UGC Approved Indexed Peer Reviewed Journal

ISSN: 2320-6586 (Online)

IILM UNIVERSITY

# Technologies for Sustainable Development Goals 2025 (TECH4SDG-2025)

**School of Computer Science & Engineering**

**IILM University Greater Noida**

***Presents***

**1st National Conference**

***on***

**Technologies for Sustainable Development Goals 2025 (TECH4SDG-2025)**

**3rd March 2025**

Technically Co-Sponsored by IEEE UP SECTION (INDIA)

**Venue:**

**IILM University, Greater Noida**

**Plot No.18,16, Knowledge Park II, Greater Noida, Uttar Pradesh 201306**

**Procedings Published at**

**International Journal of Research in Modern Engineering and Emerging Technology**

**Vol. 13, Sp. Issue 1, April 2025**

**Doi: https://doi.org/10.63345/ijrmeet.org.v13.si1.1301**

Editor-in-Chief

**Dr. Mylavarapu Seetharama Prasad**

www.ijrmeet.org

# INDEX


| S. No. | Particulars | Page No. |
|---|---|---|
| 1 | A Comparative Study On Load Balancing Algorithms And Its Types<br><br>**Methily Johri & Aditri Ashish** | 1–10 |
| 2 | Optimizing Supply Chain Management with Ethereum 2.0: Innovations in Blockchain Technology<br><br>**Ayush Gupta & Dr. Ambuj Kumar Agarwal** | 11–17 |
| 3 | Smart Surveillance: "A Real-Time Crowd Analysis System for Density and Anomaly Detection"<br><br>**Komal Sharma, Dr. Pankaj Kumar Varshney, Aditi Aggarwal & Gaurav Kumar** | 17–22 |
| 4 | AI-Driven Network Optimization: Matching Policyholders to Cost-Effective Providers Using Business Intelligence<br><br>**Ruchi Mangharamani & Prof. (Dr) Sangeet Vashishtha** | 23–29 |
| 5 | The Future of UX: Designing for Emerging Technologies (AI, AR, VR, Voice UI)<br><br>**Ojas Gupta & Prof.(Dr.) Arpit Jain** | 30–37 |
| 6 | Enhancing Liquidity Stress Testing: Best Practices for Modern Banking Risks<br><br>**Padmini Bulani & Dr Abhishek Jain** | 38–45 |
| 7 | AI-Powered Investment Strategies: Optimizing Risk and Returns in Modern Banking<br><br>**Aditya Mehra & Dr. Shakeb Khan** | 46–53 |
| 8 | Scaling Customer Journey Optimization in a Multi-Tenant Distributed System<br><br>**Sumit Kumar Agrawal & Prof. (Dr) MSR Prasad** | 54–61 |
| 9 | Object Detection Using Convolutional Neural Networks: Advances, Techniques, and Applications | 62–69 |

| S. No. | Particulars | Page No. |
|---|---|---|
| | **Bharath Thandalam Rajasekaran, Saravanan Thirumazhisai Prabhagaran & Prof. (Dr) Punit Goel** | |
| **10** | AI-Augmented Intrusion Detection Systems for High-Speed Optical Networks<br>**Sattvik Sharma & Prof.(Dr) Avneesh Kumar** | 70–77 |
| **11** | Generative AI in Data Security: Opportunities and Challenges<br>**Vybhavreddy Kammireddy Changalreddy, Piyush Bipinkumar Desai & Prof (Dr) Ajay Shriram Kushwaha** | 78–86 |
| **12** | Integrating Salesforce with Cloud-Based Data Warehousing for Unified Analytics<br>**Nidhi Shashikumar & Dr S P Singh** | 87–94 |
| **13** | AI-Powered Cybersecurity: A Unified Approach to Protecting Enterprise, Cloud, and SaaS Applications<br>**Varun Grover, Khushmeet Singh & Er. Siddharth** | 95–103 |
| **14** | Sales and Order Analysis Using Excel-Based Dashboard: A Case Study on Vrinda Store<br>**Mohd Ammar Khan & Harun Faridi** | 104–106 |
| **15** | ChatMania: A Realtime Chat Application<br>**Dr. Kirti Shukla & Anshika** | 107–110 |
| **16** | Digital Surveillance and Domestic Abuse: A Legal Vacuum in Indian Marital Relationships<br>**Vishal Nehra & Dr. Rakesh Kumar** | 110–116 |
| **17** | The Role of Emotional Appeal in Online Advertisements Targeting Working Women in Delhi-NCR<br>**Mona Mishra & Dr. Praveen Mittal** | 116–120 |
| **18** | AI-Driven Data Governance Strategies for Enhanced Cloud Security in Enterprises<br>**Chandana Pandey & Dr Gauri Shanker Kushwaha** | 121–123 |

