reviewed and coordinated by the Board. In addition to monitoring and assessing the effects of programs, legislations, schemes, and policies intended to accomplish their complete involvement,

the Boards have the authority to suggest actions to guarantee accessibility, reasonable accommodation, and nondiscrimination in services (2016 Act, Sec. 65-66).

In addition to taking corrective action, the Central Government-appointed Chief Commissioner is empowered to conduct an investigation, suo motu, or in response to a complaint regarding the denial of rights to individuals with disabilities and to protect those rights in relation to matters under the Central Government's jurisdiction. It has the authority to assess the protections offered by this Act and other laws, as well as the things that prevent people from exercising their rights, and it can suggest certain measures to ensure that they are implemented effectively.

Within three months of receiving the recommendation, the responsible authority must take the required action and notify the Chief Commissioner of it; if it fails to do so, it must explain to the Chief Commissioner and the person who was wronged why the recommendation was not accepted. The system offers time-bound corrective measures. In cases where the state government is the competent government, the state commissioner also has comparable authority (2016 Act, Sec. 80-81). In order to expedite the resolution of matters under the Act, the Court of Sessions may be designated as the special court. (Sec. 84).

5.1. Policy Initiatives

In order to promote inclusion, accessibility, and empowerment for people with disabilities, the Department of Empowerment of Persons with Disabilities is essential in developing policies, programs, and projects. It created a number of scholarship programs for students with disabilities to take entrance exams for admission to different technical and professional programs as well as recruiting exams for Group A, B, and C positions. e.g. Pre-matric Scholarship (Class 9, 10), Post-matric Scholarship (Diploma, Degree, PG, Class XI), Top Class Education for Diploma, Degree and Post-Graduate Degree in notified institutes of excellence in education, National Overseas Scholarship to PG and Ph. D students in various foreign Institutions/Colleges/Universities, Free Coaching etc. The Accessible India Campaign was introduced to improve accessibility in public infrastructure and transportation systems, aiming to establish barrier-free environments. This initiative supports the fulfillment of several objectives outlined in relevant legislation. Moreover, ensuring such accessibility is crucial for enabling people with disabilities to realise their full potential and live with dignity, thereby fostering a more equitable and inclusive society.

The government also implemented a unique disability ID card in order to establish a national database for people with disabilities nationwide. The primary goal of this initiative is to promote efficiency and transparency in the system that provides government benefits to people with disabilities.

5.1. Challenges in Implementation

There are still numerous obstacles in spite of robust international frameworks such as

- Insufficient infrastructure and resources for inclusive education.
- A shortage of assistive technology and qualified educators.
- Discrimination and social stigma.
- Weak enforcement procedures.

6.1. Conclusion

According to Article 21A, every child from six to fourteen years has the right to free, compulsory education as a basic right. People with disabilities are likewise entitled to this privilege. Their socioeconomic empowerment depends on this. They require extra care and attention when receiving education in order to reach their full potential. As a result, special schools were created for them. Initially, the goal of the law was to enable them to live in society alongside other people, guaranteeing them equality of status and full involvement. People with disabilities were recognised and granted special rights by the United Nations Convention in 2006, along with an Optional Protocol proposed to State Parties. Following that, they were acknowledged as people with rights rather than as recipients of medical care, social protection, or charitable donations. They are able to make life decisions and actively engage in their social lives as a result. The Persons with Disabilities Act of 2016 was passed by Parliament in order to carry out the goals of this Convention. This Act grants everyone the same rights to equality, respect for their integrity, and a dignified life. In order to fulfill the rights and entitlements of disabled people, particularly with regard to inclusive education, the Act also places several requirements on educational institutions, governments, or local authorities. The 2016 Act also calls for the establishment of advisory committees to oversee and plan the operations of all departments of government as well as other non-governmental or governmental organisations. The Chief Commissioner is also tasked with addressing the denial of disabled people's rights and ensuring that the Act is implemented effectively. To guarantee their accessibility and empowerment, the Department of Empowerment of Persons with Disabilities has launched a number of educational initiatives. As a result, these methods are used to list and safeguard individual rights, including those related to education. Instead of referring to them as disabled, society today embraces them as differently abled people. Additionally, they are entitled to all fundamental human rights.

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READING COMPREHENSION IN MALAYALAM AMONG SECONDARY SCHOOL STUDENTS IN KERALA

Dr. Abdul Gafoor K.* & P. Nisha**

Abstract

The Indian Knowledge System (IKS) places significant emphasis on the learning of the mother tongue, recognising it as the foundation for cognitive development, cultural identity, and holistic education. Reading comprehension in the mother tongue is a complex mental process that involves active interaction between the reader and the text, enabling the extraction and construction of meaning from written language.

