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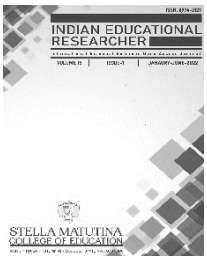

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EDITORIAL

Education today is undergoing a profound transformation. As the world rapidly evolves, the expectations from learners, teachers, and educational institutions continue to rise. Learning is no longer confined to textbooks; it now embraces personal growth, emotional stability, technological adaptability, and responsible citizenship. In this context, the role of research becomes vital, for it provides clarity, direction, and meaningful insights for improving teaching–learning processes. This issue of the *Indian Educational Researcher* brings together research and conceptual articles that explore significant aspects of contemporary education.

Dr. Sr. S. Nirmala Grace Rani's study on **Learning Style in relation to Test Anxiety among XI Standard Students** provides valuable insights into how individual learning preferences influence emotional and academic outcomes. Understanding these learner differences is essential for creating supportive classroom environments. Ms. S. Parameshwari and Dr. A. Arockia Elizabeth Josephine present a **Multi-Dimensional Perspective on Learning Satisfaction in Secondary Education**, highlighting the factors that shape students' satisfaction and engagement. Their findings emphasize the need for holistic educational practices that address cognitive, emotional, and environmental dimensions.

The research article by Ms. Steny Thomas and Dr. K. Mangai addresses **Environmental Awareness**, a topic of pressing global concern. Their work underscores the importance of sustainability education and the need to instill ecological responsibility among young learners. Among the conceptual articles, Dr. B. Annapoorani discusses the **Role of Parents in Drug Awareness of School Children**, reminding us that home and school must work together to build healthy, informed, and safe future citizens.

Mrs. Selvi Anita Mary. G contributes a thoughtful article on **Teacher Competence and Pedagogical Innovations in STEM Classrooms**, stressing that quality teaching and innovation are the cornerstones of 21st-century education. We extend our sincere gratitude to all the authors for their scholarly contributions. Their work enriches the academic community and supports the mission of Stella Matutina College of Education to foster excellence in teaching, research, and innovation.

We invite researchers, educators, and scholars to continue submitting reflective, empirical, and conceptual works to this journal. Articles focusing on emerging issues in education, transformative pedagogies, technology integration, and holistic development are highly encouraged.

Editorial Board

Research Article

Learning Style in relation to Test Anxiety among XI Standard Students

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ABSTRACT

This study investigates the connection between XI Standard Students' learning styles and test anxiety. With a growing recognition of how individual differences impact educational outcomes, understanding this dynamic is crucial for educators and policymakers. The research employed a mixed-methods approach, utilizing surveys to assess students' preferred Learning Styles and standardized measures to evaluate Test Anxiety levels. The findings indicate significant correlations between certain Learning Styles specifically Visual and Kinesthetic learners and elevated levels of Test Anxiety. This paper discusses the implications for teaching strategies and the need for tailored interventions to support students in managing anxiety and optimizing their learning experiences. The sample for this study comprised 300 XI standard students. The study revealed no significant difference in learning style with respect Gender and Stream of Study. Similarly, there was no significant difference in Test Anxiety with respect to Gender and Stream of Study.

***Keywords*:** Learning Styles, Test Anxiety, Student Performance, Academic Stress, Individual Differences, Anxiety Management

Introduction

Education and learning form the foundation of intellectual and personal growth, shaping students' academic and emotional development. Modern education focuses on nurturing inherent abilities within a social environment, moving away from traditional rote learning. Understanding diverse learning styles - visual, auditory, kinesthetic, and more is

crucial for educators, as these preferences impact how students absorb information and cope with challenges, including test anxiety. When learning methods align with students' styles, they build confidence and reduce stress. Conversely, mismatches can heighten anxiety. By fostering adaptive learning strategies, offering feedback, and promoting resilience, educators can help students thrive academically and emotionally.

Learning and the Learning Process

Learning is a continuous and dynamic process that shapes individuals' knowledge, skills, behaviors, and attitudes. It involves acquiring new information or modifying existing knowledge through experience, practice, or training. Psychologists define learning as a "relatively permanent change in behavior" brought about by repeated exposure to experiences.

The learning process is not uniform; students have different learning styles such as visual, auditory, or kinesthetic that influence how they best absorb and retain information. Effective learning involves engagement, reflection, and adaptability, ensuring that individuals can apply what they learn to real-world situations. By understanding this process, educators can better cater to students' needs, fostering both personal and intellectual growth.

Learning Style

Learning style refers to an individual's preferred way of receiving, processing, and retaining information. It reflects how students best absorb new knowledge and engage with educational content. Understanding learning styles is crucial for tailoring educational approaches to meet the diverse needs of students, enhancing both engagement and academic success.

Here are the common types of learning styles:

1. **Visual (Spatial) Learners**: Prefer using images, diagrams, charts, and other visual aids to understand concepts.
2. **Auditory (Aural) Learners**: Learn best through listening to lectures, discussions, and audio materials.
3. **Reading/Writing Learners**: Favor learning through written words, reading texts, and note-taking.
4. **Kinesthetic (Physical) Learners:** Prefer hands-on activities, experiments, and movement to grasp new concepts.

Recognizing these styles allows educators to adopt a more flexible and inclusive teaching approach, accommodating different learning preferences**.**

Test Anxiety

Test anxiety is a psychological disorder causing extreme distress and discomfort during exams, affecting students' performance and well-being. While some anxiety can sharpen focus, excessive anxiety can hinder concentration and memory, leading to poor test results. It is characterized by fear of failure, worry, tension, and self- deprecating thoughts. This condition can make students feel overwhelmed either before or during an exam, often referred to as situational or evaluation anxiety. Sadly, extreme cases of test anxiety have led to tragic consequences, with some students experiencing severe emotional distress, and even suicidal thoughts, highlighting the urgent need to address this issue.

Need and Significance of the Study

Learning styles significantly influence how students absorb, process, and retain information. Understanding individual learning styles can help tailor educational approaches, making learning more effective and engaging. At the same time, test anxiety is a common issue among students, which can impair academic performance, mental well-being, and self-confidence. XI standard is a crucial stage for students as they face increased academic pressures and prepare for board exams. Test anxiety, if left unaddressed, can hinder their academic success and overall development. Insights from the study can guide teachers and institutions to adopt differentiated instruction methods that cater to diverse learning styles, thereby reducing test anxiety and improving student performance. Students who understand their learning styles and manage test anxiety will be better prepared to face future academic challenges and competitive exams with confidence.

