

**RELATIONSHIP BETWEEN PERCEIVED LEARNING ENVIRONMENTS
AND ACADEMIC ACHIEVEMENT OF STUDENTS AT UNDERGRADUATE
LEVEL : A CRITICAL EVALUATION**

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DOCTOR OF PHILOSOPHY (ARTS) IN EDUCATION

Submitted by

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Under the supervision of

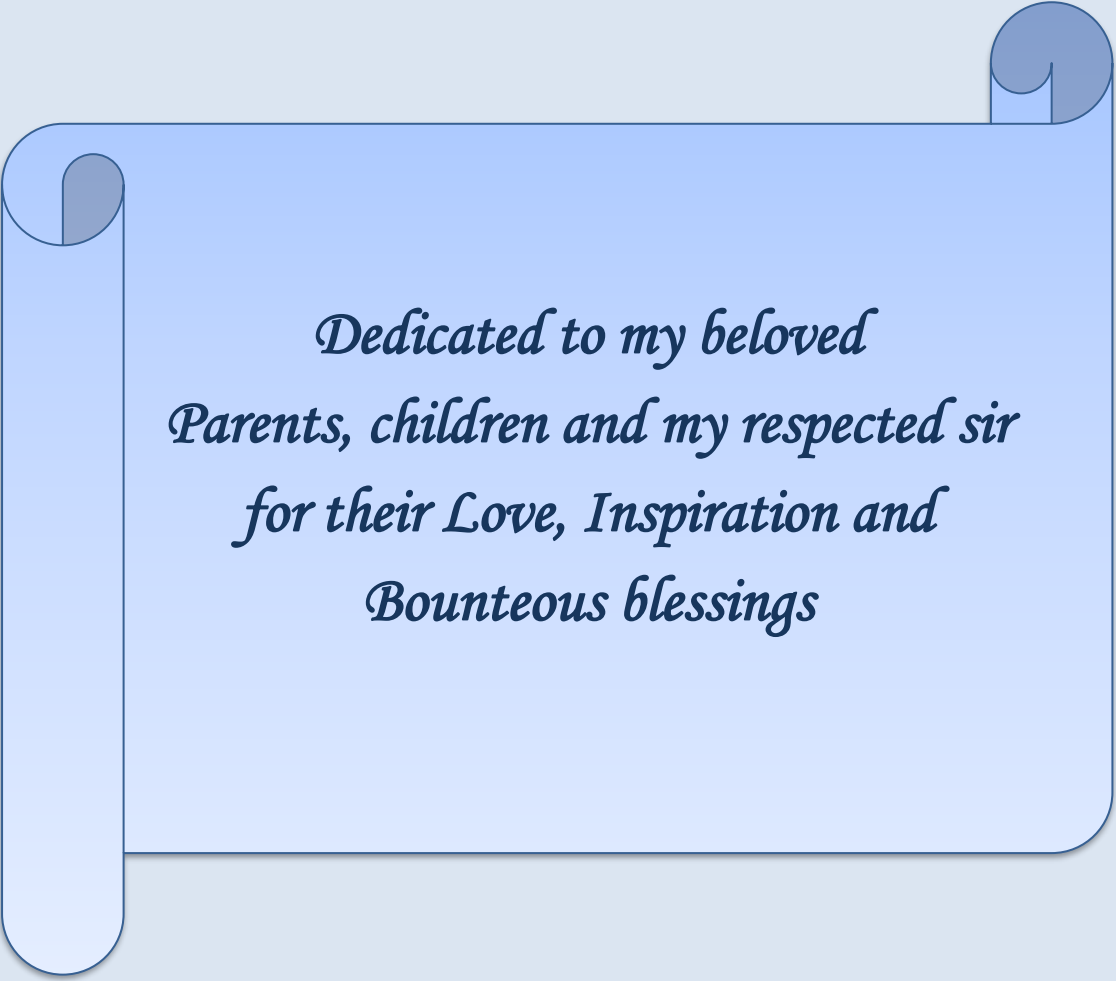
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KOLKATA

2025



*Dedicated to my beloved
Parents, children and my respected sir
for their Love, Inspiration and
Bounteous blessings*

CERTIFICATE

Certified that the thesis entitled "RELATIONSHIP BETWEEN PERCEIVED LEARNING ENVIRONMENTS AND ACADEMIC ACHIEVEMENT OF STUDENTS AT UNDERGRADUATE LEVEL : A CRITICAL EVALUATION" submitted by me for the award of the Degree of Doctor of Philosophy in Arts at Jadavpur University is based upon my work carried out under the supervision of Prof. Muktipada Sinha, Professor, Department of Education, Jadavpur University and that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere / elsewhere.

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Acronyms Index

PLE	Perceived learning environment
CEQ	Course Experience Questionnaire
DREEM	Dundee Ready Education Environment Measure
CLES	Clinical Learning Environment Scale
AISHE	All India Survey on Higher Education
GER	Gross Enrollment Ratio
ASER	Annual Status of Education Report
UNESCO	United Nations Educational, Scientific and Cultural Organization
NCERT	National Council of Educational Research and Training
NAAC	National Assessment and Accreditation Council
UGC	University Grants Commission
AICTE	All India Council for Technical Education
NCTE	National Council for Teacher Education
WBCHSE	West Bengal Council of Higher Secondary Education
NEP	National Education Policy
LSE	Life Skills Education
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
TD	Total Difficulty
UNFPA	United Nations Population Fund-India
APA	American Psychological Association
UNICEF	United Nations Children's Fund

WHO	World Health Organization
m	Mean Value
sd	Standard Deviation Value
F	ANOVA Test Value
p-Value	Probability Value
r-Value	Correlation Value
t-Value	t-Test Value
Ho	Null Hypothesis
S	Significant
NS	Not Significant

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Abstract

Present study explores how undergraduate students in West Bengal, India, perceive their learning environment and how this relates to their academic achievement. A total of 1,436 students from 13 districts were chosen using purposive and random sampling. The Dundee Ready Education Environment Measure (DREEM) was used to evaluate the learning environment across five areas as learning, teachers, academic self-perception, atmosphere, and social self-perception. Academic achievement was measured using students' last semester percentage of marks. The findings showed that most students viewed their learning environment positively. About 61.29% reported it as "more positive than negative," and around 36.35% considered it "excellent." Significant differences in students' perceptions were found based on gender (female students rated higher), place of residence (rural students rated higher), type of institution (private institutions rated higher), and academic stream (science students rated most positively). However, no meaningful differences were found by semester level or family income.

A moderate positive correlation ($r = 0.421, p < 0.01$) was found between students' perceptions of their learning environment and their academic achievement. Regression analysis showed that the learning environment accounted for about 25.4% of the variation in academic performance. As a result, almost all null hypotheses were rejected except those related to semester level and income. The study highlights the importance of supportive and positive learning environments in improving students' academic performance. It suggests that educators and policymakers should create learning environments that are inclusive and learner-friendly to help students achieve better outcomes.

Keywords:- *Perceived Learning Environment, Academic Achievement, DREEM, Undergraduate Students, West Bengal, Educational Psychology.*

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CHAPTER - I

CONTEXT OF THE STUDY

CHAPTER – I

CONTEXT OF THE STUDY

"Where the mind is without fear and the head is held high; Where knowledge is free..." – Rabindranath Tagore

1.1 Introduction

The academic performance of undergraduate students is influenced by many factors, including their personal abilities and the learning environment they experience. In higher education, the perceived learning environment (PLE); which includes its physical setting, social aspects, and teaching methods; plays an important role in shaping students' motivation, engagement, and overall success. While older educational models focused mainly on institutional resources and teacher-led instruction, recent studies highlight the importance of how students personally perceive and interpret their learning environment. The link between PLEs and academic achievement among undergraduates can be considered to be a dynamic factor that connects theory with evidence to guide better institutional practices.

The idea of PLEs has developed significantly since Moos (1979) first described learning environments in terms of physical, social, and instructional factors. Later tools, such as the Course Experience Questionnaire (CEQ) (Ramsden, 1991), Dundee Ready Education Environment Measure (DREEM) (Roff et al., 1997), and Clinical Learning Environment Scale (CLES) (Dunn & Burnett, 1995), have been used to measure these perceptions, showing that they can predict academic performance. However, there is still limited understanding of how specific aspects of PLE; such as teacher support for autonomy, peer cooperation, or institutional assistance that may affect achievement differently for various student groups.

The researcher deeply analyzed ecological and cognitive theories, including Moos's ecological model (Moos, 1979), Biggs's 3P (Presage–Process–Product) framework (Biggs, 1987), and Tinto's integration theory (Tinto, 1975). These theories

suggested that the learning environment influences how much cognitive and emotional effort students put into their studies. Using these perspectives, the study focuses on the major objectives of the study.

At a time when higher education faces challenges such as retaining students and ensuring fairness, this analysis offers practical, evidence-based suggestions for aligning students' perceptions of their environment with better academic outcomes, thereby helping institutions design learning spaces and policies that foster student success and equity. The next sections provide historical background, theoretical foundations, and research evidence, leading to a structured framework.

1.2 Background of the study

The learning environment in higher education has changed greatly over the past few decades, moving from traditional teacher-centered methods to more active, student-focused approaches. This shift reflects a growing understanding that student success is not only the result of personal ability or effort, but also depends heavily on the setting in which learning takes place. The perceived learning environment (PLE); which includes physical spaces, social relationships, teaching practices, and institutional support; has become an important factor influencing student motivation, engagement, and academic performance.

1.2.1 Overview of the Learning Environment in Higher Education

Today's universities are under increasing pressure to create environments that promote both academic achievement and overall student development. In the past, higher education largely focused on delivering content through lectures. However, current teaching strategies stress active participation, collaboration, and the development of critical thinking. This change recognizes that students learn more effectively when they are actively involved in the process rather than just receiving information. The physical aspects of the campus; such as classroom layout, technology, and study areas; work together with social and psychological factors

to form a complete learning system. Research shows that students' views of these elements affect their learning style, persistence, and academic results.

Earlier models of learning environments, developed in the late 20th century, concentrated mainly on physical and social aspects that could be easily measured. Over time, these ideas expanded to include emotional and psychological dimensions, as it became clear that students' personal experiences shape the impact of their surroundings. With the development of measurement tools, researchers could study these perceptions more closely, leading to deeper insights into how different elements of the environment work together.

Modern approaches to PLEs focus on student independence, relevant learning content, and opportunities for active and meaningful involvement. While traditional measures might have looked only at student satisfaction with facilities or teacher availability, current perspectives also consider how learning spaces encourage self-directed learning, inclusivity, and the growth of skills such as self-reflection. This development reflects a broader shift toward student-centered education and recognition of diverse learning needs.

Research on learning environments draws from several important theories. Ecological models show the complex relationship between students and their learning contexts, suggesting that the best learning outcomes happen when the environment matches students' goals and needs. Cognitive theories explain how conditions in the learning environment affect thinking processes, motivation, and how knowledge is formed. Integration models stress that a sense of belonging—both academically and socially—is vital for student success. Together, these theories help give a fuller picture of how PLEs connect to academic achievement.

Today's universities face challenges such as growing student diversity, the integration of digital technologies, and pressure to prove the value of their teaching. This makes it especially important to understand PLEs so educators can build fair and supportive environments. The increased use of hybrid and online

learning has also added new dimensions to how students experience education, blending physical and virtual spaces in unique ways.

This research comes at an important time for higher education. By studying how undergraduates see their learning environment and how those perceptions relate to their academic success, the study aims to offer practical guidance for improving curricula, campus design, and student support systems; helping students succeed across varied settings and backgrounds.

1.3 Evolution of the concept of Perceived Learning Environments

The idea of perceived learning environments (PLEs) has developed greatly over the past fifty years, reflecting major changes in educational psychology and teaching design. This change mirrors how higher education priorities have shifted, with growing recognition of how physical surroundings, social settings, and teaching approaches interact to shape student learning outcomes.

1.3.1 Early Models: Physical and Social Climates

The earliest studies on learning environments began in the late 1970s with Moos's (1979) ecological model, which identified three main aspects of human environments :-

- **Physical settings** – the layout of classrooms, resources, and spatial design.
- **Social components** – peer relationships and interaction with teachers.
- **Instructional aspects** – teaching methods and curriculum organization.

Moos showed that these factors work together to shape the learning experience and student results. Building on his work, Walberg (1981) proposed the theory of educational productivity, which listed nine major influences on academic performance, with classroom environment as a key factor. These contributions shifted attention from viewing student achievement as purely individual to recognizing the strong role of the institutional context.

1.3.2 Psychometric Tools: CEQ, DREEM, and CLES

In the 1990s, researchers developed methods to measure PLEs systematically through standardized questionnaires.

- **Course Experience Questionnaire (CEQ)** – Developed by Ramsden (1991), it measured course quality using five factors: good teaching, clear objectives, reasonable workload, fair assessment, and encouragement of independence. It was shown to predict both student satisfaction and academic success.
- **Dundee Ready Education Environment Measure (DREEM)** – Created by Roff et al. (1997) for medical and health education, this 50-item survey assessed learning environment perceptions in five domains: learning, teachers, academic self-perception, atmosphere, and social self-perception. It has been validated in over 30 countries.
- **Clinical Learning Environment Scale (CLES)** – Designed by Dunn and Burnett (1995) to evaluate clinical training settings, focusing on the unique features of practice-based learning.

These tools advanced research by allowing comparisons between programs and institutions while capturing students' personal views.

1.3.3 Contemporary Focus: Autonomy, Relevance, and Engagement

In the 21st century, research on PLEs has moved toward a more student-centered and holistic view, influenced by Self-Determination Theory (Deci & Ryan, 2000). Current priorities include:

- **Autonomy-supportive environments** – encouraging student choice and self-directed learning (Reeve, 2006).
- **Relevance** – connecting learning to students' personal goals and professional futures (Frymier & Shulman, 1995).
- **Engagement** – designing learning experiences that promote active participation and deep understanding (Kuh et al., 2008).

PLEs today are seen as dynamic systems where physical spaces, social relations, and digital platforms interact to either support or limit these qualities. The rise of online and hybrid education has added new dimensions, including virtual classroom design and building online communities (Garrison et al., 2000).

Recent studies also explore how different groups of students; based on gender, culture, or discipline; perceive their environments, highlighting the importance of inclusive design. This move from Moos's early descriptive model to current, theory-based and evidence-driven frameworks marks a significant growth in how PLEs are understood and applied to improve teaching and learning in higher education.

1.4 Theoretical & Conceptual Framework

Research on perceived learning environments (PLEs) and academic achievement draws on several key theories that together create a broad framework for understanding how environmental factors influence student success. This section outlines five major theories that guide the present study.

1.4.1 Anchoring Theories

- **Moos's Ecological Model**

Moos's (1979) ecological model of human environments offers a basic structure for viewing learning environments as multi-layered systems. It identifies three connected dimensions that shape human experiences:- (1) relationship dimensions – the quality of personal and social interactions, (2) personal development dimensions – opportunities for growth and skill development, and (3) system maintenance and change dimensions – the organization, stability, and adaptability of the setting. In education, these can be seen in the social atmosphere of classrooms, the design of the curriculum, and the policies of the institution. The model's strength lies in its broad view, showing how physical spaces, social dynamics, and organizational systems together affect student results. More recent uses of the model extend to online and blended learning settings, exploring how

virtual spaces create new ecological conditions for learning (Zhao et al., 2020). This approach also explains why students who share the same physical setting may still have different perceptions and outcomes, depending on their personal interactions with each of these environmental dimensions.

- **Biggs's 3P Model**

Biggs's (1987) 3P model consists of Presage, Process, Product; used a cognitive approach to explain how learning settings impact achievement. The model groups educational elements into three stages:- Presage (student background and institutional features), Process (learning strategies and level of engagement), and Product (learning outcomes). An important finding from this model is that how students see their learning environment (presage factors) influences whether they choose deep or surface learning approaches (process), which then determine the quality of outcomes (product). Studies using the 3P model show that elements like teaching quality and assessment style can encourage shifts from surface to deep learning (Lizzio et al., 2002). Because the model allows for feedback; where outcomes can influence future presage factors; it also supports the idea that perceptions and behaviors form ongoing cycles over time. This makes it highly useful for studying long-term links between PLEs and academic results.

- **Tinto's Integration Theory**

Tinto's (1975) theory on student departure, later broadened to persistence, stresses that both academic and social integration are essential for student success. The theory argues that student interactions with academic systems (e.g., faculty relationships, intellectual involvement) and with social systems (e.g., friendships, campus activities) strengthen their commitment to both the institution and completing their studies. When applied to PLE research, this theory helps explain how perceptions of the environment can drive retention and achievement through these two integration pathways. More recent work has adapted the theory to reflect differences among student groups, showing that integration processes vary for students based on race, socioeconomic status, or

whether they are first-generation (Braxton et al., 2014). Its emphasis on social connection in learning settings makes it a strong complement to more cognitively focused models, offering a fuller picture of how institutions support; or fail to support; student persistence and success.

- **Social Cognitive Theory**

Bandura's (1986) social cognitive theory, especially the idea of triadic reciprocal causation, provides a psychological lens for understanding PLEs. It explains that human functioning results from the two-way interaction of behavior, personal factors, and environmental influences. In education, this means that while the learning environment affects performance, students' beliefs, attitudes, and actions also shape the way they experience that environment. A major contribution of this theory to PLE studies is its focus on self-efficacy, which acts as a bridge between environment and achievement (Zimmerman, 2000). It also introduces the role of observational learning, showing how students can develop motivation and skills by observing peers in the learning environment. This helps clarify why students in the same institutional conditions may still respond very differently; because their beliefs and behaviors actively interact with environmental factors.

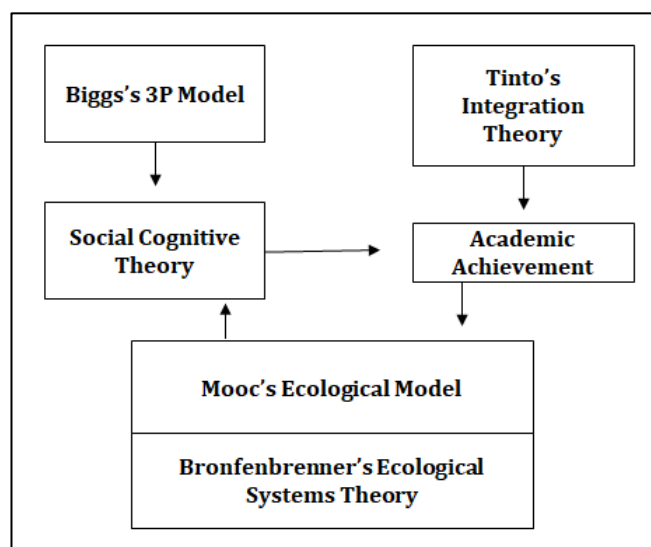
- **Ecological Systems Theory**

Bronfenbrenner's (1979) ecological systems theory extends the study of learning environments beyond the classroom to nested layers of context. It defines five environmental levels:- microsystem (immediate settings like classrooms), mesosystem (links between settings such as home and school), exosystem (larger structures like institutional policies), macrosystem (cultural and societal values), and chronosystem (the influence of time and change). This structure is particularly useful for exploring how wider institutional and cultural contexts shape direct learning experiences. In today's education, the model has been applied to understand how digital learning spaces create new microsystem layers (Barrett, 2010). Its breadth also makes it valuable for studying diverse student groups, as it

accounts for how each environmental layer may hold different importance depending on cultural and social background.

1.4.2 Conceptual Integration

Together, these five theories provide a strong foundation for studying PLEs and achievement. The ecological perspectives of Moos and Bronfenbrenner explain the structure and context of learning environments. Biggs and Tinto offer models for how these environments are processed into learning outcomes over time. Social cognitive theory adds the psychological processes; such as self-belief and peer influence; that connect environment to results.



(Figure 1.1:- Visual diagram showing connection of five theories within the PLE framework)

Combined, they offer complementary viewpoints that capture the full complexity of the PLE-achievement link while generating clear, testable research ideas.

1.5 Academic Achievement at the Undergraduate Level

Undergraduate academic achievement is an important measure of both a student's personal ability and a university's overall performance. In India, where only 27.1% of people aged 18–23 enroll in higher education (AISHE 2020–21), undergraduate results are especially important, as for most students this is the highest stage of formal education they complete. In West Bengal, the Gross

Enrollment Ratio (GER) is 19.8% (AISHE 2020–21)—lower than the national average, but rising steadily from 16.5% in 2014–15.

The significance of undergraduate achievement can be seen in several ways:-

- **Economic Mobility :-** In India, those with a bachelor's degree earn 56% more than people who finish only secondary school (World Bank 2020).
- **Employment Outcomes :-** Only 53% of Indian graduates meet current employability requirements (ASER 2019).
- **Social Development :-** Every extra year of study is linked to 8–10% higher lifetime earnings (UNESCO 2021).

1.5.1 Main Factors Affecting Achievement

Undergraduate success is shaped largely by three important factors – prior academic preparation, student motivation, and teaching quality. These elements work together to create either supportive or difficult learning conditions for students.

▪ Prior Academic Preparation

The knowledge and skills students bring from school strongly affect their performance in college. Studies show that graduates of CBSE and ICSE boards score 15–20% higher in their first year compared to those from state boards (NCERT, 2021). This gap is particularly visible in STEM subjects, where 62% of students need extra help in mathematics (AICTE, 2022). The shift from school systems focused on rote memorization to the analytical thinking required in college poses difficulties for many. In fact, 58% of first-year students say they struggle to adapt to the higher expectations of university education (NSSO, 2021).

▪ **Student Motivation**

Intrinsic motivation driven by personal interest and self-direction; is a strong predictor of student persistence and achievement. Self-determination theory shows that students who are internally motivated earn 30% higher GPAs than those driven mainly by external pressures (Deci & Ryan, 2000). In India, motivational issues are common, as 43% of undergraduates report that their choice of subject was made due to parental pressure rather than personal interest (ASER, 2022). Having clear career goals also plays a role, with such students achieving 25% better results (UGC, 2021).

▪ **Teaching Quality**

The quality of teaching is the most adaptable institutional factor for improving learning outcomes. NAAC data show that colleges with well-trained teachers using active learning methods achieve 35% better student results (NAAC, 2021). However, challenges remain – 68% of undergraduate lecturers still rely mainly on lectures, despite evidence that discussion-based teaching improves memory retention by 40% (NCTE, 2022). Class size is also important, with optimal 1:15 teacher-student ratios linked to 28% better results compared to overcrowded 1:40 classrooms (AISHE, 2021).

Taken together, these three factors explain about 72% of the differences in undergraduate performance, according to structural equation modelling studies (Pandey, 2022). This highlights their combined and interconnected influence on student success.

1.5.2 Data for West Bengal

- **Enrollment Patterns** :- 41% of students choose arts/humanities courses, while 19% opt for science (AISHE 2020–21).
- **Performance Gap** :- Female students score on average 7% higher than males in final exams (WBCHSE 2021).

- **Urban–Rural Divide** :- Pass rates in urban colleges are 15% higher than in rural ones (Higher Education Dept., WB 2021).

1.5.3 Key Challenges in West Bengal’s Higher Education

- **Overcrowding** :- 78% of colleges exceed UGC’s recommended student–teacher ratio.
- **Poor Infrastructure** :- Only 33% of institutions have functional digital libraries.
- **Job Mismatch** :- 61% of graduates work in jobs unrelated to their degrees.

Recent policy actions under the West Bengal State Higher Education Plan 2021–26 aim to solve these problems through:-

- Upgrading digital facilities (₹287 crore allocated)
- Faculty training for 5,000 teachers each year
- Building industry & Academia ties (17 MoUs signed in 2022)

The National Education Policy (NEP) 2020 encourages multidisciplinary education and 21st-century skills, creating both opportunities and challenges for West Bengal’s undergraduate system. As the state targets a GER of 25% by 2025, it is essential to examine the factors influencing achievement to guide policy and improve institutions.

1.6 Importance of perceived learning environments in shaping student experiences

The perceived learning environment (PLE) plays an important role in shaping the academic, social, and emotional experiences of undergraduate students (Astin, 1993; Pascarella & Terenzini, 2005). How students personally interpret their surroundings directly affects their motivation, engagement, study habits, and overall performance (Biggs & Tang, 2011). This section explains the multiple ways

PLEs matter, focusing on four main areas: academic development, psychological well-being, social integration, and long-term outcomes.

1.6.1 Academic Development and Learning Approaches

Students' views of their learning environment strongly influence their thinking, approach to study, and academic results (Lizzio et al., 2002). Supportive and well-structured environments encourage deep learning strategies—critical thinking, conceptual understanding, and active knowledge building (Biggs & Tang, 2011). In contrast, settings seen as competitive or lacking support often lead to surface learning, where students focus mainly on memorizing content (Ryan & Deci, 2020).

Research highlights clear links between PLE factors and student outcomes:-

- **Teaching Quality :-** When instructors are approachable and effective, students have 25–30% higher course completion rates and better exam scores (Umbach & Wawrzynski, 2005). Clear instruction, timely feedback, and interactive methods improve both understanding and retention (Freeman et al., 2014).
- **Autonomy Support :-** Allowing students to choose assignments, encouraging self-directed work, and valuing their input increases motivation and deeper engagement (Ryan & Deci, 2020). Such learners persist longer and solve problems more creatively (Biggs & Tang, 2011).
- **Assessment Practices :-** Transparent and fair assessments reduce stress and promote mastery-based goals (Lizzio et al., 2002). Regular, constructive feedback leads to better results compared with purely high-stakes testing (Biggs & Tang, 2011).

The physical environment also plays a role (Astin, 1993). Well-planned classrooms, accessible resources, and reliable technology make learning more effective. Features like natural light, comfortable seating, and low noise levels can improve focus and memory by up to 20% (Pascarella & Terenzini, 2005).

1.6.2 Psychological Well-Being and Mental Health

PLEs affect students' emotional health and overall well-being (Baik et al., 2019). Supportive environments lower stress and anxiety, while negative perceptions increase the risk of distress (Kuh et al., 2006). Important factors include:

- **Belongingness** :- Feeling valued in the academic community boosts self-esteem and lowers depression (Tinto, 2017). Programs such as mentoring, diversity efforts, and anti-bias policies improve this sense of belonging (Pascarella & Terenzini, 2005).
- **Academic Stress** :- Highly competitive or high-pressure systems can cause burnout. Around 40% of undergraduates experience high stress from academic demands, especially in rigid grading contexts (Baik et al., 2019; Kuh et al., 2006).
- **Faculty-Student Relationships** :- Supportive, approachable faculty reduce the impact of stress. Students with such mentors are 30% less likely to suffer severe academic anxiety (Umbach & Wawrzynski, 2005; Tinto, 2017).

Integrating mental-health services; such as counseling, stress-management workshops, and peer support groups; into the academic setting improves retention and satisfaction (Baik et al., 2019; Kuh et al., 2006).

1.6.3 Social Integration and Peer Interactions

The social side of PLEs shapes both academic progress and personal growth (Astin, 1993). Peer friendships, teamwork opportunities, and extracurricular activities are central to the student experience (Pascarella & Terenzini, 2005):-

- **Collaborative Learning** :- Classes that encourage group work and discussion improve understanding and critical thinking (Freeman et al., 2014). Students in such environments perform 15–20% better on complex tasks than those taught only through lectures (Biggs & Tang, 2011).