As part of a pilot study, 50 students were selected from government and aided schools. A reading comprehension assessment tool comprising 20 multiple-choice items was developed, drawing from curricular materials, textbooks, and teacher handbooks. The tool was designed to assess various dimensions of reading comprehension.

The results revealed a score range of 25% to 75% across lexical, syntactic, semantic, and grammatical comprehension skills. Notably, the level of grammatical comprehension was lower in comparison to the other domains. Approximately 30% of the students scored below 50% of the total score, indicating significant gaps in overall reading proficiency.

Semantic comprehension scores were comparatively higher, possibly due to the instructional strategies embedded within the curriculum. However, the findings underscore the need for structured and targeted interventions to strengthen reading comprehension skills across all linguistic domains.

Key Terms**:** *Reading comprehension- lexical, syntactic, semantic and grammatical*

Introduction

Reading comprehension in the mother tongue is a cognitively demanding process that involves interactive engagement between the reader and the text, enabling the extraction and construction of meaning from written language. Various linguistic components—namely lexical, syntactic, semantic, and grammatical comprehension—play a pivotal role in understanding the structure and meaning

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of texts. These components collectively support the formation of coherent mental models, which are essential for deep and effective comprehension.

At the secondary school level, ensuring proficiency in reading comprehension in Malayalam is particularly critical, as students have already completed their foundational education in the mother tongue. The National Education Policy (NEP) 2020 underscores the importance of mother tongue-based learning, emphasising its contribution to cognitive development and academic achievement. Within this framework, the present investigation highlights the necessity of assessing and enhancing reading comprehension skills among secondary school students to strengthen their linguistic competence and cognitive growth in alignment with contemporary educational and pedagogical standards.

Reading comprehension is foundational to academic success across subject areas at the secondary level. Proficient reading skills enable students to analyze, synthesize, and interpret information—abilities that are indispensable for advanced learning and critical thinking. Research further suggests that explicit instructional strategies, such as the development of metacognitive awareness and the integration of Information and Communication Technology (ICT) tools, can significantly improve students' reading comprehension.

In this study, the investigator focuses on evaluating the students' reading comprehension through the lens of four key linguistic dimensions: lexical, syntactic, semantic, and grammatical comprehension. The aim is to gain a nuanced understanding of students' reading abilities and to inform future pedagogical interventions that promote comprehensive literacy development.

Need and significance

The reading comprehension difficulties faced by secondary school students span multiple linguistic dimensions, including lexical, syntactic, semantic, and grammatical challenges. These issues arise from a confluence of factors such as limited vocabulary, low motivation, and insufficiently effective instructional strategies. Understanding these barriers is essential for designing and implementing targeted interventions to improve students' reading comprehension skills**.**

Vocabulary deficits significantly impair students' ability to understand and engage with texts. Many learners struggle with poor vocabulary acquisition, which directly limits their comprehension abilities (Nanda & Azmy, 2020). Furthermore, lexical errors—particularly those involving collocations—highlight students' limited mastery of word relationships, affecting both comprehension and expression (Taiwo, 2001).

Syntactic complexity also poses significant challenges. Students often find it difficult to process and interpret complex sentence structures, which can lead to misinterpretation of the intended meaning of the text (Fulguerinas, 2024). Additionally, inadequate knowledge of grammatical conventions contributes to comprehension difficulties, as errors in grammar can distort sentence meaning and impede understanding (Taiwo, 2001).

Inferencing skills are another area of concern. Many students struggle to predict outcomes or infer meaning from context, which affects their ability to construct a coherent understanding of the text (Islam & Das, 2023). Moreover, limited access to diverse reading materials reduces students' exposure to a variety of semantic contexts, further hindering the development of robust comprehension skills (Islam & Das, 2023).

In light of these findings, the present investigation seeks to identify gaps in specific reading comprehension skills—lexical, syntactic, semantic, and grammatical—in Malayalam among secondary school students. By diagnosing these skill deficits, the study aims to inform future pedagogical strategies that can effectively support language learning and literacy development at the secondary level.

Objectives

The study aims to examine the reading comprehension abilities of secondary school students in Malayalam. The specific objectives are as follows:

- To assess the general reading comprehension proficiency in Malayalam among students of Grades 8, 9, and 10.
- To determine the status of specific language skills related to lexical, syntactic, semantic, and grammatical aspects of reading comprehension in Malayalam.
- To propose evidence-based strategies for enhancing reading comprehension skills in Malayalam among secondary school students.

Review of literature

A competent reader typically possesses *schematic knowledge*—that is, prior knowledge related to a particular topic or content area, acquired through real-world experiences or logical reasoning. This knowledge, stored in long-term memory, plays a pivotal role in the process of reading comprehension. Readers interpret new information by linking it to pre-existing knowledge structures or *schemas*. As Cook (1997) notes, "People understand new experiences by activating relevant schemas in their minds" (p. 86). During reading, individuals make assumptions based on these existing schemas, and in the absence of such schemata, comprehension can become challenging and often frustrating.

