



A Study on Academic Stress among Students in the Era of Innovative Educational Technologies

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Abstract

Modern learning environments have altered due to the quick adoption of cutting-edge educational technologies, which have also altered student participation, assessment process and teaching strategies. Although technology-enabled learning provides students with increased academic resources, flexibility, and accessibility, it has also given rise to new forms of academic stress. This study motivation at the types, causes, and levels of academic stress that students face in the age of cutting-edge educational technology. A structured questionnaire were used to gather primary data from students using a descriptive study methodology.

Data interpretation was done using statistical techniques such link analysis, chi-square testing, and percentage analysis. The results show that time management issues, digital workload, screen weariness, and ongoing online tests are all major causes of academic stress. Additionally, the study shows that efficient time management. The flexible custom of educational technology give to stress reduction.

Keywords:

students, time management, digital learning, academic stress, and cutting-edge educational technologies

Introduction

The academic landscape has seen a considerable transformation in recent years due to the adoption of modern educational technology. Artificial intelligence-based instructional technologies, virtual classrooms, online tests, learning management systems, and digital learning platforms have all become essential elements of contemporary education. These technical developments are intended to improve student engagement, accessibility, and learning effectiveness. In addition to these advantages, students now face different academic obligations due to the growing reliance on technology. In educational settings that rely heavily on technology,

Students must adjust to self-paced learning methods, digital coursework, virtual collaboration, and ongoing online examinations. Although these advances offer flexibility, they normally make it harder to distinguish between personal and academic life, which increases academic workload and prolongs screen time.

Because of ongoing connectivity, performance monitoring, technical difficulties, and time management matters, students may face increased levels of academic stress. In the digital age, traditional exam pressure is no longer the only source of academic stress; other variables including digital weariness, information overload, and the need to maintain technological proficiency are now having an increasing impact. Students may experience anxiety, decreased focus, and deteriorating academic performance if they are unable to manage digital learning resources or balance online academic obligations. On the other hand, pupils with strong time management skills and positive attitudes toward technology are better equipped to cope with these challenges.

Given the growing integration of innovative educational technologies, it is essential to understand how these changes affect students' stress levels and overall academic well-being. This study pursues to examine the sources and impact of academic stress among students in the era of innovative educational technologies, as well as the role of adaptive strategies in managing such stress. The findings of this research aim to provide insights for educators, institutions, policymakers to create balanced, supportive, and student-centred technology-enabled learning environments.

Review of Literature

Previous studies on academic stress highlight that excessive academic workload, examination pressure, and performance expectations are major contributors to student stress. Recent research has expanded this understanding by focusing on technology-induced stress in digital learning environments. Studies indicate that continuous online assessments, prolonged screen time, and digital multitasking increase mental fatigue and anxiety among students.

Researchers have also emphasized that while educational technologies enhance learning flexibility, inadequate digital support and poor time management intensify stress levels. Literature further suggests that students who effectively use digital planning tools and adopt adaptive learning strategies experience lower academic stress. However, limited studies comprehensively examine academic stress specifically in the context of innovative educational technologies, creating a need for empirical investigation.

Objectives of the Study

The present study are conducted with the following objectives:

1. To examine the level of academic stress experienced by students in technology-enabled learning environments
2. To identify technology-related factors such as digital workload, online assessments, and screen time contributing to academic stress
3. To analyse the impact of innovative educational technologies on students' academic performance and mental well-being
4. To study the relationship between time management skills and academic stress in digital learning contexts
5. To assess the effectiveness of technology-based coping strategies adopted by students to manage academic stress

Research Methodology

Research Design

The study adopted a descriptive research design to analyse academic stress among students in technology-driven learning environments.

Population and Sample

The population consisted of undergraduate and postgraduate students. A sample of 100 students was selected using suitability sampling technique.