Review of Related Literature

Learning Style

Padmavathi and Sunny (2011) conducted study on a relationship between learning environment and learning styles of the standard IX pupils of Kundapur Taluk in Udupi Dist. The sample selected for the study consisted of 400 students of IX standard. There were 200 boys and 200 girls in the sample. The tool was used to in the present study rating scale was

constructed by the investigator was used to measure the learning style among the students of standard IX.

Major findings of the study were:

- Urban and rural school did not differ significantly in their learning style.
- There exist a positive relationship between the learning environment and learning style of pupils of standard IX.

Mahdi and Zahed-Babelan (2010) conducted a study on the role of learning styles in second language learning among distance education students. The objective of the study was to find out learning style among distance education students. The sample consisted of 112 - English language students of Payame Noor University (PNU), Ardabli center, Iran. Memletics questionnaire was used as a tool for the study. The major find of the study was that listening, writing structure and reading mean scores of students with different learning styles was different significantly.

Amirtharaj and Jesudoss (2010) conducted a study on Learning styles and academic achievement of X standard students. The survey adopted for the study. A sample of 200 X standard students form seven schools Virudhunagar Educational District was selected. A General data Sheet and learning style inventory were used as tools. Percentage analysis 't' test were the statistical techniques used.

The major findings were

- The level of learning styles and their dimensions in X standard students with regard to sex is average.
- There is no significance difference between boys and girls in their learning style.
- There is no significance difference rural and urban students in their learning style.

Test Anxiety

Alam (2013) conducted how test anxiety and self-esteem affect academic performance. Three hundred and twenty randomly selected students of class 12 of the government inter colleges in Darbhanga town were involved in the study. They were asked to complete the Test Anxiety Inventory (Spielberger et al., 1980) and the Coppersmith Self-Esteem Inventory (Coppersmith, 1987) in a classroom environment during regular school hours. Their aggregate marks of 11th class were also collected. The data were then analyzed using descriptive, co-relational and

inferential statistics. The study discovered that overall (i) low test anxiety students (boys, girls, rural and urban) had higher academic performance than high test anxiety students (boys, girls rural and urban); (ii) there is a positive relationship between self-esteem and academic performance of the students (boys, girls, rural and urban); (iii) there is a negative relationship between test anxiety and self-esteem of students (boys, girls, rural and urban); (iv) boys have least test anxiety, better self-esteem and better academic performance than girls; and (v) urban students have least test anxiety, better self-esteem and excellent academic performance in comparison to their rural counterparts.

Olatoye (2013) investigated the relative and combined influences of test anxiety and motivation for examinations on science achievement of selected Junior Secondary School students in Ogun State, Nigeria. Twelve secondary schools were randomly selected from the list of secondary schools in all the four divisions of Ogun State. A sample of three hundred and sixty students selected from twelve schools participate in the study. Three instruments were used to collect data. Test anxiety and motivation for examinations accounted for 14.6% of the total variance in science achievement. (R square = 0.146, $P<0.05$). This percentage is statistically significant. There is negative significant relationship between test anxiety and science achievement ($r= -0.228$, $P<0.05$) and positive significant relationship between motivation for examinations and science achievement ($r=+0.333$, $P<0.05$). Teachers and counselors should motivate students for examinations by providing necessary materials and equipping them with techniques of tackling questions.

Abbas, Zahra and Ehsan (2013) attempted to investigate the relationship between Test Anxiety (TA) and Listening Comprehension (LC) among EFL learners of Shahid Bahonar and Islamic Azad universities of Kerman. Gender was taken into account, regarding males and females use of TAS. 97 Iranian EFL students studying at Shahid Bahonar and Islamic Azad universities of Kerman took part in this study. The students were junior and senior students majoring in English Translation and English Literature. To achieve the required data the following scales were capitalized on Sarason's (1975) test anxiety scale (TAS) and a 50-item listening test taken from Longman Complete Course for the TOEFL Test. The findings revealed that there was a significant negative relationship between TA and LC. Furthermore, it was revealed that female subjects were more test anxious that their counterparts. In sum, TA yielded a negative relationship with LC with the female subjects being more test anxious.

Objective of the Study

To examine the difference in the Learning Style and Test Anxiety of XI Standard Student owing to the difference in Family Type and Types of School.

Hypotheses

- There is no significant difference in their Learning Style owing to the differences in Family Type.
- There is no significant difference in their Learning Style owing to the differences in Types of School.
- There is no significant difference in their Test Anxiety owing to the differences in Family Type.
- There is no significant difference in their Text Anxiety owing to the differences in Types of School.

Tools Used for the Study

The data for the current study was gathered using the following Inventory

- The Inventory of Perceptual Learning Styles by J.M. Reid.
- Test Anxiety scale collected from Student Learning Assistance Center (SLAC) counselor and Student Learning Assistance Center (SLAC) Lab.
- Personal data sheet prepared by the investigator.

Methodology

The current study is a descriptive study on "Learning Style in relation to Test Anxiety among XI Standard Students in Chennai" with the variable of Gender and Stream of Study in Chennai district.

The Learning style inventory consist of 30 statements top assert the differential preferences for the five modes of learning (5 statements each for auditory and visual modes, 7 statement each for kinesthetic / tactile and individual Learning modes, 6 for group learning modes); the details of which are presented below showing the items under different perceptual modes of learning and social interaction learning styles.

Table: 1 Category of Learning and Item Numbers

Category of Learning Style	Item Numbers
Auditory	1,7,9,16,19
Visual	6,10,12,23,28
Kinesthetic / tactile	2,8,11,14,15,21,24
Individual learning	13,17,25,26,27,29,30
Group learning	3,4,5,18,20,22

Analysis and Interpretation of the Data

Hypothesis 1 There is no significant difference in their Learning Style owing to the differences in Family Type.