Various empirical studies support the importance of background knowledge in reading comprehension. Bohol (2024), in her article *Reading Comprehension of Key Stage 2 Learners*, reported that learners at the instructional level exhibited low reading comprehension performance, largely due to limited vocabulary and weak word recognition skills. The findings underscored the need for customized reading programs and the development of localized instructional materials to improve comprehension outcomes in children.

Dr. Gafoor and Remia (2013), in their study on lower primary students in Kerala, suggested that reading comprehension in Malayalam is significantly influenced by morphological awareness, phonological awareness, and non-verbal cognitive abilities. These cognitive-linguistic factors collectively accounted for nearly one-third

of the variation in reading comprehension scores among elementary learners.

Further evidence of reading challenges among children in Kerala is presented by Bhakta et al. (2002), who found that 8.2% of children aged 8–12 exhibited reading difficulties. The study also revealed a higher prevalence of reading challenges among boys, which were associated with socio-economic factors such as poverty and parental education levels.

At the secondary level, Sultan Singh and Kusum (2022) conducted a study titled *Assessment of Difficulties in English Reading Comprehension and Expressive Writing among Secondary School Students in Relation to Their Attitude Towards English*, which explored the relationship between students' reading comprehension difficulties and their attitudes towards learning English. The findings revealed that more than half of the students experienced an average level of difficulty in reading comprehension, one-third faced below-average difficulty, and a smaller proportion encountered high to very high levels of difficulty. A negative and significant relationship was observed between students' reading comprehension difficulties and their attitudes toward English—specifically in terms of desire to learn, academic confidence, perceived usefulness, and perceived difficulty related to teachers and curricular factors. While this study focused on English, the trends and implications may be similarly applicable to reading comprehension in Malayalam.

Taken together, these studies emphasize the multifaceted nature of reading comprehension and highlight the critical role of both cognitive and socio-linguistic factors. These findings further underscore the importance of assessing specific reading skills and adopting contextually relevant instructional strategies to enhance reading comprehension outcomes among learners.

Methodology

The secondary school curriculum—including teacher handbooks and textbooks—was systematically analysed to identify activities related to reading comprehension. From this analysis, 20 learning outcomes were selected, representing lexical, syntactic, semantic, and grammatical components of reading comprehension across Grades 8, 9, and 10. Based on these outcomes, a set of objective-type questions was developed to assess students' proficiency in each of these four specific language skills.

To evaluate the effectiveness and reliability of the assessment tool, a pilot study was conducted among students in Grades 8, 9, and 10. A sample of 50 students from each grade was selected from government and aided schools in the districts of Malappuram, Kozhikode, and Kannur, ensuring gender representation and geographical diversity. The primary aim of the study was to assess reading comprehension across the four identified linguistic domains: lexical, syntactic, semantic, and grammatical.

Data Analysis

The reading comprehension tool was administered to the selected sample, and students' response sheets were carefully analysed. Individual scores for each question were recorded for all 50 students in each grade. The total scores obtained in

reading comprehension were compiled and are presented in Table 1. To interpret the results, a percentage analysis was employed to determine the proportion of students demonstrating proficiency in each specific reading skill.

Table 1

Reading Comprehension Among Secondary School Students

Score range	8th standard	9th standard	10th standard
1-4	0	0	0
5-8	9	0	4
9-12	17	25	25
13-16	24	25	19

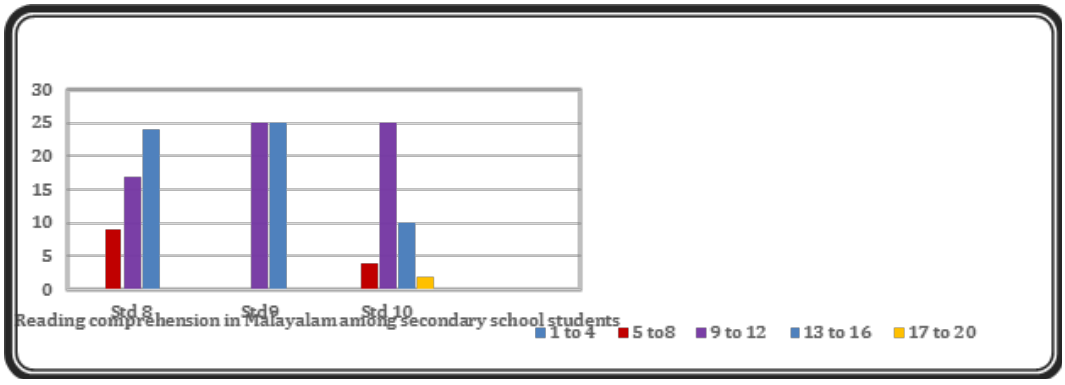

Figure 1

An analysis of the reading comprehension scores of secondary school students revealed that the majority of students in Grades 8, 9, and 10 scored within the range of 9 to 16 marks. Notably, no students in Grades 8 and 9 scored below 20 percent. However, 8% of students in Grade 10 and 18% of students in Grade 8 demonstrated lower levels of reading comprehension performance. These findings indicate a need for targeted instructional interventions. Specifically, structured and engaging activities should be designed and implemented to enhance reading comprehension skills in Malayalam, particularly for students exhibiting below-average performance**.**

