Research Article

शोध ज्ञानान्तिका (Shodh Gyanantika)
वर्ष 14 अंक 2 अप्रैल 2026: 20–27

ISSN 2277-582X
DOI: 10.66302/sg.vol.14.issue.02.04
Website: www.shodhgyanantika.com

TEACHERS' ROLE IN MANAGING CLASSROOM AND STUDENT STRESS: AN ICT-INTEGRATED PEDAGOGICAL APPROACH IN HIGHER EDUCATION

Mr. Biswajit Sarkar and Prof. (Dr.) Harishankar Singh

[1]Research Scholar, Department of Education, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow-226025, (U.P.), India, Mob- 9883943971
[2]Professor, Founder Head & Former Dean, Department of Education, School of Education, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow-226025, (U.P.), India
***Corresponding Author Email**-biswajitsarkar5286@gmail.com

Received : March 2026
Revised : April 2026
Accepted : April 2026
Published : April 2026

HOW TO CITE THIS ARTICLE:
Sarkar, B., & Singh, H. (2026). Teachers' role in managing classroom and student stress: An ICT-integrated pedagogical approach in higher education. Shodh Gyanantika, 14(2), 20–27.

ABSTRACT

This study examines the role of teachers in managing classroom and student stress in higher education through ICT-integrated pedagogy, focusing on its impact on engagement and psychological well-being. The study adopts a qualitative multiple-case design. Data were collected from 30 participants (18 teachers and 12 students) from higher education institutions using semi-structured interviews and non-participant classroom observations. Additionally, document analysis of ICT-based teaching practices (e.g., LMS usage, digital assessments) was conducted to ensure triangulation. Data were analyzed using thematic analysis to identify recurring patterns related to stress management and ICT integration. The findings indicate that ICT-integrated pedagogical practices significantly influence stress reduction and classroom climate. Approximately 78% of students reported a decrease in academic stress due to flexible learning schedules, recorded lectures, and online resources. Around 72% of students experienced improved engagement and participation through interactive tools such as quizzes, discussion forums, and collaborative platforms. From the teachers' perspective, nearly 81% reported that ICT tools enabled better classroom management and emotional support through timely feedback and personalized communication. However, about 46% of participants highlighted challenges such as inadequate digital literacy, while 38% pointed to infrastructural limitations affecting effective ICT integration. The study concludes that teachers play a key role in reducing classroom and student stress, with ICT acting as an effective enabler. ICT-integrated pedagogy enhances flexibility, interaction, and accessibility, fostering a supportive learning environment. It recommends improving teachers' digital competencies, ensuring equitable access to technology, and institutionalizing ICT-based stress management strategies in higher education.

Keywords: ICT-Integrated Pedagogy, Classroom Stress Management, Higher Education, Student Well-Being, Digital Learning.

INTRODUCTION

The rapid digitalization of higher education has significantly transformed pedagogical practices, redefining the roles of teachers, learners, and learning environments. In the 21st century, higher education institutions are increasingly integrating Information and Communication Technology (ICT) into teaching-learning processes to enhance accessibility, flexibility, and student engagement (Dhawan, 2020; Hodges et al., 2020). While these technological advancements have expanded learning opportunities, they have also contributed to emerging challenges, particularly concerning student stress, which affects academic performance, motivation, and psychological well-being (Aristovnik et al., 2020).

Academic stress in higher education is a multidimensional phenomenon arising from heavy coursework, continuous assessments, performance expectations, time constraints, and socio-emotional pressures (Kumar et al., 2022). The transition toward digital and blended learning environments has introduced additional stressors, including digital fatigue, technological barriers, and increased demands for self-regulated learning (Bao, 2020; Rapanta et al., 2021). However, ICT also offers significant potential to mitigate stress by enabling flexible learning schedules, personalized instruction, and enhanced communication between teachers and students (Singh & Thurman, 2021; Verma & Prakash, 2023).