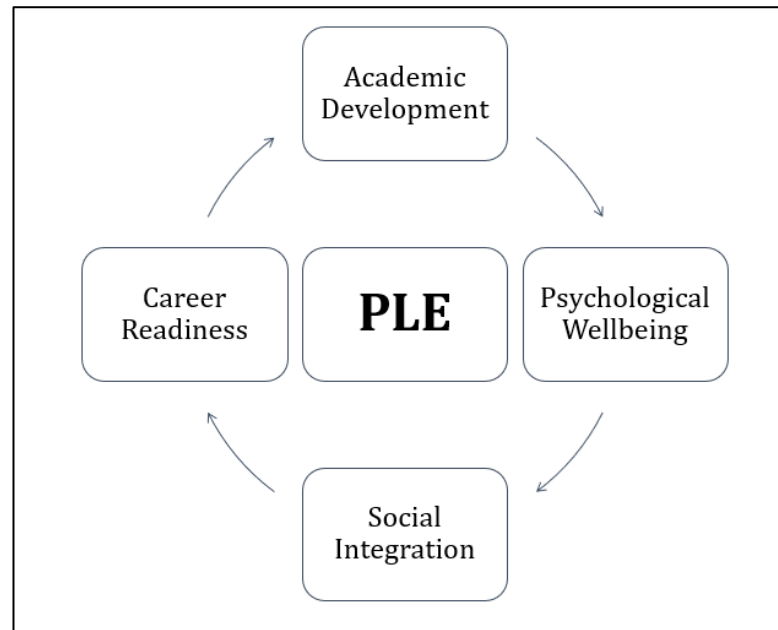
- **Extracurricular Activities :-** Participation in clubs, sports, and cultural events builds leadership, teamwork, and time-management skills (Astin, 1993) while strengthening institutional ties and lowering dropout rates (Tinto, 2017).
- **Diversity and Inclusion :-** Mixed classrooms bring multiple perspectives (Pascarella & Terenzini, 2005). This benefit is greatest in environments that promote respectful communication and cultural understanding (Lizzio et al., 2002).

First-generation and minority students may face more social integration challenges (Tinto, 2017). Targeted supports like peer mentoring and student groups can raise their retention rates by up to 25% (Kuh et al., 2006).

1.6.4 Long-Term Outcomes and Career Readiness

Beyond immediate academic success, PLEs impact students' careers and lifelong learning (Pascarella & Terenzini, 2005):

- **Skill Development :-** Settings emphasizing problem-solving, communication, and critical thinking better prepare students for employment (Biggs & Tang, 2011). Employers increasingly value these over rote learning (Astin, 1993).
- **Professional Identity :-** Involvement in internships, research, and industry partnerships helps students clarify career goals and build networks (Kuh et al., 2006).
- **Alumni Success :-** Graduates from supportive environments report more job satisfaction, greater career progress, and stronger alumni engagement, benefiting new students through mentoring and funding (Astin, 1993; Pascarella & Terenzini, 2005).



(Figure 1.2:- Visual diagram showing interconnectedness between four dimensions of PLE)

The perceived learning environment underpins academic performance, mental well-being, social connections, and career readiness (Pascarella & Terenzini, 2005). Universities should improve PLEs through evidence-based teaching, inclusive policies, and full student support (Biggs & Tang, 2011; Kuh et al., 2006). Future research should also explore cultural differences in how PLEs are experienced and the effects of online learning formats (Tinto, 2017).

1.7 Relationship between Perceived Learning Environment and Academic Achievement

Research has consistently shown that the perceived learning environment (PLE) has a strong influence on students' academic results. Studies indicate that PLEs explain about 30–40% of the differences in performance across different types of institutions (Lizzio et al., 2002). This impact occurs through several connected pathways that shape students' thinking, motivation, and learning behaviors.

- **Cognitive and Metacognitive Pathways**

Students who view their learning environment as encouraging deep learning tend to use more effective thinking strategies. When teaching focuses on conceptual

understanding rather than memorization, performance on complex problem-solving tasks improves by about 25% (Biggs & Tang, 2011). The quality of teaching; especially an instructor's skill in making material clear and relevant; can explain up to 20% of the variation in course grades (Umbach & Wawrzynski, 2005).

Support for metacognitive learning is also important. Environments that promote self-regulation; such as setting goals, tracking progress, and reflecting on learning; lead to GPAs about 0.5 standard deviations higher than in less structured settings (Zimmerman, 2002). This effect is particularly strong for first-year students adjusting to university life.

- **Motivational Mechanisms**

PLEs affect achievement through their influence on motivation. Autonomy-supportive environments; those that offer genuine choices and value student viewpoints; encourage intrinsic motivation, which is linked to 15–20% higher course grades (Ryan & Deci, 2020). On the other hand, overly strict or punitive environments often result in surface learning and lower academic identification.

Psychological safety within the classroom also matters. Students who see their learning space as inclusive and free from threat are more willing to take intellectual risks, promoting deeper learning and creativity (Edmondson, 1999). This can help explain up to 18% of performance gaps between majority and minority students (Walton & Cohen, 2011).

- **Behavioral and Social Factors**

A positive PLE influences students' behaviors; such as class attendance, participation, and study time. Students in supportive settings attend about 30% more classes and dedicate 40% more time to academic tasks than peers in less favorable environments (Pascarella & Terenzini, 2005). These behavioral gains directly improve cumulative exam results.

The social aspects of PLEs also matter. Learning environments that encourage collaboration create peer accountability and knowledge-sharing, leading to class-wide performance gains of 10–15 percentage points (Johnson et al., 2014). However, this works best when group activities are well-designed to ensure equal participation and avoid free-rider problems.

- **Moderating Factors**

The strength of the PLE–achievement connection differs depending on:-

- **Discipline** :- Stronger in humanities ($r = .45$) than in STEM subjects ($r = .32$) (Vermunt, 2005)
- **Academic Year** :- First-year students are more influenced by PLEs than final-year students (Tinto, 2017)
- **Student Background** :- Students from underrepresented groups gain more from supportive PLEs (Walton & Cohen, 2011)

The link between PLEs and academic success is clear but shaped by many factors, including thinking skills, motivation, and behavior. Improving how students perceive their environment—through better teaching, inclusive practices, and curriculum design; can lead to meaningful academic improvements. Future studies should explore how these patterns apply in online and cross-cultural learning environments.

1.8 Significance of the study

The current study is highly relevant for many stakeholders in higher education, including students, teachers, administrators, and policymakers. By closely examining how students' perceptions of their learning environments affect their academic results, this research provides important insights that can help improve teaching practices, strengthen institutional performance, and support student success.

1.8.1 Theoretical Significance

This research adds to existing knowledge by combining several theoretical perspectives; such as Moos's ecological model, Biggs's 3P model, and Tinto's integration theory; to give a complete picture of the link between PLEs and academic outcomes. Unlike earlier studies that often looked at only one aspect of the learning environment, this work integrates cognitive, social, and institutional viewpoints into a single framework. The results will contribute to refining theories on student engagement, motivation, and environmental psychology, offering clearer explanations of why some environments lead to better results. It also fills important gaps by exploring how PLEs operate across different types of students and institutions, helping future researchers study more inclusive and fair education systems.

1.8.2 Practical Significance for Students

For undergraduates, this research shows why it is important to be aware of how they perceive their learning environment and how these perceptions can influence their study habits, motivation, and grades. By pointing out key environmental factors; such as teaching quality, peer interaction, and institutional support; linked to strong academic performance, the study helps students seek or request resources that improve their learning experience. For example, understanding the benefits of autonomy-supportive teaching could encourage students to choose courses or interact with teachers in ways that match their learning styles. The findings also highlight the value of mental health and belonging in academic success, motivating students to care for their well-being and use available support services.

1.8.3 Implications for Educators and Institutions

Teachers and higher education institutions can apply these findings to improve the quality of learning environments. By identifying PLE dimensions with the most impact; such as quality feedback, classroom climate, and assessment design; the

study offers practical steps for better teaching. Teachers might use this knowledge to adopt student-centered strategies like flipped classrooms or project-based learning. Institutions can design faculty training programs aimed at building inclusive and engaging classrooms.

At an administrative level, the results can guide resource allocation and policy decisions. For instance, if physical learning space quality (e.g., lighting, seating) strongly influences performance, universities can prioritize facilities upgrades. If data show that mentorship programs greatly help marginalized students, colleges can expand such efforts to close equity gaps. The study also stresses the value of student services—such as counseling and academic advising—to reduce stress and improve performance.

1.8.4 Policy and Societal Impact

Policymakers can use the findings to shape national and state-level higher education strategies. For example, if PLEs are found to influence how socioeconomic status affects academic achievement, targeted investments could be made to support underfunded colleges. The study's results can also shape accreditation standards by suggesting the inclusion of PLE measures in quality assessments.

At the societal level, the research highlights higher education's role in building human capital. By showing how learning environments improve skills, critical thinking, and career readiness, it aligns with global education goals such as UN Sustainable Development Goal 4. Better academic performance supported by high-quality PLEs can lead to stronger employment prospects, economic growth, and social mobility; especially in countries like India with growing higher education enrollment.

1.8.5 Methodological Contributions

The study's critical evaluation approach; using surveys, interviews, and institutional data; serves as a useful model for future research on learning

environments. By using multiple data sources, it ensures stronger and more context-based findings that can apply to various educational settings. It also shows the importance of including the student voice in evaluating institutions, promoting more participatory methods of educational improvement.

The importance of this study lies in its ability to connect theory and real-world practice, providing strategies supported by evidence to improve both learning environments and student outcomes. By considering psychological, social, and structural factors together, the research offers a path for building undergraduate education systems that are inclusive, effective, and supportive of lifelong learning.

1.9 Rationale of the Study

Present study is driven by several urgent issues in modern higher education. Although institutions have invested heavily in infrastructure and curriculum upgrades, many still find it hard to achieve consistent academic success among undergraduates. This research addresses the need to understand how students' personal experiences and perceptions of their learning environment influence measurable academic results, especially in diverse and resource-limited contexts like India.

Universities often judge education quality by objective measures such as faculty-student ratios or library resources. However, these do not always match real learning outcomes. This gap suggests that what matters most is how students perceive their environment, not just its physical features. For example, two students in the same classroom may feel entirely different about its learning climate depending on teaching style, peer interaction, or personal expectations. This study closely examines these differences in perception and their link to academic performance, offering a clearer picture of what truly makes a learning environment effective.

Educational reforms like India's National Education Policy 2020 call for learner-focused approaches but offer little practical detail on implementation. By

studying how specific aspects of the environment; such as autonomy-supportive teaching and collaborative spaces; affect achievement, this research provides evidence-based strategies to turn policy into real practice. The timing is crucial, as universities now serve more first-generation and non-traditional learners, making it essential to know how to design inclusive spaces that meet varied needs.

Research on learning environments is often spread across different fields—such as educational psychology, architecture, and institutional management—without much connection between them. This study brings these perspectives together in a multidimensional framework that links physical spaces, teaching methods, and social experiences to academic results. Such a combined approach is necessary for institutions aiming for overall improvement instead of isolated fixes.

India faces unique higher education challenges: overcrowded classrooms, inconsistent quality between institutions, and wide social and economic gaps. These shape how students view their environment in ways that differ from Western contexts. Yet, most existing PLE research comes from developed nations. This study addresses that gap by focusing on resource-limited settings, where students may value certain factors; like faculty access; over high-tech facilities. The results will help Indian institutions focus on the most impactful areas for improvement, even with limited budgets.

Unlike studies based only on surveys, this research uses both quantitative data (achievement scores) and qualitative insights (interviews). This approach explores not only whether certain perceptions relate to outcomes but also why. For example, if fairness in assessment is found important, interviews can clarify whether students define fairness as transparency, flexibility, or the presence of helpful feedback. This level of detail supports tailored solutions.

The research offers practical benefits for all stakeholders:-

- Students can recognise barriers in their environment and seek targeted help.

- Faculty get proof to support changes in teaching, such as using project-based work instead of only high-stakes exams.
- Administrators can make better funding decisions, such as redesigning classrooms rather than making surface-level upgrades.
- Policymakers gain new benchmarks for assessing institutions, going beyond traditional measures like placement numbers.

The rationale for this research lies in its potential to reshape how universities think about and improve learning environments. By seeing students as active interpreters of their surroundings rather than passive recipients, the study shifts the focus from “what we provide” to “how it is actually experienced.” This perspective offers a practical, evidence-driven way to boost academic success; especially important for developing higher education systems like India’s.

1.10 Operational Definitions

In research, an operational definition is a clear explanation of how a concept or variable will be measured and used in the study. It takes abstract ideas and translates them into specific, measurable steps, so that everyone understands them in the same way when collecting and analyzing data.

In this study, the researcher has provided several operational definitions to make the concepts easier to apply and measure as –

i. Perceived Learning Environment:- Perceived Learning Environment pertains to student’s perception of their learning environment which was measured by The Dundee Ready Education Environment Measure (DREEM), a trusted questionnaire with 50 questions that helps understand how students in health-related courses feel about their learning environment. It covers five main areas as learning, teachers, academic self-confidence, atmosphere, and social life with peers and students rate each item on a 5-point scale. It also consisted 9 negative items, The total score is out of 200, which shows whether the environment is very poor (0–50), has problems (51–100), generally positive (101–150), or excellent (151–200).

ii. Academic Achievement of Undergraduate Students:- Academic achievement of undergraduate students in this study is defined as their performance in a three-year standard degree program. The final marks from the 2nd, 4th, and 6th semesters were used as indicators of their academic achievement.

iii. Family Income – In this study, annual family income is defined as the total household income earned over the course of a year. The researcher categorized it into three income brackets: up to ₹500,000 as the low-income category, ₹500,001 to ₹10,00,000 as the moderate-income category, and above ₹10,00,000 as the high-income category.

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CHAPTER - II

PROBLEM OF THE STUDY

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A literature review is an essential element of research, systematically evaluating and synthesizing existing scholarly work on a specific topic to develop a comprehensive understanding of current knowledge and identify gaps in the literature (Hart, 2018). The role of a literature review extends beyond a mere summary; it facilitates an academic discourse that provides significant insights into the complexities of the study topic and aids researchers in refining their methodology. This approach ensures that new research is not conducted in isolation but is embedded within the collective knowledge of the field, thus advancing the boundaries of understanding in a systematic and scholarly manner (Boote & Beile, 2005). Engaging critically with the literature strengthens the credibility of the research process and sharpens research questions, ensuring that the study contributes substantially to the existing body of knowledge.

2.1 Review of Related Literature

Abraham et al. (2008) in their study “**Students’ perceptions of learning environment in an Indian medical school**” aimed to compare the perceptions of the learning environment between first-year and clinical phase students at Melaka Manipal Medical College (MMMC) (Manipal Campus) and to examine gender-based differences in these perceptions. This study employed the Dundee Ready Education Environment Measure (DREEM) inventory, a validated instrument for assessing the quality of educational environments. The DREEM survey was administered to 118 first-year and 108 clinical phase undergraduate medical students, with their responses analyzed using a nonparametric statistical method. Findings indicated that first-year students reported higher satisfaction with the learning environment, reflected in their higher DREEM scores, compared to their clinical phase counterparts. Analysis of gender differences showed minimal variation in perceptions. Overall, while both student groups viewed the learning

environment positively, the study identified specific areas of concern. These findings informed the adoption of targeted remedial actions to enhance the educational environment at the medical school.

Adas & Shmais (2011) in their work “**Students’ perceptions towards blended learning environment using the OCC**” explored how students at An-Najah National University feel about blended learning (BL) in their English language courses, which combines traditional teaching methods with an online platform called the Online Course Container (OCC). OCC provides both live and self-paced activities to help students improve their English skills. The study included 92 students in a general English course, who shared their thoughts on the blended approach through a questionnaire that covered the learning process, ease of use, and content. Interviews were also held for additional feedback. Overall, students had a positive attitude toward this blended learning setup, appreciating the convenience and support of online tools. The findings also showed that students had strong internet and tech skills, likely due to good internet access, making them open to using technology in their language learning journey.

Ahmed et al. (2018) in their study “**Students’ perception of the learning environment and its relation to their study year and performance in Sudan**” aimed to assess students’ perceptions of the learning environment and examine differences in these perceptions based on academic performance and year of study. A descriptive cross-sectional study was conducted with 638 students from the second, sixth, and tenth semesters at the Faculty of Medicine, Gezira University, Sudan. The Arabic-translated Dundee Ready Education Environment Measure (DREEM) was used, with study year and academic performance as the main variables. Descriptive statistics and one-way analysis of variance with post hoc Tukey-Kramer tests were applied for data analysis. The overall DREEM score was 122/200 (SD=16.6), indicating a generally positive perception of the learning environment. Significant differences were found between students from different

study years, with semester 6 students showing the highest mean score. Additionally, high-achieving students had a significantly better perception (mean = 126) compared to low-achieving students (mean = 102). The study suggests that students' perceptions vary by academic performance and study year, warranting further investigation into these differences.

Akkoyunlu & Soylu (2008) conducted a study on **“A study of student’s perceptions in a blended learning environment based on different learning styles.”** This study explored how students' learning styles influence their views on blended learning, which combines online and face-to-face classes. Researchers worked with 34 students from Hacettepe University in Turkey, using a questionnaire to gather feedback on aspects like how easy the online tools were to use, the effectiveness of evaluations, and their experiences in face-to-face settings. They also used Kolb’s Learning Style Inventory to understand each student’s preferred way of learning. The results showed that students' opinions varied based on their learning styles, with face-to-face interactions rated most favorably across the board. Interestingly, there was no difference in academic performance based on learning style, indicating that blended learning seems to accommodate different preferences equally well. These insights suggest that while students may favor certain aspects, blended learning offers a flexible environment that can suit a range of learning styles.

Al-Kabbaa et al. (2012) in their study **“Perception of the learning environment by students in a new medical school in Saudi Arabia: Areas of concern”** explored how medical students at King Fahad Medical City in Saudi Arabia feel about their learning environment, which plays a crucial role in shaping their education and future as physicians. Using the DREEM questionnaire, a tool that assesses educational settings, researchers surveyed 237 students from the 2009/2010 academic year. The results indicated moderate dissatisfaction, with an overall score of 111.5 out of 200. No aspects were rated as excellent, and several

areas-like the learning atmosphere, teaching methods, ability to focus, and attitudes of teachers and students-were flagged as needing attention. These findings suggest clear opportunities for improvement, and the study recommends implementing changes and re-evaluating with the DREEM tool to track progress in creating a more supportive learning environment.

Allen & Fraser (2007) conducted a study on **“Parent and student perceptions of classroom learning environment and its association with student outcomes.”** This study set out to understand how students and parents perceive the science classroom environment for Grade 4 and 5 students in South Florida. Using a specially adapted “What Is Happening In this Class?” (WIHIC) questionnaire, researchers gathered insights from 520 students and 120 parents. The findings showed that both groups wanted a more positive classroom atmosphere than what they felt was currently in place, with parents expressing a stronger preference for improvement. Additionally, a clear link was found between certain aspects of the classroom environment, like task focus, and students' attitudes toward science. Qualitative feedback revealed that, while generally satisfied, students would enjoy more hands-on investigative activities, and parents hoped for increased teacher support. By exploring both parent and student perspectives, this study offers a fresh approach to understanding and enhancing the classroom experience in ways that resonate with both groups.

Arens & Moller (2016) in their work **“Dimensional comparisons in students’ perceptions of the learning environment”** explored how students’ perceptions of their learning environment relate to their math and language achievements, aiming to support the Generalized Internal/External (GI/E) frames of reference model. This model suggests that how students compare their achievements—both socially and across subjects—can shape their views on their learning environment, not just their self-confidence. Using data from 4,926 German students, researchers examined math and language scores alongside students’ views on instructional

quality and their relationships with teachers in both subjects. The results showed that students' achievements positively influenced their perceptions in the same subject (e.g., math achievement improved views of math instruction) but had little or negative impact on unrelated subjects. This effect was stronger for math than for language, and instructional quality was more closely tied to achievement than student-teacher relationships. Consistent findings across age groups strengthen the GI/E model and highlight how achievement perceptions shape students' experiences in the classroom.

Asiyai (2014) studied on “**Students’ perception of the condition of their classroom physical learning environment and its impact on their learning and motivation.**” This study explored secondary school students' perceptions of their classroom physical learning environment and its effects on their learning and motivation. The research addressed four questions, analyzed using descriptive statistics, and tested three hypotheses with t-test statistics at a 0.05 significance level. The findings revealed significant differences in how private school students perceived their classroom environment compared to public school students. However, there was no significant difference in perceptions between male and female students. A notable difference was found between the perceptions of urban and rural school students regarding their classroom physical environment. Additionally, the study showed that the condition of the physical learning environment significantly impacted students' learning and motivation, influencing their engagement in academic activities, personal behavior, and school attendance. The study concluded that creating positive learning environments should be a priority for government and educational stakeholders to support students' successful learning and academic development.

Bakhshialiabad et al. (2015) in their research work “**Students’ perceptions of the academic learning environment in seven medical sciences courses based on DREEM**” explored how medical sciences students at Rafsanjan University of Medical Sciences (RUMS) perceive their learning environment. Using the Dundee Ready Education Environment Measure (DREEM), researchers surveyed 493 students from fields like nursing, midwifery, and anesthesia. The results showed that, overall, students had a positive view of their learning atmosphere, scoring it at 113.5 out of 200 (about 57%). Students rated aspects like learning quality, teaching, and the environment above average, with academic and social support scoring 64% and 56%, respectively. Interestingly, students in fields like operating room nursing and anesthesia, as well as first-year students and females, reported more positive experiences. These findings suggest that while students generally appreciate their learning environment, there is room for improvement. Faculty and course managers are encouraged to enhance instructional design and provide better support and resources, making the environment even more conducive to learning.

Berntsen & Bjork (2010) studied on “**Nursing students’ perceptions of the clinical learning environment in nursing homes.**” This study looked at how first-year nursing students in Norway feel about their clinical placements in nursing homes, which are known to be challenging and complex learning environments. Students used a survey to rate different aspects of their experience. Overall, they found the environment moderately positive, especially appreciating the personalization in their learning, while rating innovation as an area needing improvement. Those who valued innovation, involvement, and personalization tended to be more satisfied with their placements. These results suggest that more work is needed to create a supportive, engaging environment in nursing homes that fully supports student learning and growth.

Bowers & Kumar (2015) conducted a study “**Students’ perceptions of teaching and social presence: A comparative analysis of face-to-face and online learning environments.**” This study explored how students feel about their connection with teachers and peers in online courses compared to traditional classrooms. With high dropout rates in online learning often tied to a lack of engagement, this study set out to see if students felt the same level of presence in both formats. Thirty-four students took part in an online course, while 29 were in a face-to-face setting. Surprisingly, students reported feeling a stronger teacher and social presence in the online class than in the traditional classroom. These results suggest that with the right approach, online courses can create a supportive, connected experience, providing useful insights for improving online learning to help students stay engaged and succeed.

Brannagan et al. (2013) studied on “**Impact of peer teaching on nursing students: perceptions of learning environment, self-efficacy, and knowledge.**” This study explored how peer teaching affects nursing students in a clinical lab, with first-year students learning from third-year students. Over three semesters, 179 first-year and 51 third-year nursing students participated, with some receiving instruction from both peer tutors and faculty, while others only had faculty instruction. The results were mixed: while peer tutors had a positive experience, there was no significant difference in knowledge or confidence between students with peer tutors and those without. Interestingly, first-year students felt more anxious practicing skills with their peer tutors than with their instructors and found faculty feedback more helpful for preparing and improving. These findings suggest that while peer teaching can be beneficial, it may not reduce anxiety for beginners, and peer tutors might benefit from more preparation. The study highlights areas to improve in peer teaching and calls for further research with more advanced skills.

Byrne et al. (1986) in their research work “**Student perceptions of preferred classroom learning environment**” This study explored how students perceive their ideal versus actual classroom environments and examined the connection between these environments and student achievement. Involving 1,675 students from 18 schools in New South Wales, Australia, the research used several tools to measure students' preferences (like the My Class Inventory and Classroom Environment Scale) and actual experiences (using the Quality of School Life questionnaire). The analysis revealed that the environment scales were reliable, and factor analysis identified four main categories: “Preference for Peer Conflict,” “Preference for Individualization,” “Preference for Teacher-Managed Structure,” and “Actual Environment.” Three types of school environments emerged: “Self-Survival,” “Indifferent,” and “Cooperative and Motivated.” Differences in perceptions were noted based on grade level and gender, and certain classroom factors were linked to better student achievement. These findings underscore the varied needs of students and suggest that creating supportive classroom environments could positively impact learning outcomes.

Chan (2004) in his work “**Nursing students' perceptions of hospital learning environments-an Australian perspective**” aimed to understand how nursing students perceive their hospital learning environments during clinical placements. By combining surveys and interviews, 108 students filled out a questionnaire about their actual and ideal experiences, while 21 students shared more detailed insights in interviews. The findings showed a clear gap between students' expectations and what they actually experienced-students generally felt they would have benefited from a more positive and supportive environment. While the study focused on students from one university in South Australia, its findings underscore the importance of looking at clinical education from the students' perspective. Understanding what students feel constitutes quality learning can help improve clinical placements and guide future improvements in nursing education.

Chang et al. (2015) had done a work “**A review of features of technology-supported learning environments based on participants’ perceptions.**” This study reviewed 22 research papers focused on tools for measuring how teachers, students, and adult learners feel about technology-supported learning environments (TSLEs). The aim was to develop a new framework to better understand and design these environments, identifying six key areas: technical, content, cognitive, metacognitive, social, and affective dimensions. The review showed that most studies emphasized the technical, cognitive, and social aspects, while content, metacognitive, and affective areas were explored less often. Common themes included usability, relevant content, inquiry-based learning, student autonomy, and teacher support. This framework offers a well-rounded approach to designing TSLEs and highlights areas to consider in future research, giving insights into what matters most in technology-enhanced learning.

Chau et al. (2013) in their study “**Evaluating students’ perception of a three-dimensional virtual world learning environment**” explored how students feel about learning in a 3D virtual environment, which has become more popular with improvements in graphics and internet technology. Researchers created a virtual classroom in Second Life, where students attended a presentation using virtual projectors. After the class, students filled out a questionnaire about their experience. The results showed that students enjoyed the 3D environment and felt more satisfied with it compared to traditional classrooms. However, their focus, perceived usefulness, and understanding were about the same as in regular settings. These findings highlight the potential of 3D virtual environments for e-learning, and the study offers suggestions for making the most of these tools in education.

Cwik & Singh (2021) studied on “**How perception of learning environment predicts male and female students’ grades and motivational outcomes in algebra-based introductory physics courses.**” This study looked at how students’ experiences in introductory physics courses impact their grades, confidence, interest, and sense of identity, focusing on gender differences. Researchers surveyed bioscience majors in large, required physics classes at a research university, exploring factors like students’ sense of belonging, interactions with peers, and feeling recognized by instructors. Although women outnumbered men in these courses, they generally had lower outcomes in terms of grades, confidence, interest, and identity. Through structural modeling, the study found that each element of students’ perception of their learning environment was crucial in predicting their success and motivation. These results highlight important gender disparities in physics education and suggest ways to create a more inclusive and supportive environment to help all students thrive in STEM fields.

Den Brok et al. (2006) studied on “**Multilevel issues in research using students’ perceptions of learning environments: The case of the Questionnaire on Teacher Interaction.**” This study looked at how the structure of research affects our understanding of students’ perceptions of their relationships with teachers, using the Questionnaire on Teacher Interaction (QTI). In studies about learning environments, multiple levels often come into play, like whether teacher behavior is directed at individual students or the whole class, and if perceptions are gathered individually or as a group. Data were collected from 59 classes taught by 29 teachers in one school, using both a personal and a class version of the QTI. To deepen the analysis, data from over 44,000 students across 207 schools were also reviewed. Results showed that multilevel analyses, which consider these various layers, provide a clearer picture than single-level analyses. The study also found that different models might be more suitable depending on whether the research focuses on individuals or groups. These findings offer

valuable guidance for designing future studies on learning environments and teacher-student relationships.

Dochy et al. (2005) in their study “**Students’ perceptions of a problem-based learning environment**” aimed to investigate students' perceptions of key design variables in a problem-based learning (PBL) environment and whether these variables were perceived to enhance learning. The research addressed four main questions: (1) To what extent do students’ perceptions of PBL align with its theoretical assumptions? (2) Do perceptions differ across institutional contexts? (3) Are there differences in perceptions between first-year and experienced students, and across disciplines? (4) Are there interaction effects between study phase and discipline? The study employed a survey of students’ perceptions in various institutional contexts. The results revealed that, generally, students valued the key design variables of PBL as being beneficial for learning. Significant differences were found in students' perceptions across different institutional contexts. No major distinctions were observed between first-year and experienced students, but students from different disciplines showed significant variation in their perceptions of specific design variables. Additionally, significant interaction effects between study phase and discipline were identified.