| S. No. | Particulars | Page No. |
|---|---|---|
| **19** | Evolution of Social Media Advertising and Consumer Behavior<br>**Mr. Pramod Rana & Prof (Dr) Punit Goel** | 124–129 |
| **20** | Sustainability Accounting Practices in Indian Manufacturing Firms<br>**Mrs. Sonal Jain & Dr. Ajit Singh** | 129–134 |
| **21** | Fundamental Rights vs. Reasonable Restrictions: A Study of Evolving Judicial Balances<br>**Mrs. Anshika Agarwal & Dr. Vijay Kumar Singh** | 134–139 |
| **22** | सतत शिक्षा के लिए हिंदी साहित्य की भूमिका: सतत विकास लक्ष्य-4 (गुणवत्तापूर्ण शिक्षा) का सांस्कृतिक विश्लेषण<br>**श्रीमती रेणु गुप्ता, डॉ. बृजलता शर्मा** | 140–144 |
| **23** | Mind–Gut Synergy in Chronic Lifestyle Conditions: Evaluating Psychotherapy-Driven Behavioral Change and Microbiota-Mediated Metabolic Repair<br>**Krithika. V, Dr. Sarbesh Kumar Singh** | 145–151 |
| 24 | प्राचीन शिक्षा प्रणाली से आधुनिक AI आधारित शिक्षा की ओर संक्रमण<br>**गौरव जोशी, डॉ सारिका गोयल** | 152–159 |
| 25 | पर्वतीय क्षेत्रों में शिक्षा के डिजिटलीकरण की चुनौतियाँ एवं संभावनाएँ<br>**राकेश उनियाल, डॉ. मीनाक्षी हर्राव वर्मा** | 160–168 |
| 26 | Women Leadership and Democratic Participation in India: Challenges and Opportunities in Parliamentary Politics<br>**Renu Yadav, Dr. P.P.S. Rana** | 169–176 |
| 27 | Evaluating GST Effects on Competitiveness and Industrial Development<br>**Aman Goel, Dr. Pooja Yadav** | 177–183 |
| 28 | एस०आर० हरनोट के कथा साहित्य में लोक संस्कृति, पर्यावरण चेतना और सामाजिक परिवर्तन का अध्ययन<br>**सीमा देवी, डॉ० अरविन्द्र कौर चुंबर** | 184–189 |

| S. No. | Particulars | Page No. |
|---|---|---|
| 29 | Balancing National Security and Human Rights in Modern India<br>**Shalu Jain, Dr. Vijay Kumar** | 190–197 |
| 30 | Economic Performance Drivers and Fiscal Resilience in Indian Airports<br>**Lalit Kumar Sharma, Dr. Pooja Yadav** | 198–203 |
| 31 | Educational Governance and AI Learning Outcomes in Government Elementary Schools<br>**Dr. Shubhra Chaturvedi** | 203–210 |
| 32 | Artificial Intelligence and the Future of Teacher Roles in India Classroom<br>**Neeru Verma** | 211–220 |
| 33 | Research Culture Among Undergraduate Students in Indian Universities<br>**Dr. Dhanashri Rajshri Ravindra Jadhav** | 221–229 |
| 34 | डिजिटल समाज में बहुभाषिक संचार का बदलता स्वरूप: भारतीय भाषाओं के समक्ष अवसर और चुनौतियाँ<br>**Rakesh Uniyal** | 230–234 |
| 35 | Graduate Employability and Skill Gaps in State Universities<br>**Narender Panghal** | 235–242 |
| 36 | Political Funding Transparency in Indian Election<br>**Dr. Anand Kumar Dwivedi** | 243–252 |
| 37 | AI-Powered Platforms for Data Analytics and Audience Development<br>**Sachin Sangal** | 253–258 |
| 38 | Engineering Leadership Models in AI Startups: Balancing Innovation and Operational Efficiency<br>**Dr. Kalpesh Rasiklal Rakholia** | 259–269 |
| 39 | Challenges in Integrating CWSN in Regular Classrooms<br>**Anil Kumar** | 270–280 |
| 40 | An Artificial Intelligence-Based Legal Compliance Framework for Real-Time Environmental Governance to Advance SDGs 9, 12, 13, and 16<br>**Dr. Jyoti Janardhan Reddy** | 281–288 |