Table: 2 Table showing the difference in Learning Style of XI Standard Students owing to Family Type

Variable	Family type	N	Mean	Standard Deviation	df	t	Sig. level
Learning style	Joint	75	122.27	15.304	298	.395	.693
	Nuclear	225	121.53	13.44			

From the above table the significant value 0.693 is greater than 0.05 which is not significant at 5% level. So the null hypothesis is accepted. Hence there is no significant difference in learning style respect to Family Type.

Hypothesis 2

There is no significant difference in their Learning Style owing to the differences in Types of School.

Table: 3 Table showing the difference in Learning Style of XI Standard Students owing to Types of School

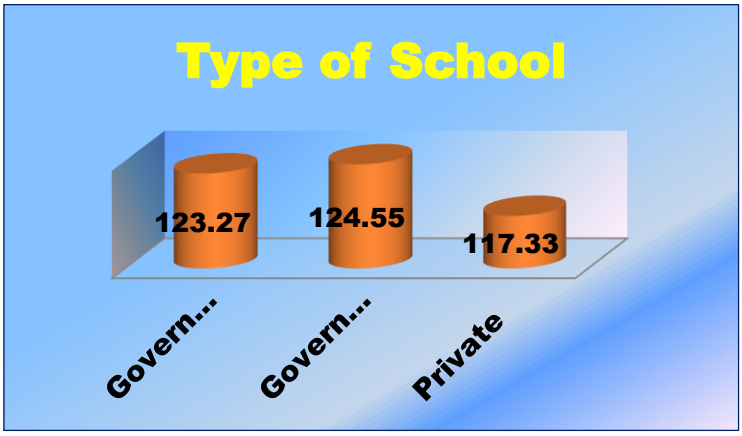
Variable	Type of School	N	Mean	Standard Deviation
Learning style	Government	100	123.27	14.203
	Government Aided	100	124.55	12.594
	Private	100	117.33	13.928

Table: 4 One-way ANOVA showing the difference in Learning Style of XI Standard Students with respect to Type of Schools.

Variable		Sum of Squares	df	Mean Square	F	Sig. level
Learning Style	Between Groups	2968.347	2	1484.173	8.032	.000
	Within Groups	54878.570	297	184.776		
	Total	57846.917	299			

From the above table the significant value 0.000 is less than 0.01 which is significant at 1% level. So the null hypothesis is not accepted. Hence there is significant difference in learning style with respect to Type of School favouring Government Aided School students.

Figure: 1 Bar Diagram Showing the Mean Difference in Learning Style of XI Standard Students with respect to Type of Schools



Hypothesis 3

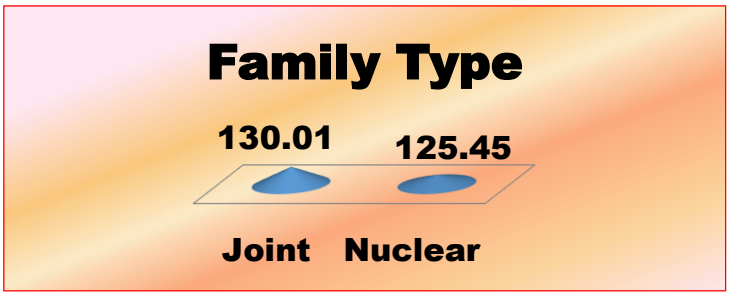
There is no significant difference in their Test Anxiety owing to the differences in Family Type.

Table: 5 Table showing the difference in Test Anxiety of XI Standard Students owing to Family Type

Variable	Family type	N	Mean	Standard Deviation	df	t	Sig. level
Test Anxiety	Joint	75	130.01	27.030	298	1.285	.200
	Nuclear	225	125.45	26.478			

From the above table the significant value 0.200 is greater than 0.05 which is not significant at 5% level. So the null hypothesis is accepted. Hence there is no significant difference in Test Anxiety with respect to Family Type.

Figure: 2 Bar Diagram Showing the Mean Difference in Test Anxiety of Higher Secondary School Students owing to Family Type



Hypothesis 4

There is no significant difference in Test Anxiety of XI Standard Students owing to the differences in Types of School.

Table: 6 showing the difference in Test Anxiety of XI Standard Students owing to Types of School

Variable	Type of School	N	Mean	Standard Deviation
Test Anxiety	Government	100	125.07	31.003
	Government Aided	100	133.12	23.629
	Private	100	121.59	23.537
	Total	300	126.59	26.645

Table: 7 One-Way ANOVA showing the difference in Test Anxiety of Xi Standard School Students with respect to Type of Schools

Variable	Type of School	Sum of Squares	df	Mean Square	F	Sig. level
Test Anxiety	Between Groups	6995.127	2	3497.563	5.06	.007
	Within Groups	205277.260	297	691.169		
	Total	212272.387	299			

From the above table the significant value 0.007 is less than 0.01 which is significant at 1% level. So the null hypothesis is not accepted. Hence there is significant difference in Test Anxiety with respect to Type of School favouring Government Aided.

Delimitations of the Study

- The sample is restricted to 300 students.
- The study is restricted only to XI Standard students.
- The study is restricted only to Six schools of Chennai.
- The study included only Government, Government Aided and Private schools.

Major Finding of the Study

- There is no significant difference in learning style respect to Family Type.
- There is significant difference in learning style with respect to Type of School favouring Government Aided School students.
- There is no significant difference in Test Anxiety with respect to Family Type.
- There is significant difference in Test Anxiety with respect to Type of School favouring Government Aided.

Education Implications of Present Study

- It is the goal of a teacher to establish a rapport with their students so that they will feel at ease approaching them for assistance.
- Teacher should provide suitable co-curricular activities for the enrichment of learning styles.
- It is important to encourage friendly relationships between teachers and students as well as between students.
- It is recommended that educational institutions and administrative bodies support students in utilizing the available learning resources to enhance their learning preferences.
- Schools need to develop a profile of each students learning style.
- Instructional materials must be developed to appeal to Visual, Auditory and Kinesthetic sensory modes.
- Collaborative learning should be included to improve learning style.
- Awareness programmes to parents to improve learning style of children.