Doll et al. (2010) studied on “**Student perceptions of classroom learning environments: Development of the ClassMaps Survey.**” This study evaluated how well the ClassMaps Survey reflects students’ perceptions of their classroom environments. The survey, designed to measure eight key aspects of classroom life that support learning, includes 55 straightforward questions. It was tested with 345 third- to fifth-grade students from public schools in the Midwest and Northeast. Results showed that 53 of the questions fit well into their intended categories, and the survey was reliable, with consistency scores of .75 or higher. Additionally, responses were similar across different grades and genders. These findings suggest that the ClassMaps Survey is a valuable tool for understanding

students' perspectives on their classroom settings, helping teachers plan classwide strategies to boost academic engagement.

Henderson et al. (2006) in their study “**Students’ perception of the psychosocial clinical learning environment: an evaluation of placement models**” looked at how nursing students feel about the social and supportive aspects of their clinical learning environments in three types of placements: Preceptor, Facilitation, and Clinical Education Units. Using a survey, 389 students rated their experiences. Results showed that students felt the strongest support in the Preceptor model, where they work closely with experienced nurses. However, the Clinical Education Unit also stood out, scoring higher than the Facilitation model on all support-related measures. This suggests that while the Preceptor model provides highly personalized support, Clinical Education Units-designed to handle larger student groups-offer a sustainable way to give students consistent social and emotional support, which could be beneficial as nursing programs grow.

Henderson et al. (2012) had done a work on “**Nursing students’ perceptions of learning in practice environments: A review.**” This study aimed to examine the key characteristics of clinical learning environments from nursing students' perspectives across multiple countries over the past decade. The analysis included six studies from three different countries, all utilizing the Clinical Learning Environment Inventory (CLEI). The results revealed consistent patterns in students' perceptions, with high ratings for task accomplishment and affiliation, though the latter was influenced by the models of care in place. In contrast, feedback regarding the extent to which individual students' needs and perspectives were addressed tended to be rated lower. The findings indicated that, while there were similarities across countries, clinical learning environments were generally effective in fostering safe practices and promoting inclusivity for students. However, they were less receptive to innovation and challenges to established practices.

Hung & Chou (2015) in their work “**Students' perceptions of instructors' roles in blended and online learning environments: A comparative study**” tried to investigate that developed a tool, the Online Instructor Role and Behavior Scale (OIRBS), to understand how students view their instructors' roles in online and blended courses. With 750 university students participating, the study identified five key roles instructors play: course designer and organizer, discussion facilitator, social supporter, technology facilitator, and assessment designer. The results showed that students in both online and blended settings placed the highest importance on instructors as course designers, followed by technology facilitators and discussion leaders. Interestingly, students in fully online courses valued the discussion facilitator role more than those in blended settings. These insights underscore the need for well-organized course design and engaging discussions, especially in fully online environments.

Jaeger & Adair (2014) conducted a study on “**The influence of students' interest, ability and personal situation on students' perception of a problem-based learning environment.**” This study explored how engineering students perceive a problem-based learning (PBL) environment and looked at how their personal background, interest in engineering, and confidence influenced these perceptions after they experienced PBL for the first time. Using a tailored survey, researchers identified three key aspects of the PBL environment: support from learning facilitators, students' sense of responsibility, and the quality of projects. Results showed that students' personal situations shaped their view of project quality, interest in engineering influenced how they perceived facilitator support, and confidence in their abilities boosted their sense of responsibility. The findings suggest that encouraging students' interest in engineering can enhance their experience with facilitator support, while fostering confidence helps them feel more responsible within the PBL setting. These insights provide valuable guidance for creating more supportive and effective PBL environments.

Jessee (2016) studied on “**Influences of sociocultural factors within the clinical learning environment on students' perceptions of learning: An integrative review.**” This study aimed to explore how sociocultural factors in acute-care clinical settings shape nursing students' learning experiences, particularly in developing their clinical reasoning skills. By synthesizing existing research, the study sought to pinpoint areas within these environments that, if adjusted, could better support students' growth. Using an integrative review method, the study identified several common themes impacting students globally: the overall atmosphere of the clinical setting, students' sense of belonging within the healthcare team, relationships with supervisors and peers, and the structure of clinical education. These findings highlight that enhancing specific aspects of clinical learning environments could significantly impact new nurses' ability to think critically and make sound clinical decisions, marking a meaningful step toward supporting their transition into practice.

Keinanen & Oksanen (2017) in their study “**Students' perception of learning innovation competences in activity-based learning environment**” aimed to assess how activity-based learning environments, set up through university-company collaborations, help engineering students develop innovation skills. Seventy-seven students from different engineering programs and study years participated in three required courses that used hands-on, active learning focused on building these skills. According to a self-assessment, students felt they learned valuable innovation skills. The analysis showed that factors like motivation, a supportive course atmosphere, relevant content, and a preference for project-based learning were linked to stronger skill development. Interestingly, students' backgrounds, such as gender, study year, or work experience, didn't affect learning outcomes, showing that everyone benefited. The study emphasizes that creating a motivating, safe learning environment is key for helping students become innovators, offering insights for educators aiming to align courses with real-world workplace needs.

Kember & Leung (2009) in their study “**Development of a questionnaire for assessing students’ perceptions of the teaching and learning environment and its use in quality assurance**” tried to investigate developed a tool to better understand how university students perceive their teaching and learning environments, aiming to support quality improvements. The final questionnaire includes 17 areas, covering different aspects of the learning environment and its impact on students’ skill development. Faculty panels helped choose relevant skills, and the tool’s structure was validated through analysis to show how the environment supports students' growth. When used in practice, the questionnaire effectively highlighted strengths and areas needing improvement, providing insights that can guide meaningful changes to enhance the overall educational experience.

Koul & Fisher (2005) studied on “**Cultural background and students’ perceptions of science classroom learning environment and teacher interpersonal behaviour in Jammu, India.**” This study looked at how students’ cultural backgrounds influence their views on their classroom environment and interactions with teachers. Researchers surveyed 1,021 students from 31 classes across seven private co-ed schools, using tools to measure perceptions of teacher behavior and classroom atmosphere, as well as a question about cultural background. The results showed that Kashmiri students generally had a more positive perception of their classroom environment and their interactions with teachers compared to students from other cultural backgrounds. These findings suggest that cultural background plays a meaningful role in shaping students' classroom experiences and relationships with teachers.

Krasnova & Ananjev (2015) conducted a study on “**Students’ perception of learning in the online discussion environment.**” This study looked at how effective online discussion forums are in blended learning, where online classes support traditional learning by encouraging collaboration and a student-centered

approach. Researchers explored how students feel about these forums, focusing on their expectations and experiences. Overall, students had a positive view of online discussions, enjoying the chance to learn new things, exchange ideas with classmates, and develop their writing skills while being exposed to different perspectives. They also appreciated the sense of community these discussions created. However, some challenges were noted, and the study suggests possible solutions to make the online discussion experience even more rewarding for students.

Lang et al. (2005) conducted a study on “**Student perceptions of chemistry laboratory learning environments, student-teacher interactions and attitudes in secondary school gifted education classes in Singapore.**” This study looked at how the chemistry lab environment, teacher-student interactions, and student attitudes toward chemistry differ for 497 gifted and non-gifted secondary students in Singapore. Using three surveys, researchers gathered insights into students' experiences and preferences regarding their lab environment and interactions with teachers. The findings confirmed that these surveys were effective for this group, revealing some interesting differences based on whether students were in gifted or non-gifted streams, as well as some gender-based variations. The study found that students' attitudes towards chemistry were modestly linked to both their lab environment and their interactions with teachers. Suggestions were made to improve chemistry lab settings and teacher-student interactions, especially to better support gifted students, creating a more engaging and positive learning experience in chemistry.

Leow & Neo (2015) conducted a study on “**Redesigning for collaborative learning environment: study on students' perception and interaction in web 2.0 tools.**” This study explored how combining Gagne's instructional events with Jonassen's model for designing a constructivist learning environment (CLE) could foster collaborative learning, supported by Web 2.0 tools. By analyzing survey

responses from 182 students, the researchers identified "peer interaction" as a key element of the learning process. They then examined students' comments and posts on Web 2.0 tools, finding that peer interaction could be broken down into different aspects, such as cross-checking ideas and sharing personal thoughts. The results suggest that peer interaction plays a crucial role in collaborative learning, and the next phase of the study will focus on other aspects of the learning environment to further enhance our understanding of how to make online collaboration more effective.

Lizzio et al. (2002) conducted a study on **"University students' perceptions of the learning environment and academic outcomes: implications for theory and practice."** This study examined the relationship between university students' perceptions of their academic environment, their study approaches, and academic outcomes at both the university and faculty levels. Data from a large, cross-disciplinary sample of undergraduate students were analyzed using path and regression analyses. The findings revealed that students' perceptions significantly influenced both "hard" (academic achievement) and "soft" (satisfaction, development of key skills) learning outcomes, directly and through their study approaches. Specifically, perceptions of a heavy workload and inappropriate assessment led students to adopt surface approaches, while perceptions of good teaching encouraged deep approaches to learning. Moreover, students' perceptions of their current learning environment were found to be a stronger predictor of learning outcomes than their prior academic performance. The study proposes protocols for conducting more detailed analyses of students' perceptions to better understand their impact on learning outcomes.

Lizzio et al. (2007) in their research work **"University students' perceptions of a fair learning environment: a social justice perspective."** aimed to assess how university students understand "fair treatment" and how this sense of fairness affects their connection to their academic department. In the first part, 342

psychology students completed surveys on different aspects of fairness in their department, including respectful interactions and clear procedures, and their sense of belonging to the department. Students described fairness in two main ways: respectful partnerships with staff and accessible, transparent processes for solving issues. The analysis showed that while both types of fairness strengthened students' connection to their department, respectful staff-student relationships had the greatest impact. A second part of the study, with 87 students, found that students' sense of fairness was closely linked to their views on the quality of teaching and clear learning goals. These results suggest that respectful, open interactions and fair systems can help students feel more connected and supported in their academic communities.

Magen-Nagar & Steinberger (2017) conducted a study on “**Characteristics of an innovative learning environment according to students' perceptions: Actual versus preferred.**” This study looked at how students in Israeli elementary and middle schools perceive their high-tech, collaborative classroom environments, reflecting a modern approach to learning where knowledge is built together. Researchers focused on 10 elements that shape the classroom experience, such as student cohesiveness, teacher support, involvement, and cooperation. Using a survey tool called TROFLEI, data were gathered from 1,022 students in 33 classes across 12 schools. Results showed that students wanted a more supportive and engaging environment than what they felt they had, with elementary and middle school students differing in certain preferences. Analysis also revealed that nine of the classroom characteristics directly impacted how well students cooperated, while teacher support and differentiation had an indirect influence through factors like cohesiveness and investigative activities. These findings offer insight into what today's students value, helping educators create classrooms that better support collaborative and active learning.

Martin & Bolliger (2018) in their research work “**Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment**” aimed to explore what online engagement strategies students find most helpful, focusing on three types of interactions: student-to-student, student-to-instructor, and student-to-content. A survey of 155 students showed that students valued interactions with instructors the most. In terms of student-to-student engagement, icebreaker activities and collaborative projects were seen as especially beneficial. For student-to-instructor engagement, students appreciated regular announcements and the use of grading rubrics. When it came to engaging with course content, students found real-world projects and discussions with guiding questions to be the most valuable. The study also looked at how factors like age, gender, and online experience might influence students’ preferences. These insights can help online instructors and course designers create more engaging and supportive online learning environments.

Mayya & Roff (2004) in their research work “**Students’ perceptions of educational environment: a comparison of academic achievers and under-achievers at Kasturba Medical College, India**” explored how medical students at Kasturba Medical College in India view their learning environment, focusing on differences between high-achieving and underperforming students, as well as between male and female students. A total of 508 clinical-year students completed the DREEM questionnaire to assess their perceptions of various aspects of their educational experience. The results showed that high-achieving students rated their environment more positively, especially in areas like teacher support, academic atmosphere, and social aspects, compared to their underperforming peers. Additionally, among the academically vulnerable students, females rated the environment less favorably than males. These insights highlight the importance of understanding students’ perceptions to improve their educational experience. By regularly using tools like DREEM, institutions can identify issues early and make

targeted changes to create a more supportive environment that encourages positive attitudes and better learning outcomes for all students.

Nijhuis et al. (2005) in their research work **“Influence of redesigning a learning environment on student perceptions and learning strategies”** tried to examine whether a problem-based learning course, in contrast to an assignment-based learning format, was perceived as more challenging by students and whether it fostered deeper learning strategies. The study involved two cohorts of second-year International Business Studies students who enrolled in the International Business Strategy course in consecutive years. Data were collected from 406 students in the original course and 312 students in the redesigned course using the Ramsden Course Experiences Questionnaire and the Biggs Study Processes Questionnaire to assess their perceptions of the learning environment and their learning approaches. The results, however, did not align with expectations, as students in the problem-based learning course demonstrated more surface learning and less deep learning than their counterparts in the assignment-based course. Furthermore, students reported a less favorable perception of the redesigned learning environment, particularly regarding goal clarity, the usefulness of the textbook, and the workload. The findings suggest that improvements could be made through enhanced staff development, a focus on problem-solving in assessment, better support for skill development, and greater opportunities to engage with the new instructional approach.

Noori et al. (2021) conducted a study **entitled “Students’ Perception of Lecturers’ Behaviors in the Learning Environment.”** This study looked at how students at Takhar University in Afghanistan feel about their lecturers' behavior and its impact on their motivation and learning experience. Researchers surveyed 140 students, asking about different aspects of lecturer behavior in the classroom. Overall, students had a positive view of how their lecturers interacted with them, with no major differences in opinion based on gender or the type of classes they

took. These findings suggest that students value respectful and supportive behavior from their instructors. The results could help guide university policies and encourage lecturers to keep fostering positive, motivating environments for their students.

Noreen et al. (2018) had done a work “**Students’ perception of Learning Environment Using Dundee Ready Education Environment Measure (Dreem) Inventory.**” This study set out to understand how medical students perceive their learning environment, which plays a key role in their academic success and guides potential curriculum improvements. Using the DREEM Inventory-a tool designed to evaluate the quality of educational settings-the researchers surveyed 131 undergraduate students. Overall, students rated their learning environment as average, with scores of 25.4/48 for learning, 23.3/44 for teacher support, 17.3/32 for academic self-view, 27/48 for atmosphere, and 14.3/28 for social aspects, giving a total score of 107.5/200. Eleven areas scored particularly low, pointing to significant issues that need urgent attention. These findings highlight an opportunity to enhance the educational environment across all areas, making it more supportive and effective for student success.

Nouh et al. (2016) in their work “**Assessing correlation between students’ perception of the learning environment and their academic performance**” aimed to assess the connection between the learning environment and academic performance among final-year medical students in Riyadh, Saudi Arabia. In 2014, students from four medical colleges completed an online survey that collected information on their GPA, demographics, and their perceptions of the learning environment using the DREEM questionnaire. Out of 423 students invited, 261 responded, and 193 fully completed the survey. The average score for the learning environment was 117.9, with female students rating it slightly higher. Results showed a positive link between a supportive learning environment and higher GPAs-students who felt their learning environment was “More Positive than

Negative” or “Excellent” had, on average, a 0.38-point increase in GPA compared to those with poorer perceptions. This suggests that a positive learning environment can play an important role in supporting students’ academic success.

Osgerby (2013) conducted a study on **“Students’ perceptions of the introduction of a blended learning environment: An exploratory case study.”**

This study looked into how students felt about a blended learning approach used in redesigned accounting and financial management courses at the University of Winchester in the UK. Using focus groups, researchers explored students’ experiences with the Virtual Learning Environment (VLE) introduced in 2008 and 2009. Overall, students had a positive view of the blended learning model, echoing findings from previous research, though a few mixed opinions were noted. Discussions revealed that students’ expectations, technical skills, and engagement levels played a big role in their experiences, as did the resources and support offered by the university. Students also raised concerns about communication, interaction, and collaboration within the VLE. The study provides valuable insights for making virtual learning environments more effective in higher education.

Pai et al. (2014) in their study **“Medical students’ perception of their educational environment”** explored how medical students perceive their learning environment in an Indian medical school that uses a traditional curriculum and looked for differences across educational stages (pre-clinical and clinical). A survey was conducted using the Dundee Ready Education Environment Measure (DREEM), with 696 students from different semesters participating. The analysis showed an overall score of 123 out of 200, with first-year students generally reporting a more positive experience than those in later years, indicating a gradual decline in satisfaction. Students viewed their learning environment positively overall, with encouraging views on learning, course structure, self-perception, and social aspects. However, they highlighted some areas of concern, like feeling stressed, finding course organizers overly strict, and a strong focus on

factual learning. The findings suggest that a shift toward problem-based learning, better student support, and educator training could create a more enriching and supportive learning environment.

Palmer & Holt (2010) in their study **“Students’ perceptions of the value of the elements of an online learning environment: Looking back in moving forward”** aimed to assess Deakin University's online learning system, Deakin Studies Online (DSO), which was introduced in 2003 to give every course at least a basic online presence. Over 5,400 students provided feedback in 2004–2005, revealing which parts of the online system they found most useful, areas needing improvement, and what made the platform feel beneficial to their learning. Students frequently used core features like accessing course materials, reading online discussions, submitting assignments, and contacting instructors. However, they wanted improvements in areas like getting feedback on assignments, viewing grades, and tracking their course progress. Students felt that DSO enhanced their learning when they received good support from instructors and tech services, could easily find course information, and could read contributions from classmates. This analysis offers insights into the value of combining traditional LMS features with new e-learning tools to create an even more supportive and engaging online learning experience.

Phirangee (2016) studied on **“Students’ Perceptions of Learner-Learner Interactions that Weaken a Sense of Community in an Online Learning Environment.”** This study looked into why students tend to drop out of online courses more often than traditional classes, with past research pointing to feelings of isolation and disconnection as key factors. To dig deeper, researchers interviewed six graduate students to identify specific types of peer interactions that might weaken their sense of community in online learning. They found seven types of interactions that contributed to these negative feelings, including overly eager participants (“the keener”), lack of meaningful content, selective listening,

failing to give credit, going off-topic, editing others' notes, and cultural exclusion. These insights shed light on how certain interaction patterns can lead students to feel disconnected, offering valuable direction for making online learning more engaging and supportive.

Ramsden (1979) had done a work “**Student learning and perceptions of the academic environment.**” This study looked at how the way courses are structured, taught, and assessed affects student learning, examining how different academic settings place unique demands on students. After reviewing research on learning environments, data were gathered through a questionnaire and interviews with students from six departments at a British university. The findings revealed that students in various subject areas experience their learning environments in distinct ways, particularly in how they view teaching quality and course design. Students emphasized the importance of supportive teaching, which positively shapes their approach to learning. The study also found that how students perceive specific learning tasks impacts their engagement and effort. These insights highlight how tailoring academic environments to students' needs could enhance learning experiences across different fields.

Schuitema et al. (2012) studied on “**Self-regulated learning and students' perceptions of innovative and traditional learning environments: A longitudinal study in secondary education.**” This study explored how students' views of their learning environment-particularly in areas like autonomy, relevance, and collaboration-affect their ability to manage their own learning. Researchers compared traditional and innovative classrooms designed to promote self-regulation, surveying 648 students at the beginning of secondary school and again midway through the first year. Results showed that when students felt supported in their independence and found lessons relevant, they were more likely to develop self-regulated learning skills. Students in innovative environments reported more support for autonomy, relevance, and collaborative learning than those in

traditional settings. However, this didn't translate into higher self-regulated learning skills, suggesting that while an innovative environment positively shapes students' experiences, it may not lead to stronger self-management on its own.

Sengupta et al. (2017) conducted a study on “**Perception of learning environment among undergraduate medical students in two different medical schools through DREEM and JHLES questionnaire.**” This study explored how medical students at two colleges in eastern India feel about their learning environment, using both the DREEM and Johns Hopkins Learning Environment Scale (JHLES) questionnaires. A total of 278 students from Nil Ratan Sircar Medical College and the College of Medicine and Sagore Dutta Hospital participated. Overall, the results were similar for both schools, with positive feedback on most aspects of the learning environment. However, some differences emerged- students rated the atmosphere slightly differently on the DREEM scale, and JHLES showed variations in areas like engagement, inclusion, safety, and physical space. Both tools aligned well, showing a positive correlation in their findings. The study suggests that while students generally feel supported, improvements in academic self-perception and social support could further enhance the learning environment for a more balanced and inclusive experience.

Senocak (2009) in his work “**Development of an instrument for assessing undergraduate science students' perceptions: The problem-based learning environment inventory**” focused on creating and validating an inventory to help teachers and researchers better understand how students view problem-based learning (PBL) environments. The inventory was developed through four main steps: formulating items, validating content, testing construct validity, and calculating reliability. It includes 23 items divided into four categories: Student Interaction and Collaboration, Teacher Support, Student Responsibility, and Quality of Problem. Each item showed a strong association with its respective category, confirming the inventory's structure. Factor analysis showed that these

four categories explained 53.72% of the total variance, and reliability scores were high, ranging from 0.80 to 0.92. These results indicate that the Problem-based Learning Environment Inventory is a reliable and valid tool that can be effectively used to explore student perspectives in educational settings.

Serceküş & Baskale (2016) studied on “**Nursing students’ perceptions about clinical learning environment in Turkey.**” This study explored what influences the clinical learning experience for nursing students, emphasizing how student feedback can help improve this environment. Researchers spoke with 36 nursing students in Turkey, who shared their perspectives on what impacts their learning. The students found that communication mistakes and receiving feedback in front of patients added to their stress, as did the constant presence of instructors. On the other hand, strong peer support and open communication with peers, hospital staff, and instructors were seen as major positives. Patient confidence and support also played a role in shaping their learning experience. The study suggests that creating a better clinical environment involves closer collaboration between school and clinical staff, enhancing instructor skills, and providing more support for students to foster a positive and effective learning space.

Serrano et al. (2021) in their study “**Students’ learning environment perception and the transition to clinical training in dentistry**” explored how dental students at the Academic Centre for Dentistry Amsterdam (ACTA) perceive their learning environment (LE) across their six-year program, particularly looking at changes between the preclinical (Pt) and clinical training (Ct) phases. Using the DREEM questionnaire, researchers gathered responses from 216 Pt students and 379 Ct students. Overall, LE scores were highest during the preclinical phase (133.4) but declined in the clinical phase (119.2), with the most significant drops happening in the second and third years as students transitioned from Pt to Ct. These findings suggest that the shift to clinical training can challenge students’ perception of their learning environment, impacting their overall

experience. This drop across all LE areas indicates that more educational support may be needed during this transition. The study highlights a need for further research to understand and address the specific challenges students face as they move from preclinical to clinical training.

Shankar et al. (2013) conducted a study on **“Students’ perception of the learning environment at Xavier University School of Medicine, Aruba.”** This study looked at how medical students at Xavier University School of Medicine (XUSOM) in Aruba feel about their learning environment, which had not been previously evaluated. Using the DREEM questionnaire, researchers surveyed 73 students across semesters one to five, asking them to rate statements about their educational experience. The results were generally positive, with an overall score of 131.79 out of 200. Students rated specific areas, including teaching quality, academic self-confidence, and social aspects, with teaching and the general atmosphere scoring well. Interestingly, there were no significant differences in responses based on students’ personal backgrounds. The feedback suggests that students feel supported in their learning environment, and the university plans to continue gathering student input as they make the curriculum more student-centered and integrated.

Singh et al. (2023) conducted a study **“Perspective of educational environment on students’ perception of teaching and learning.”** This study examined how students perceive their learning and teaching environment in a university setting using the DREEM (Dundee Ready Education Environment Measure). By surveying 300 students across various fields with a Likert scale, the research found no significant differences in students' perceptions based on factors like discipline, gender, or study level. To test DREEM's effectiveness, reliability checks and factor analysis were conducted, revealing that 44 out of 50 items were meaningful, explaining 46.54% of the variance. The most reliable area was “student perception of learning,” with the highest-rated item being “Teaching helps me become a more

active learner.” This finding suggests that a refreshed version of the DREEM tool could be useful in assessing and enhancing the learning atmosphere in higher education institutions.

Skochelak et al. (2016) conducted a study on “**Medical student perceptions of the learning environment at the end of the first year: a 28-medical school collaborative.**” This study looked at how medical students' perceptions of their learning environment are influenced by their personal characteristics and the specific campus they attend, with the goal of finding ways to improve medical education. Across 38 campuses at 28 medical schools, 4,664 students took part in this multi-year study, which measured attributes like empathy, coping skills, tolerance for uncertainty, and patient-centeredness using the Medical School Learning Environment Survey (MSLES). While individual demographics explained only a small portion (2.2%) of the variation in students' perceptions, campus-specific factors accounted for a larger portion (15.6%). This suggests that elements unique to each campus—such as grading practices, administrative support, and learning communities—play a bigger role in shaping how students feel about their educational environment. The study highlights the need to identify these campus-level influences to create more supportive learning environments that foster students' well-being and professional growth.

Soliman et al. (2017) had done a work “**Medical students' perception of the learning environment at King Saud University Medical college, Saudi Arabia, using DREEM inventory.**” This study looked at how medical graduates from the reformed curriculum at King Saud University (KSU) feel about their learning environment. In 2009, KSU moved from a traditional curriculum to a system-oriented hybrid approach, and this survey focused on the experience of the second graduating batch from that reform. Upon graduation in 2014, 62 fifth-year students completed the DREEM questionnaire, which assessed key areas like learning quality, teacher support, academic self-confidence, atmosphere, and

social experience. Overall, students gave positive feedback across all areas, with scores reflecting satisfaction with the learning environment and teachers, as well as a supportive atmosphere. These results indicate that the curriculum reform has been well-received and offer insights into areas where further improvements could enhance the student experience.

Stormon et al. (2019) in their research work **“DREEM-ing of dentistry: Students’ perception of the academic learning environment in Australia”** aimed to assess how undergraduate dentistry students at The University of Queensland feel about their learning environment, acknowledging that dental education needs to keep evolving to meet new challenges. Students from years 1-4 completed a survey that measured their perceptions across five key areas: Learning, Teaching, Academic self-view, Atmosphere, and Social self-view. Among 192 participants, most students had a generally positive view, with an overall score of 127 out of 200. However, students rated Academic and Social self-perception lower than the other areas. Interestingly, those in preclinical years or those who saw dentistry as their first career choice felt more positively about their environment, except in social aspects. These insights suggest that shifts between preclinical and clinical phases may impact how students experience their education. Further research could explore how factors like course schedules and support systems affect both physical and mental well-being, helping to create an even more supportive learning environment.

Struyven et al. (2008) studied on **“Students’ experiences with contrasting learning environments: The added value of students’ perceptions.”** This study explored how students’ experiences differed between traditional lectures and a more interactive, student-centered learning environment. Researchers also looked at how different types of assessments-like portfolios, case studies, peer reviews, and multiple-choice tests-affected students’ views. Surveying 608 students, the results were surprising: students in lecture-based classes generally had more

positive and consistent experiences, especially in areas like clear goals, manageable workloads, and quality of teaching. In the student-centered environment, opinions were mixed. Some students loved the variety of methods, active assignments, and teamwork, but others found it stressful, citing time pressure, high workloads, and challenges with group work. These findings suggest that while interactive learning can be motivating and enjoyable, it may also bring added demands that impact students' overall satisfaction.

Bjork et al. (2014) studied on “Nursing students’ perceptions of their clinical learning environment in placements outside traditional hospital settings.”

This study evaluated nursing students' perceptions of their clinical learning environment at a Greek nursing school, aiming to understand how they view the environment and areas needing improvement. Using the Clinical Learning Environment Inventory (CLEI), 196 students anonymously rated psychosocial aspects of their hospital-based clinical training. Results showed that students rated “Personalization” (23.97) and “Task Orientation” (23.31) highest in their actual clinical environment, while their ideal environment had even higher scores in “Personalization” (27.87), “Satisfaction” (26.82), and “Task Orientation” (26.78). The lowest actual scores were in “Innovation” (19.21) and “Individualization” (19.24), with these areas also scoring lower in the preferred environment. A positive link was found between “Satisfaction” and all other scales. Overall, the study reveals a gap between students' expectations and their actual clinical experience, indicating a need for changes that prioritize innovation and personalized learning to enhance the educational framework in clinical settings.