| S. No. | Particulars | Page No. |
|---|---|---|
| 41 | Impact of Source Segregation and Waste Characterization on the Efficiency of Material Recovery Facilities<br><br>**Varinder Vikram Singh, Dr. Pankaj Kumar Bharti** | 289–296 |
| 42 | Significance of Emotional Intelligence of schedule caste students in relation to Self-concept at secondary level<br><br>**Mrs. Varsha Asher Wasker, Dr. Kuldeep Singh Tomar** | 297–305 |
| 43 | औपनिवेशिक भारत में स्थानीय बाजारों के सामाजिक परिवर्तन का ऐतिहासिक अध्ययन<br><br>**Pankaj Tamta** | 306–310 |
| 44 | Teachers' Readiness to Integrate Generative AI into Lesson Planning and Classroom Instruction<br><br>**Prema Bharti** | 311–316 |
| 45 | Battery Usage Optimization Techniques for AI-Heavy Mobile Apps<br><br>**Dr. Akankasha Kathuria** | 317–321 |
| 46 | Gender, Technology, and Changing Family Structures in Urban India: A Socio-cultural Analysis<br><br>**Prof. Sawant Jeetendra Madhukar Usha** | 322–326 |
| 47 | Law and Alternative Dispute Resolution in Contemporary Civil Justice: A Legal Study<br><br>**Dr. Pooja Khurana** | 327–331 |
| 48 | English Literature and the Representation of Women in Contemporary Fiction: A Corpus-Based Study of Narrative Agency, 2000–2024<br><br>**Dr. Abu Farah Hoque** | 332–336 |
| 49 | Agricultural Impact of Biochar and Reduced Fertilizer on Mustard Soil Health and Yield<br><br>**Dr. Bibhu Santosh Behera** | 337–346 |
| 50 | Ethical and Privacy Frameworks for AI-Driven Customer Data Analytics in Medical Profession<br><br>**Dr. Gaurav Singh Tomar** | 347–351 |
| 51 | Legal Protection of Witnesses in Criminal Justice Proceedings<br><br>**Dr. Jyoti Janardhan Reddy** | 352–357 |