Conclusion

The results of this investigation highlight the important connection between learning styles and test anxiety among XI standard students. Visual and kinesthetic learners, in particular, displayed heightened anxiety levels, suggesting that their preferred modes of learning may not align with traditional assessment formats. This highlights the necessity for educators to adopt differentiated instructional strategies that accommodate various learning preferences, thereby mitigating test anxiety and enhancing academic performance. Future research should further explore specific interventions tailored to diverse learning styles, aiming to create a more inclusive educational atmosphere that supports all students in managing anxiety effectively and achieving their full potential.

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Research Article

A Multi-Dimensional Perspective on Learning Satisfaction in Secondary Education

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Abstract

Learning satisfaction plays a crucial role in shaping students' academic engagement, persistence, and overall achievement. This study adopts a multi-dimensional perspective to examine learning satisfaction among secondary school students, focusing on four core dimensions: content relevance satisfaction, learning opportunities satisfaction, motivation satisfaction, and feedback and personal growth satisfaction. Using a sample of 350 students from government, government-aided, and self-financed schools, the research employed quantitative methods to analyze variations across demographic and institutional factors. Findings reveal significant differences in satisfaction levels across dimensions, highlighting the interplay between instructional practices, supportive learning environments, and student motivation. The study underscores the need for holistic educational strategies that address multiple aspects of the learning experience to enhance student satisfaction and success.

Keywords: Learning satisfaction, secondary education, motivation, feedback, content relevance, multi-dimensional perspective.

Introduction

Student satisfaction is often regarded as a short-term attitude that reflects learners' subjective assessments of how well their educational experiences meet or surpass their initial expectations (Elliot & Healy, 2001; Elliot & Shin, 2002). Since students develop a variety of expectations about their learning environment, researchers increasingly view satisfaction as a multidimensional construct, encompassing different aspects of the educational experience

(Hanssen & Solvoll, 2015; Jereb et al., 2018; Nastasic et al., 2019; Weerasinghe et al., 2017). Wu et al. (2015) note that learning satisfaction reflects the extent to which teaching and learning experiences positively influence the learner. Within educational institutions, it is widely regarded as a critical indicator of quality learning and a strong predictor of overall academic achievement (Rajabalee & Santally, 2021; Virtanen et al., 2017). Gonzalez Rogado et al. (2014) emphasize that satisfied learners tend to be more receptive to the teaching learning process, are more likely to achieve higher academic outcomes, and are less prone to discontinuing their studies. Conversely, low levels of satisfaction have been linked to poor academic performance and elevated dropout rates, as seen in Kenya's education system, where internal inefficiencies persist (James et al., 2016). Research by Oluoch and Gogo (2022) further indicates that public secondary schools continue to face challenges in achieving strong academic results.

Significance of the Study

In today's educational climate, higher secondary students face mounting academic pressure from entrance examinations as well as continuous assessments, internal tests, and board exams. While these evaluations measure achievement, they often leave students dissatisfied with the actual learning process. The present study views this issue through the lens of four key dimensions of learning satisfaction. Content Relevance, Learning Opportunities, Motivation, and Feedback and personal growth.

Many students perceive classroom content as disconnected from their real-life needs, interests, or career aspirations. Overloaded syllabi, outdated materials, and limited contextual examples reduce the meaningfulness of lessons, causing students to view learning as an obligation rather than an intellectually engaging activity.

Rigid teaching methods and time constraints often limit opportunities for interactive, exploratory, and hands-on learning. Students rarely get to engage in collaborative projects, discussions, or creative problem-solving tasks, leaving them with fewer chances to deepen understanding beyond textbook learning.

In a performance-driven environment, motivation is frequently linked to external rewards such as grades and rankings rather than intrinsic curiosity. The constant race for marks

diminishes enthusiasm for knowledge, and prolonged exposure to exam-oriented routines can lead to burnout, disinterest, and reduced self-driven learning.

Constructive feedback and recognition are essential to sustaining student satisfaction, yet many learners receive only evaluative scores without guidance for improvement. The absence of per sonalized support from teachers can make students feel undervalued, leading to frustration and disengagement.

By understanding learning satisfaction through these dimensions, this study aims to highlight areas where schools can improve. Ensuring content relevance, diverse learning opportunities, intrinsic motivation, and meaningful feedback can create a more engaging educational experience promoting not only academic performance but also a lifelong love for learning.

Objectives of the Study

- To ascertain whether there is any difference among higher secondary students in their Learning Satisfaction based on Gender.
- To ascertain whether there is any difference among higher secondary students in their Learning Satisfaction based on Medium of Instruction

Hypothesis

H1. There is no significant difference among higher secondary students in their Learning Satisfaction based on Gender.

H2. There is no significant difference among higher secondary students in their Learning Satisfaction based on Medium of Instruction.

Methodology

The researcher adopted the survey method to systematically gather information from higher secondary students regarding their learning satisfaction. This method enabled the researcher to collect data from a large number of participants in a structured manner using questionnaires. Through this approach, the study aimed to understand students' perceptions and experiences related to various aspects of learning, such as content relevance, learning opportunities, motivation, and feedback. The survey method provided quantitative insights that

helped in analyzing patterns and drawing meaningful conclusions about students' satisfaction levels.

Population and Sample

The population for the present study consisted of higher secondary students studying in schools located in Chengalpattu district. From this population, a sample of 350 students was selected for the investigation. These students were chosen to represent the larger group and to provide relevant data regarding their learning satisfaction. The sample size was considered sufficient to ensure the reliability and validity of the study findings while reflecting the diverse experiences of students across different schools in the district.

Tools

The Learning Satisfaction Questionnaire was specifically constructed by the investigator to assess the satisfaction levels of higher secondary students regarding their learning experiences. The questionnaire was developed after a thorough review of existing literature and relevant studies on student satisfaction.

Data Analysis

Table.1. Summary of Results of Learning Satisfaction with respect to Gender

VARIABLE	Gender				t-value	p-value
	Male		Female			
	Mean	SD	Mean	SD		
Learning Satisfaction	125.89	17.658	128.90	14.733	2.965	0.003**

From the table it can be observed that the mean score of overall Learning Satisfaction of Female (128.90) student is higher than the Male (125.89) students.