Tripathy & Dudani (2013) conducted a study “Students’ perception of the learning environment in a new medical college by means of the DREEM inventory.” This study looked at how students feel about their learning environment at a new medical college in India, established in 2008, using the DREEM survey, a tool for assessing educational settings in medical schools. The

survey involved 156 students from the first two batches (2008 and 2009) and aimed to pinpoint areas for improvement while also exploring any gender differences in perceptions. Conducted after a lecture, the survey had a 100% response rate. Students rated the environment as generally positive, with an overall score of 126.3 out of 200, though they identified some areas needing attention. The study highlights that many factors shape students' views of their educational experience and stresses the importance of regularly gathering feedback to quickly address any emerging issues for a better learning environment.

Veerapen & McAleer (2010) in their study “**Students’ perception of the learning environment in a distributed medical programme**” aimed to assess how medical students at the University of British Columbia experience their learning environment across different sites. It aimed to understand whether students felt supported and whether their learning conditions were fair and consistent. To do this, researchers surveyed 2nd- and 3rd-year students from the graduating classes of 2008 and 2009 using the Dundee Ready Educational Environment Survey. The survey explored how students perceived their learning, teachers, academic self-confidence, social life, and the overall atmosphere. Findings showed that, overall, students had a positive view of their learning environment, especially praising their teachers. However, they struggled with heavy workloads and a focus on memorization. Differences between sites were more noticeable in the first graduating class and were often tied to the level of local student support rather than central factors like shared faculty or curriculum. The study emphasized the importance of regularly reviewing these environments and fostering communication among site leaders to ensure students feel equally supported.

Wierstra et al. (1999) in their research work entitled “**Learning environment perceptions of European university students**” tried to investigate the experiences of 610 Dutch students and 241 other European students who each spent at least three months studying abroad through an exchange program. Dutch students went to other European universities, while European students studied in the Netherlands. Using a survey tool called the Inventory of Perceived Study Environment (IPSE), researchers explored how students felt about their home university, their host university, and what they imagined as an ideal learning environment. Despite differences across countries, students from all backgrounds shared a common vision for their ideal experience: they wanted more active and engaging teaching, easy access to their instructors, and greater flexibility in how they learn. These shared preferences highlight what students value most in a supportive and adaptable academic environment.

Zafeiriou et al. (2001) studied on “**Using students’ perceptions of participation in collaborative learning activities in the design of online learning environments.**” This study examined the factors that influence student participation in online group activities and explored how these insights could improve instructional design in Higher Education. Using a grounded theory approach, the qualitative research focused on students’ perspectives, identifying key conditions that affect both the quality and quantity of participation in online group work. The paper highlights practical implications for designing, developing, and delivering effective online learning environments, aiming to bridge theory and real-world application to support more engaging and collaborative online experiences.

Zhang et al. (2023) in their study “**Investigating high school students’ perceptions and presences under VR learning environment**” tried to investigate how VR impacts 10th-grade students’ experiences in a blended learning setting, especially in terms of their engagement and interactions with the

content and each other. Using a framework that focuses on social and cognitive aspects of learning, researchers worked with 55 students to see how VR shapes their perception of the classroom. Results showed that VR made students feel more connected to the classroom and teaching tools, enhancing social interactions and teaching presence. It also boosted their interest, focus, and participation. While VR didn't show a big difference from traditional methods for straightforward topics, it was more effective in helping students engage with complex, less structured material. Overall, VR proved to be a positive influence, suggesting it could be a powerful tool to make learning more immersive and interactive.

2.1.1 Matrix of Literature Review

Author(s) & Year	Aim of the Study	Key Findings
Abraham et al. (2008)	To compare perceptions of the learning environment between first-year and clinical phase students and examine gender-based differences at Melaka Manipal Medical College.	First-year students showed higher satisfaction than clinical students. Gender differences in perceptions were minimal. Identified areas of concern for improvement.
Adas & Shmais (2011)	To explore students' perceptions of blended learning in English language courses at An-Najah National University.	Students had positive attitudes toward blended learning, appreciating online tools. High internet skills facilitated technology use in learning.
Ahmed et al. (2018)	To assess students' perceptions of the learning environment at Gezira University and its relation to academic performance.	Positive perception overall, with semester 6 students and high-achieving students rating the environment better. Differences in perceptions were noted across academic performance and study years.
Akkoyunlu & Soyly (2008)	To examine students' perceptions of blended learning environments based on different learning styles.	Blended learning accommodated various learning styles without affecting academic performance. Face-to-face interaction was most favored by all students.
Al-Kabbaa et al. (2012)	To explore students' perceptions of the learning environment at King Fahad Medical City in Saudi Arabia.	Moderate dissatisfaction with several areas of the learning environment, indicating room for improvement.

Allen & Fraser (2007)	To investigate parent and student perceptions of the science classroom learning environment and its association with student outcomes.	Both students and parents desired a more positive learning atmosphere. Task focus was linked to better attitudes towards science.
Arens & Moller (2016)	To examine how students' perceptions of their learning environment relate to their achievements in math and language.	Achievement positively influenced perceptions of related subjects. Instructional quality was more important than teacher-student relationships.
Asiyai (2014)	To study secondary school students' perceptions of the physical classroom environment and its impact on learning and motivation.	Private school students had a more favorable perception than public school students. Classroom condition significantly influenced learning motivation and engagement.
Bakhshialiabad et al. (2015)	To explore medical students' perceptions of the learning environment at Rafsanjan University of Medical Sciences.	Students had a generally positive view of their learning environment, though improvements in instructional design and support were recommended.
Berntsen & Bjork (2010)	To investigate nursing students' perceptions of their clinical learning environment in nursing homes.	Students appreciated the personalized learning but identified innovation as an area for improvement.
Bowers & Kumar (2015)	To compare student perceptions of teacher and social presence in face-to-face and online learning environments.	Students reported stronger teacher and social presence in online classes, suggesting effective online engagement strategies.
Brannagan et al. (2013)	To explore the impact of peer teaching on nursing students' perceptions of their learning environment and self-efficacy.	Peer teaching did not reduce first-year students' anxiety, and faculty feedback was deemed more beneficial.
Byrne et al. (1986)	To study students' perceptions of ideal vs. actual classroom learning environments and their connection to student achievement.	Clear goals and teacher support were key to positive classroom environments. Students in more cooperative environments had higher achievement.
Chan (2004)	To understand nursing students' perceptions of hospital learning environments during clinical placements.	Students' ideal clinical experience was more positive than their actual experiences, highlighting areas needing improvement.
Chang et al. (2015)	To review features of technology-supported learning environments based on participant perceptions.	Technical, cognitive, and social dimensions were prioritized in existing research, while content and

		metacognitive aspects were less explored.
Chau et al. (2013)	To evaluate student perceptions of a 3D virtual world learning environment.	Students enjoyed the 3D virtual environment but found their focus and understanding similar to traditional classrooms.
Cwik & Singh (2021)	To explore how students' perceptions of their learning environment impact their grades and motivation in introductory physics courses.	Gender disparities in outcomes were significant, and students' perceptions of the environment influenced their success and motivation in the course.
Den Brok et al. (2006)	To study multilevel issues in research on students' perceptions of learning environments using the QTI.	Multilevel analyses provided a clearer picture of how teacher behavior and classroom dynamics shape students' perceptions.
Dochy et al. (2005)	To assess students' perceptions of problem-based learning (PBL) environments across institutional contexts.	PBL was perceived positively, though differences across disciplines and institutional contexts emerged.
Doll et al. (2010)	To evaluate the ClassMaps Survey for assessing student perceptions of classroom environments.	The survey was reliable and provided valuable insights into students' classroom experiences, helping educators improve their strategies.
Henderson et al. (2006)	To assess nursing students' perceptions of social and supportive aspects of their clinical learning environments.	Students felt most supported in the Preceptor model, highlighting the value of personalized mentoring in clinical settings.
Henderson et al. (2012)	To review nursing students' perceptions of their clinical learning environments across countries.	Consistent patterns showed that clinical environments fostered safe practices but were less receptive to innovation.
Hung & Chou (2015)	To investigate how students perceive their instructors' roles in blended and online learning environments.	Students highly valued instructors' course design and facilitation roles, especially in online settings.
Jaeger & Adair (2014)	To study how personal factors influence students' perceptions of problem-based learning environments in engineering.	Students' personal interest and confidence shaped their perceptions of the PBL environment.
Jessee (2016)	To explore the sociocultural factors shaping nursing students' learning in acute-care clinical settings.	Cultural and social factors significantly impacted students' clinical reasoning and learning experiences.

Keinanen & Oksanen (2017)	To assess students' perceptions of learning innovation competencies in activity-based learning environments.	Motivation, relevant content, and project-based learning helped develop innovation skills, regardless of background.
Kember & Leung (2009)	To develop a tool for assessing students' perceptions of teaching and learning environments for quality assurance purposes.	The tool identified areas for improvement in teaching and learning environments, helping to guide quality enhancements.
Koul & Fisher (2005)	To explore the impact of cultural background on students' perceptions of classroom learning environments and teacher interpersonal behavior.	Cultural background influenced students' perceptions, with Kashmiri students having more positive views of their classroom environment.
Krasnova & Ananjev (2015)	To explore students' perceptions of online discussion forums in blended learning.	Students valued online discussions for idea exchange but faced challenges related to participation quality.
Lang et al. (2005)	To assess how chemistry lab environments and student-teacher interactions impact students' attitudes in secondary school gifted education classes.	Positive teacher-student interactions were linked to better attitudes towards chemistry. Gifted students had more favorable perceptions.
Leow & Neo (2015)	To redesign collaborative learning environments using Web 2.0 tools and assess student interaction.	Peer interaction in collaborative learning was essential for engagement, and Web 2.0 tools supported this effectively.
Lizzio et al. (2002)	To explore the link between students' perceptions of their learning environment and academic outcomes at the university level.	Perceptions of workload and teaching quality directly influenced students' academic achievement and satisfaction.
Lizzio et al. (2007)	To assess students' perceptions of fairness in their learning environments.	Fair treatment and respectful staff-student relationships positively influenced students' connection to their academic departments.
Magen-Nagar & Steinberger (2017)	To examine students' perceptions of innovative classroom environments in Israeli schools.	Students desired more engaging and supportive environments, with a focus on teacher support and active learning.
Martin & Bolliger (2018)	To explore student perceptions on engagement strategies in online learning environments.	Students valued interactions with instructors and peers, especially in collaborative and real-world contexts.

Mayya & Roff (2004)	To study how high-achieving and underachieving medical students perceive their learning environment at Kasturba Medical College.	High achievers had more positive perceptions, especially regarding teacher support and academic atmosphere.
Nijhuis et al. (2005)	To compare students' perceptions of problem-based and assignment-based learning environments.	Students in problem-based courses showed less deep learning and more surface learning compared to assignment-based courses.
Noori et al. (2021)	To assess the impact of lecturers' behaviors on students' learning motivation and perceptions at Takhar University.	Positive lecturer behavior was associated with higher student motivation and a better learning experience.
Noreen et al. (2018)	To assess students' perceptions of their learning environment using the DREEM inventory.	Students rated the learning environment as average, with areas for improvement identified in teaching, social aspects, and academic self-view.
Nouh et al. (2016)	To explore the relationship between students' perceptions of their learning environment and their academic performance in medical schools in Riyadh.	Positive perceptions of the learning environment were linked to higher GPAs.
Osgerby (2013)	To assess students' perceptions of the introduction of a blended learning environment in accounting and financial management courses at the University of Winchester.	Students appreciated the blended learning model but desired improvements in communication and collaboration within the virtual learning environment.
Pai et al. (2014)	To explore medical students' perceptions of their learning environment in an Indian medical school.	First-year students rated the environment more positively, but areas like stress and strict course organizers were noted as concerns.
Palmer & Holt (2010)	To assess students' perceptions of online learning elements at Deakin University.	Students valued features like course material access, but suggested improvements in assignment feedback and grade tracking.
Phirangee (2016)	To investigate why learner-learner interactions in online learning environments can negatively impact the sense of community.	Certain peer interactions contributed to negative feelings of isolation, impacting students' sense of community.

Ramsden (1979)	To explore how different academic environments affect student learning.	Teaching quality and course design were emphasized by students as critical factors in shaping their approach to learning.
Schuitema et al. (2012)	To explore students' perceptions of innovative vs. traditional learning environments in secondary education.	Students in innovative environments reported better support for autonomy and collaboration, although these didn't necessarily lead to higher self-regulation.
Sengupta et al. (2017)	To compare perceptions of the learning environment in two medical schools in eastern India using the DREEM and JHLES tools.	Both schools had positive perceptions but showed some differences in social support and academic self-perception.
Senocak (2009)	To develop a problem-based learning environment inventory for undergraduate science students.	The inventory demonstrated reliability and validity, showing strong associations between student interaction, teacher support, and project quality.
Sercekuş & Baskale (2016)	To explore nursing students' perceptions of their clinical learning environment in Turkey.	Students valued strong peer support but struggled with communication issues and receiving feedback in stressful contexts.
Serrano et al. (2021)	To investigate dental students' perceptions of their learning environment during preclinical and clinical phases.	Perceptions were more positive during the preclinical phase but declined during clinical training, indicating the need for better support during the transition.
Shankar et al. (2013)	To assess medical students' perceptions of their learning environment at Xavier University School of Medicine in Aruba.	Students generally had a positive view, especially in areas like teaching quality, but feedback across semesters was consistent in the need for more integration.
Singh et al. (2023)	To explore how students perceive their learning and teaching environment at a university using the DREEM tool.	The study found no major differences based on demographics. The highest-rated area was student perception of learning.
Skochelak et al. (2016)	To explore how campus-specific factors influence medical students' perceptions of their learning environment across 28 medical schools.	Campus-specific factors had a greater impact on perceptions than individual characteristics, suggesting that local student support systems are key.

Soliman et al. (2017)	To assess the learning environment at King Saud University after its curriculum reform.	Students gave positive feedback overall, especially in areas of teacher support and academic self-confidence.
Stormon et al. (2019)	To evaluate students' perceptions of the academic learning environment in undergraduate dentistry programs in Australia.	Perceptions were generally positive but varied between preclinical and clinical phases, with a need for further support during transitions.
Struyven et al. (2008)	To explore students' experiences with traditional vs. interactive learning environments and assessment types.	Students in traditional settings had more positive experiences with clear goals and manageable workloads, while some students in student-centered environments found them stressful.
Bjork et al. (2014)	To study nursing students' perceptions of their clinical learning environment in placements outside traditional hospital settings.	Students preferred environments with higher levels of personalization and task orientation.
Tripathy & Dudani (2013)	To explore student perceptions of the learning environment at a new medical college in India using the DREEM survey.	The learning environment was generally positive but required continuous improvements in areas such as student support and curriculum structure.
Veerapen & McAleer (2010)	To explore students' perceptions of their learning environment across different sites in a distributed medical program.	Students had a positive view of the learning environment, but workload and memorization were problematic.
Wierstra et al. (1999)	To compare students' perceptions of their home and host university learning environments during exchange programs.	Students across various backgrounds shared a preference for active teaching and flexible learning, highlighting what they value in supportive academic settings.
Zafeiriou et al. (2001)	To explore student participation in collaborative learning activities in online learning environments.	Collaborative learning design should consider quality participation to improve student engagement in online environments.
Zhang et al. (2023)	To investigate the impact of VR on 10th-grade students' learning experiences in blended classrooms.	VR increased engagement and focus, especially for complex content, but showed no major difference in traditional learning for simpler topics.

2.2 Statement of the Problem

The researcher reviewed a range of literature addressing the causes, presence, and solutions related to learning environments and academic achievement among various sample groups. This led to a deeper investigation into how learning environments and academic achievement can be measured using different parameters. However, the researcher found that no study significantly highlighted the relationship between the learning environment and academic achievement of students using actual data. While numerous theoretical frameworks have suggested the existence of learning environments and academic achievement, particularly in developing nations, empirical studies are still scarce. Previous research has extensively examined students and teachers at the secondary and higher secondary school levels, but the area of undergraduate education remains largely unexplored. This gap is particularly relevant today, given the increasing demands on students and the evolving needs of the modern higher education system. Therefore, the researcher focused on exploring the learning environments and academic achievement of undergraduate students. A notable knowledge gap was identified between the theoretical understanding and practical application of perceived learning environments and academic achievement at the undergraduate level in West Bengal. Drawing from the researcher contextual analysis and review of existing literature, the following research questions were formulated for the present study: -

- 1) How do undergraduate level students of West Bengal perceive their learning environment?
- 2) What is the relationship between undergraduate students' perceptions of their learning environment and their academic achievement in West Bengal?
- 3) How do different demographic factors result in variation on perceived learning environment of undergraduate level students at West Bengal?

In search of the appropriate answers of aforesaid research questions, the researcher framed and stated the problem of the study as - **“RELATIONSHIP BETWEEN PERCEIVED LEARNING ENVIRONMENTS AND ACADEMIC ACHIEVEMENT OF STUDENTS AT UNDERGRADUATE LEVEL: A CRITICAL EVALUATION”**

2.3 Delimitations of the Study

Current study was delimited to followings: -

- a) The present study was delimited to only thirteen districts of West Bengal i.e., Purba Bardhaman, Paschim Bardhaman, Hooghly, Howrah, Kolkata, Bankura, Purba Medinipur, Paschim Medinipur, Jhargram, North 24 PGS., South 24 PGS., Nadia and Murshidabad.
- b) The study was delimited to 1,436 undergraduate students from various districts.
- c) The study was delimited to only 2nd, 4th and 6th semester UG level students.
- d) The study was delimited to undergraduate students from 26 colleges and universities in West Bengal.
- e) Demographic characteristics were delimited to gender, habitation, types of institution, streams of study, present studying class, annual family income and academic achievement only.

2.4 Objectives of the Study

Researcher generated objectives based on the research questions and study delimitations. The objectives are as follows: -

- i. To understand undergraduate students’ perceptions of their learning environment in West Bengal.
- ii. To assess the levels of perceived learning environments among undergraduate students in West Bengal.
- iii. To examine the correlation between student’s perceived learning environments and their academic achievement.

- iv. To investigate the variation of various independent indicators viz; gender, habitation, types of institution, streams of study, present studying class, and annual family income of undergraduate students on their perception of learning environments including subscales of it.
- v. To examine whether students' perceptions of learning environments significantly predict their academic achievement.

2.5 Hypotheses of the Study

Hypotheses were formulated based on stated objectives, as follows: -

H₀₁: There is no significant difference in perception of students on their learning environment with respect to their gender.

H₀₂: There is no significant difference in perception of students on their learning environment with respect to their habitation.

H₀₃: There is no significant difference in perception of students on their learning environment with respect to their types of institution.

H₀₄: There is no significant difference in perception of students on their learning environment with respect to their streams of study.

H₀₅: There is no significant difference in perception of students on their learning environment with respect to their present studying class.

H₀₆: There is no significant difference in perception of students on their learning environment with respect to their annual family income.

H₀₇: There is no significant correlation between perception of students on their learning environment and their academic achievement.

H₀₈: Students' perceptions of the learning environment do not significantly predict their academic achievement.

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CHAPTER - III

METHOD AND PROCEDURE

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METHOD AND PROCEDURE

The proper methodology of the study is the central point on which the success of any research work depends. As the characteristic of the different problem is completely different, a proper methodology should be used according to the characteristic of the problem. The method of study encompasses the thorough procedures involved in gathering and analysing data, as well as the systematic approach to solving the research problem. This chapter is structured into two distinct sections: Methods and Procedure. The methods section is subdivided into the study design, the population and sample, the description of variables, and the instruments used. The procedure section, however, is subdivided into the data collection, data quality of data, analysis of data and normality of data.

3.1 Method

‘The research methodology, including the data collection and analysis techniques, is outlined, with a justification provided for the selection of the specific methods employed’ (Goundar, 2012). The main objective of this study was to investigate the connection between students’ perceptions of their learning environments and their academic performance of undergraduate level in various districts of West Bengal, including Purba Bardhaman, Paschim Bardhaman, Howrah, Hooghly, Kolkata, Bankura, Purba Medinipur, Paschim Medinipur, Jhargram, North 24 PGS, South 24 PGS, Nadia, and Murshidabad. To ensure the research method was accurately represented, a descriptive survey research method was employed in this present study.

3.1.1 Research Design

Research design is defined as “the plans and procedures for research that encompass decisions from broad assumptions to detailed methods of data collection and analysis” (Creswell, 2009). According to Kabir (2016), research design refers to the comprehensive process of planning and executing a research

study, which involves visualizing every step of empirical research prior to its initiation. A cross-sectional survey design is a quantitative method that describes the beliefs, trends, attitudes, views, or values of a group by examining samples from the population. In this study, a cross-sectional survey design was employed to statistically examine the relationship between students perceived learning environment and their academic achievement, incorporating quantitative analysis and interpretation of the gathered data.

3.1.2 Population

In research, the term 'population' refers to the group of individuals that the researcher intends to examine. This group may include persons, objects, areas, or institutions that share a common characteristic. For the purposes of this study, the target population consisted of all undergraduate students enrolled in higher educational institution of West Bengal. The total number of students engaged in higher education in West Bengal, approximately 1.96 million according to the All-India Survey on Higher Education (AISHE, 2019-20), was considered as the population for this study.

Figure 3.1 Map showing population area

● → Indicate the population area

3.1.3 Sample and Sampling Techniques

For any quantitative descriptive survey research, a representative sample size from the population is essential. Using the sampling error formula with a confidence level of 95% and a margin of error of 5%, an appropriate sample size was determined. With these parameters, assuming the highest possible variability ($p = 0.5$), the required sample size for a survey is approximately 385 respondents (Krejcie & Morgan, 1970; Cochran, 1977). This suggests that a sample of 384 participants would typically provide a reliable estimate of the population within

the specified limits. However, the current study included a sample of 1,436 undergraduate students from thirteen districts of West Bengal, which is a sufficient representation of the entire population of undergraduate students across different higher educational institutions. A purposive sampling method was used to select the institutions, while a simple random sampling technique was employed to select the student participants.

3.2 Map showing sampling area



● → Indicate the sample area

Table 3.1 Sample distribution by districts

Districts	No. of Sample	Percentage (%)
Purba Bardhaman	105	7.31%
Paschim Bardhaman	95	6.61
Howrah	120	8.36
Hooghly	135	9.40%
Kolkata	145	10.09%
Bankura	85	5.92%
Purba Medinipur	115	8.00%
Paschim Medinipur	130	9.05%
Jhargram	120	8.36%
North 24 PGS	95	6.61%
South 24 PGS	108	7.52%
Nadia	89	6.20%
Murshidabad	94	6.54%
Total	1436	100%

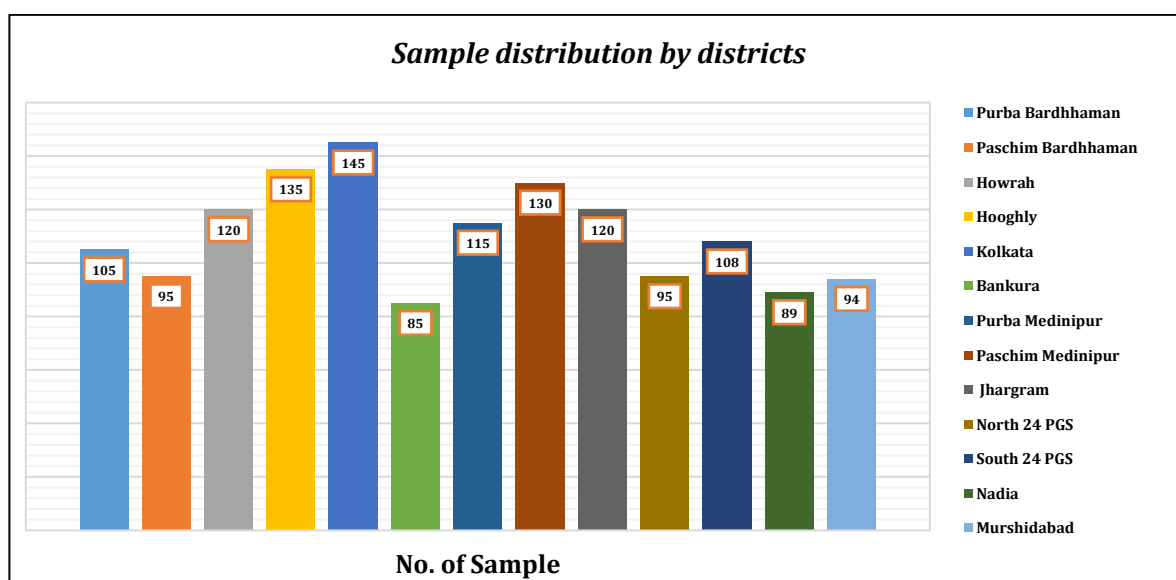
Figure 3.3 Districts wise sample distribution

Table 3.2 Representing the sample distributions

Variables	Categories	Frequency (N)	Percentage (%)
Gender	Male	685	47.70%
	Female	751	52.29%
	Total	1436	100
Habitation	Urban	637	44.36%
	Rural	799	55.64%
	Total	1436	100
Types of Institution	Govt.	920	64.06%
	Private	516	35.93%
	Total	1436	100
Streams of study	Arts	964	67.13%
	Science	398	27.71%
	Commerce	74	5.15%
	Total	1436	100
Present studying Class	2 nd Semester	726	50.55%
	4 th Semester	477	33.21%
	6 th Semester	233	16.22%
	Total	1436	100
Annual Family Income	Low Income	844	58.77%
	Moderate Income	501	34.88%
	High Income	91	6.33%
	Total	1436	100

