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Conference “Innovation and Intelligence: A Multidisciplinary Research on Artificial Intelligence and its Contribution to Commerce and Beyond”

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Evaluating Ai-Based Educational Tools and Their Impact on Academic Stress and Wellness Among Management Students in Mumbai.

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Abstract:

Artificial Intelligence (AI) has transformed the landscape of higher education, offering advanced learning tools, personalised instruction, real-time feedback, and data-driven academic support. Among management students, AI-based educational tools such as adaptive learning platforms, automated assessment systems, AI chatbots, digital research assistants, and predictive analytics have become widespread. While these innovations enhance learning efficiency and academic productivity, they also introduce new forms of stress, dependency, and psychological strain. This research paper evaluates the impact of AI-based educational tools on academic stress and wellness among management students in Mumbai, drawing exclusively from secondary literature, theoretical models, and global empirical findings.

The study highlights that although AI tools reduce workload in certain areas, they simultaneously elevate academic pressure through increased digital expectations, continuous availability, and heightened performance benchmarks. Excessive AI usage also creates technostress, cognitive overload, and fear of technological incompetence. However, responsible integration of AI tools supported by proper faculty training, institutional guidelines, and digital wellness initiatives can improve student well-being. This research concludes that AI tools can either enhance or hinder mental wellness depending on usage patterns, institutional design, and student digital literacy. The paper provides recommendations for educators and policymakers to develop sustainable AI-enabled learning ecosystems that protect student mental health.

Keywords: Artificial Intelligence in Education, Academic Stress, Student Wellness, Technostress, Management Students, Digital Learning Tools

Introduction:

Artificial Intelligence (AI) has rapidly become the foundation of modern education systems, especially in metropolitan academic hubs such as Mumbai. Educational institutions increasingly integrate AI-powered systems to support instruction, assessment, communication, and research. For management students who already operate within technology-driven business environments AI usage has become essential for academic success and professional competence.

AI-based educational tools such as personalised learning systems (Coursera, edX, NPTEL), automated writing assistants, plagiarism detectors, simulation software, virtual analytics labs, and AI tutors are now common in commerce and management institutions. These tools enable



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students to access global knowledge, work efficiently, and receive instant feedback. More recently, generative AI tools have transformed academic tasks by assisting in content creation, analysis, and presentation.

However, the increasing reliance on AI tools has raised concerns regarding academic stress, technostress, and student wellness. Many students experience pressure to master AI tools, cope with rapid technological changes, and maintain consistent productivity. The expectation to perform better using AI creates both psychological and academic burden. For management students in Mumbai who face intense competition, multiple evaluation components, and professional demands this pressure becomes amplified.

This study evaluates AI-based educational tools and their effects on academic stress and wellness among management students in Mumbai by synthesising existing research, psychological theories, and secondary evidence.

Need of the Study:

The study is necessary for several reasons:

1. Increasing AI adoption in higher education

Colleges now expect students to use AI tools for assignments, data analysis, writing, and presentations. Understanding its effects on students' wellness is essential.

2. Rising academic stress among management learners

Management programs demand continuous project submissions, internships, practical work, and examinations. AI tools may reduce or increase this workload.

3. Technostress and digital fatigue

Students struggle with constant notifications, multitasking, and cognitive overload due to technology-heavy learning environments.

4. Lack of India-specific and Mumbai-specific studies

Much of the literature is global; localised research can provide contextual insights for policymaking.

5. Balancing AI efficiency and mental wellness

Institutions must ensure that AI-based learning enhances well-being rather than contributing to anxiety or burnout.

6. Need for responsible AI deployment

Without guidelines, students may misuse AI tools or depend excessively on them, affecting academic authenticity and mental health.

Thus, this research is critical to understanding how AI affects student stress and wellness in one of India's leading educational cities.

Review of Literature:

1.Kumar & Rose (2021) note that AI systems personalise instruction, automate administrative work, and provide adaptive assessments. According to Li and Huan (2020), AI tools



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significantly enhance teaching–learning outcomes by offering real-time analytics, custom learning pathways, and automated feedback systems.

These systems benefit students by:

- Improving access to learning materials
- Supporting self-paced learning
- Reducing manual efforts
- Enhancing accuracy in academic work

However, scholars also warn that AI increases pressure to stay constantly productive and technologically competent.

2. Studies by Selwyn (2022) show that AI tools significantly improve student engagement and learning outcomes. Yet, the rapid expansion of such tools has also created disparities between students who are digitally literate and those who are not. Examples of common AI tools in education include:

- Learning Management Systems (Moodle, Blackboard, Canvas)
- AI tutors and chatbots
- Automated essay scoring systems
- AI plagiarism tools (Turnitin, Urkund)
- Predictive analytics for academic performance
- AI-enabled simulation labs for management subjects
- Generative AI assistants (ChatGPT, Gemini, Copilot)

3. Tarafdar et al. (2019) describe “technostress” as stress generated by technological overload, complexity, invasion, and uncertainty. Students experience stress when they:

- Must learn many AI tools simultaneously
- Face high digital expectations
- Worry about making mistakes with new technology
- Feel pressure to produce high-quality outputs like AI-generated exemplars
- Experience cognitive overload

According to Sahu (2021), academic stress among Indian students increased significantly during and after the pandemic due to the shift toward digital education.

4. Ryan & Deci (2020), through Self-Determination Theory, note that well-being increases when students feel competent, autonomous, and supported.