The t-value calculated for the overall Learning Satisfaction and all its dimensions namely, Content satisfaction, Learning Environment satisfaction, Interaction satisfaction, Feedback satisfaction, Personal growth and development satisfaction, Motivation satisfaction with respect to gender reveals the female and male students differ significantly at 0.01. Hence, the null hypothesis, stating that there is no significant difference in Learning Satisfaction between male and female students, is rejected, and it is concluded that there is a significant difference in Learning Satisfaction between male and female students.

This shows female students often demonstrate better study routines, consistency, and attention to detail, which lead to greater satisfaction with academic content and outcomes. Girls are generally more attentive in class, follow instructions, and maintain positive relationships with teachers, which enhances satisfaction in areas like interaction and feedback. Girls are often more receptive to teacher feedback and use it constructively, increasing their satisfaction with feedback mechanisms in the learning process.

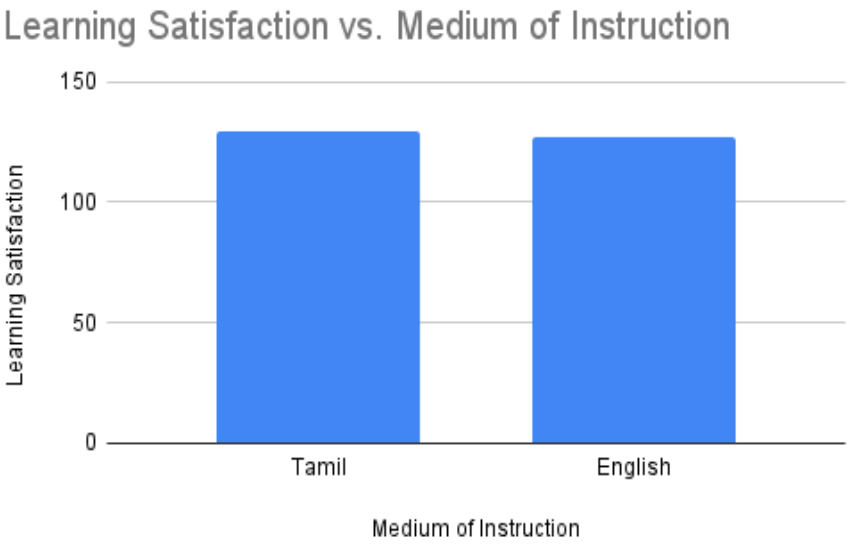
Table.2.

Summary of Results of Learning Satisfaction with respect to

Medium of Instruction

VARIABLE	Medium of Instruction		t-value	p-value
	Tamil	English		

	Mean	SD	Mean	SD		
Learning Satisfaction	128.99	15.965	127.05	16.567	0.959	0.338



From the table it can be observed that the mean score of overall Learning Satisfaction of Tamil medium (128.99) student is higher than the English medium (127.05) students.

The t-value calculated for the overall Learning Satisfaction and all its dimensions namely, Content satisfaction, Learning Environment satisfaction, Interaction satisfaction, Feedback satisfaction, Personal growth and development satisfaction, Motivation satisfaction with respect to medium of instruction reveals the female and male students do not differ significantly. Hence, the null hypothesis, stating that there is no significant difference in Learning Satisfaction between Tamil medium and English medium students, is accepted.

Findings

1. The mean score of Learning Satisfaction of female students (128.90) is higher than that of male students (125.89). The t-test conducted to compare the Learning Satisfaction between male and female students reveals a significant difference between the two groups at the 0.05 significance level, as the p-value is 0.003. Hence, the null hypothesis, stating that there is no significant difference in Learning Satisfaction between male and female students, is rejected.

2. The mean score of Learning Satisfaction of students studying through Tamil medium (128.99) is higher than that of students studying through English medium (127.05). However, the t-test conducted to compare the Learning Satisfaction between Tamil and English medium students reveals no significant difference between the two groups at the 0.05 significance level. Hence, the null hypothesis, stating that there is no significant difference in Learning Satisfaction between Tamil medium and English medium students, is accepted.

Educational Implication

The significant difference in Learning Satisfaction between male and female students suggests that gender-related factors may influence how students perceive and experience their learning environment. Educators and school administrators should be aware of these differences and consider implementing gender-sensitive teaching strategies and support systems. By addressing the specific needs and learning preferences of both male and female students, schools can create a more inclusive and supportive environment that enhances learning satisfaction for all students.

Conclusion

The study found that there is no significant difference in Learning Satisfaction between students studying through Tamil and English mediums of instruction. This indicates that the medium of instruction does not affect students' satisfaction with their learning experience, and both groups are able to achieve comparable levels of satisfaction regardless of language preference.

However, a significant difference was found between male and female students, with female students reporting higher Learning Satisfaction than male students. This suggests that gender plays an influential role in shaping students' perceptions and experiences in the learning environment. Such differences may be attributed to vary learning styles, motivation, support systems, or social factors that impact how students engage with educational content.

These findings highlight the importance of recognizing and addressing the diverse needs of students. Educators and school administrators should incorporate gender-responsive teaching approaches and provide adequate support mechanisms to foster a positive learning experience for all students. By understanding these differences, educational institutions can create more

equitable and supportive environments that enhance students' overall well-being and academic performance.

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Conceptual Article

Role of Parents in Drug Awareness of School Children

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Abstract

The role of parents is crucial in preventing drug abuse among school children. This study examines how parental awareness, communication, monitoring, and involvement influence students' understanding of drug-related risks. Parents act as the first line of defense by educating children about harmful substances, identifying early warning signs, and modelling healthy behaviour. The study highlights that open parent–child communication, supportive family environments, and consistent supervision significantly reduce the likelihood of drug experimentation among students. Findings emphasize the need for schools and communities to collaborate with parents through awareness programmes, counselling sessions, and training workshops to strengthen prevention efforts. Overall, the study reinforces that informed and engaged parents play a vital role in safeguarding children from drug misuse.

Keywords: Drug awareness, parental involvement, school children, prevention, communication, supervision, family environment, counselling, substance abuse

Introduction

The issue of drug abuse and substance misuse among school children is a growing concern worldwide. The early teenage years and adolescence are critical stages when children are highly impressionable and vulnerable to the influence of peers, media, and other external factors regarding drug use. In this context, the role of parents is paramount as the first line of defense against drug awareness and abuse among children. Parents are not only caregivers but also educators, role models, and guides who help shape the values, attitudes, and behaviors of their children in relation to drugs. This essay explores the multifaceted role of parents in promoting drug awareness and preventing substance abuse among school children.