Figure 3.4 Showing gender wise sample distribution

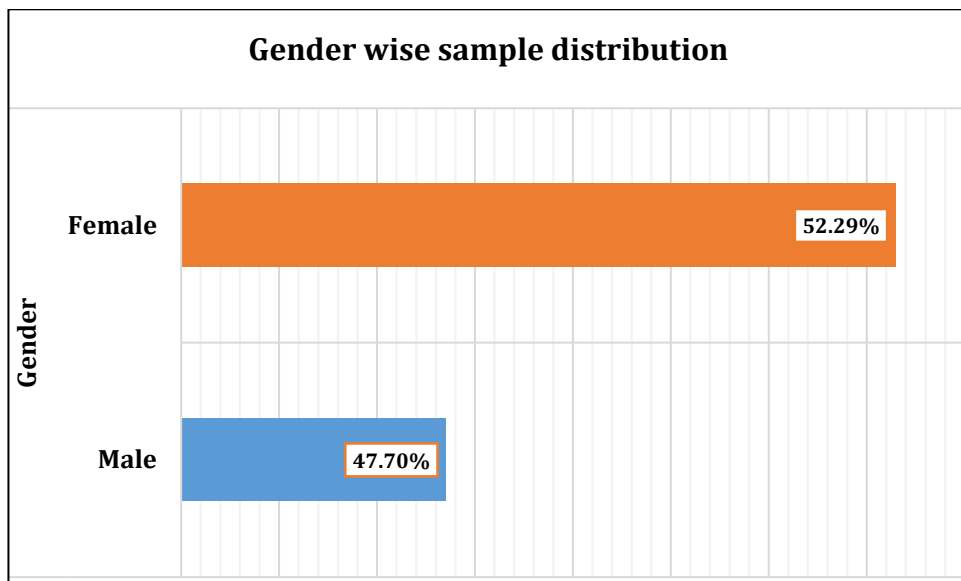


Figure 3.5 Showing habitation wise sample distribution

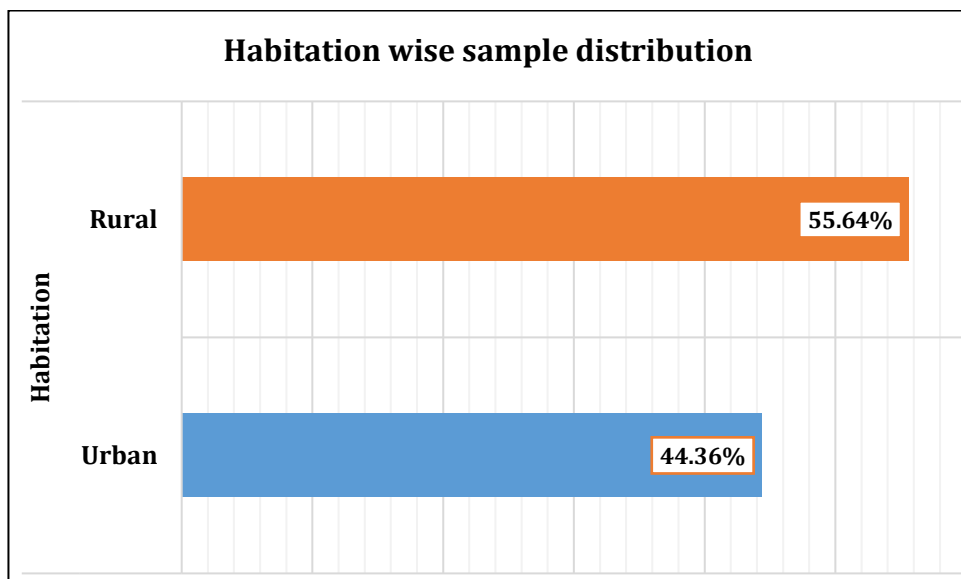


Figure 3.6 Showing types of Institution wise sample distribution

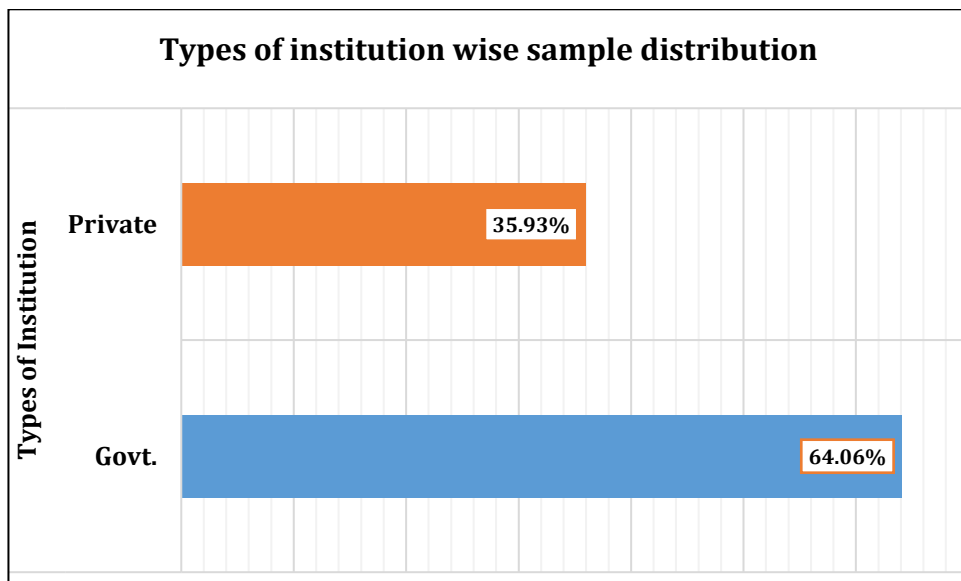


Figure 3.7 Showing streams of study wise sample distribution

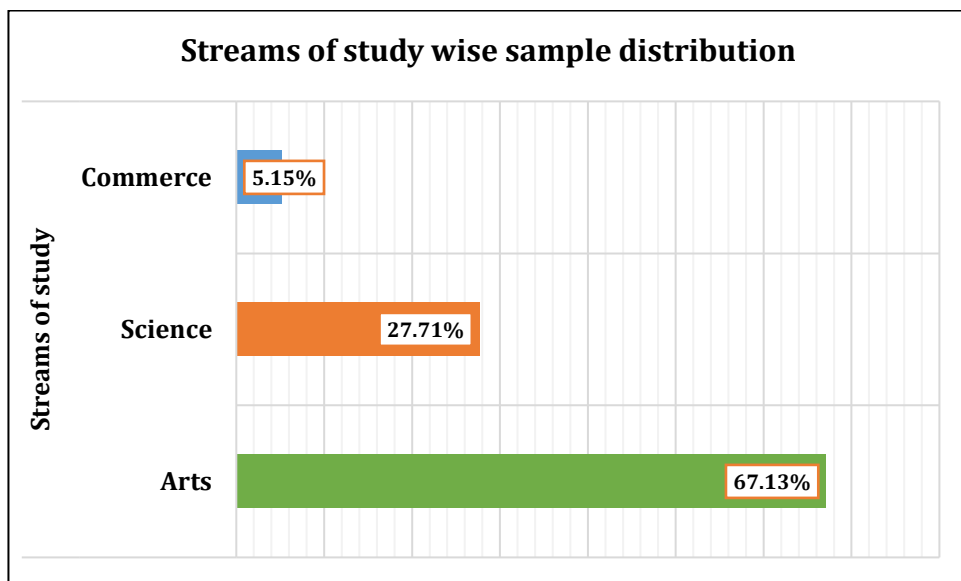


Figure 3.8 Showing present studying class wise sample distribution

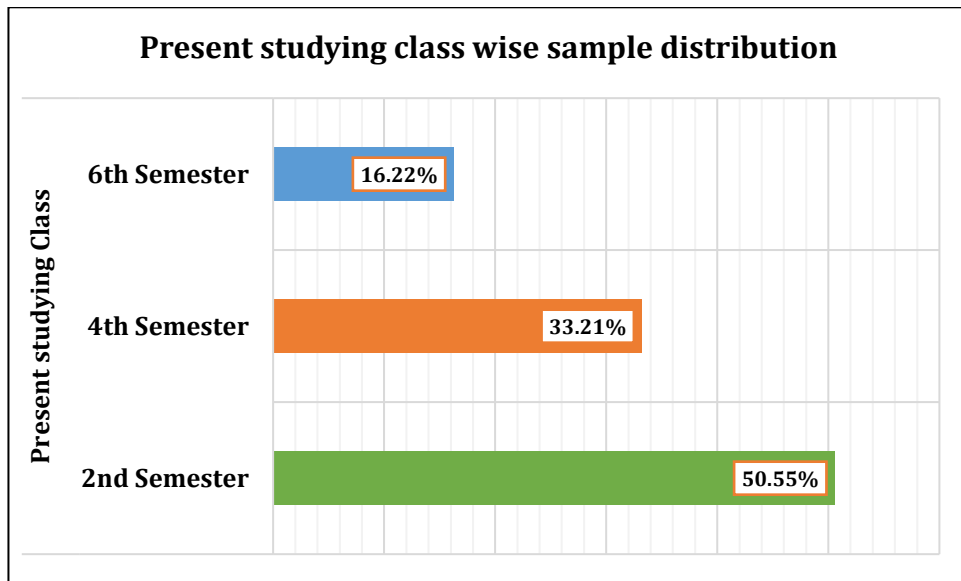
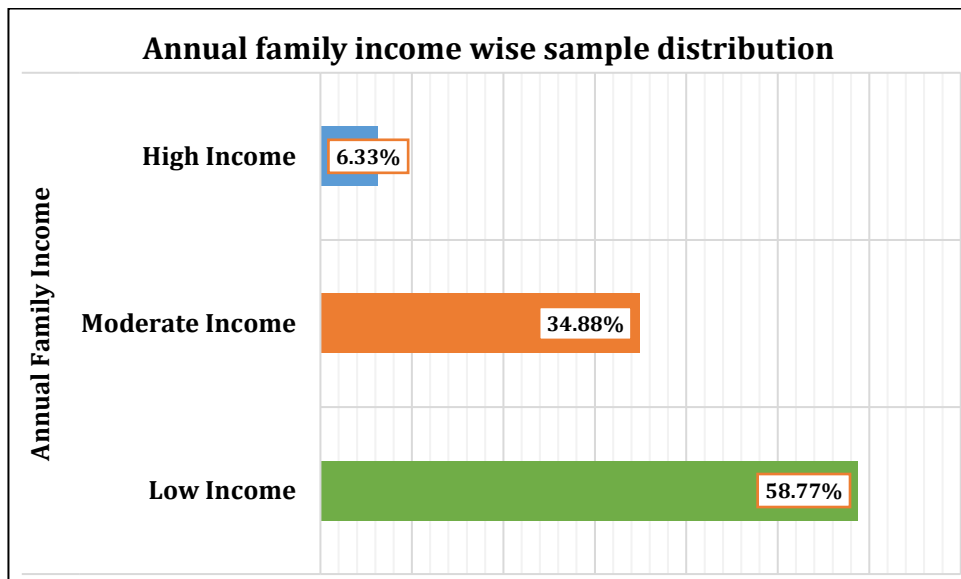


Figure 3.9 Showing annual family income wise sample distribution



3.1.4 Description of Variables

In this study following independent and dependent variables were taken –

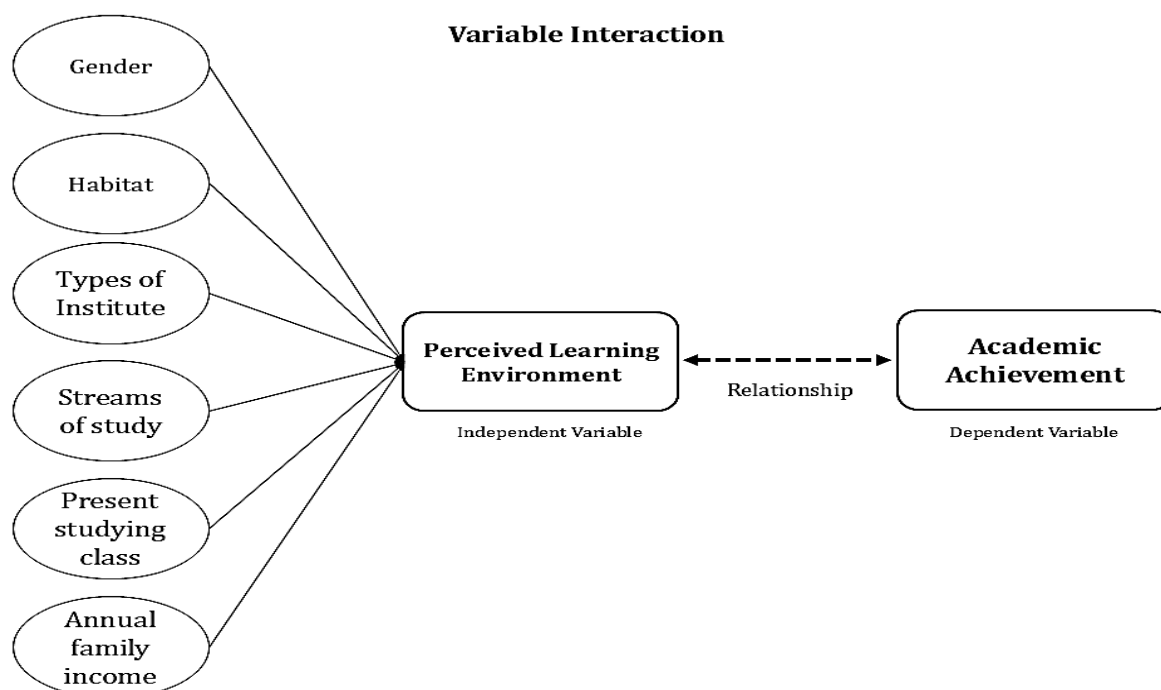
- **Explanatory Variables** –
 - 1) **Gender** – There are two levels considered, i.e. Male and Female.
 - 2) **Habitation** – There are two levels considered, i.e. Urban and Rural.
 - 3) **Types of Institution** – There are two levels considered, i.e. Government and Private.
 - 4) **Streams of study** – There are three categories considered, i.e. Arts, Science and Commerce.
 - 5) **Present studying Class** – There are three categories considered, i.e. 2nd Semester, 4th Semester and 6th Semester.
 - 6) **Annual Family Income** - There are three categories considered, i.e. Low Income, Moderate Income and High Income.

- **Independent Variable** – In this present study independent variable are follows-
 - 1) **Perceived Learning Environment**

- **Dependent Variable** – In this present study dependent variable are follows-
 - 2) **Academic Achievement**

3.1.5 Interaction between variables

Figure 3.10 Diagram showing variables interaction



3.1.6 Tools Used for Data Collection

In the current study, the primary instruments used to collect data were a survey on students' perceptions of the learning environment at the undergraduate level and students' 2nd, 4th and 6th semester marks, which measure academic achievement with a basic information schedule was employed.

Instrument 1: Dundee Ready Education Environment Measure (DREEM)

The Dundee Ready Education Environment Measure (DREEM), developed and validated by Roff, S. et al. in 1997, is a tool designed to assess the educational environment in medical schools and other academic settings. It is a 50-items questionnaire that evaluates students' perceptions of various aspects of their learning environment i.e., Students' Perception of Learning, Students' Perception of Teachers, Students' academic self-perceptions, Students' perception of atmosphere, Students' social self-perceptions. However, 9 of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48, and 50) are negatively worded and are scored

in reverse. The minimum possible score on the scale is 50, while the maximum possible score is 250.

Table 3.3 Showing Subscales and Number of Items

Sl No.	SUBSCALES	Number of Items
1.	Students' Perception of Learning	1, 7, 13, 16, 20, 22, 24, 25, 38, 44, 47, 48
2.	Students' Perception of Teachers	2, 6, 8, 9, 18, 29, 32, 37, 39, 40, 50
3.	Students' academic self-perceptions	5, 10, 21, 26, 31, 41, 45
4.	Students' perception of atmosphere	11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43, 49
5.	Students' social self-perceptions	3, 4, 14, 15, 19, 28, 46
TOTAL		50

Scoring norms

Table 3.4 Showing scoring norms of the scale

Responses	Interpretation
0	Strongly Disagree
1	Disagree
2	Uncertain
3	Agree
4	Strongly Agree

* Negative items are scored in reverse

Table 3.5 Showing an approximate guide to interpreting the overall score according to DREEM-

Overall Perception of Learning Environment	
Score Range	Interpretation
0 – 50	Very Poor
51 – 100	Plenty of problems
101 – 150	More positive than negative
151 - 200	Excellent

Table 3.6 Showing an approximate guide to interpreting the score according to Students' Perception of Learning-

Students' Perception of Learning	
Score Range	Interpretation
0 – 12	Very Poor
13 – 24	Teaching is viewed negatively
25 – 36	A more positive perception
37 – 48	Teaching highly thought of

Table 3.7 Showing an approximate guide to interpreting the score according to Students' Perception of Teachers-

Students' Perception of Teachers	
Score Range	Interpretation
0 – 11	Abysmal
12 – 22	In need of some retraining
23 – 33	Moving in the right direction
34 – 44	Model Teachers

Table 3.8 Showing an approximate guide to interpreting the score according to Students' Academic Self-Perceptions-

Students' Academic Self-Perceptions	
Score Range	Interpretation
0 – 8	Feelings of total failure
9 – 16	Many negative aspects
17 – 24	Feeling more on the positive side
25 – 32	Confident

Table 3.9 Showing an approximate guide to interpreting the score according to Students' Perception of Atmosphere-

Students' Perception of Atmosphere	
Score Range	Interpretation
0 – 12	A terrible environment
13 – 24	There are many issues needing change
25 – 36	A more positive atmosphere
37 – 48	A good feeling overall

Table 3.10 Showing an approximate guide to interpreting the score according to Students' Social Self-Perceptions-

Students' Social Self-Perceptions	
Score Range	Interpretation
0 – 7	Miserable
8 – 14	Not a nice place
15 – 21	Not too bad
22 – 28	Very good socially

Reliability and Validity

In the current study, a pilot study was conducted by the researcher. The internal consistency of the Dundee Ready Education Environment Measure (DREEM) was assessed using a sample of 250 participants. Since the original English version of DREEM was translated into Bengali for this study, the researcher ensured the maintenance of content, concurrent, and face validity with the assistance of their supervisor. Before final data collection, the reliability of the scale was also checked by the researcher. The following table presents the internal consistency of the data in the current study.

Table 3.11 Showing reliability of the DREEM scale

DREEM	Cronbach's Alpha
PILOT STUDY (250)	0.898
FINAL (1436)	0.901

Instrument 2: Basic Information Schedule

A schedule for collecting essential information about the students was prepared and included with the main instrument. This schedule gathered data on students' gender, habitation, types of institution, streams of study, present studying class, and annual family income. In accordance with ethical research guidelines, no personal identification information, such as names, was collected in the schedule.

3.2 Procedure

This section provides a detailed explanation of the steps taken to administer the test instruments for data collection, followed by the process of filtering, organizing, and analyzing the results.

3.2.1 Data Collection

During the visit to higher education institutions, the researcher approached the principal or teacher in charge to explain the study's objectives and methods. The researcher clarified the confidentiality terms regarding the information and data provided. An authorization letter from the supervisor, on behalf of the Department of Education at Jadavpur University, was also submitted to obtain the necessary data.

After receiving approval from the college and university administrations, the researcher began collecting data. A total of 33 colleges and universities from all thirteen districts were approached, with 26 granting permission to collect data from their students.

Once authorization was granted, the survey instruments were distributed to the participating students. There was no specific time limit for completing the surveys, and 95% of the students completed the questionnaires in approximately 35 minutes. Data collection took place exclusively on weekdays from January to May 2024.

3.2.2 Data Quality

A total of 1520 students completed the questionnaires. However, 84 participants either did not complete the surveys or provided incomplete information, leading to their exclusion from the dataset. Therefore, data from the remaining 1436 students were used as the sample for this study.

3.2.3 Data Analysis

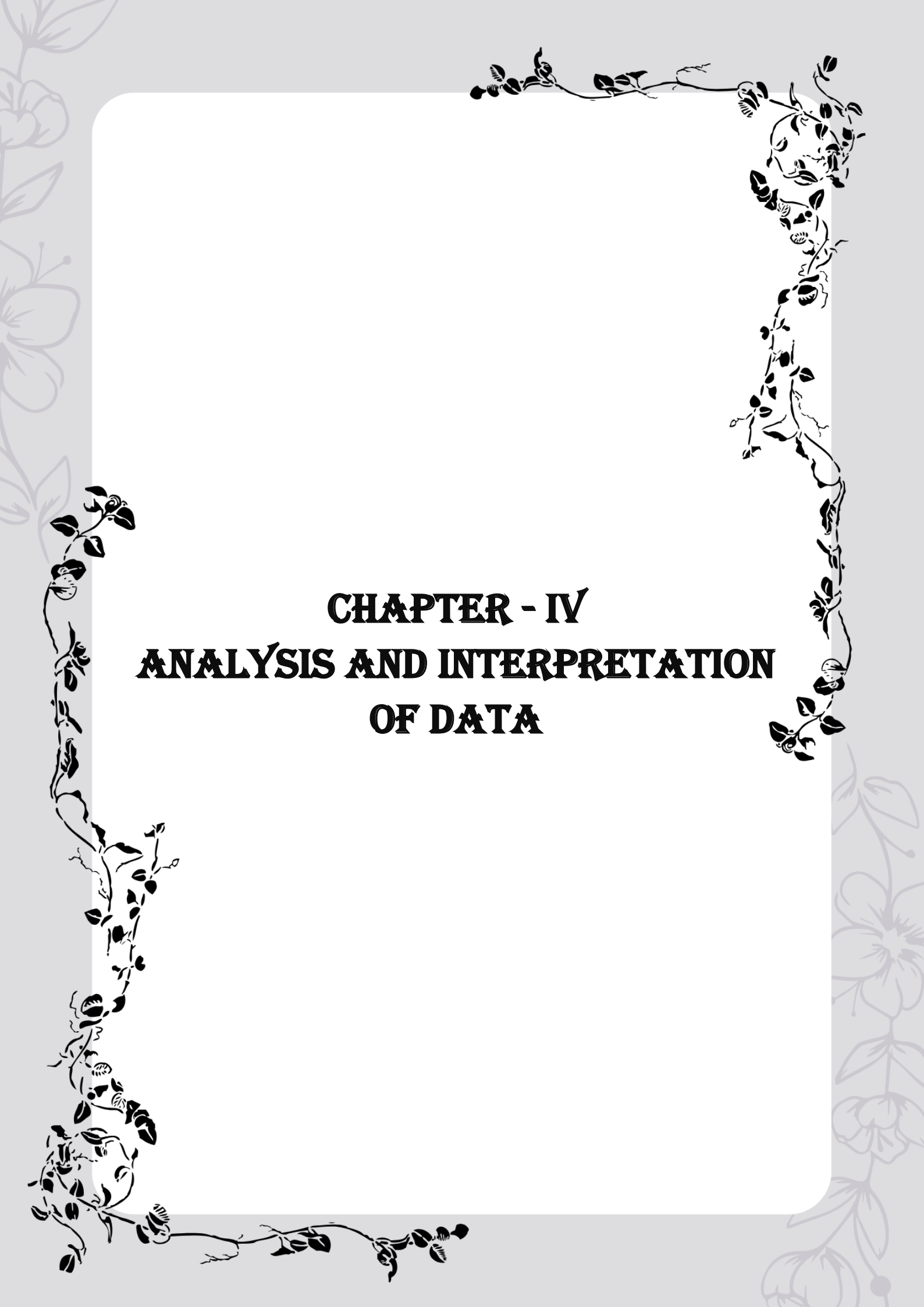
The researcher used Microsoft Excel to organize the data and IBM SPSS v.20 for analysis, considering various variables. Descriptive statistics, such as mean and standard deviation, were used to analyze the sample characteristics. For inferential analysis, the independent sample t-test, one-way ANOVA, correlation analysis, and regression analysis were applied. These techniques helped draw conclusions about the population based on the sample data.

3.2.4 Normality of Data

The current study used a large sample size of over 30 participants. The Shapiro-Wilk test was applied to assess the normality of the data. Due to the sample size of 1436, the Kolmogorov-Smirnov test was not applicable. The Shapiro-Wilk test revealed a significant p-value of **0.000*** for the total perceived learning environment variable, indicating that the data distribution was not normal. According to the **central limit theorem**, when the sample size exceeds 30, the distribution of sample means tends to approach normality, even if the underlying population distribution is not normal. In cases like this, where data is collected using purposive sampling from a large population, parametric tests can still be used.

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A decorative border of black line-art flowers and leaves surrounds the central text. The border is composed of several curved segments that meet at the corners, creating a frame around the white central area. The background is a light gray with faint, larger-scale floral patterns.

CHAPTER - IV
ANALYSIS AND INTERPRETATION
OF DATA

CHAPTER – IV

ANALYSIS AND INTERPRETATION OF DATA

Data Analysis and Interpretation are crucial stages in any research process. Data analysis involves organizing, summarizing, and systematically examining the data to answer the research questions. Data interpretation, on the other hand, focuses on explaining the meaning of the data and drawing logical conclusions from it.

There are different approaches to analysing data, depending on its nature. Statistical analysis is used for numerical, measurable data; such as survey results or experimental observations; allowing researchers to identify patterns, relationships, and trends. Qualitative analysis is applied to non-numeric information, such as interview transcripts or field notes, to explore themes, concepts, and meanings. Interpreting data involves more than just presenting results; it requires connecting the findings to existing research, forming hypotheses, or even developing new theories. This process should always be clear, concise, and free from personal bias, ensuring the conclusions are accurate and credible.

In this study, the chapter on data analysis and interpretation is divided into two sections:- Descriptive Statistics and Inferential Statistics, which includes hypothesis testing. The descriptive statistics section outlines and summarizes the key features of the collected data in a straightforward way. Inferential statistics are then used to determine the significance of the results and draw conclusions that go beyond the immediate data set. Together, data analysis and interpretation provide a foundation for answering research questions, generating insights, and contributing to new knowledge.

4.1 Descriptive Statistics

Descriptive statistics is a branch of statistics that focuses on collecting, analysing, interpreting, presenting, and organizing data. Its main purpose is to summarize

and highlight the essential features of a dataset, providing a clear and concise overview. This process helps transform large and complex data sets into a format that is easier to understand and interpret.

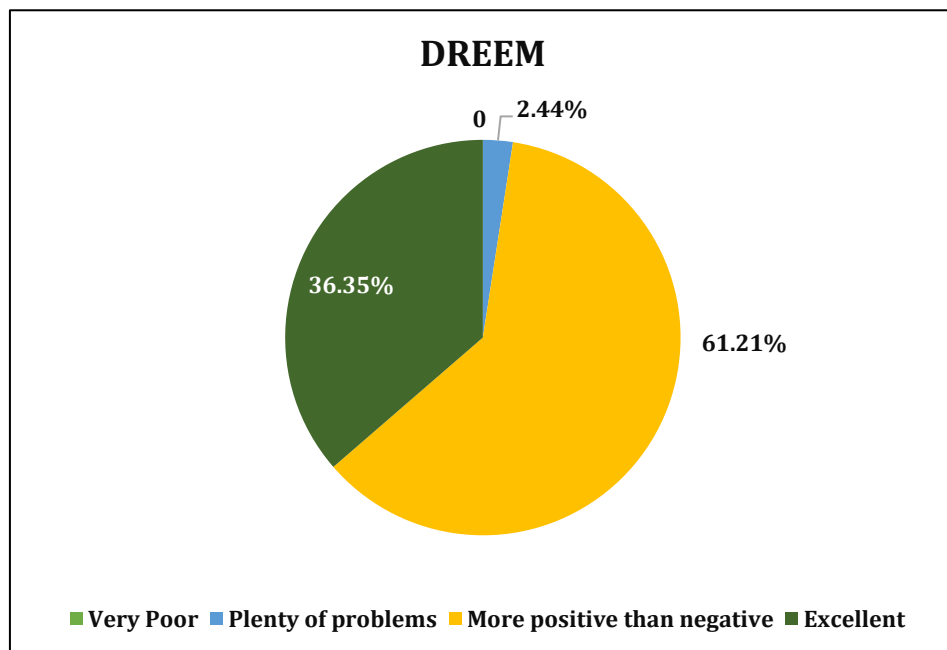
In this study, the descriptive statistics section presented the distribution of mean scores and standard deviations for various explanatory and independent variables, based on the student’s perception of their learning environment. This allowed for a clearer understanding of how these variables varied within the research context.

4.1.1 Levels of student's perception of their learning environments.

Table 4.1 Showing levels of student's perception of their learning environments.

Category	Percentage	Count (out of 1436)
Very Poor	0%	0
Plenty of Problems	2.44%	35
More Positive than Negative	61.21%	879
Excellent	36.35%	522

Figure 4.1 Presenting levels of student's perception of their learning environments.



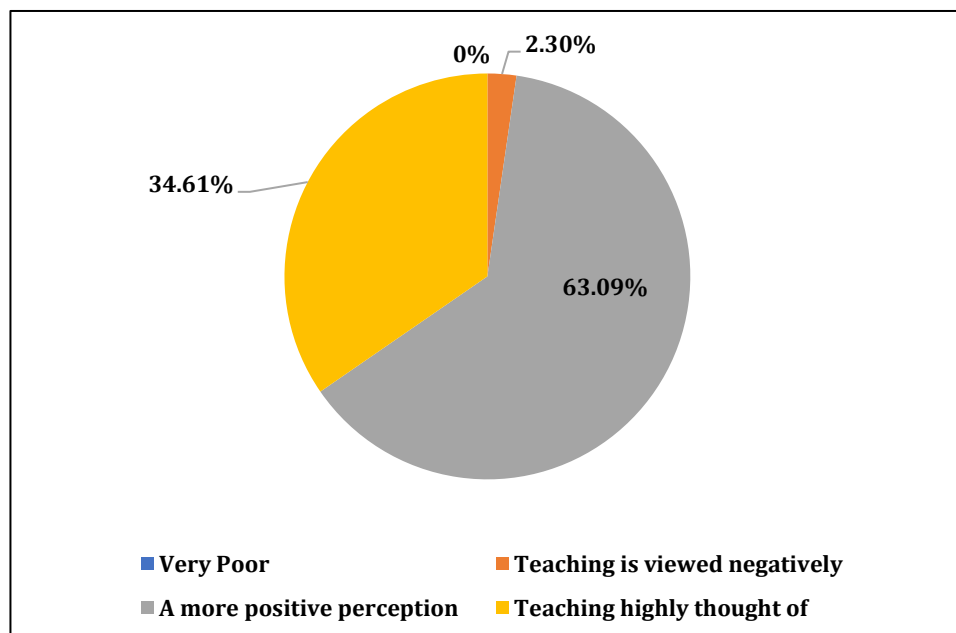
The table showed responses from 1,436 students. No one rated the experience as Very Poor. Only a small group; 35 students (about 2.44%; felt there were plenty of problems. The majority, 879 participants (about 61.21%), felt the experience was more positive than negative. Meanwhile, 522 participants (around 36.35%) respond PLE as excellent.