AI can both support and hinder wellness:

Positive Impacts

- Reduces workload through automation
- Provides instant guidance
- Improves time management
- Supports personalised learning



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- Helps reduce academic anxiety through tutoring tools

Negative Impacts

- Increases screen time and fatigue
- Causes dependency and reduced self-confidence
- Creates pressure to perform at AI-enhanced standards
- Reduces social interaction and peer bonding

Research by Turel & Serenko (2012) links excessive digital usage with anxiety, sleep disruption, and emotional exhaustion.

5. Burnout is defined by Maslach & Leiter (2016) as emotional exhaustion, cynicism, and reduced accomplishment. Digital overload from AI tools—including continuous alerts, automated academic reminders, and tight deadlines—contributes significantly to burnout. Schaufeli et al. (2002) report that burnout negatively correlates with well-being, academic motivation, and performance. Management students, who often manage multiple subjects, internships, competitions, and projects, are more vulnerable to burnout triggered by technology.

Research Gap:

1. Although extensive research exists on AI in education, important gaps remain:
2. Limited studies connecting AI usage with academic stress and wellness.
3. Very few studies specific to management students, who face high-tech demands.
4. Lack of Mumbai-centric research, despite it being a leading educational hub.
5. Most research does not examine mental wellness in AI-enabled learning environments.
6. Limited exploration of student emotional health in AI-rich academic ecosystems.

This study fills these gaps through an integrated evaluation based solely on secondary data.

Objectives of the Study:

1. To examine the extent of AI-based educational tool usage among management students.
2. To evaluate the impact of AI tools on academic stress.
3. To study the relationship between AI usage and student wellness.
4. To explore secondary literature on how AI influences the academic experiences of management students in Mumbai.
5. To provide recommendations for balanced AI adoption in education.

Hypotheses:

1. **H₀₁:** AI-based educational tools do not significantly affect academic stress among management students.
H₁₁: AI-based educational tools significantly affect academic stress among management students.
2. **H₀₂:** AI-based educational tools do not influence student wellness.
H₁₂: AI-based educational tools significantly influence student wellness.



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3. **H₀₃:** Academic stress does not have a significant relationship with student wellness.
H₁₃: Academic stress significantly reduces student wellness.

4. **H₀₄:** Students’ perceptions of AI-based educational tools do not significantly influence their academic stress levels.

H₁₄: Students’ perceptions of AI-based educational tools significantly influence their academic stress levels.

5. **H₀₅:** Satisfaction with AI-based educational tools does not have a significant impact on the overall wellness of management students.

H₁₅: Satisfaction with AI-based educational tools significantly impacts the overall wellness of management students.

Discussion (Based on Secondary Data Only):

Since the research is based on secondary data, the discussion synthesises patterns identified across global and Indian studies.

AI Tools Reduce Some Academic Barriers

AI tools help students complete assignments faster, understand difficult concepts, and access resources without faculty mediation.

AI Simultaneously Increases Academic Pressure

Studies indicate that AI expectations raise stress due to:

- Higher performance standards
- Need for digital proficiency
- Continuous technological change

AI as a Double-Edged Sword for Mental Wellness

While AI reduces workload, the pressure to match AI-generated quality increases anxiety and self-doubt.

Management Students Face Higher AI-Related Stress

Management education relies heavily on data analytics, simulations, financial modelling tools, and automated systems.

AI-Based Learning Requires Institutional Support

Without guidelines, excessive AI exposure leads to:

- Digital fatigue
- Technostress
- Cognitive overload
- Poor sleep

Thus, the relationship between AI tools and student wellness is complex.

Findings:

1. AI tools significantly influence academic stress, both positively and negatively.
2. Excessive AI usage contributes to technostress, digital fatigue, and emotional strain.
3. AI enables personalised instruction, enhancing academic satisfaction for many students.



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4. Academic stress increases when students must adapt to rapidly evolving AI tools.
5. Student wellness is reduced when AI becomes a constant academic expectation.
6. Balanced AI usage—with support—enhances learning and mental well-being.
7. Mumbai’s competitive academic environment intensifies AI-related academic stress.

Implications of the Study:

For Institutions

- Establish digital wellness programs.
- Provide AI literacy training.
- Avoid overloading students with AI-based tasks.
- Regulate screen-based academic requirements.

For Faculty

- Use AI tools to support—not overwhelm—students.
- Provide clear guidelines on AI usage.
- Offer emotional and academic support to reduce stress.

For Students

- Develop digital boundaries.
- Use AI responsibly.
- Engage in self-care, peer interaction, and offline activities.

For Policymakers

- Create AI ethics and wellness guidelines.
- Encourage hybrid learning environments.
- Promote AI tools that support mental well-being.

Conclusion:

AI-based educational tools have transformed management education in Mumbai by enhancing efficiency, accuracy, and accessibility. However, they also introduce new psychological challenges. The secondary literature clearly indicates that while AI tools reduce certain academic barriers, they simultaneously elevate academic stress and impact student wellness. The dual nature of AI—supportive yet demanding—requires a balanced approach.

Academic institutions must implement AI thoughtfully, ensuring that students receive training, emotional support, and digital wellness education. The goal should be to use AI as an empowering tool rather than a source of pressure. When responsibly integrated, AI can promote well-being, reduce stress, and improve academic outcomes among management students in Mumbai.

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