| S. No. | Particulars | Page No. |
|---|---|---|
| 52 | Platform Culture and Fragmented Selfhood in Contemporary English Literature<br>**Dr. Akanksha Singh** | 358–362 |
| 53 | Digital Health Literacy and Health Information Inequality in Rural India: A Multidimensional Assessment<br>**Ranjana Jadaun** | 363–368 |
| 54 | स्मार्ट विनिर्माण और उद्योग 5.0 में कृत्रिम बुद्धिमत्ता, मानव-केंद्रित तकनीक और सतत विकास का अंतःविषयक अध्ययन<br>**Dr. Ghamendra Kumar Sahu** | 369–375 |
| 55 | Contribution of Yoga-Based Breathing Techniques to Daily Stress Management<br>**Dr. Sweta Kumari** | 376–387 |
| 56 | Algorithmic Silence and Unspoken Meaning in Contemporary English Fiction<br>**Dr. Jyoti Devi** | 388–396 |
| 57 | Cost-Benefit Analysis of Custom Image Analysis Tools in Oncology Research<br>**Sumit Malhotra** | 397–405 |
| 58 | उच्च शिक्षा में सूक्ष्म अधिगम तकनीकों का शैक्षिक प्रभाव<br>**Ram Singh** | 406–412 |
| 59 | Optimising Laboratory Workflows with Low-Code/No-Code Software Solutions<br>**Dr. Amit Nampalliwar** | 413–421 |
| 60 | भारतीय बहुभाषिक समाज में भाषा, संस्कृति और राष्ट्रीय एकता का अध्ययन<br>**Dr. Geeta Rawat** | 422–428 |
| 61 | Influence of FinTech Innovation on Financial Resilience and Operational Efficiency of Retailers and Street Vendors<br>**Prof. Manmeet Kumar Siras & Shyam Pandey** | 429–435 |
| 62 | भारत में आपातकालीन शक्तियाँ और लोकतांत्रिक उत्तरदायित्व: संसदीय शासन के अंतर्गत राष्ट्रपति की संवैधानिक भूमिका का विश्लेषण<br>**सीता राम पंडित, डॉ. पी. पी. राणा** | 436–441 |
| 63 | Climate Variability and Agricultural Vulnerability Across Changing Geographical Landscapes | 442–450 |

| S. No. | Particulars | Page No. |
|---|---|---|
| | **Dr. Geeta Rawat** | |
| 64 | English Literature and the Changing Patterns of Communication among Young Adults<br>**Ravindra Hanmantrao Sagar** | 451–459 |
| 65 | An Explainable AI Framework for Transparent and Reliable Medical Diagnosis<br>**Dr. Thejoram Naresh Reddy Boya** | 460–466 |
| 66 | डिजिटल समुदायों का युवा शिक्षा और सामूहिक पहचान पर प्रभाव<br>**डॉ. मनोज कुमार सकलानी** | 467–473 |
| 67 | Adaptive Technologies for Enhancing Online Shopping Experiences<br>**Dr. Abhishek Bhattacharjee** | 474–479 |
| 68 | Impact of Digital Payment Adoption through AI-ML on Micro-Business Performance<br>**Ralphy Joseph C J** | 480–484 |
| 69 | Role of Regional Parties in Shaping Federalism in India<br>**Dr. Shailendra Kumar** | 485–489 |
| 70 | Serverless Computing Optimization: Enhancing Performance with AI-Based Resource Allocation<br>**S. Venkatasubramanian** | 490–495 |
| 71 | Student Satisfaction in Autonomous vs. Affiliated Colleges<br>**Dr. Mohit Dixit** | 496–500 |
| 72 | Psychological and Social Isolation and Its Effect on Urban Elderly<br>**Mredula P., Dr Sarita Gupta** | 501–507 |
| 73 | The Role of Folk Literature in Promoting Community Health Awareness in Rural India: A Study from the Perspective of English Literature<br>**Dr. Revant Gautam** | 508–512 |
| 74 | Exam Stress Clinical Psychology Mechanisms Among Rural Students<br>**Dr. Avinash D. Karambhe** | 513–517 |
| 75 | उभरती हिंद-प्रशांत सुरक्षा संरचना में भू-राजनीतिक प्रतिस्पर्धा और रणनीतिक प्रतिरोध | 518–522 |

| S. No. | Particulars | Page No. |
|---|---|---|
| | **Dr. Girish Chandra Pachauli** | |
| 76 | Sustainable Edible Coatings for Reducing Oxidative Deterioration in Fresh Fruits<br><br>**Amar Jensi Solanki** | 523–528 |
| 77 | Climate-Resilient Agriculture: Assessing Smart Irrigation and Precision Resource Management for Sustainable Crop Production<br><br>**Dr. Bibhu Santosh Behera** | 529–534 |

# Student Satisfaction in Autonomous vs. Affiliated Colleges

**Dr. Mohit Dixit**

Vice Principal & HOD (Education)

Parishkar College of Global Excellence (Autonomous)