4.1.2 Levels of students' Perception of Learning.

Table 4.2 Showing levels of student's perception learning.

Category	Percentage	Count (out of 1436)
Very Poor	0%	0
Teaching is viewed negatively	2.30%	33
A more positive perception	63.09%	906
Teaching highly thought of	34.61%	497

Figure 4.2 Presenting levels of student's perception of learning.



The feedback from 1,436 students showed that no one rated the teaching as very poor. Only 33 students (about 2.33%) viewed the teaching negatively. A clear majority; 906 students (about 63.09%) had a more positive than negative

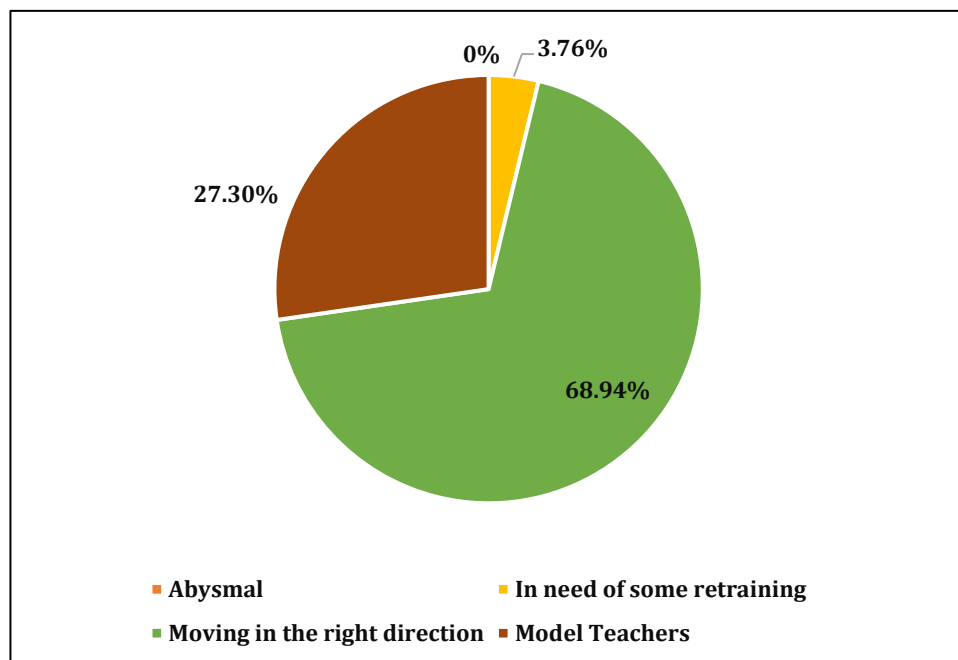
impression. Meanwhile, 497 students (around 34.91%) thought very highly of the teaching.

4.1.3 Levels of students' Perception of teachers.

Table 4.3 Showing levels of student's perception teachers.

Category	Percentage	Count (out of 1436)
Abysmal	0%	0
In need of some retraining	3.76%	54
Moving in the right direction	68.94%	990
Model Teachers	27.30%	392

Figure 4.3 Presenting levels of student's perception of teachers.



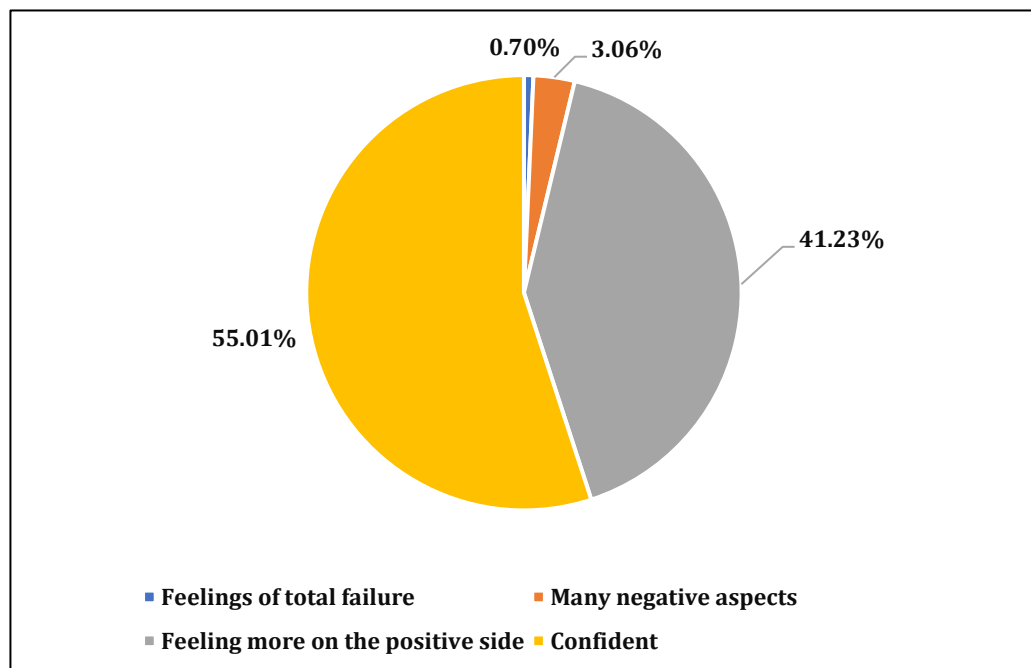
Out of 1,436 students surveyed, no one rated the teachers as abysmal. Only 54 students (about 3.76%) felt the teachers were in need of some retraining. The vast majority; 990 students (nearly 68.94%); believed the teachers were moving in the right direction. Meanwhile, 392 students (about 27.30%) considered them to be model teachers.

4.1.4 Levels of students' academic self-perceptions.

Table 4.4 Showing levels of student's academic self-perceptions.

Category	Percentage	Count (out of 1436)
Feelings of total failure	0.70%	10
Many negative aspects	3.06%	44
Feeling more on the positive side	41.23%	592
Confident	55.01%	790

Figure 4.4 Presenting levels of student's academic self-perceptions.



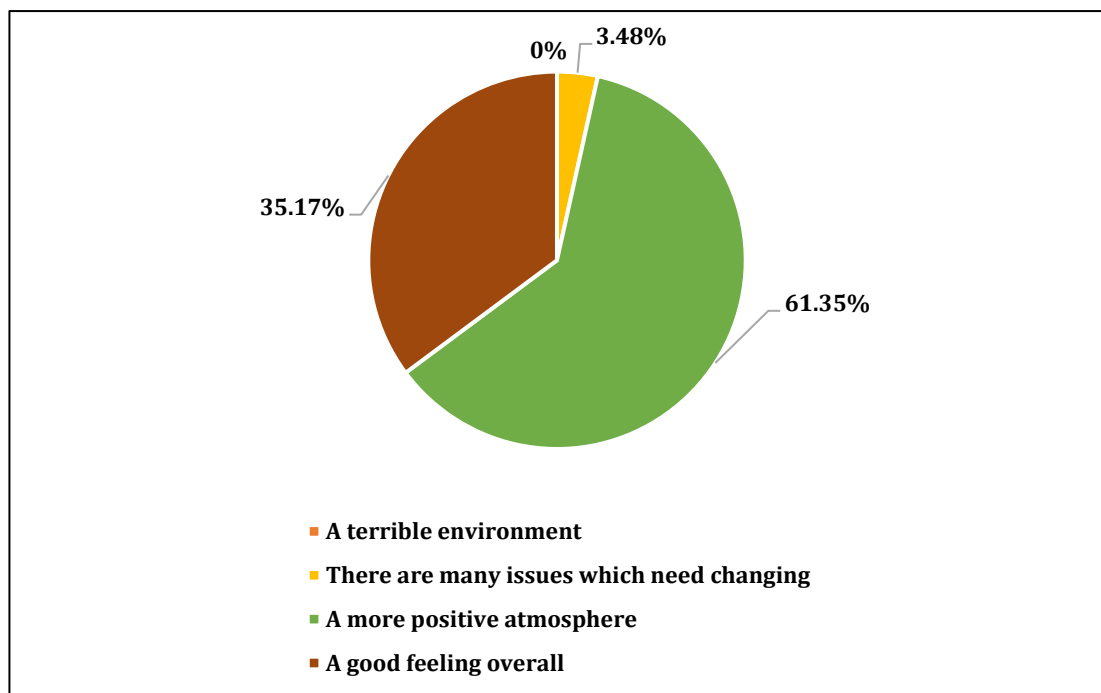
Out of 1,436 students surveyed, only 10 students (less than 1%) felt a total sense of failure. A slightly larger group; 44 students (about 3.06%) highlighted many negative aspects. On the other hand, 592 students (around 41.23%) felt more on the positive side, and the largest share of 790 students (about 55.01%) expressed confidence.

4.1.5 Levels of students' perception of atmosphere.

Table 4.5 Showing levels of student's perception of atmosphere.

Category	Percentage	Count (out of 1436)
A terrible environment	0%	0
There are many issues which need changing	3.48%	50
A more positive atmosphere	61.35%	881
A good feeling overall	35.17%	505

Figure 4.5 Presenting levels of student's perception of atmosphere.



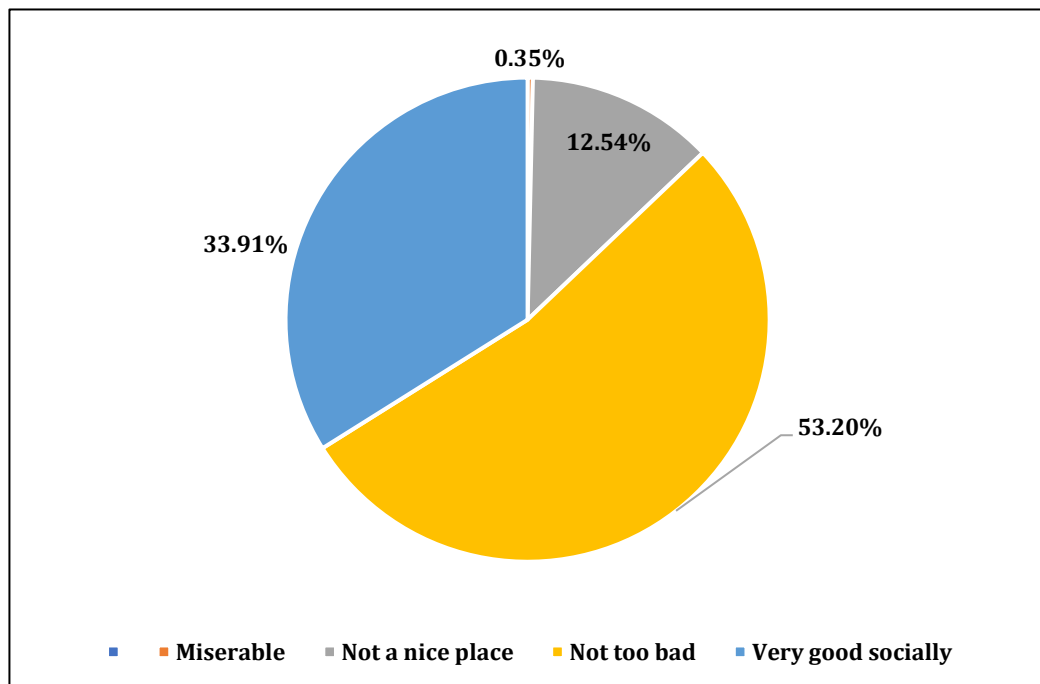
Out of 1,436 students surveyed, no one described the environment as terrible. Only 50 students (about 3.48%) felt there were many issues that needed changing. A clear majority; 881 students (around 61.35%) experienced a more positive atmosphere, while another 505 students (about 35.17%) reported a good overall feeling.

4.1.6 Levels of students' social self-perceptions

Table 4.6 Showing levels of student's social self-perceptions

Category	Percentage	Count (out of 1436)
Miserable	0.35%	5
Not a nice place	12.54%	180
Not too bad	53.20%	764
Very good socially	33.91%	487

Figure 4.6 Presenting levels of student's social self-perceptions.



Out of 1,436 students surveyed, only 5 students (less than 1%) described the place as miserable. A larger group of 180 students (about 12.54%) felt it was not a nice place. The majority of 764 students (around 53.20%) said it was not too bad, while another 487 students (about 33.91%) felt it was very good socially.

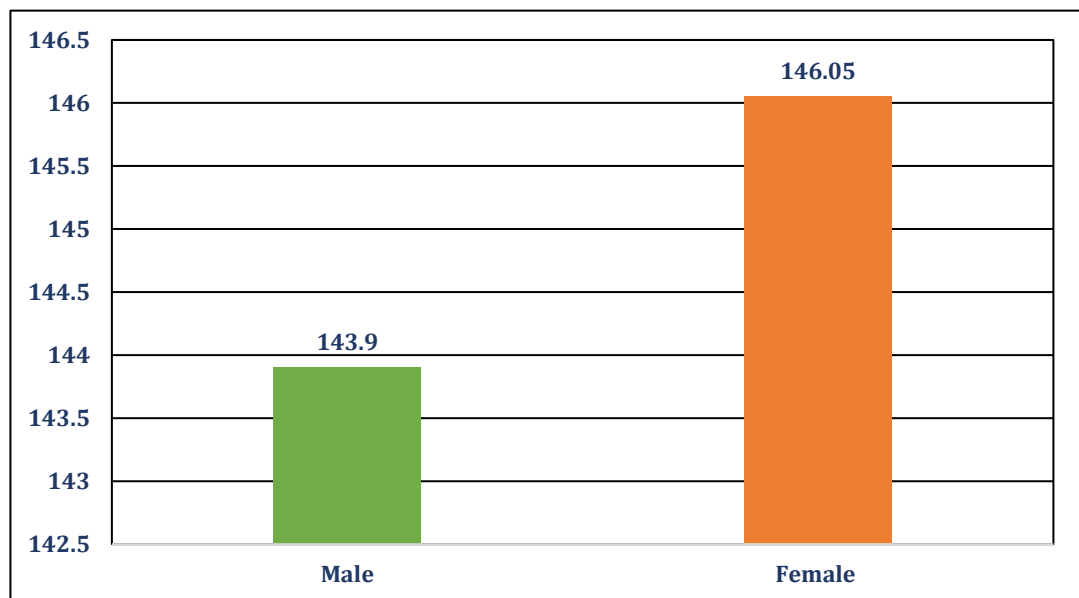
4.2 Overall descriptive scores of student’s perceptions of learning environment based on various demographic variables.

4.2.1 Overall descriptive scores of student’s perceptions of learning environment based on gender of undergraduate students.

Table 4.7 Showing mean score distribution of student’s perceptions of learning environment based on gender of undergraduate students.

Gender	N	Mean	sd
Male	685	143.90	19.440
Female	751	146.05	18.356
Total	1436		

Figure 4.7 Presenting mean score distribution of student’s perceptions of learning environment based on gender of undergraduate students.



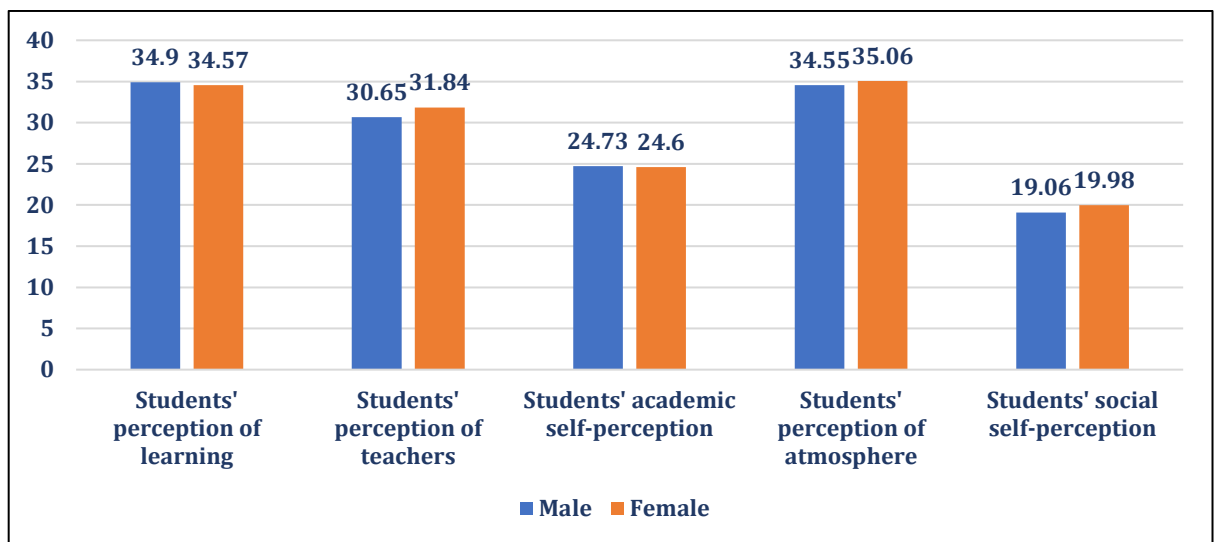
Out of a total of 1,436 participants, 685 were male and 751 were female. The average score (mean) for males was 143.90, while the average score for females was 146.05. This shows that, on average, females scored slightly higher than males, though the difference is fairly small.

4.2.1.1 Gender and Subscales.

Table 4.8 Showing mean distribution of Gender and Subscales.

Category	Male	Female
Students' perception of learning	34.90	34.57
Students' perception of teachers	30.65	31.84
Students' academic self-perception	24.73	24.60
Students' perception of atmosphere	34.55	35.06
Students' social self-perception	19.06	19.98

Figure 4.8 Presenting Gender and Subscales.



The figure showed how male and female students rate different aspects of their institution experience. Both genders have very similar views on their learning, with males scoring slightly higher (34.90) compared to females (34.57). Females rate their teachers a bit higher (31.84) than males (30.65). When it comes to academic self-perception, males and females are almost equal, scoring around 24.7 and 24.6 respectively. Females also have a slightly more positive perception of the school atmosphere (35.06) than males (34.55). Lastly, females rate their social self-perception a bit higher (19.98) compared to males (19.06).

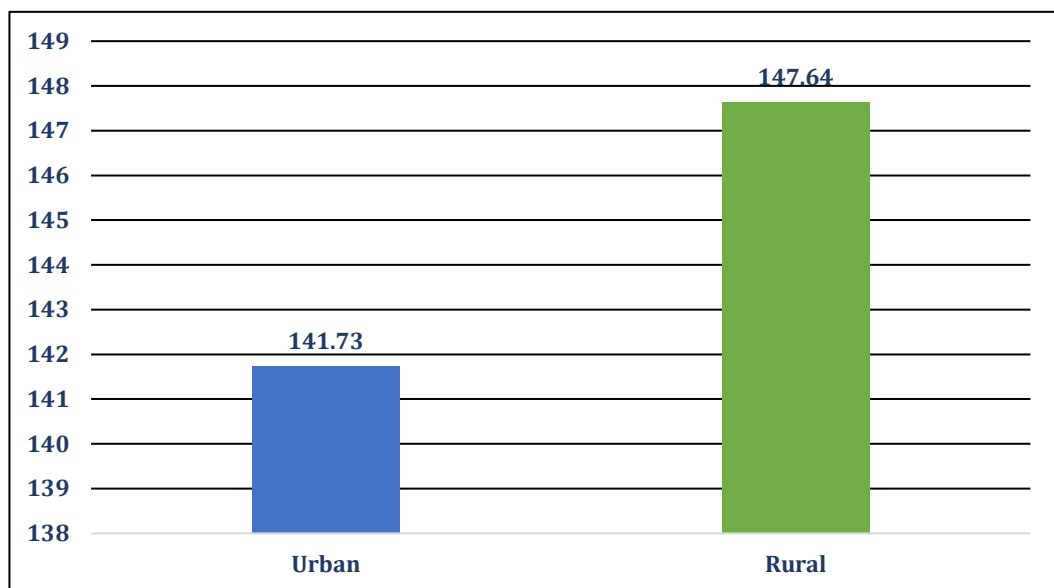
Overall, males and females shared very similar perceptions, with females generally giving slightly higher ratings in some areas.

4.2.2 Overall descriptive scores of student's perceptions of learning environment based on habitation of undergraduate students.

Table 4.9 Showing mean score distribution of student's perceptions of learning environment based on habitation of undergraduate students.

Habitation	N	Mean	sd
Urban	637	141.73	18.564
Rural	799	147.64	18.775
Total	1436		

Figure 4.9 Presenting mean score distribution of student's perceptions of learning environment based on habitation of undergraduate students.



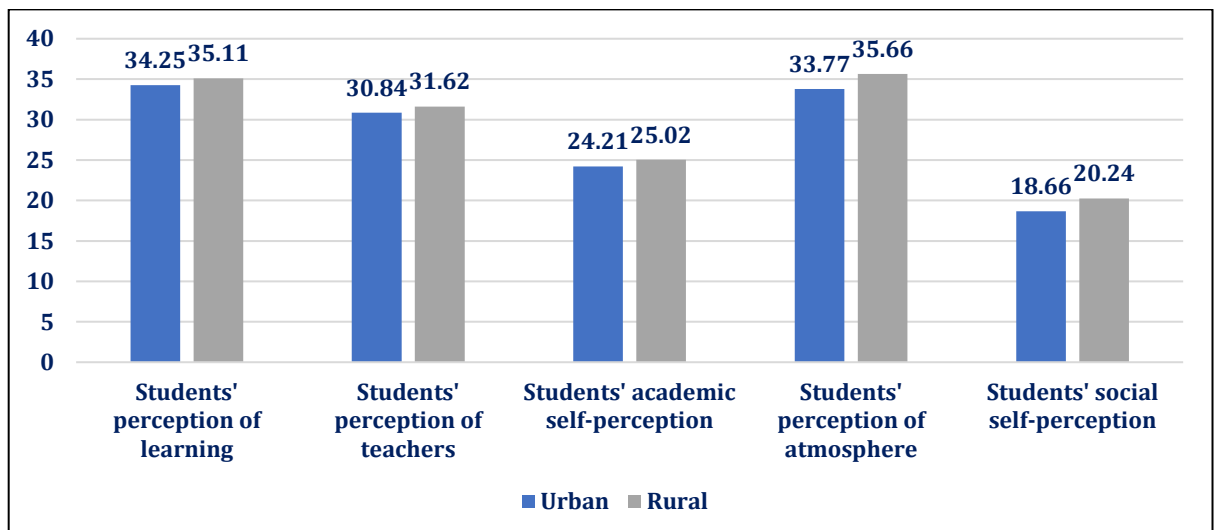
Out of a total of 1,436 participants, 637 live in urban areas and 799 live in rural areas. On average, participants from rural areas scored higher, with a mean score of 147.64, compared to those from urban areas who had a mean score of 141.73. This suggests that, overall, students from rural areas have a somewhat more positive or higher average score compared to their urban counterparts.

4.2.2.1 Habitation and Subscales.

Table 4.10 Showing mean distribution of Habitation and Subscales.

Category	Urban	Rural
Students' perception of learning	34.25	35.11
Students' perception of teachers	30.84	31.62
Students' academic self-perception	24.21	25.02
Students' perception of atmosphere	33.77	35.66
Students' social self-perception	18.66	20.24

Figure 4.10 Presenting Habitation and Subscales.



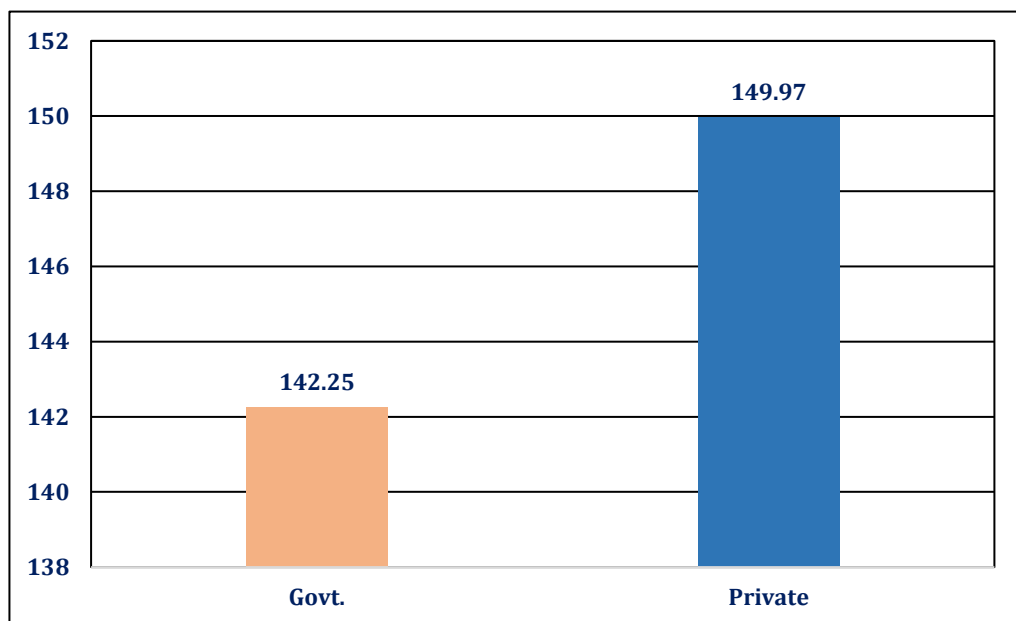
The figure compared how students from urban and rural areas feel about different aspects of their school experience. Overall, students from rural areas consistently rate each category slightly higher than their urban peers. Rural students have a more positive perception of their learning, teachers, academic abilities, school atmosphere, and social experiences. For example, while urban students' perception of learning is 34.25, rural students score it at 35.11; for social self-perception, urban students score 18.66 and rural students 20.24. These results suggest that rural students tend to see their school environment and experience more favourably than urban students.

4.2.3 Overall descriptive scores of student's perceptions of learning environment based on types of institution of undergraduate students.

Table 4.11 Showing mean score distribution of student's perceptions of learning environment based on types of institution of undergraduate students.

Type of Institution	N	Mean	sd
Govt.	920	142.25	19.388
Private	516	149.97	16.935
Total	1436		

Figure 4.11 Presenting mean score distribution of student's perceptions of learning environment based on types of institution of undergraduate students.



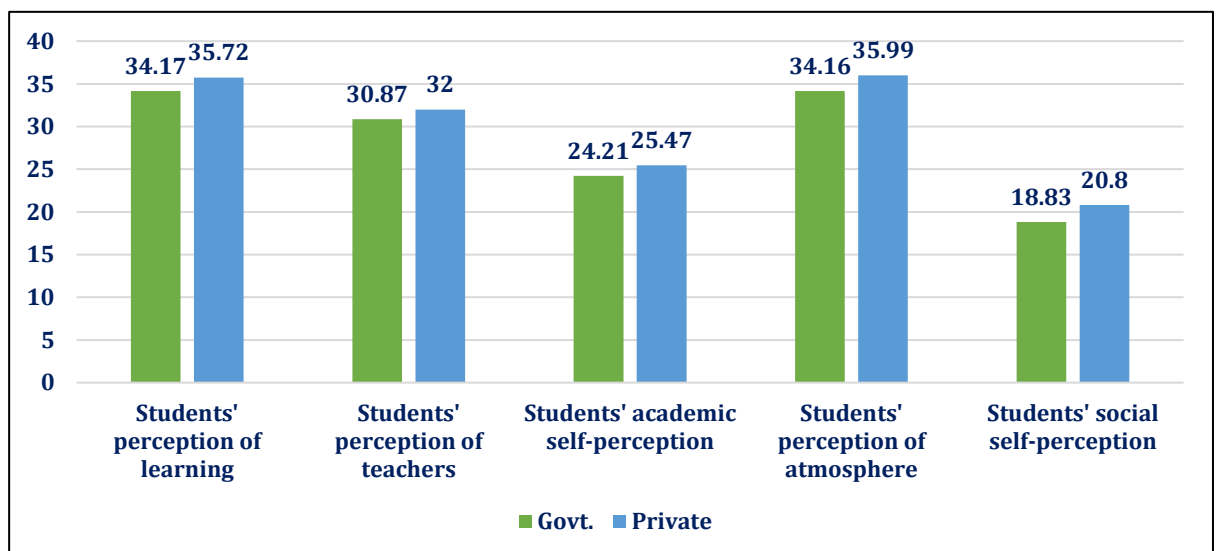
Among the 1,436 participants, 920 attend government institutions and 516 attend private institutions. On average, students from private institutions scored higher, with a mean score of 149.97, compared to those from government institutions who had a mean score of 142.25. This indicates that, overall, students in private institutions tend to have a slightly more positive or higher average experience compared to their counterparts in government institutions.