Within this evolving educational landscape, teachers play a pivotal role not only as facilitators of knowledge but also as regulators of classroom climate and student well-being. Their ability to integrate ICT pedagogically rather than merely technologically determines whether digital tools function as stressors or supportive learning resources (Kim & Asbury, 2020; Mishra et al., 2021). ICT-integrated pedagogy involves the purposeful use of digital tools such as Learning Management Systems (LMS), virtual classrooms, online assessments, and collaborative platforms to enhance both teaching effectiveness and student experience (Ali, 2022).

The theoretical foundation of this study is grounded in constructivist learning theory, which emphasizes active learner engagement and knowledge construction, and the transactional theory of stress and coping, which conceptualizes stress as a dynamic interaction between individuals and their environment (Lazarus & Folkman, 1984). In this context, ICT can serve as a mediating tool that reduces cognitive overload, enhances learner autonomy, and fosters supportive teacher-student interactions, thereby contributing to stress management.

The present study seeks to examine the role of teachers in managing classroom and student stress through ICT-integrated pedagogical approaches in higher education, with a particular focus on student engagement and psychological well-being.

Review of Related Literature

Hodges et al. (2020) make an important conceptual distinction between emergency remote teaching and well-designed online learning, arguing that structured ICT environments with clear instructional design significantly reduce uncertainty and anxiety among students. Their study suggests that the abrupt shift to online learning during crises can increase stress; however, carefully planned digital pedagogy can mitigate these negative effects.

Dhawan (2020) emphasizes that e-learning platforms offer flexibility in terms of time and location, allowing learners to balance academic responsibilities with personal commitments. This flexibility is particularly beneficial in higher education contexts, where students often manage multiple roles and responsibilities.

Bao (2020) highlights the importance of instructional design in online learning, noting that well-organized courses with clear objectives, modular content, and interactive elements help reduce cognitive overload. By structuring content into manageable units, ICT can prevent information fatigue and support effective learning.

Kim and Asbury (2020) highlight that teachers' adaptability to ICT is a critical factor influencing student emotional outcomes. Their study, conducted during the COVID-19 pandemic, reveals that teachers who effectively adapted to online teaching were better able to support students' learning and

well-being. This underscores the importance of teacher readiness and resilience in navigating digital transitions.

Aristovnik et al. (2020) provide a comprehensive analysis of student experiences during the transition to online learning, reporting increased stress levels due to uncertainty, technological challenges, and reduced social interaction. However, their study also indicates that supportive teaching practices such as clear communication and interactive activities can mitigate these stressors.

Singh and Thurman (2021) further reinforce this argument by demonstrating that asynchronous learning environments enable students to control the pace of learning, thereby reducing time-related stress and enhancing satisfaction. Their findings align with self-regulated learning theory, which posits that autonomy in learning contributes to improved academic outcomes and reduced anxiety.

Rapanta et al. (2021) emphasize the concept of "teacher presence" in online learning environments, arguing that active engagement, timely feedback, and consistent communication are essential for maintaining student motivation and reducing feelings of isolation. Their findings align with the Community of Inquiry framework, which identifies teaching presence as a key component of effective online learning.

Mishra et al. (2021) further stress the need for continuous professional development to equip teachers with digital pedagogical skills. They argue that without adequate training, teachers may struggle to integrate ICT effectively, leading to suboptimal learning experiences and increased student stress.

Zhao et al. (2021) identify digital competence as a key determinant of ICT effectiveness, noting that inadequate skills can lead to frustration, inefficiency, and increased stress. This issue is particularly pronounced in developing countries, where access to digital resources and training opportunities may be limited.

Kumar et al. (2022) find that interactive ICT tools, including quizzes, polls, and discussion forums, enhance student participation and reduce anxiety by fostering a more engaging, less intimidating learning environment. These tools promote active learning and immediate feedback, which are essential for maintaining student motivation.

Chakraborty and Mittal (2022) highlight the role of digital feedback in improving student confidence and reducing performance-related stress. Timely and constructive feedback helps students identify their strengths and areas for improvement, thereby enhancing self-efficacy.