Importance of Parental Role in Drug Awareness

Parents have a profound influence on their children's lives, far beyond basic care. They shape early perceptions about right and wrong, healthy living, and risk behaviors. Studies affirm that children are less likely to engage in drug use if their parents are actively involved, communicate openly, and set clear expectations about drug use. Parental attitudes toward alcohol, tobacco, and other drugs directly affect their children's likelihood to experiment or abstain from these substances. Moreover, parents who foster strong emotional bonds with their children create an environment of trust, making it easier to discuss difficult topics like drugs and peer pressure. The k Parental Strategies for Drug Awareness and Prevention are discussed below.

Open Communication and Education

One of the most effective ways for parents to reinforce drug awareness is through honest and age-appropriate conversations. Parents are encouraged to begin discussions about the risks of drug use early in the child's life, well before any exposure occurs. Frequent, casual talks rather than one-time lectures help keep the topic open and reduce stigma or fear of discussing such issues. Explaining how drugs affect physical health, brain development, school performance, and future opportunities can empower children to make informed choices.

Setting Clear Expectations and Family Norms

Children benefit greatly when parents establish firm family rules regarding drug and alcohol use. When these rules are consistently enforced, children learn what behaviors are acceptable and which are not. Parental disapproval of drug use and clear messaging that drug use is not tolerated can reduce peer pressure influence. Families that model strong values and healthy habits tend to raise children with higher self-esteem and better resistance to risky behaviors.

Parental Role Modeling

Children naturally imitate their parents' behaviors. Parents who avoid using drugs or alcohol excessively, manage stress healthily, and demonstrate constructive ways to handle difficulties set positive examples. Conversely, parental substance abuse or casual attitudes

toward drugs can increase the risk factors for children's drug use. Hence, parents need to be mindful that their lifestyle choices and coping mechanisms influence their children deeply.

Monitoring and Supervision

Keeping a watchful eye on children's activities, peer groups, and online behavior is another crucial strategy in drug prevention. Parental monitoring helps identify early signs of drug experimentation or emotional difficulties that may lead to substance abuse. Supervision accompanied by open communication sends a message that the child's well-being is a priority and encourages responsibility in decision-making.

Building Strong Parent-Child Relationships

Research has found that children who share warm, supportive relationships with their parents are less prone to engage in substance use. Parents who listen empathetically, show genuine interest, and provide emotional support help children develop resilience against peer pressure and social stressors. A nurturing home environment bolsters children's confidence to say "No" to drugs and seek help when needed.

Active Involvement with Schools and Community Programs

Drug awareness is more effective when parents collaborate with schools and community prevention programs. Active parental participation in school drug education initiatives enhances consistent messaging and provides social support for children. Parent-teacher communication helps identify at-risk children early and ensures intervention strategies are coordinated between home and school environments for maximum impact.

Psychological Impact of Parental Involvement

The psychological foundation laid by parents during early childhood strongly influences children's decision-making and behavioral tendencies related to drugs. Secure attachments and emotional stability provided by parent's foster children's self-esteem and self-control, essential traits that reduce susceptibility to peer pressure and risky behaviors like drug use. Conversely, parental neglect, lack of warmth, or harsh disciplinary styles can lead to emotional insecurity, increasing vulnerability to substance experimentation as a coping mechanism. Parents who are emotionally available and responsive nurture resilience and empower children to make healthy choices even in the face of external temptations.

The Importance of Knowledge and Awareness among Parents

Parental effectiveness in guiding children about drugs depends significantly on their own knowledge and awareness. Parents need to be well-informed about different types of drugs, their effects, signs of use, and current trends, including new substances like vaping products or prescription drug misuse. Awareness enables parents to recognize early warning signs such as changes in behavior, unexplained absences, or secretiveness, which are often overlooked. Communities and schools can support parents through workshops, informational materials, and helplines to strengthen their ability to provide accurate information and timely intervention.

Communication Techniques that Work

Effective communication between parents and children goes beyond mere information sharing. It requires active listening, empathy, and non-judgmental attitudes. Parents who create a safe space for dialogue encourage children to express fears or questions honestly, which prevents misinformation and secrecy. Using real-life examples, media references, or news stories about drug abuse consequences can make discussions more relatable. Importantly, parents should avoid scare tactics or moralizing, as these often lead to resistance or rebellion. Instead, promoting critical thinking about choices, consequences, and alternative coping strategies builds children's internal motivation to avoid drugs.

Role of Parental Monitoring and Limit Setting

Parental monitoring involves more than surveillance; it incorporates knowing children's friends, their whereabouts, and social contexts. This knowledge helps parents anticipate situations where drug offers might occur and proactively guide children on how to handle peer pressure. Setting limits on unsupervised time, curfews, and participation in risky environments reduces exposure to drug-using peers. However, monitoring should be balanced with respect for growing autonomy, especially during adolescent years, to maintain trust without fostering rebellion or secrecy.

Building Life Skills through Parental Guidance

Parents play a fundamental role in equipping children with life skills that are protective against drug abuse. These include decision-making, problem-solving, stress management, and assertiveness skills. Encouraging involvement in sports, hobbies, and community activities not

only diverts children's energy positively but also helps build supportive peer networks. Teaching healthy ways to cope with academic and social pressures reduces the allure of drugs as an escape. Parents can model these skills themselves, demonstrate constructive ways to handle failures or negative emotions, and praise children's efforts to face challenges positively.

Parental Collaboration with School Programs

Drug education in schools is most effective when reinforced by parental involvement. Parents can support curriculum efforts by discussing school lessons at home, attending seminars, and volunteering in prevention activities. Understanding school policies on substance abuse prepares parents to respond consistently and constructively if their child is involved. Cooperative efforts foster a community united against drug abuse and strengthen the child's overall support system. Schools benefit from involving parents as partners rather than outsiders in prevention strategies.

Addressing Cultural and Social Challenges

In many societies, including traditional or conservative cultures, discussing drugs openly remains taboo, which limits parental engagement in awareness activities. Parents may feel embarrassed, fearful, or lack language to discuss the topic. Overcoming these barriers requires culturally sensitive education programs that empower parents to consider drug awareness as a necessary aspect of child safety and health. Community leaders, health workers, and educators can play crucial roles in normalizing drug awareness conversations within families without stigma.