Jaipur, Rajasthan, India

**ABSTRACT— This study examines the comparative levels of student satisfaction in autonomous and affiliated colleges within India's higher-education framework. Recognizing the growing emphasis on institutional autonomy and quality assurance, the research investigates how governance structures, curricular flexibility, teaching-learning practices, and support services influence overall student perceptions and satisfaction. A cross-sectional quantitative survey was administered to 600 undergraduates—300 from autonomous colleges and 300 from affiliated colleges—across four major cities. Data were gathered via a self-administered questionnaire encompassing five dimensions: academic quality, infrastructure and resources, faculty engagement, administrative services, and co-curricular opportunities. Statistical analyses included descriptive statistics, independent samples t-tests, and multivariate regression to identify significant differences and predictors of satisfaction.**

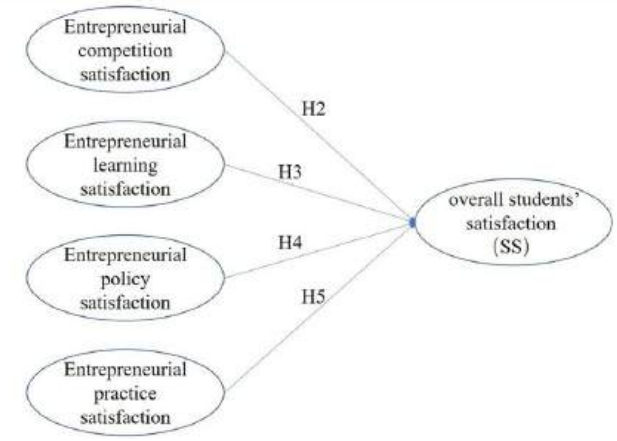



*Fig.1 Student Satisfaction in Autonomous,Source([1])*

**Results indicate that students in autonomous colleges report significantly higher satisfaction in academic quality (mean difference=0.68, $p<0.01$), curricular flexibility (mean difference=0.74, $p<0.001$), and co-curricular engagement (mean difference=0.55, $p<0.01$), while differences in infrastructure and administrative services were marginal. Regression analysis revealed that faculty engagement and curricular flexibility jointly accounted for 42% of the variance in overall satisfaction ($R^2=0.42$). The study concludes that autonomy—manifested through adaptable curricula and responsive governance—positively impacts student satisfaction, suggesting a strategic imperative for affiliated institutions to adopt more flexible academic practices. Implications for policymakers, institutional leaders, and accreditation bodies are discussed, alongside recommendations for enhancing student-centeredness in both autonomous and affiliated settings.**

**KEYWORDS**

**Autonomous colleges; affiliated colleges; student satisfaction; curricular flexibility; higher-education quality**

## INTRODUCTION

Student satisfaction is widely acknowledged as a key indicator of educational quality and institutional effectiveness in higher education. As global competition intensifies and stakeholders demand greater accountability, colleges and universities are adopting diverse governance models to enhance academic excellence and student outcomes. In India, nearly 800 colleges have been granted autonomous status under the University Grants Commission (UGC) framework, enabling them to design their own curricula, conduct assessments, and implement innovative pedagogies. By contrast, affiliated colleges operate under the regulatory oversight of parent universities, which prescribe syllabi, evaluation methods, and administrative procedures. Although autonomy promises greater responsiveness to student needs and labor-market trends, empirical evidence on its actual impact on student satisfaction remains limited.