4.2.3.1 Types of Institution and Subscales.

Table 4.12 Showing mean distribution of Types of Institution and Subscales.

Category	Govt.	Private
Students' perception of learning	34.17	35.72
Students' perception of teachers	30.87	32.00
Students' academic self-perception	24.21	25.47
Students' perception of atmosphere	34.16	35.99
Students' social self-perception	18.83	20.80

Figure 4.12 Presenting Types of Institution and Subscales.



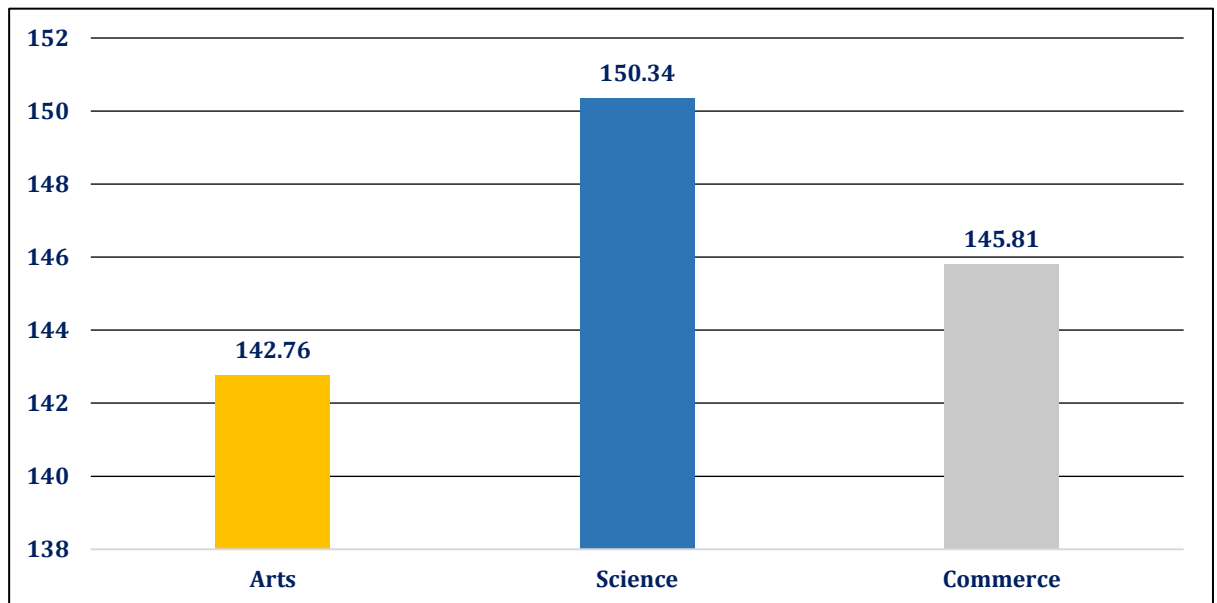
The figure compared students' perceptions across various aspects according to whether they attend government or private institutions. Students in private institutions consistently rate every category higher than those in government schools. For instance, private institution students gave a slightly higher score for learning (35.72 vs. 34.17), teachers (32.00 vs. 30.87), academic self-perception (25.47 vs. 24.21), atmosphere (35.99 vs. 34.16), and social self-perception (20.80 vs. 18.83). This suggests that students in private institutions tend to have a more positive view of their educational environment and experiences compared to their govt, institution counterparts.

4.2.4 Overall descriptive scores of student's perceptions of learning environment based on streams of study of undergraduate students.

Table 4.13 Showing mean score distribution of student's perceptions of learning environment based on streams of study of undergraduate students.

Streams of Study	N	Mean	sd
Arts	964	142.76	18.221
Science	398	150.34	19.439
Commerce	74	145.81	19.191
Total	1436		

Figure 4.13 Presenting mean score distribution of student's perceptions of learning environment based on streams of study of undergraduate students.



Out of the total 1,436 participants, the majority (**964 students**) are studying Arts, followed by **398 students in science** and **74 students in Commerce**. On average, students in the Science stream have the highest mean score of **150.34**, indicating a somewhat more positive or higher average experience compared to the other streams. Commerce students come next with a mean score of **145.81**, while Arts students have a mean score of **142.76**. This suggests that, overall, students in the

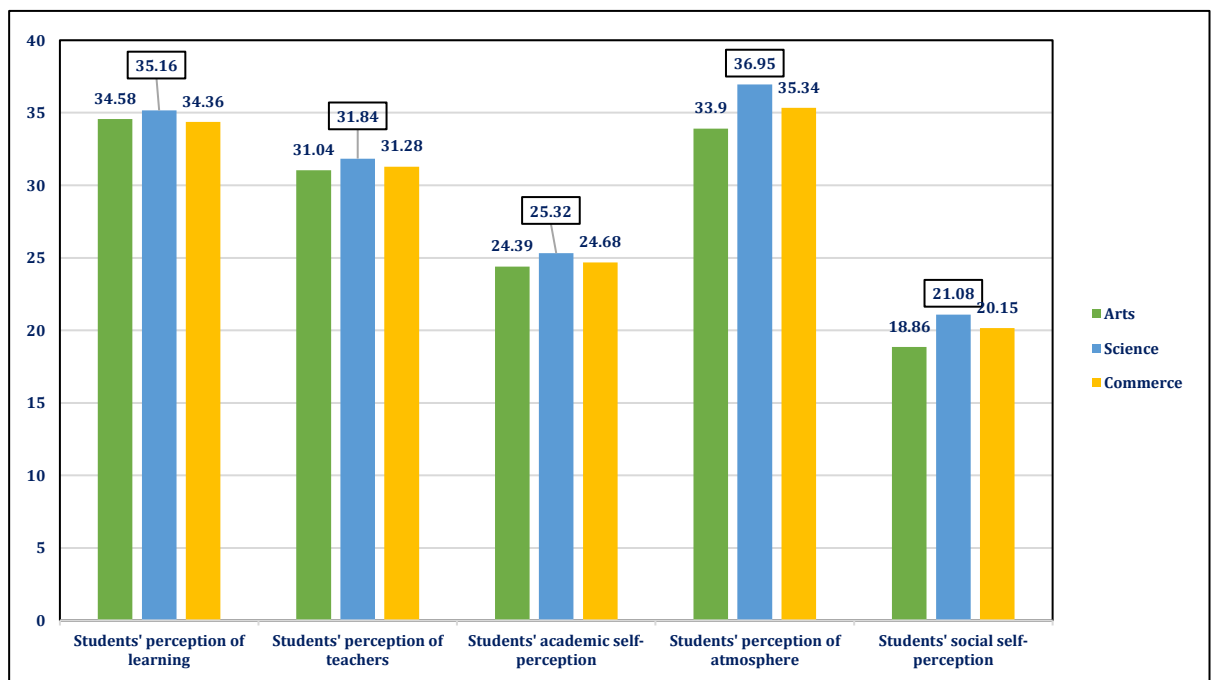
Science stream tend to feel more positively about their educational experience than those in Arts or Commerce.

4.2.4.1 Streams of Study and Subscales.

Table 4.14 Showing mean distribution of Streams of Study and Subscales.

Category	Arts	Science	Commerce
Students' perception of learning	34.58	35.16	34.36
Students' perception of teachers	31.04	31.84	31.28
Students' academic self-perception	24.39	25.32	24.68
Students' perception of atmosphere	33.90	36.95	35.34
Students' social self-perception	18.86	21.08	20.15

Table 4.14 Presenting Streams of Study and Subscales.



The table compared students' perceptions across various aspects based on their stream of study as Arts, Science, or Commerce. Science students generally rate the highest in all categories, with notably higher scores for perception of learning (35.16), atmosphere (36.95), and social self-perception (21.08). Arts students are close behind, particularly in perception of learning (34.58) and teachers (31.04), while Commerce students' ratings are slightly lower but still similar, especially in

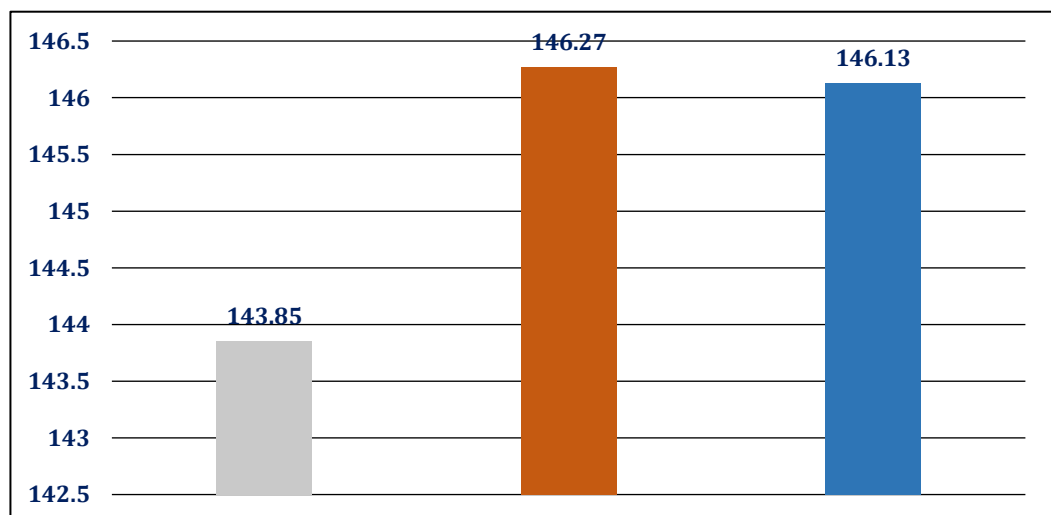
academic self-perception (24.68) and perception of teachers (31.28). Overall, students in the Science stream tend to have a more positive view of their educational experience and environment than those in Arts or Commerce.

4.2.5 Overall descriptive scores of student's perceptions of learning environment based on Present Studying Class of undergraduate students.

Table 4.15 Showing mean score distribution of student's perceptions of learning environment based on Present Studying Class of undergraduate students.

Present Studying Class	N	Mean	sd
2 nd semester	726	143.85	19.432
4 th semester	477	146.27	17.315
6 th semester	233	146.13	20.166
Total	1436		

Figure 4.15 Presenting mean score distribution of student's perceptions of learning environment based on Present Studying Class of undergraduate students.



Among the 1,436 students surveyed, 726 are in the 2nd semester, 477 are in the 4th semester, and 233 are in the 6th semester. Students in the 4th semester have the highest average score (146.27), followed closely by those in the 6th semester (146.13). Students in the 2nd semester have a slightly lower average (143.85). This

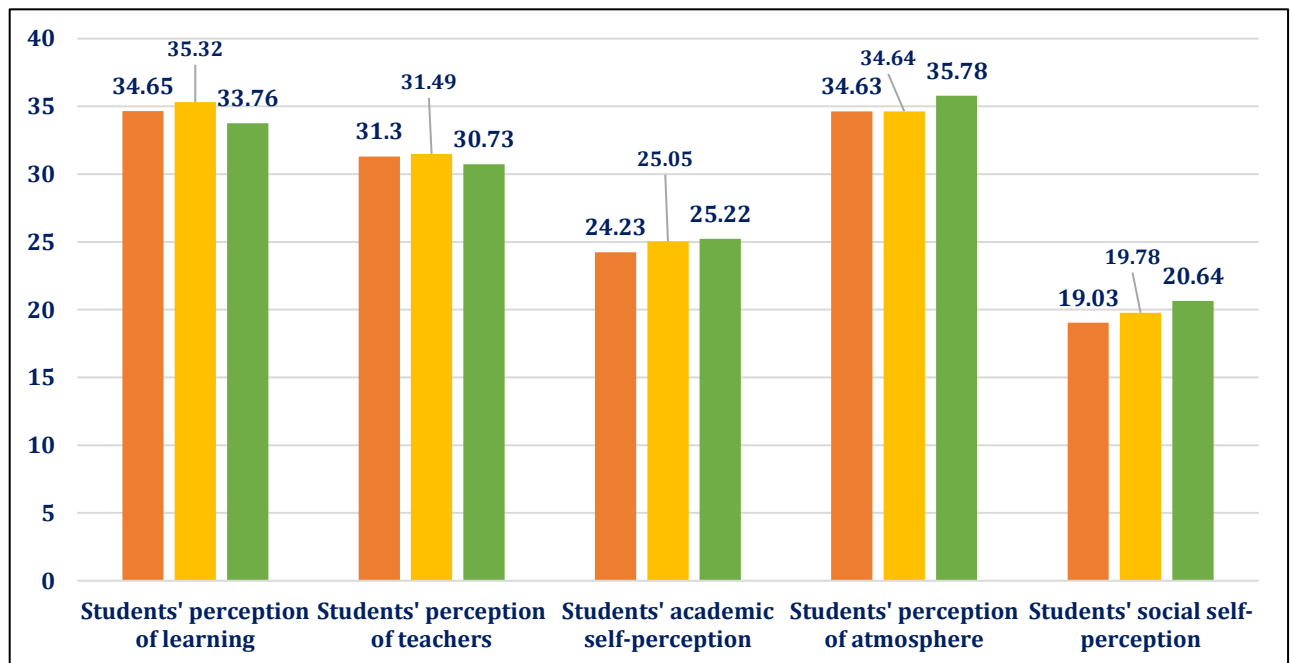
suggests that as students' progress to higher semesters, their average scores tend to improve, indicating a somewhat more positive experience or outlook compared to those in earlier semesters.

4.2.5.1 Present Studying Class and Subscales.

Table 4.16 Showing mean distribution of Present Studying Class and Subscales.

Category	2 nd Sem	4 th Sem	6 th Sem
Students' perception of learning	34.65	35.32	33.76
Students' perception of teachers	31.30	31.49	30.73
Students' academic self-perception	24.23	25.05	25.22
Students' perception of atmosphere	34.63	34.64	35.78
Students' social self-perception	19.03	19.78	20.64

Table 4.16 Presenting Present Studying Class and Subscales.



The figure compared how students in different years (2nd Sem, 4th Sem and 6th Sem) view various aspects of their educational experience. Students in the 4th Sem tend to rate their learning and atmosphere most positively, with scores of 35.32 and 34.64, respectively. 6th Sem students give the highest ratings for atmosphere (35.78) and social self-perception (20.64), suggesting they feel more at ease

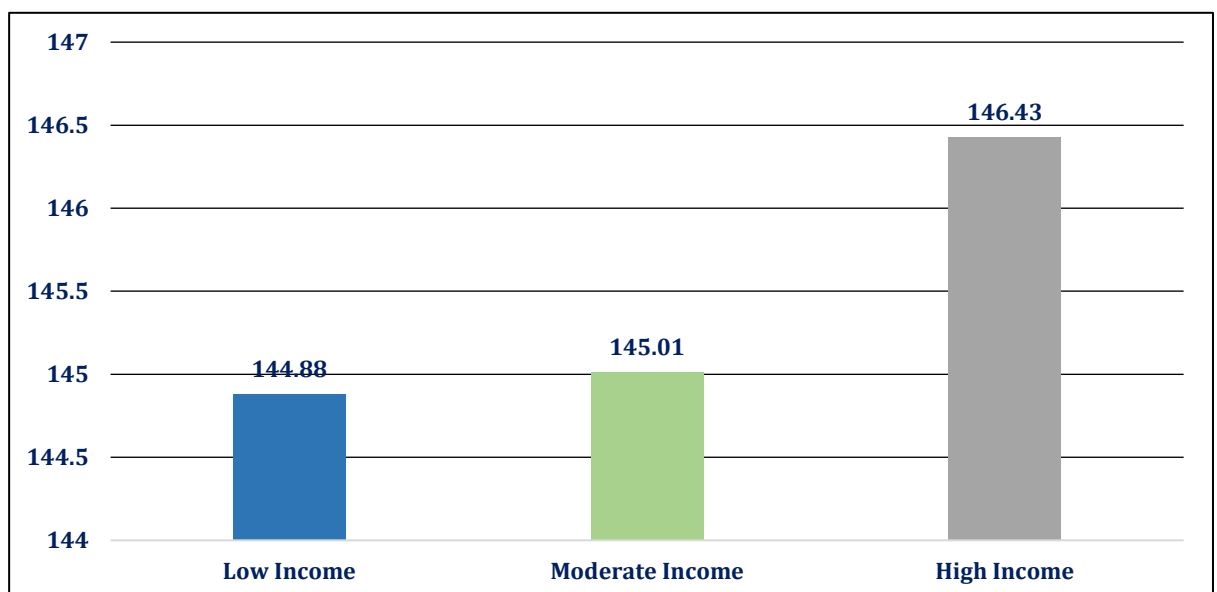
socially as they progress. Perception of teachers and academic self-perception are fairly similar across all years, with only small differences. Overall, students' scores remain quite close throughout, but there's a gentle upward trend in some aspects; especially in social self-perception from 2nd Sem to 6th Sem, indicating that students generally feel more positively about their learning environment and social experiences over time.

4.2.6 Overall descriptive scores of student's perceptions of learning environment based on Annual Family Income of undergraduate students.

Table 4.17 Showing mean score distribution of student's perceptions of learning environment based on Annual Family Income of undergraduate students.

Annual Family Income	N	Mean	sd
Low Income	844	144.88	18.743
Moderate Income	501	145.01	19.322
High Income	91	146.43	18.204
Total	1436		

Figure 4.17 Presenting mean score distribution of student's perceptions of learning environment based on Annual Family Income of undergraduate students.



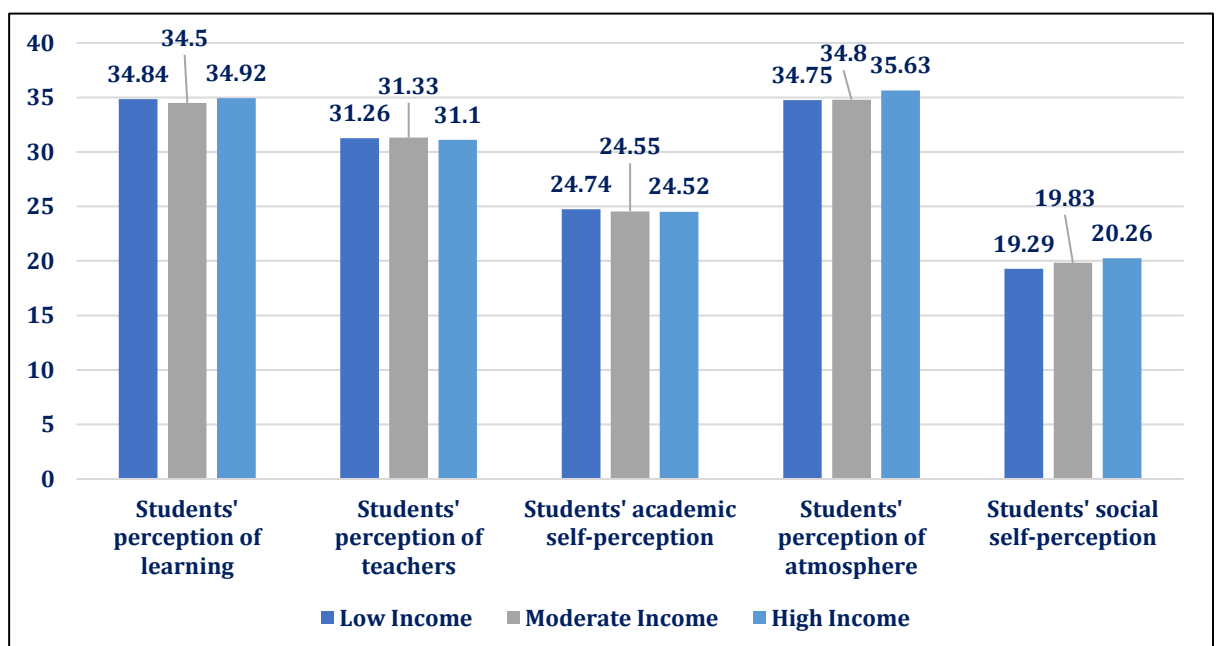
Out of 1,436 students surveyed, most come from low-income families (844 students), followed by those from moderate income families (501 students), and a smaller group from high income families (91 students). The average scores are quite similar across the groups:- low-income students have a mean score of 144.88, moderate income students average 145.01, and high-income students score slightly higher at 146.43. Overall, students from all income backgrounds report nearly the same level of positive experience, with a small upward trend as family income increases.

4.2.6.1 Annual Family Income and Subscales.

Table 4.18 Showing mean distribution of Annual Family Income and Subscales.

Category	Low Income	Moderate Income	High Income
Students' perception of learning	34.84	34.50	34.92
Students' perception of teachers	31.26	31.33	31.10
Students' academic self-perception	24.74	24.55	24.52
Students' perception of atmosphere	34.75	34.80	35.63
Students' social self-perception	19.29	19.83	20.26

Figure 4.18 Presenting Annual Family Income and Subscales.



The figure showed students' perceptions across different income groups as low, moderate, and high income. Scores are quite similar across all groups for every category. All income groups rate their perception of learning and teachers around 31 to 35, with academic self-perception slightly lower around 24 to 25. The perception of atmosphere is also consistent, hovering around 34 to 36, while social self-perception is a bit lower but slightly higher for the high-income group (20.26). Overall, students from all income levels have very comparable views of their educational experiences and environment, with only marginal differences among the groups.

4.3 Inferential Statistics

4.3.1 Hypotheses Testing

H₀1: There is no significant difference in perception of students on their learning environment with respect to their gender.

Table 4.19 Showing Independent sample T-test based on H₀1.

<i>Variable</i>	Category	Mean	t	df	p-value	Remarks
Gender	Male	143.90	-2.154	1434	0.031	*S P<0.05
	Female	146.05				

(*S-Significant, NS-Not Significant)

It can be inferred from the table 4.19 that, female students had a better perception than male students, with a calculated t-value of -2.154 ($p = 0.031$). This difference was statistically significant ($p < 0.05$).

Hence, H₀1: There is no significant difference in perception of students on their learning environment with respect to their gender – **is rejected**.

H₀2: There is no significant difference in perception of students on their learning environment with respect to their habitation.

Table 4.20 Showing Independent sample T-test based on H₀2.

<i>Variable</i>	Category	Mean	t	df	p-value	Remarks
Habitat	Urban	141.73	-5.953	1434	0.000	*S P<0.05
	Rural	147.64				

(*S-Significant, NS-Not Significant)

It can be inferred from table 4.20 that students from rural habitation had a better perception than students from urban habitation, with a calculated t-value of -5.953 ($p = 0.000$). This difference was statistically significant ($p < 0.05$).

Hence, H₀2: There is no significant difference in perception of students on their learning environment with respect to their habitation – *is rejected*.

H₀3: There is no significant difference in perception of students on their learning environment with respect to their types of institution.

Table 4.21 Showing Independent sample T-test based on H₀3.

<i>Variable</i>	Category	Mean	t	df	p-value	Remarks
Types of Institution	Govt.	142.25	-7.568	1434	0.000	*S P<0.05
	Private	149.97				

(*S-Significant, NS-Not Significant)

It can be inferred from table 4.21 that students from private institutions had a better perception than students from govt. institutions, with a calculated t-value of -7.568 ($p = 0.000$). This difference was statistically significant ($p < 0.05$).

Hence, H₀₃: There is no significant difference in perception of students on their learning environment with respect to their types of institution – *is rejected*.

H₀₄: There is no significant difference in perception of students on their learning environment with respect to their streams of study.

Table 4.22 Showing One-Way ANOVA based on H₀₄.

One-way ANOVA

	Sum of Squares	df	Mean Square	f	Sig.	Remarks
Between Groups	16221.905	2	8110.953	23.404	0.000	*S P<0.05
Within Groups	496620.426	1433	346.560			
Total	512842.331	1435				

(*S-Significant, NS-Not Significant)

Table 4.22 indicated that the one-way ANOVA result comparing the mean scores of different streams of study in relation to students' perception of the learning environment was statistically significant [$f(2, 1433) = 23.404, p < 0.05$]. Hence, the null hypothesis is rejected at the 0.05 level, suggesting that the observed difference in mean scores was not due to random chance.

Hence, H₀₄: There is no significant difference in perception of students on their learning environment with respect to their streams of study – *is rejected*.

H₀₅: There is no significant difference in perception of students on their learning environment with respect to their present studying class.

Table 4.23 Showing One-Way ANOVA based on H₀₅.

One-way ANOVA

	Sum of Squares	df	Mean Square	f	Sig.	Remarks
Between Groups	2028.523	2	1014.256	2.845	0.058	*NS P>0.05
Within Groups	510813.818	1433	356.465			
Total	512842.331	1435				

(S-Significant, *NS-Not Significant)

Table 4.23 indicated that the one-way ANOVA result comparing the mean scores of different studying class in relation to students' perception of the learning environment was not statistically significant [$f(2, 1433) = 2.845, p > 0.05$]. Hence, the null hypothesis is failed to reject at the 0.05 level, suggesting that the observed difference in mean scores was not due to random chance.

Hence, H₀₅: There is no significant difference in perception of students on their learning environment with respect to their present studying class – ***is failed reject.***

H₀₆: There is no significant difference in perception of students on their learning environment with respect to their annual family income.

Table 4.24 Showing One-Way ANOVA based on H₀₆.

One-way ANOVA

	Sum of Squares	df	Mean Square	f	Sig.	Remarks
Between Groups	197.647	2	98.823	0.276	0.759	*NS P>0.05
Within Groups	512644.684	1433	357.742			
Total	512842.331	1435				

(S-Significant, *NS-Not Significant)

Table 4.24 indicated that the one-way ANOVA result comparing the mean scores of different income category in relation to students' perception of the learning environment was not statistically significant [$f(2, 1433) = 0.276, p > 0.05$]. Hence, the null hypothesis is failed to reject at the 0.05 level, suggesting that the observed difference in mean scores was not due to random chance.

Hence, H₀₆: There is no significant difference in perception of students on their learning environment with respect to their annual family income – ***is failed reject.***

H₀7: There is no significant correlation between perception of students on their learning environment and their academic achievement.

Table 4.25 Showing Pearson correlation based on H₀7.

PEARSON'S CORRELATION			
		PERCEIVED LEARNING ENVIRONMENT	ACADEMIC ACHIEVEMENT
PERCEIVED LEARNING ENVIRONMENT	Pearson Correlation	1	<u>0.421</u>
	Sig. (2-tailed)		0.000
	N	1436	1436
ACADEMIC ACHIEVEMENT	Pearson Correlation	<u>0.421</u>	1
	Sig. (2-tailed)	0.000	
	N	1436	1436
Remarks - *Significant			

Table 4.25 shows that the Pearson correlation between perceived learning environment and academic achievement is moderately positive ($r = 0.421$). The results also indicate a statistically significant correlation at the 0.05 level ($p = 0.000$). This suggests that an increase in perception is associated with higher academic achievement, and vice versa.

Hence, H₀7: There is no significant correlation between perception of students on their learning environment and their academic achievement – ***is rejected***.

H₀₈: Students' perceptions of the learning environment do not significantly predict their academic achievement.

Table 4.26 Showing linear regression based on H₀₈.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.504	0.254	0.251	10.586

Model	Sum of Squares	df	Mean Square	f	Sig.
Regression	54450.490	5	10890.098	97.175	.000
Residual	160256.098	1430	112.067		
Total	214706.588	1435			

Remarks - *Significant

The regression analysis indicated a moderate positive relationship ($R = 0.504$) between students' perceptions; covering social self, teachers, academic self, atmosphere, and learning environment; and their academic achievement, explaining about 25.4% of the variance in exam scores ($R^2 = 0.254$, Adjusted $R^2 = 0.251$). The model is statistically significant, as shown by the high f-value of 97.175 and a p-value of 0.000, indicating that these perceptual factors collectively have a meaningful impact on students' academic performance, and the findings are unlikely due to chance.

Hence, H₀₈: Students' perceptions of the learning environment do not significantly predict their academic achievement – *is rejected*.

4.3.2 Hypotheses Testing matrix

Table 4.27 Showing hypotheses testing matrix.