Parental Role in Early Identification and Intervention

Early identification of drug use behaviors in children is crucial for timely intervention. Parents who maintain open communication channels are more likely to detect changes in attitude, mood swings, or academic decline linked to drug use. Immediate steps such as counseling, professional help, or family therapy can mitigate long-term consequences. Parental willingness to seek help without blame or denial significantly improves recovery outcomes. Support groups for parents dealing with substance abuse issues in their families also provide vital resources and emotional backing.

Supporting Parents Themselves

It is important to recognize that parents need support and education to be effective in drug awareness roles. Parenting is challenging, and modern social changes add complexities regarding drug access and peer influences. Governments, NGOs, and educational institutions must create accessible parenting programs focused on prevention skills, stress reduction, and resource availability. Supporting the mental health and well-being of parents strengthens the family unit's ability to safeguard children from drug-related risks.

The Foundation of Effective Communication

Parent-child communication is one of the most influential protective factors against adolescent drug use. The quality and frequency of communication help children feel connected, understood, and supported, which builds their resistance to negative peer pressure and risky behaviors. Open dialogue reduces secrecy and encourages children to share their thoughts, feelings, and worries regarding drugs or social situations involving substance use. The earlier and more naturally these conversations begin, the stronger their protective impact over time.

Creating an Open and Non-Judgmental Atmosphere

For successful communication, parents should create a safe, non-judgmental environment where children feel comfortable discussing difficult topics. This involves listening attentively without interrupting or reacting with anger or disappointment, which can push children into silence or rebellion. Validating feelings and asking open-ended questions helps children reflect and articulate their experiences more honestly. For example, instead of "Did you try drugs?" a parent might ask, "Have you seen your friends using drugs? How do you feel about that?" This approach encourages dialogue instead of defensiveness.

Using every day "Teachable Moments"

Parents can use everyday situations as natural conversation starters about drugs and healthy choices. For instance, discussing a character smoking in a movie or news reports of drug-related incidents allows discussions to flow without feeling like formal lectures. These moments make drug awareness relatable and contextual, helping children understand real-life consequences. Parents should seize these opportunities regularly to reinforce messages about the dangers of substance use and the importance of saying no.

Tailoring Communication to Different Age Groups

Communication strategies should adapt according to the child's age and maturity level:

- *Young children (5-8 years)* need simple explanations about the harmful effects of drugs with basic advice like "Don't put unknown things into your body."
- *Pre-teens (8-12 years)* benefit from more detailed discussions including peer pressure, refusal skills, and consequences. Parents can ask what they've heard and correct any misinformation.
- *Teenagers* require honest, respectful conversations about risks, legal consequences, and personal values. Parents should encourage teens to express their opinions and questions freely while reinforcing family expectations.

Role Playing and Practice

Parents can empower children by role-playing scenarios where they might be offered drugs or pressured by peers. Practicing assertive responses such as saying "No thanks," changing the subject, or leaving the situation helps children feel prepared and confident. This rehearsal reduces anxiety about actual confrontations and increases the likelihood that children will say no in real life.

Consistent Messaging and Reinforcement

Consistency in the messages parents communicate about drugs is crucial. Children need to hear clear and unwavering family rules that drug use is unacceptable, alongside explanations about why these rules matter for their health and future. Reinforcing positive behaviors with praise and encouragement fosters self-esteem and motivation to stay drug-free. Conversations about drugs are most effective when they are part of ongoing, everyday communication rather than one-time talks.

Gender-Sensitive Communication Approaches

Research suggests that boys and girls may respond differently to parent-child communication about drugs. For example, sons may benefit more from easy communication with fathers, while daughters may require tailored approaches that address social pressures unique to females, such as body image or emotional challenges. Parents should be aware of

these differences and aim to build strong individual connections with each child to address their specific needs effectively.

The Role of Parental Monitoring and Support

Communication is closely linked to parental monitoring; parents who stay informed about their children's activities and peer groups foster an environment of accountability and care. Through regular conversations, parents can detect early signs of distress or experimentation with substances and intervene appropriately. Offering emotional support, guidance, and access to help when needed reinforces the family as a safe haven against drug risks

Challenges Faced By Parents

Despite best intentions, parents face several challenges in addressing drug awareness. Busy work schedules, lack of knowledge about current drug trends, cultural taboos surrounding drug talk, and difficulties in establishing rapport with adolescents can hinder parental involvement. Additionally, parents suffering from addiction themselves need support to break negative cycles. Overcoming these obstacles requires both parental effort and broader community and institutional support for parent education and empowerment.

Conclusion

Parents have a uniquely powerful role in drug awareness and prevention among school children. By initiating early and frequent communication, setting clear expectations, modeling healthy behavior, monitoring activities, and fostering strong emotional bonds, parents can significantly reduce their children’s risk of drug experimentation and abuse. Active collaboration with schools and communities strengthens this effort. Given the complexities involved, ongoing support for parents through education and resources is essential to equip them for this challenging but vital responsibility. Ultimately, vigilant and caring parenting is foundational to guiding children toward safe, healthy, and drug-free lives.

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Conceptual Article

Teacher Competence and Pedagogical Innovations in STEM Classrooms

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Abstract

Teacher competence plays a vital role in shaping effective STEM (Science, Technology, Engineering, and Mathematics) education, where learners require conceptual clarity, problem-solving skills, and hands-on learning experiences. This study explores the relationship between teacher competence and pedagogical innovations in STEM classrooms. It highlights how content mastery, instructional skills, technological proficiency, and reflective practice contribute to improved learner engagement and achievement. The study also examines innovative pedagogical approaches such as inquiry-based learning, project-based learning, interdisciplinary teaching, and the integration of digital tools. Findings emphasize that competent and well-trained STEM teachers are more likely to adopt innovative teaching strategies, create collaborative learning environments, and enhance students' curiosity and scientific thinking. The paper underscores the importance of continuous professional development to strengthen teachers' abilities and promote innovation in STEM education.