Sources of Data

- **Primary Data:** Collected through a structured questionnaire
- **Secondary Data:** Collected from journals, books, research articles, and online academic sources

Tools for Data Analysis

- Percentage analysis
- Chi-square test
- Correlation analysis
- Graphical representation using bar charts, pie charts, and scatter diagrams

Hypotheses of the Study

Based on the objectives, the following hypotheses were formulated:

Null Hypotheses (H_0)

- H_{01} : There is no significant relationship between digital academic workload and academic stress among students.
- H_{03} : Screen time associated with educational technologies has no significant effect on students' stress levels.

Alternative Hypotheses (H_1)

- H_{11} : Digital academic workload significantly contributes to academic stress among students.
- H_{12} : Online examinations and continuous digital assessments significantly influence academic stress.

Data Analysis

The analysis and interpretation of primary data collected from students to examine academic stress in the era of innovative educational technologies. The data were analysed using percentage analysis and chi-square test. Graphical representations are used for better understanding of the results.

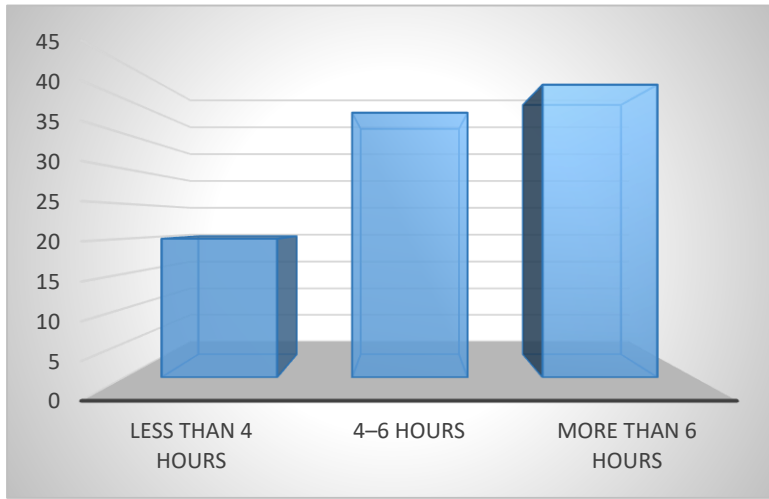
Screen Time and Academic Stress

The relationship between daily screen time and academic stress levels was analysed to understand the impact of prolonged exposure to digital devices.

Daily Screen Time Stress Level (%)

Less than 4 hours	20
4–6 hours	38
More than 6 hours	42

Table-1: Screen Time and Academic Stress



Interpretation

The graph clearly shows that **academic stress increases with increased screen time**. Students spending more than six hours per day on academic screen activities experience the highest stress levels, indicating the presence of digital fatigue.

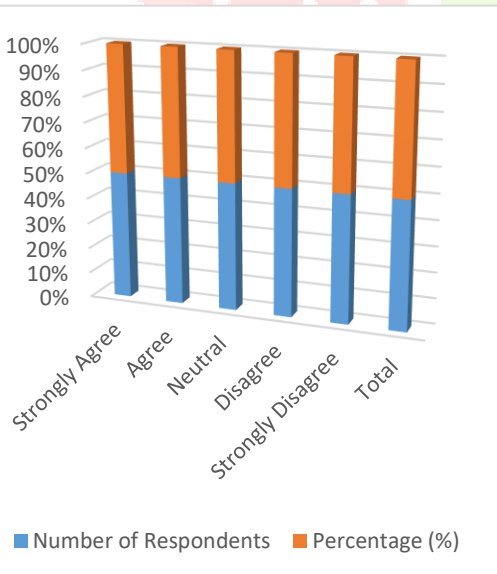
Fig-1: Graph Showing Screen Time and Academic Stress

Digital Academic Workload & Academic Stress

Response Category Number of Respondents Percentage (%)

Strongly Agree	32	32.0
Agree	38	38.0
Neutral	15	15.0
Disagree	10	10.0
Strongly Disagree	5	5.0
Total	100	100.0

Table 2: Responses on Digital Academic Workload & Academic Stress



Interpretation

The table reveals that **70% of the respondents (Strongly Agree + Agree) feel that digital academic workload significantly contributes to academic stress**. This indicates that continuous online assignments, frequent digital assessments, and increased academic expectations in technology-enabled learning environments create substantial pressure on students. Only **15% of respondents disagreed**, suggesting that digital workload is a major stress-inducing factor for the majority of students.