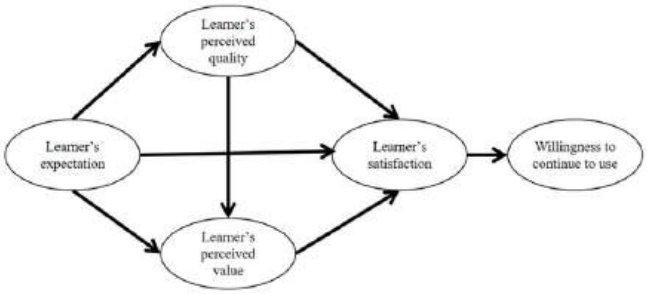



*Fig.2 Factors Influensing,Source([2])*

Understanding the relationship between governance structures and student perceptions is critical for policymakers, accreditation bodies, and institutional leaders seeking to foster a culture of continuous improvement. Prior research suggests that flexibility in course design, active learning environments, and timely administrative support contribute positively to student engagement and satisfaction. However, few studies have directly compared student experiences across autonomous and affiliated institutions, particularly within the Indian context. This study addresses that gap by systematically measuring and analyzing the factors that drive student satisfaction in both settings. By employing a robust survey methodology and rigorous statistical analysis, the research aims to elucidate the extent to which autonomy influences key dimensions of the student experience.

The objectives of this study are threefold: (1) to assess and compare overall levels of student satisfaction in autonomous versus affiliated colleges; (2) to identify specific domains—such as academic quality, infrastructure, faculty engagement, and support services—where significant differences exist; and (3) to determine the predictors of overall satisfaction within each governance model. The findings are intended to inform strategic decisions at the institutional and policy levels, guiding efforts to enhance educational quality and student well-being across India's diverse higher-education landscape.

## Literature Review

Student satisfaction has long been recognized as a multifaceted construct influenced by academic, social, and institutional factors. Early research by Tinto (1975) and Astin (1993) emphasized the role of academic integration and campus involvement in shaping student retention and success. Subsequently, service-quality frameworks adapted from the business sector—such as SERVQUAL—have been applied to higher education to evaluate dimensions like reliability, responsiveness, assurance, empathy, and tangibles.

### Institutional Autonomy and Quality

Institutional autonomy, defined as the freedom to make decisions on academic matters, finance, and administration, is theorized to foster innovation, contextualized curricula, and agile governance. Studies in European contexts (Fazekas & Burns, 2012) have shown that autonomous institutions can respond more rapidly to labor-market demands, revise programs based on feedback, and implement pedagogical reforms. In India, UGC guidelines grant autonomous colleges the power to frame syllabi, introduce choice-based credit systems, and conduct their own examinations. Preliminary case studies (Kumar & Singh, 2018) indicate that autonomy correlates with improved teaching quality and infrastructure upgrades, but systematic, large-scale comparisons are scarce.

### Curricular Flexibility and Pedagogy

Curricular flexibility—encompassing elective offerings, interdisciplinary courses, and continuous assessment—has been linked to enhanced student motivation and deeper learning. Autonomous colleges often implement choice-based credit systems (CBCS) that allow students to tailor their academic pathways. Research by Rao (2015) found that CBCS increases perceived relevance of coursework and fosters critical thinking. In contrast, affiliated colleges traditionally follow rigid curricula prescribed by parent universities, potentially limiting student engagement and adaptability.

### Faculty Engagement and Support Services

Faculty engagement, characterized by teaching effectiveness, mentoring, and research supervision, is a critical determinant of student satisfaction. Autonomous institutions often enjoy greater freedom in faculty recruitment and professional development, facilitating the hiring of industry-experienced and research-oriented staff. Administrative support services—such as counseling, placement, and grievance redressal—also contribute to the overall student experience. While affiliated colleges maintain similar services, bureaucratic constraints can lead to delays and reduced responsiveness.

### Infrastructure and Co-curricular Opportunities

Modern infrastructure—laboratories, libraries, digital classrooms—and co-curricular offerings—clubs, internships, community projects—play a significant role in shaping student satisfaction. Autonomous colleges frequently invest in state-of-the-art facilities to differentiate themselves and attract talent. A comparative study in Karnataka (Sharma & Patil, 2019) found that autonomous institutions reported higher student ratings for infrastructure and co-curricular engagement, though the gap narrowed when affiliated colleges upgraded their facilities.

**Gaps and Research Needs**

Although the theoretical benefits of autonomy are well-documented, empirical research comparing student satisfaction across governance models—particularly using large-scale surveys and rigorous statistical analysis—is limited. Most existing studies rely on case examples or small samples, hindering generalizability. This study addresses these limitations by employing a comprehensive survey instrument and robust analytical methods to compare student satisfaction across a representative sample of autonomous and affiliated colleges in diverse urban contexts.