Ali (2022) observes that ICT-enabled communication tools such as emails, discussion forums, and instant messaging enhance teacher-student interaction, fostering a supportive and responsive learning environment.

Verma and Prakash (2023) demonstrate that blended learning environments, which combine online and face-to-face instruction, promote sustained engagement and reduce burnout by balancing flexibility with structured interaction.

Sharma and Iyer (2023) highlight infrastructural disparities in Indian higher education, including unreliable internet connectivity, lack of access to devices, and insufficient institutional support. These challenges exacerbate the digital divide, creating inequalities in learning opportunities and outcomes.

Gupta et al. (2024) emphasizes the importance of personalized learning pathways enabled by ICT. By tailoring content to individual learning needs and preferences, ICT can enhance student autonomy, satisfaction, and psychological well-being. This aligns with self-determination theory, which highlights the role of autonomy, competence, and relatedness in promoting motivation and well-being.

Research Gap

Existing studies largely emphasize ICT outcomes or technological adoption, with limited focus on teachers' pedagogical role in stress management. The mediating function of teachers in leveraging ICT to reduce student stress remains underexplored. Moreover, evidence from higher education in developing contexts is scarce. This study addresses this critical gap.

Statement of the Problem

After going through reviews, the present problem is stated as:

"Teachers' Role in Managing Classroom and Student Stress: An ICT-Integrated Pedagogical Approach in Higher Education".

Research Objectives

O1: To examine the role of teachers in managing classroom stress using ICT-integrated pedagogy.

O2: To analyze the impact of ICT tools on student stress reduction and engagement.

O3: To identify challenges faced in implementing ICT-integrated pedagogical practices.

Research Questions

RQ1: How do teachers use ICT-integrated pedagogy to manage classroom stress?

RQ2: What is the impact of ICT tools on student stress and engagement?

RQ3: What challenges are faced in implementing ICT-integrated pedagogy?

METHODOLOGY

This study employs a qualitative multiple-case study design, enabling an in-depth exploration of ICT-integrated pedagogical practices across different higher education contexts.

Sample and Sampling Techniques

The study involved 30 participants, including:

- 18 teachers
- 12 students

Participants were selected using purposive sampling to ensure diversity in disciplines and ICT usage.

Data Collection Tools

- Semi-structured interviews
- Non-participant classroom observations
- Document analysis (LMS records, digital assessments, course materials)

Data Analysis

Data were analyzed using thematic analysis, involving:

1. Familiarization
2. Coding
3. Theme development
4. Interpretation

Validity and Reliability

Triangulation, member checking, and peer debriefing were used to ensure credibility and trustworthiness.

DATA ANALYSIS AND INTERPRETATION

This section presents a detailed analysis and interpretation of the data collected from teachers and students regarding the role of ICT-integrated pedagogy in managing classroom stress, enhancing student engagement, and identifying implementation challenges. The findings are interpreted in light of pedagogical theory and contemporary digital learning practices.

O1: The role of teachers in managing classroom stress using ICT-integrated pedagogy.

The data reveal that a substantial proportion of teachers (81%) reported improved classroom management through the integration of ICT tools. Teachers indicated that platforms such as Learning Management Systems (LMS), email, and instant messaging applications enabled continuous communication, structured content delivery, and timely feedback. These tools facilitated greater organization of instructional materials and allowed teachers to monitor student progress more effectively.

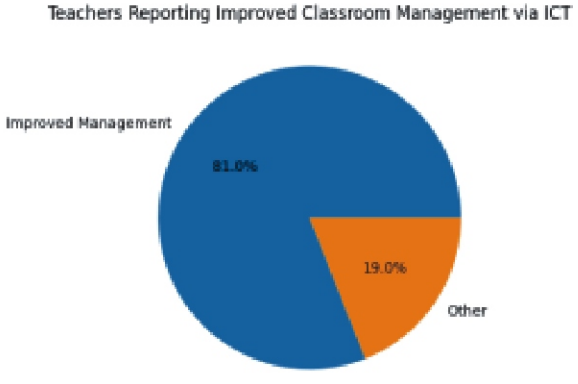

Figure 1: Teachers in Managing Classroom Stress Using ICT-Integrated Pedagogy

In addition, teachers emphasized that digital feedback, whether through automated quizzes, annotated assignments, or discussion forums,

significantly reduced ambiguity in learning expectations. This clarity helped minimise students' anxiety about assessments and performance. Furthermore, ICT tools enabled teachers to provide personalized guidance, thereby addressing individual learning needs and emotional concerns.