Table -2

Percentage of specific language skills in reading comprehension

Specific Language skills	8th standard %	9th standard %	10th standard %
Lexical	52.50	62.5	53.5
Syntactic	77.33	51.33	83.33
Semantic	55	64	63.6
Grammatical	46.6	66	49.3

Table 2 and the corresponding Figure 2 present the distribution of scores across the four specific reading comprehension skills in Malayalam: lexical, syntactic, semantic, and grammatical comprehension. Analysis of Table 2 indicates that syntactic comprehension is the most well-developed skill among secondary school students, with the highest recorded performance at the 10th standard level (83.3%). In contrast, grammatical comprehension demonstrates the lowest level of proficiency, particularly among 8th standard students, with an achievement rate of only 46.6%.

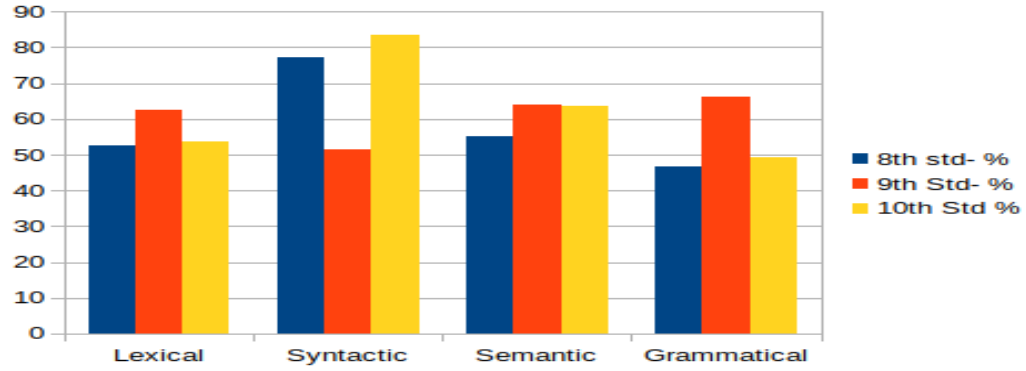

Figure 2

Further examination of Figure 2 supports these findings, showing that syntactic comprehension consistently outperforms the other specific language skills across all grades. Grammatical comprehension reflects comparatively lower achievement in all three standards. The data suggest that syntactic and semantic comprehension are relatively stronger among secondary school students, whereas lexical and grammatical comprehension appear to be less developed.

This trend may be attributed to the instructional practices commonly employed in language classrooms, where passage-based reading activities tend to emphasize syntactic and semantic understanding over focused instruction in vocabulary development and grammatical accuracy. These findings highlight the need for a more balanced approach that systematically addresses all dimensions of reading comprehension.

Major Findings

The present study attempts to assess and explain the overall status of reading comprehension in Malayalam among secondary school students.

- The analysis indicates that the general percentage of reading comprehension performance in Malayalam is appreciable across Grades 8, 9, and 10. However, despite the fact that students have been learning Malayalam since the early years of schooling, there remains a need to enhance their overall reading comprehension abilities, especially in specific domains.
- Among the four language sub-skills examined, syntactic comprehension was found to be relatively high across all standards. This can be interpreted as an indicator of stronger linguistic processing skills, likely influenced

by the syntactic patterns reinforced through classroom instruction. In contrast, lexical comprehension—which forms the foundational layer for all other comprehension processes—revealed lower achievement levels, indicating deficiencies in vocabulary knowledge and reading exposure.

- The comparatively higher performance in semantic comprehension may be attributed to the nature of classroom strategies and the design of the Kerala curriculum, which emphasizes understanding meaning from context and encourages passage-based reading.

Suggestions

- Although the overall reading comprehension in Malayalam among secondary school students is commendable, focused interventions are needed to strengthen lexical comprehension, which underpins all other language processing skills.
- Contextual vocabulary-building exercises should be integrated into regular classroom activities to enhance students' word knowledge and usage.
- Dedicated time slots for self-reading and reflective assessment using Malayalam literary texts can be encouraged to promote reading fluency and deeper comprehension.
- Teacher empowerment programmes should be organised to familiarize educators with reading comprehension tools, assessment techniques, and effective pedagogical strategies aligned with the linguistic needs of students.

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