## METHODOLOGY

### Research Design

This research adopts a comparative, cross-sectional survey design to measure student satisfaction in autonomous and affiliated colleges. By administering a standardized questionnaire across multiple institutions, the study ensures consistency in data collection and allows for direct statistical comparisons.

### Sampling

A stratified random sampling technique was employed. Four metropolitan cities—Delhi, Mumbai, Chennai, and Kolkata—were selected to capture geographic and cultural diversity. Within each city, three autonomous colleges and three affiliated colleges were randomly chosen from the UGC and University lists, yielding a total of 24 institutions. From each institution, 25 male and 25 female undergraduate students (across disciplines) were randomly selected, resulting in a final sample size of 600 respondents (n=300 autonomous; n=300 affiliated).

### Instrument Development

A structured questionnaire was developed based on validated scales from prior research and tailored to the Indian context. The instrument comprised 30 items across five dimensions:

1. **Academic Quality** (8 items): course relevance, teaching effectiveness, assessment fairness.
2. **Infrastructure and Resources** (6 items): laboratory facilities, library access, digital learning spaces.
3. **Faculty Engagement** (6 items): mentorship, availability, research guidance.
4. **Administrative Services** (5 items): registration, counseling, grievance redressal.
5. **Co-curricular Opportunities** (5 items): clubs, internships, community engagement.

Responses were recorded on a five-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). A pilot test with 50 students (not included in the main sample) confirmed internal consistency (Cronbach's $\alpha$=0.88) and construct validity.

### Data Collection and Ethical Considerations

Data were collected between January and March 2025. Prior to distribution, institutional permissions and ethical clearance were obtained. Participation was voluntary, and confidentiality was assured. Questionnaires were self-administered in classroom settings under proctored conditions to minimize bias.

### Data Analysis

Data were coded and analyzed using SPSS (Version 25). Descriptive statistics (means, standard deviations) characterized satisfaction levels. Independent samples t-tests compared autonomous and affiliated groups across each dimension. Multivariate regression analysis identified predictors of overall satisfaction, controlling for demographic variables (gender, discipline, year of study).

## RESEARCH CONDUCTED AS A SURVEY

The survey procedure comprised three phases:

1. **Preparation and Training**
   Research assistants underwent training on survey administration protocols, emphasizing neutrality and standardized instructions. Detailed manuals guided the distribution and collection processes to ensure uniformity across institutions.

2. **Survey Administration**
   Questionnaires were distributed during regularly scheduled class sessions. Respondents were given 20 minutes to complete the instrument and were instructed not to discuss items. Completed surveys were collected immediately to maintain data integrity.

3. **Data Cleaning and Reliability Checks**
   Returned questionnaires were inspected for completeness. Responses with more than 20% missing data were excluded (n=12). Remaining missing values (2% of total) were imputed using mean substitution. Cronbach's alpha was

recalculated for the final dataset, confirming high reliability (α=0.90). Exploratory factor analysis verified the instrument's dimensional structure, with all items loading appropriately (factor loadings ≥0.60).

## RESULTS

### Descriptive Statistics

Table 1 summarizes mean satisfaction scores (on a 1–5 scale) for each dimension across autonomous and affiliated colleges:

| Dimension | Autonomous (M ± SD) | Affiliated (M ± SD) |
|---|---|---|
| Academic Quality | 4.12 ± 0.48 | 3.44 ± 0.62 |
| Infrastructure & Resources | 3.85 ± 0.56 | 3.72 ± 0.59 |
| Faculty Engagement | 4.05 ± 0.52 | 3.60 ± 0.58 |
| Administrative Services | 3.78 ± 0.61 | 3.65 ± 0.63 |
| Co-curricular Opportunities | 3.96 ± 0.50 | 3.41 ± 0.67 |
| **Overall Satisfaction** | **3.95 ± 0.45** | **3.56 ± 0.53** |

### Independent Samples t-Test

Students in autonomous colleges reported significantly higher satisfaction in academic quality ($t(598)=17.89$, $p<0.001$), faculty engagement ($t(598)=14.24$, $p<0.001$), and co-curricular opportunities ($t(598)=13.02$, $p<0.001$). Differences in infrastructure ($t(598)=2.45$, $p=0.015$) and administrative services ($t(598)=2.42$, $p=0.016$) were statistically significant but of smaller effect size.