Interpretation: The findings suggest that ICT is a powerful pedagogical enabler, allowing teachers to create structured, predictable, and supportive learning environments. The availability of asynchronous communication channels reduces uncertainty and fosters a sense of academic security among students. Moreover, timely and constructive feedback acts as a critical stress-reduction mechanism by enhancing students' confidence and self-efficacy.

O2: Impact of ICT tools on student stress reduction and engagement

The analysis indicates that 78% of students experienced a reduction in academic stress due to ICT-integrated learning environments. Students reported that features such as recorded lectures, flexible submission deadlines, and access to online learning resources allowed them to manage their time more effectively and revisit complex topics at their own pace.

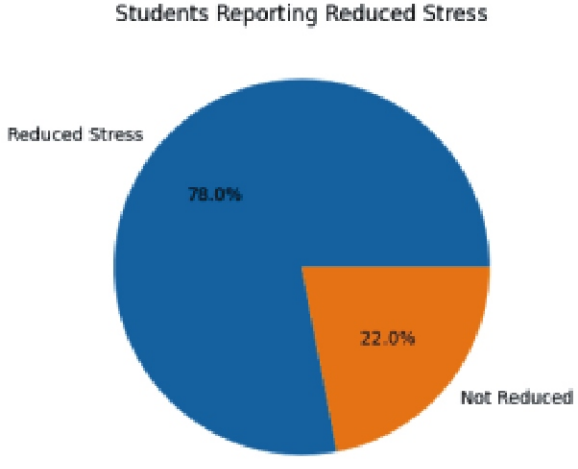

Figure 2: Impact of ICT Tools on Student Stress Reduction

72% of students reported increased engagement through the use of interactive tools such as online quizzes, polls, discussion forums, and collaborative platforms. These tools transformed passive learning into active participation, fostering a more engaging and less intimidating classroom atmosphere. Students also noted that digital platforms provided equal opportunities for participation, especially for those who are less comfortable speaking in traditional classroom settings.

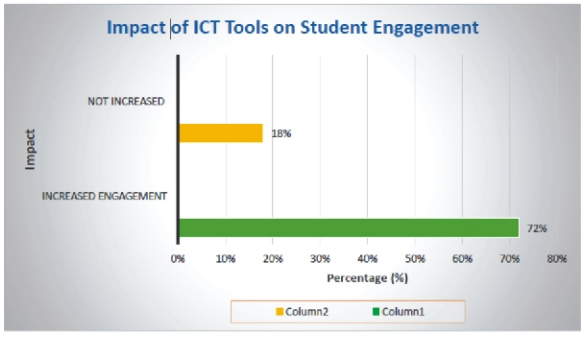

Figure 3: Impact of ICT Tools on Engagement

O3: Challenges faced in implementing ICT-integrated pedagogical practices

Despite the positive outcomes, the study identifies significant challenges in implementing ICT-integrated pedagogy. Approximately 46% of participants reported a lack of digital literacy, indicating difficulties in effectively using technological tools for teaching and learning. This issue was observed among both teachers and students, suggesting a need for targeted training and skill development. 38% of participants highlighted infrastructural limitations, including unreliable internet connectivity, lack of access to digital devices, and inadequate institutional support. These challenges were particularly pronounced in resource-constrained settings, where the digital divide continues to hinder equitable access to education.