Keywords: STEM education, teacher competence, pedagogical innovations, inquiry-based learning, project-based learning, digital tools, interdisciplinary approach, teacher training, student engagement

Introduction

In an increasingly technology-driven world, **STEM (Science, Technology, Engineering, and Mathematics) education** stands as the bedrock for future innovation and economic prosperity. The effectiveness of STEM education, however, hinges significantly on two critical pillars: **teacher competence** and **pedagogical innovations**. This article explores the symbiotic relationship between these two elements, arguing that highly competent teachers employing innovative teaching strategies are essential for cultivating a generation of critical thinkers, problem-solvers, and innovators.

The Imperative of Teacher Competence in STEM

Teacher competence in STEM extends far beyond mere subject matter knowledge. It encompasses a multifaceted set of skills, attitudes, and understanding crucial for effective instruction.

Deep Content Knowledge and Conceptual Understanding

At the core, a competent STEM teacher possesses a **profound and nuanced understanding** of their subject matter. This includes not just factual recall, but also the ability to connect concepts, explain complex theories simply, and demonstrate real-world applications. Without this foundational knowledge, pedagogical innovations can fall flat, lacking the intellectual rigor to truly engage students. For example, a teacher explaining **Newton's Laws of Motion** needs to go beyond stating the laws; they must be able to illustrate them with diverse examples and experiments, allowing students to grasp the underlying principles.

Pedagogical Content Knowledge (PCK)

Beyond pure content, **Pedagogical Content Knowledge (PCK)** is paramount. This refers to the unique blend of subject matter knowledge and teaching expertise that enables teachers to transform complex concepts into accessible learning experiences. A teacher with strong PCK understands common student misconceptions, knows effective analogies, and can anticipate areas where students might struggle. For instance, in teaching **circuits**, a teacher with strong PCK might foresee difficulties in understanding current flow and proactively use a water analogy to clarify the concept.

Enthusiasm, Adaptability, and Professional Development

Effective STEM teachers are also characterized by their **enthusiasm** for the subject, which is infectious and can ignite student curiosity. They are **adaptable**, capable of adjusting their teaching methods to cater to diverse learning styles and needs. Furthermore, a commitment to **ongoing professional development** is vital. The STEM fields are constantly evolving, and competent teachers continually update their knowledge and skills to remain

current and effective. This might involve attending workshops on new technologies, participating in research, or collaborating with industry professionals.

Pedagogical Innovations: Transforming STEM Learning

Pedagogical innovations refer to novel and effective teaching approaches that move beyond traditional lecture-based methods, fostering deeper engagement and understanding in STEM.

Inquiry-Based Learning and Problem-Based Learning

Inquiry-based learning (IBL) encourages students to ask questions, investigate phenomena, and construct their own understanding. Similarly, **problem-based learning (PBL)** presents students with real-world problems that require them to apply STEM principles to find solutions. These approaches shift the focus from rote memorization to critical thinking, collaboration, and real-world application. For example, instead of a lecture on **photosynthesis**, an inquiry-based approach might involve students designing experiments to determine the optimal conditions for plant growth.

Project-Based Learning (PBL)

Project-Based Learning (PBL) involves students working on extended projects that address complex questions or challenges, often culminating in a tangible product or presentation. PBL in STEM allows students to integrate knowledge from various disciplines, develop research skills, and foster creativity. An example might be students designing and building a **mini-robot** that can navigate an obstacle course, requiring them to apply principles of engineering, coding, and physics.

Integration of Technology and Digital Tools

The judicious integration of **technology and digital tools** is a hallmark of modern pedagogical innovation in STEM. This includes using **simulations, virtual labs, coding platforms, data analysis software, and interactive whiteboards**. These tools can make abstract concepts tangible, allow for experimentation without physical constraints, and provide immediate feedback. For instance, a virtual reality simulation can allow students to explore the human circulatory system in 3D, enhancing their understanding significantly.

Interdisciplinary Approaches

Breaking down traditional disciplinary silos is another key innovation. **Interdisciplinary approaches** in STEM connect concepts across science, technology, engineering, and mathematics, mirroring the integrated nature of real-world problems. For example, a unit on **sustainable energy** might involve students analysing data (mathematics), designing efficient systems (engineering), understanding environmental impacts (science), and utilizing renewable energy technologies (technology).

Flipped Classroom Models

This model **inverts traditional teaching** by delivering instructional content outside the classroom, typically through videos or readings. In-class time is then dedicated to hands-on activities, problem-solving, and in-depth discussions, with the teacher acting as a facilitator and guide. This approach maximizes valuable in-class time for collaborative and active learning.

Gamification and Simulation

Gamification incorporates game-based elements like points, badges, and leader boards into lessons to increase student motivation and engagement. **Simulations** use digital or physical models to make abstract concepts tangible and allow students to experiment without real-world constraints. For instance, a gamified learning platform can challenge students to solve coding puzzles, while a virtual lab simulation can allow them to manipulate molecules and observe chemical reactions.

The Synergy: Competence as the Catalyst for Innovation

The true power of these elements lies in their synergy. Teacher competence is not merely a prerequisite for pedagogical innovation; it is the **catalyst** that allows innovations to flourish and genuinely impact student learning.

A highly competent teacher, deeply knowledgeable in their subject and pedagogical approaches, is better equipped to:

- **Design and implement** innovative activities effectively, anticipating challenges and adapting as needed.

- **Facilitate** inquiry-based learning, guiding student investigations without providing all the answers.
- **Integrate technology** meaningfully, understanding its educational potential beyond novelty.
- **Assess** student understanding accurately in the context of innovative projects, moving beyond traditional tests.
- **Inspire** students to embrace challenges and persist through difficulties inherent in innovative learning experiences.

Conversely, without competent teachers, even the well-designed innovative curricula can face failures. A teacher lacking in content knowledge might inadvertently perpetuate misconceptions, while a teacher unfamiliar with effective pedagogical strategies might struggle to manage a dynamic, student-centered classroom.

Conclusion

The journey towards excellence in STEM education is a dynamic one, propelled by the interplay of expert educators and transformative teaching methodologies. By fostering deep teacher competence and embracing pedagogical innovations, we can cultivate vibrant, engaging STEM classrooms that not only impart knowledge but also ignite a passion for discovery, critical thinking, and problem-solving, preparing students to be the innovators and leaders of tomorrow.

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