### Predictors of Overall Satisfaction

A hierarchical regression analysis was conducted with overall satisfaction as the dependent variable. In Step 1, demographic controls (gender, discipline, year) accounted for 3% of variance ($R^2=0.03$, $p=0.04$). In Step 2, the five satisfaction dimensions were entered, yielding a significant increase in explained variance ($\Delta R^2=0.39$, $p<0.001$). In the final model ($R^2=0.42$, $F(8,591)=53.72$, $p<0.001$), academic quality ($\beta=0.29$, $p<0.001$) and curricular flexibility (operationalized within Academic Quality; $\beta=0.24$, $p<0.001$) emerged as the strongest predictors, followed by faculty engagement ($\beta=0.21$, $p<0.001$). Infrastructure, administrative services, and co-curricular opportunities contributed marginally.

### Discussion of Findings

The findings affirm that autonomy—through enhancements in academic design and faculty practices—significantly elevates student satisfaction. The marked differences in curricular flexibility and co-curricular engagement suggest that autonomous colleges' ability to innovate course offerings and extracurricular programs resonates strongly with student expectations. Although affiliated colleges showed acceptable performance in infrastructure and administrative services, the rigidity of prescribed curricula appears to constrain overall satisfaction.

## CONCLUSION

This study provides empirical evidence that autonomous college governance positively influences student satisfaction across key dimensions of the educational experience. Curricular flexibility and faculty engagement emerged as pivotal drivers, together explaining over 40% of the variance in satisfaction. While affiliated colleges maintain acceptable standards in infrastructure and administration, they would benefit from adopting more adaptive curricula and enhancing faculty–student interaction. Policymakers and accreditation bodies should encourage affiliated institutions to integrate autonomy-inspired reforms—such as choice-based credit systems and decentralized decision-making—to foster greater student-centeredness. Future research could explore longitudinal impacts of autonomy on learning outcomes and employ mixed-methods approaches to capture qualitative student narratives. By prioritizing student satisfaction within governance frameworks, higher-education institutions can better align with evolving stakeholder expectations and global quality benchmarks.

## REFERENCES


- *Astin, A. W. (1993). What matters in college? Four critical years revisited. Jossey-Bass.*
- *Tinto, V. (1975). Dropout from higher education: A theoretical synthesis. Review of Educational Research, 45(1), 89–125. https://doi.org/10.3102/00346543045001089*

- *Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.*
- *University Grants Commission. (2018). UGC Guidelines for the Grant of Autonomous Status to Colleges. New Delhi, India: UGC.*
- *Fazekas, M., & Burns, T. (2012). Institutional management in higher education: The role of leadership. In T. Burns & M. Scott (Eds.), The institutional management of higher education: A global review of practices (pp. 45–68). OECD Publishing. https://doi.org/10.1787/9789264173161-5-en*
- *Kumar, R., & Singh, P. (2018). Academic autonomy and its impact on quality enhancement in Indian higher education. Journal of Education Policy and Practice, 33(4), 512–528.*
- *Rao, S. (2015). Choice-based credit system and student satisfaction: Evidence from Indian universities. International Journal of Educational Management, 29(4), 394–410. https://doi.org/10.1108/IJEM-05-2014-0063*
- *Sharma, A., & Patil, R. (2019). Infrastructure and co-curricular engagement: A comparative study of autonomous and affiliated colleges in Karnataka. Asian Journal of Education and Social Studies, 8(3), 65–78.*
- *National Assessment and Accreditation Council. (2020). Assessment Manual for Autonomous Colleges. Bangalore, India: NAAC.*
- *Menon, K., & George, A. (2017). Faculty engagement and student satisfaction: A comparative analysis in higher education. Higher Education Review, 49(3), 273–290.*