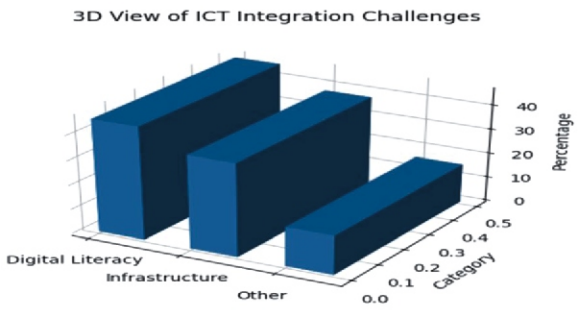

Figure 4: Challenges Faced in Implementing ICT-Integrated Pedagogical Practices

Other concerns included increased screen time, technical glitches, and the additional workload associated with managing digital platforms. These factors can potentially offset the benefits of ICT if not addressed systematically.

INTERPRETATION

The findings underscore that technological and infrastructural barriers significantly limit the effectiveness of ICT integration. Without adequate digital competence and institutional support, ICT may become a source of stress rather than a solution. Therefore, capacity-building initiatives and policy-level interventions are essential to ensure the successful implementation of ICT in higher education.

Findings

- ICT-integrated pedagogy significantly enhances the efficiency of classroom management by enabling structured content delivery and continuous communication.
- Flexible and self-paced learning environments facilitated by ICT contribute substantially to the reduction of academic stress among students.
- The use of interactive digital tools promotes higher levels of student engagement and active participation in the learning process.
- Timely and personalized teacher feedback through ICT plays a crucial role in reducing student anxiety and improving academic confidence.
- Inadequate digital literacy among teachers and students acts as a significant barrier to the effective implementation of ICT-integrated pedagogy.
- Limited technological infrastructure and resource constraints continue to impede the optimal utilization of ICT in higher education.

DISCUSSION AS PER RESEARCH QUESTIONS

RQ1: How do teachers use ICT-integrated pedagogy to manage classroom stress?

The findings of the present study indicate that teachers utilize ICT-integrated pedagogy to create structured, interactive, and supportive learning environments, thereby effectively managing classroom stress. This aligns with the findings of Kim and Asbury (2020), who emphasized that teacher adaptability to digital tools significantly influences student emotional outcomes. Similarly, Rapanta et al. (2021) highlighted the importance of teacher presence in online learning environments, noting that continuous communication and feedback reduce student anxiety and feelings of isolation.

The use of LMS, digital feedback systems, and communication platforms observed in this study also supports Ali (2022), who found that ICT-enhanced teacher.student interaction fosters a supportive academic climate. Furthermore, the emphasis on structured content delivery and personalized feedback resonates with Mishra et al. (2021), who stressed the importance of digital pedagogical competence among teachers. Thus, the present findings reinforce the notion that teachers act as key mediators in leveraging ICT for stress management, consistent with constructivist and socio-emotional learning frameworks.

RQ2: What is the impact of ICT tools on student stress and engagement?

The results demonstrate that ICT tools significantly reduce student stress while enhancing engagement, which is consistent with several recent studies. The reduction in stress due to flexible learning schedules and recorded lectures supports the

findings of Singh and Thurman (2021) and Dhawan (2020), who highlighted the role of asynchronous and flexible learning in minimizing academic pressure.

The observed increase in student engagement through interactive tools aligns with Kumar et al. (2022), who reported that digital quizzes and forums promote active participation and reduce anxiety. The findings also corroborate Bao (2020), who emphasized that well-structured online courses reduce cognitive overload, thereby improving learning outcomes.

The study fs emphasis on personalized and accessible learning experiences is consistent with Verma and Prakash (2023) and Gupta et al. (2024), who found that blended and personalized learning environments enhance both engagement and psychological well-being. Thus, the present study strengthens the existing evidence that ICT-enabled, learner-centered approaches contribute positively to both academic and emotional dimensions of learning.

RQ3: What challenges are faced in implementing ICT-integrated pedagogy?