Hypotheses	Remarks
H₀₁: There is no significant difference in perception of students on their learning environment with respect to their gender.	REJECTED
H₀₂: There is no significant difference in perception of students on their learning environment with respect to their habitation.	REJECTED
H₀₃: There is no significant difference in perception of students on their learning environment with respect to their types of institution.	REJECTED
H₀₄: There is no significant difference in perception of students on their learning environment with respect to their streams of study.	REJECTED
H₀₅: There is no significant difference in perception of students on their learning environment with respect to their present studying class.	FAILED TO REJECT
H₀₆: There is no significant difference in perception of students on their learning environment with respect to their annual family income.	FAILED TO REJECT
H₀₇: There is no significant correlation between perception of students on their learning environment and their academic achievement.	REJECTED
H₀₈: Students' perceptions of the learning environment do not significantly predict their academic achievement.	REJECTED

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CHAPTER - V

CONCLUSION

CHAPTER - V

CONCLUSION

The main objective of this study was to investigate the connection between students' perceptions of their learning environments and their academic performance in various districts of West Bengal, including Purba Bardhaman, Paschim Bardhaman, Howrah, Hooghly, Kolkata, Bankura, Purba Medinipur, Paschim Medinipur, Jhargram, North 24 PGS, South 24 PGS, Nadia, and Murshidabad. To ensure the research method was accurately represented, a descriptive survey research method was employed in this present study.

5.1 Major findings

- **Based on objective I & IV**

- a. Female students tend to show significantly better perception about their learning environment than male students and rate their experiences slightly more positively in most areas, particularly in perception of teachers, atmosphere, and social self-perception. Male students score marginally higher in perception of learning and academic self-perception, though the differences are minimal.

- b. Rural students showed significantly better perception about their learning environment than urban students and consistently reported more positive perceptions in all five categories as learning, teachers, academic self-perception, atmosphere, and social self-perception. The largest difference is seen in perception of atmosphere and social self-perception, suggesting rural students may feel more comfortable and socially integrated in their school environments.

- c. Private institution's students showed significantly better perception about their learning environment than govt. institution's students and across all five categories, private school students report more positive perceptions than government school students. The most noticeable differences are in perception of

atmosphere and social self-perception, suggesting private school environments may be perceived as more supportive socially and physically.

d. Students from science stream reported significantly better perception about their learning environment than their other counterparts and these students consistently report the highest perceptions across all five categories. Arts students tend to report the lowest scores, particularly in social self-perception and perception of atmosphere. Commerce students generally fall in the middle across most categories.

e. Students from 4th semester reported better perception about their learning environment than their other counterparts but the difference was statistically not significant. Perception of learning and Perception of teachers slightly decreases by 6th semester and Academic self-perception, perception of atmosphere, and social self-perception all improve with each academic year.

f. Students from higher income background showed better perception about their learning environment than their other counterparts but the difference was statistically not significant. Academic self-perception was marginally better in low-income group and in case of perception of teachers very little variation found and went slightly higher in moderate-income.

- **Based on objective II**

a. The overall perception of the learning environment was largely positive, with 61.21% rating it as "More Positive than Negative" and 36.35% as "Excellent," while only 2.44% reported "Plenty of Problems" and none rated it as "Very Poor."

b. Students' perception of learning was largely positive, with 63.09% (n = 906) indicating "A More Positive Perception" and 34.61% (n = 497) rating it as "Teaching

Highly Thought Of," while only 2.30% (n = 33) reported that "Teaching is Viewed Negatively" and none (0%) selected "Very Poor."

c. Students' perception of teachers was generally favorable, with 68.94% (n = 990) indicating "Moving in the Right Direction" and 27.30% (n = 392) identifying them as "Model Teachers," while 3.76% (n = 54) felt they were "In Need of Some Retraining" and none (0%) rated them as "Abysmal."

d. Students' academic self-perceptions were largely positive, with 55.01% (n = 790) reporting feeling "Confident" and 41.23% (n = 592) indicating they were "Feeling More on the Positive Side," while only 3.06% (n = 44) noted "Many Negative Aspects" and 0.70% (n = 10) expressed "Feelings of Total Failure."

e. Students' perception of the atmosphere was predominantly positive, with 61.35% (n = 881) reporting "A More Positive Atmosphere" and 35.17% (n = 505) expressing "A Good Feeling Overall," while only 3.48% (n = 50) noted "There Are Many Issues Which Need Changing" and none (0%) described it as "A Terrible Environment."

f. Students' social self-perceptions were generally positive, with 53.20% (n = 764) indicating it was "Not Too Bad" and 33.91% (n = 487) describing it as "Very Good Socially," while 12.54% (n = 180) viewed it as "Not a Nice Place" and only 0.35% (n = 5) reported feeling "Miserable."

▪ **Based on Objective III & V**

a. Significant moderate positive correlation between students' perceived learning environment and their academic achievement. So, it can be said that better perception leads to higher academic achievement and vice-versa.

b. Students' perception of learning environment significantly predicts academic achievement and Approx 25% variance in academic achievement can be explained by student's perception of learning environment.

5.2 Discussion

Understanding how undergraduate students perceive their learning environment is key to shaping policies and practices that truly work for them. By also considering teachers' perspectives, policymakers and educators can gain valuable insights into what's missing and what kinds of training or support they need. Research in this area helps identify barriers that prevent early interventions, making it easier to detect and respond to issues in a timely way. Looking closely at factors like school culture, available resources, and the challenges teachers face can guide the development of more engaging and supportive classrooms. These findings not only help design effective professional development programs for teachers but also encourage collaboration between educators, mental health professionals, and other stakeholders. Such teamwork strengthens the overall support system and enriches professional knowledge, ultimately benefiting students. By making research insights more personal and actionable, we can create a learning environment that values well-being alongside academic success and ensures every student feels supported and understood.

The findings of the present study revealed that most students viewed their learning environment in a positive light, with a significant number describing their experience as very good or excellent. This observation is consistent with the results of several earlier studies (Abraham et al., 2008; Ahmed et al., 2018; Noreen et al., 2018), which also highlighted overall favourable perceptions. One possible reason for this positive outlook is that students feel genuinely supported by their teachers, classmates, and the broader campus atmosphere, which together make the learning process more enjoyable and stimulating. Moreover, the easy availability of learning resources and the presence of a healthy, encouraging

academic culture seem to strengthen their confidence and enhance their satisfaction with the overall educational journey.

When looking at the role of gender, the present study shows that female students tend to have a slightly more favourable view of the learning environment than their male counterparts. This outcome is consistent with earlier research, such as the study by Sengupta et al. (2017), which also found some gender-related differences in how students perceive different aspects of their educational experience. One possible explanation is that female students often place greater value on supportive interactions, collaborative activities, and positive classroom relationships, all of which contribute to a stronger sense of belonging. On the other hand, male students may not give the same importance to these social and relational factors, which could explain why their overall perception of the learning environment appears somewhat lower.

With respect to rural versus urban differences, the present study indicates that rural students tend to have a noticeably more positive perception of their learning environment compared to urban students. This outcome is in line with the findings of Asiyai (2014), which also reported that rural students rated certain aspects of their environment more favorably than their urban counterparts. One possible reason is that students from rural backgrounds may place greater value on the facilities, opportunities, and academic exposure provided in higher education, as these often represent a considerable improvement from their prior learning conditions. In contrast, urban students may approach the same environment with higher expectations, which can lead them to be more critical and less easily impressed.

Another key finding of the study is that science students expressed a considerably more positive perception of their learning environment compared to students from arts or commerce streams. This observation is consistent with Sengupta et al. (2017), who also reported that students in science disciplines generally rated their educational environment more favourably than those in other academic areas. One

possible explanation is that science programs often provide structured learning opportunities, complemented by practical laboratory work and hands-on activities, which make the learning process more engaging and interactive. On the other hand, students in arts and commerce tend to experience more theory-based instruction, which, though valuable, may sometimes appear less dynamic or resource-rich, leading to comparatively lower levels of satisfaction.

The study also highlighted a positive link between students' perceptions of their learning environment and their academic achievement. Specifically, it showed a moderate positive correlation, which aligns with previous findings by Lizzio et al. (2002), who noted that students' views of their environment had a direct influence on both their academic performance and overall satisfaction. This result indicates that when students perceive their learning atmosphere in a favourable way, they are more likely to remain motivated, actively engaged, and achieve better outcomes. An encouraging and supportive environment not only strengthens students' confidence but also improves their concentration, ultimately leading to higher academic success.

Some findings from the present study stand in contrast to earlier research, particularly with regard to perceptions based on income. In this study, no significant differences were observed in how students perceived the learning environment across different income groups. However, studies such as Sengupta et al. (2017) reported variations linked to socio-economic background, especially when comparing students from private and government schools. This suggests that income levels may play a more influential role in certain contexts or institutions. A possible explanation for the current results is that, in this setting, students; regardless of their financial background; are provided with equal access to institutional resources, qualified teachers, and academic opportunities. Consequently, their perceptions are likely shaped more by shared academic and social experiences than by their income status.

Another observation from the current study is that fourth-semester students reported a more favourable perception of their learning environment compared to students in higher semesters. This result contrasts somewhat with earlier studies, such as those by Pai et al. (2014) and Akkoyunlu & Soylu (2008), which indicated that students' perceptions tend to decline in later years, particularly during clinical phases, when academic stress and workload increase. One possible reason for the present finding is that fourth-semester students are still fairly new to the system, remain enthusiastic, and are positively adjusting to their academic experiences, which allows them to view their environment more positively. As students' progress to later semesters, however, greater academic demands, heavier responsibilities, and the routine familiarity of the environment may result in more critical evaluations of the same setting.

In the present study, it was observed that students' academic self-perception showed improvement as they progressed through each academic year. This finding differs from the observations of Kember & Leung (2009) and Nijhuis et al. (2005), who argued that the learning environment; particularly in problem-based learning contexts; does not always lead to direct improvements in students' self-regulation or self-perception. In contrast, the results of the current study clearly demonstrate that students' self-perception strengthens as they move forward academically, suggesting that progression through the academic years contributes positively to how they view their own abilities and growth.

The present study revealed a very positive perception of teachers, with 68.94% of students rating them as "Moving in the Right Direction." This result shows a slightly different picture compared to Bakhshialiabad et al. (2015), where students also expressed generally positive views about their teachers but at the same time highlighted areas that still needed improvement, especially concerning the quality and effectiveness of teaching delivery.

Another important finding of the present study was that student participation appeared to be more closely linked with differences in income levels and academic streams. This outcome differs from earlier studies such as those by Zafeiriou et al. (2001) and Leow & Neo (2015), which emphasized that participation in learning activities; particularly in collaborative or activity-based settings; had a stronger influence on students' perceptions than socio-economic background.

5.3 Educational Implications of the Study

Current research has multiple educational implications as follows –

1. **Promoting Teacher Development and Engagement:** - As students expressed highly positive views toward their teachers, this underscores the importance of nurturing faculty capacities. Regular professional development workshops in innovative pedagogy, classroom management, and student-centered learning can help sustain and further improve students' experiences with their instructors.
2. **Creating Equitable Learning Environments:** - Since differences appeared across gender, income, and rural–urban backgrounds, it is essential to provide an inclusive environment where all students feel equally supported. Introducing mentorship programs, collaborative learning spaces, and teaching practices sensitive to diversity can help ensure that no group feels left behind.
3. **Balancing Learning Opportunities Across Disciplines:** - The stronger perceptions held by science students seem related to structured teaching, labs, and hands-on experiences. Arts and commerce students could benefit from similar interactive methods, such as project-based tasks, case studies, and activity-oriented learning, to make their education more dynamic and engaging.
4. **Supporting Senior Students Academically and Emotionally:-** Fourth-semester students reported more favorable perceptions compared

to students in later years. This suggests the need for institutions to provide added academic support and stress-management initiatives for senior students. Offering counseling services, peer support groups, and strategies to distribute workload more evenly can help reduce burnout and sustain motivation.

5. **Linking Positive Perceptions to Academic Success:** - Since students' perceptions of the learning environment were positively linked with academic performance, institutions should actively cultivate a culture of openness, encouragement, and collaboration. A more supportive climate boosts confidence, engagement, and motivation, thereby improving learning outcomes and achievement levels.
6. **Ensuring Equal Access to Resources and Opportunities:** - The absence of significant differences in perception based on income reflects the positive impact of equal access to resources and opportunities. This highlights the importance of policies that guarantee fair resource allocation, affordable learning materials, and equal academic exposure to all students, regardless of financial background.

5.4 Limitations of the study

i. Narrow Geographical Representation: - The investigation was limited to thirteen districts of West Bengal, which means that the results may not truly represent the perceptions of students from other districts, regions, or the country as a whole. This restricts the broader applicability and generalization of the findings.

ii. Constrained Sample Size and Diversity: - Although the study included 1,436 undergraduate students, this number may still not fully reflect the wide variety of student experiences across the entire state or nation. A larger and more heterogeneous sample could have offered richer and more representative insights.

iii. Focus on Specific Semesters Only:- The research examined only students in the 2nd, 4th, and 6th semesters, leaving out the perceptions of newcomers in the 1st semester as well as final-year students. This limited focus narrows the understanding of how perceptions of the learning environment shift across the complete undergraduate span.

iv. Consideration of Limited Demographic Factors: - The study explored only a set number of demographic variables, namely gender, habitation, type of institution, stream of study, current class level, annual income, and academic achievement. Other meaningful influences—such as motivation, psychological readiness, personality traits, or parental support—were not included, which might have added greater depth to the findings.

v. One-Time Assessment Design: - The cross-sectional design of the study provides a snapshot of student perceptions at a single point in time. Consequently, it does not capture how these perceptions might change over time, or how they could be influenced by curriculum reforms, shifting academic expectations, or evolving teaching practices.

5.5 Scope for further study

Although the present study is fairly comprehensive, it is important to recognize certain limitations that accompany it. Nevertheless, in spite of these constraints, the outcomes of the research offer meaningful insights and create valuable opportunities for future investigations as -

i. Future research can go beyond the thirteen districts of West Bengal to cover other states or regions. Doing so would allow comparisons across varied socio-cultural and institutional settings, thereby strengthening the generalizability and broader relevance of the results.

ii. Subsequent studies could involve students from the beginning and final semesters, as well as those at the postgraduate level. This would provide a more

complete picture of how perceptions of the learning environment change and develop throughout the entire academic journey.

iii. In contrast to the cross-sectional design of the present study, future research may employ a longitudinal framework. Tracking students' perceptions over time would help reveal patterns of change and how these are linked to academic performance, motivation, and overall satisfaction.

iv. Further investigations might also take into account additional psychological and social factors such as levels of motivation, stress management, individual learning styles, parental influence, peer relationships, and personality traits. Including such variables could provide deeper insights into the elements shaping student perceptions.

v. Another promising avenue is to test the impact of specific interventions; such as mentorship or peer-support programs, counselling and stress-management initiatives, or innovative teaching practices; on enhancing students' perceptions of their learning environment and improving academic outcomes.

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A decorative border of black line-art flowers and leaves surrounds the central text. The border is composed of several curved segments that meet at the corners. The background is a light gray with faint, larger-scale floral patterns.

APPENDIX INDEX

BASIC INFORMATION AND DEMOGRAPHIC DATA SCHEDULE

(Put tick ✓)

Age (বয়স):.....(years-বছর)		Gender (লিঙ্গ): (Male-পুরুষ/Female-মহিলা)	
Father's Occupation-পিতার পেশা: (Cultivation-কৃষিকাজ/Business-ব্যবসা/Govt. Job-সরকারি চাকুরি/Private job-বেসরকারি চাকুরী/Daily labour-দিনমজুর)			
Mother's Occupation-মাতার পেশা: (Homemaker-গৃহিণী/Business-ব্যবসা/Govt. Job-সরকারি চাকুরি/Private job-বেসরকারি চাকুরী/Daily labour-দিনমজুর)			
Father's Educational Qualification-পিতার শিক্ষাগত যোগ্যতা: (Illiterate-নিরক্ষর/Primary-প্রাথমিক/Secondary-মাধ্যমিক/Higher Secondary-উচ্চ মাধ্যমিক/ Higher Education-উচ্চশিক্ষা)			
Mother's Educational Qualification-মাতার শিক্ষাগত যোগ্যতা: (Illiterate-নিরক্ষর/Primary-প্রাথমিক/Secondary-মাধ্যমিক/Higher Secondary-উচ্চ মাধ্যমিক/ Higher Education-উচ্চশিক্ষা)			
Present Class-বর্তমান পাঠরত শ্রেণী: (1st sem/2nd sem/3rd sem/4th sem/5th sem/6th sem)			
Social Category: (General/Scheduled Caste/Scheduled Tribe/Other Backward Classes)			
Habitat -বাসস্থান: (Rural-গ্রাম/Urban-শহর)	Family Type-পরিবারের ধরন: (Joint-যৌথ/Nuclear-একক)	Family Income-পারিবারিক আয় :(...../year-বছর)	বাৎসরিক আয়
Number of Siblings: (None/One/More than one) ভাইবোনের সংখ্যা - (নেই/এক ভাইবোন/ একের অধিক)	Birth Order: (1 st /2 nd /3 rd /4 th /5 th) জন্মক্রম- (১/২/৩/৪/৫)	Medium of Instruction: (Bengali / English / Other) শিক্ষণ মাধ্যম - (বাংলা/ইংরেজি/অন্যান্য)	
Type of Institution: (Government/Private) প্রতিষ্ঠানের ধরন - (সরকারি / বেসরকারি)	Minority Status: (Non-Minority/Minority) (সংখ্যালঘু সম্প্রদায়ভুক্ত / সংখ্যালঘু সম্প্রদায়ভুক্ত নয়)	Educational Stream: (Science / Arts / Commerce) পাঠরত শাখা - (বিজ্ঞান/কলা/বানিজ্য)	
Percentage obtained in last examination: পূর্ববর্তী পরীক্ষায় পাওয়া শতকরা নম্বর -		_____ %	

For how many days were you absent from school in the previous month?

(গত মাসে তুমি কতদিন বিদ্যালয়ে অনুপস্থিত ছিলে?) _____ Days

Name of District (জেলার নাম) - _____

Name of institution (শিক্ষাপ্রতিষ্ঠানের নাম) - _____

প্রিয় শিক্ষার্থী,

আমি **তিনি পারিয়াল** (গবেষক, শিক্ষাবিজ্ঞান বিভাগ, যাদবপুর বিশ্ববিদ্যালয়), শিক্ষার্থীদের তাদের শিক্ষন-শিখন পরিবেশ সম্পর্কিত ধারণা নিয়ে গবেষণা করছি। আমি আন্তরিকভাবে অনুরোধ করছি যে আপনি/তুমি এই প্রশ্নমালাটি সম্পূর্ণভাবে পূরণ করবেন/করবে। প্রদত্ত তথ্য কঠোরভাবে গোপন রাখা হবে এবং কেবলমাত্র এই গবেষণার উদ্দেশ্যে ব্যবহার করা হবে।

DUNDEE READY EDUCATION ENVIRONMENT MEASURE (DREEM)

Development and Validation by **Roff, S. et al. (1997)**

Sl.No	Statements (বিবৃতি)	Strongly Agree (সম্পূর্ণ সহমত)	Agree (সহমত)	Uncertain (অনিশ্চিত)	Disagree (অসহমত)	Strongly Disagree (সম্পূর্ণ অসহমত)
1	I am encouraged to participate in class (আমি ক্লাসে অংশগ্রহণের জন্য উৎসাহবোধ করি)					
2	The teachers are knowledgeable (শিক্ষকরা যথেষ্ট জ্ঞানসম্পন্ন)					
3	There is a good support system for students who get stressed (শিক্ষার্থীরা শিক্ষাপ্রতিষ্ঠানে চাপ অনুভব করলে, তাদের জন্য যথোপযুক্ত সাহায্যের ব্যবস্থা রয়েছে)					
4	I am too tired to enjoy this course (আমি এই কোর্সটি উপভোগ করতে পারছি না)					
5	Learning strategies which worked for me before continue to work for me now (আগে যে শিখনকৌশলগুলো আমার কাজে লেগেছিল সেগুলো এখনও আমার কাজে লাগছে)					
6	The teachers are patient with students (শিক্ষকরা ছাত্রছাত্রীদের প্রতি ধৈর্যশীল)					
7	The teaching is often stimulating (শিক্ষাদান পদ্ধতি প্রায়শই আমাকে উদ্দীপ্ত করে)					
8	The teachers ridicule the students (শিক্ষকরা শিক্ষার্থীদের উপহাস করেন)					
9	The teachers are authoritarian (শিক্ষকরা যথেষ্টই কর্তৃত্বসম্পন্ন)					

	Statements (বিবৃতি)	Strongly Agree (সম্পূর্ণ সহমত)	Agree (সহমত)	Uncertain (অনিশ্চিত)	Disagree (অসহমত)	Strongly Disagree (সম্পূর্ণ অসহমত)
10	I am confident about my passing this year (আমি এবছর উত্তীর্ণ হওয়ার ব্যাপারে যথেষ্ট আত্মবিশ্বাসী)					
11	The atmosphere is relaxed during the practical teaching (প্রাকটিক্যাল ক্লাসের পরিবেশও যথেষ্ট উদ্বেগহীন)					
12	This institution is well timetabled (শিক্ষাপ্রতিষ্ঠানের কার্যক্রম যথেষ্টই সময় মেনে হয়)					
13	The teaching is student centred (শিক্ষাদান শিক্ষার্থীকেন্দ্রিক)					
14	I am rarely bored on this course (কোর্সেটি চলাকালীন আমি একেবারেই একঘেয়েমি অনুভব করি না)					
15	I have good friends in this institution (এই প্রতিষ্ঠানে আমার ভালো বন্ধুবান্ধব রয়েছে)					
16	The teaching is sufficiently concerned to develop my competence (শিক্ষাদান আমার যোগ্যতা বিকাশে যথেষ্ট সাহায্য করে)					
17	Cheating is a problem in this institution (এই শিক্ষাপ্রতিষ্ঠানে অসৎ উপায় অবলম্বন করার প্রবৃত্তি একটি গুরুতর সমস্যা)					
18	The teachers have good communications skills with students (শিক্ষকরা শিক্ষার্থীদের সঙ্গে যোগাযোগ স্থাপনে বেশ দক্ষ)					
19	My social life is good (আমার সামাজিক জীবন ভালো)					
20	The teaching is well focused (শিক্ষকরা যথেষ্ট মনোযোগ সহকারে পড়ান)					

	Statements (বিবৃতি)	Strongly Agree (সম্পূর্ণ সহমত)	Agree (সহমত)	Uncertain (অনিশ্চিত)	Disagree (অসহমত)	Strongly Disagree (সম্পূর্ণ অসহমত)
21	I feel I am being well prepared for my profession (আমি মনে করি আমি আমার ভবিষ্যত পেশার জন্য ভালোভাবে প্রস্তুত হচ্ছি)					
22	The teaching is sufficiently concerned to develop my confidence (শিক্ষকদের পড়ানো আমার আত্মবিশ্বাস বৃদ্ধিতে যথেষ্ট সাহায্য করে)					
23	The atmosphere is relaxed during lectures (শিক্ষকদের পড়ানোর পরিবেশ যথেষ্টই চাপমুক্ত)					
24	The teaching time is put to good use (শিক্ষাদানের সময়কে ভালোভাবে কাজে লাগানো হয়)					
25	The teaching over-emphasizes factual learning (শিক্ষাদানে তথ্যভিত্তিক শিখনের উপর অতিরিক্ত জোর দেওয়া হয়)					
26	Last year's learnings have been a good preparation for this year's (গতবছরের শিখন আমার এই বছরের প্রস্তুতির ক্ষেত্রে যথাযথ বলে মনে হয়েছে)					
27	I am able to memorize all I need (আমি আমার প্রয়োজনীয় সবকিছু মনে রাখতে পারি)					
28	I seldom feel lonely (আমি খুব কমই নিঃসঙ্গ বোধ করি)					
29	The teachers are good at providing feedback to students (শিক্ষকরা শিক্ষার্থীদের ভালোভাবে ফিডব্যাক দেন)					

	Statements (বিবৃতি)	Strongly Agree (সম্পূর্ণ সহমত)	Agree (সহমত)	Uncertain (অনিশ্চিত)	Disagree (অসহমত)	Strongly Disagree (সম্পূর্ণ অসহমত)
30	There are opportunities for me to develop interpersonal skills (শিক্ষাপ্রতিষ্ঠানে পারস্পরিক সম্পর্ক বিকাশের দক্ষতা অর্জনের সুযোগ রয়েছে বলে আমার মনে হয়)					
31	I have learned a lot about empathy in my course (আমি আমার কোর্সে সমানুভূতি সম্পর্কে অনেককিছু শিখেছি)					
32	The teachers provide constructive criticism here (শিক্ষকরা গঠনমূলক সমালোচনা করেন)					
33	I feel comfortable in class socially (আমি শ্রেণীকক্ষে সকলের সাথে স্বাচ্ছন্দ্য বোধ করি)					
34	The atmosphere is relaxed during seminars/ tutorials (সেমিনার / টিউটোরিয়াল এর সময় পরিবেশ উদ্বেগহীন থাকে)					
35	I find the experience disappointing (শিক্ষাপ্রতিষ্ঠানে আমার অভিজ্ঞতা হতাশাজনক)					
36	I am able to concentrate well (আমি ভালোভাবে মনোনিবেশ করতে পারি)					
37	The teachers give clear examples (শিক্ষকরা বোধগম্য উদাহরণ সহকারে পড়ান)					
38	I am clear about the learning objectives of the course (কোর্সের শিখন-উদ্দেশ্য সম্পর্কে আমার স্পষ্ট ধারণা আছে)					
39	The teachers get angry in class (শিক্ষকরা ক্লাসে রেগে যান)					
40	The teachers are well prepared for their classes (শিক্ষকরা ভালোভাবে প্রস্তুত হয়েই ক্লাসে আসেন)					

	Statements (বিবৃতি)	Strongly Agree (সম্পূর্ণ সহমত)	Agree (সহমত)	Uncertain (অনিশ্চিত)	Disagree (অসহমত)	Strongly Disagree (সম্পূর্ণ অসহমত)
41	My problem-solving skills are being well developed here (আমার সমস্যা-সমাধানের দক্ষতাগুলি এখানে ভালোভাবে বিকশিত হচ্ছে)					
42	The enjoyment outweighs the stress of studying my subject (আমার পড়ার বিষয়ের চাপের চেয়ে তা শিখতে আমি বেশি আনন্দ পাই)					
43	The atmosphere motivates me as a learner (শিক্ষা প্রতিষ্ঠানের পরিবেশ আমাকে শিক্ষার্থী হিসেবে উৎসাহিত করে)					
44	The teaching encourages me to be an active learner (শিক্ষকদের পড়ানো আমাকে সক্রিয় শিক্ষার্থী হতে উৎসাহিত করে)					
45	Much of what I have to learn seems relevant to a career in my subject (আমার যা কিছু শেখা দরকার তার বেশিরভাগই আমার বিষয়-সংক্রান্ত বৃত্তির সঙ্গে সম্পর্কিত মনে হয়)					
46	My accommodation is pleasant (আমার থাকার ব্যবস্থা যথেষ্টই ভালো)					
47	Long-term learning is emphasized over short term (স্বল্পমেয়াদের চেয়ে দীর্ঘমেয়াদী শিখনের উপর গুরুত্ব আরোপ করা হয়)					
48	The teaching is too teacher-centred (শিক্ষাদান ভীষণভাবেই শিক্ষককেন্দ্রিক)					
49	I feel able to ask the questions I want (আমি মনে করি শ্রেণীকক্ষে যে প্রশ্নগুলি করতে জিজ্ঞাসা করতে চাই সেগুলি করতে পারি)					
50	The students irritate the teachers (শিক্ষার্থীরা শিক্ষকদের বিরক্ত করে)					

A decorative border of black line-art flowers and leaves surrounds the central text. The border is composed of several curved segments that meet at the corners. The background is a light gray color with faint, larger-scale floral patterns.

PLAGIARISM REPORT

RELATIONSHIP BETWEEN PERCEIVED LEARNING ENVIRONMENTS AND ACADEMIC ACHIEVEMENT OF STUDENTS AT UNDERGRADUATE LEVEL : A CRITICAL EVALUATION

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