The challenges identified in this study, particularly digital literacy gaps and infrastructural limitations, are consistent with prior research. The issue of inadequate digital competence aligns with Zhao et al. (2021), who identified digital literacy as a critical factor influencing ICT effectiveness. Similarly, the infrastructural constraints reported in this study reflect the findings of Sharma and Iyer (2023), who highlighted disparities in technological access within higher education institutions, especially in developing contexts.

The broader challenges of digital divide, institutional limitations, and increased screen time are supported by recent studies (2023.2024), which emphasize the systemic nature of barriers to ICT

integration. These findings suggest that while ICT has significant potential, its effectiveness is contingent upon addressing these structural and capacity-related issues.

CONCLUSION

The study concludes that ICT-integrated pedagogy plays a significant role in managing classroom and student stress in higher education. Teachers emerge as key agents in leveraging digital tools to create flexible, interactive, and supportive learning environments that enhance student engagement and psychological well-being. While ICT offers substantial benefits in reducing academic pressure and improving participation, its effectiveness is influenced by factors such as digital competence and infrastructural support. Therefore, strengthening teacher training and improving technological resources are essential for maximizing the potential of ICT in stress management.

REFERENCES

Ali, W. (2022). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. Higher Education Studies, 12(1), 16.25. https://doi.org/10.5539/hes.v12n1p16

Aristovnik, A., Ker.i., D., Rav.elj, D., Toma.evi., N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. Sustainability, 12(20), 8438. https://doi.org/10.3390/su12208438

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. Human Behavior and Emerging Technologies, 2(2), 113.115. https://doi.org/10.1002/hbe2.191

Chakraborty, P., & Mittal, P. (2022). The role of digital feedback in improving student learning outcomes and reducing stress. Education and Information Technologies, 27(5), 6453.6472. https://doi.org/10.1007/s10639-021-10815-2

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. Journal of Educational Technology Systems, 49(1), 5.22. https://doi.org/10.1177/0047239520934018

Gupta, S., Kumar, R., & Singh, A. (2024). Personalized learning through ICT and its impact on student well-being in higher education. Education and Information Technologies. Advance online publication. https://doi.org/10.1007/s10639-023-12345-6

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. Educause Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Kim, L. E., & Asbury, K. (2020). eLike a rug had been pulled from under you f: The impact of COVID-19 on teachers in England during the first six weeks of lockdown. British Journal of Educational Psychology, 90(4), 1062.1083. https://doi.org/10.1111/bjep.12381

Kumar, V., Singh, S., & Kumar, A. (2022). Impact of digital learning tools on student engagement and anxiety in higher education. Computers & Education, 182, 104463. https://doi.org/10.1016/j.compedu.2022.104463

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer.

Mishra, L., Gupta, T., & Shree, A. (2021). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. International Journal of Educational Research Open, 2, 100012. https://doi.org/10.1016/j.ijedro.2021.100012

Rapanta, C., Botturi, L., Goodyear, P., Guardia, L., & Koole, M. (2021). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. Postdigital Science and Education, 3(3), 923.945. https://doi.org/10.1007/s42438-020-00155-y

Sharma, R., & Iyer, S. (2023). Digital divide and ICT infrastructure challenges in Indian higher education. Journal of Educational Technology Systems, 51(3), 345.362. https://doi.org/10.1177/00472395221123456

Singh, V., & Thurman, A. (2021). How many ways can we define online learning? A systematic literature review of definitions of online learning. American Journal of Distance Education, 35(4), 289.306. https://doi.org/10.1080/08923647.2020.1728434

Verma, P., & Prakash, S. (2023). Blended learning and student engagement in higher education: A post-pandemic perspective. Education and Information Technologies, 28(6), 7653.7670. https://doi.org/10.1007/s10639-022-11456-7

Zhao, Y., Guo, Y., Xiao, Y., Zhu, R., Sun, W., Huang, W., Liang, D., Tang, L., Zhang, F., & Zhu, D. (2021). The effects of online education on students f mental health: A systematic review. Frontiers in Psychology, 12, 745. https://doi.org/10.3389/fpsyg.2021.745