Fig-2: Digital Academic Workload & Academic Stress

Chi-Square Test Analysis

The Chi-square test was used to examine the **association between technology-related factors and academic stress among students**.

Table 3: Chi-Square Test between Digital Academic Workload and Academic Stress

Particulars	Value	Interpretation
Chi-Square Value (χ^2)	18.64	Since the calculated p-value (0.001) is less than the level of significance (0.05), the null hypothesis is rejected. This indicates a significant association between digital academic workload and academic stress among students.
Degrees of Freedom	4	
Level of Significance	0.05	
P-Value	0.001	
Result	Significant	

Table 4: Chi-Square Test between Screen Time & Digital Fatigue and Academic Stress

Particulars	Value	Interpretation
Chi-Square Value (χ^2)	15.27	As the p-value (0.004) is less than 0.05, the null hypothesis is rejected. This confirms that screen time and digital fatigue are significantly associated with academic stress among students
Degrees of Freedom	3	
Level of Significance	0.05	
P-Value	0.004	
Result	Significant	

Hypothesis Testing

The hypotheses formulated for the study were tested using the Chi-Square test at a 5% level of significance ($\alpha = 0.05$) to examine the relationship between technology-related factors and academic stress among students.

Test of Hypothesis H_{01}

Null Hypothesis (H_{01})

There is no significant relationship between digital academic workload and academic stress among students.

Alternative Hypothesis (H_{11})

Digital academic workload significantly contributes to academic stress among students.

Statistical Result (Chi-Square Test)

- Calculated χ^2 value = 18.64
- Degrees of freedom = 4
- Level of significance = 0.05
- P-value = 0.001

Since the calculated p-value (0.001) is less than 0.05, the null hypothesis (H_{01}) is rejected. There is a significant relationship between digital academic workload and academic stress among students. Hence, the alternative

hypothesis (H_{11}) is accepted, indicating that digital academic workload significantly contributes to academic stress.

Test of Hypothesis H_{03}

Null Hypothesis (H_{03})

Screen time associated with educational technologies has no significant effect on students' stress levels.

Alternative Hypothesis (H_{12})

Online examinations and continuous digital assessments significantly influence academic stress.

Statistical Result (Chi-Square Test)

- Calculated χ^2 value = 15.27
- Degrees of freedom = 3
- Level of significance = 0.05
- P-value = 0.004

Since the p-value (0.004) is less than 0.05, the null hypothesis (H_{03}) is rejected. There is a significant effect of screen time and digital academic processes, including online examinations and continuous digital assessments, on students' stress levels. Therefore, the alternative hypothesis (H_{12}) is accepted.

Findings of the Study

Based on the analysis and interpretation of data, the following major findings were derived:

1. The majority of students in technology-enabled learning contexts report moderate to high levels of academic stress, according to the study.
2. The main cause of students' academic stress is their digital academic workload, which includes constant online assignments, frequent tests, and strict submission deadlines.
3. Extended screen time brought on by online courses and digital study tools causes digital fatigue, which dramatically raises students' levels of academic stress.
4. The null hypotheses are rejected because the chi-square test findings show a strong correlation between academic stress and technology-related academic parameters.
5. Compared to students who successfully manage their academic tasks, those who struggle with time management have greater levels of academic stress.
6. Using instructional tools effectively in conjunction with careful planning and scheduling helps reduce stress levels among students.

The study indicates that while innovative educational technologies enhance accessibility and learning efficiency, excessive dependence on digital systems without adequate support mechanisms intensifies academic stress.

Suggestions

Based on the findings of the study, the following suggestions are proposed to reduce academic stress among students:

1. Educational institutions should regulate digital academic workload by ensuring a balanced schedule of online assignments and assessments.
2. Faculty members should adopt student-centric teaching approaches, allowing flexible deadlines and reducing unnecessary academic pressure.
3. Institutions should promote digital well-being initiatives, including regular screen breaks, blended learning models, and awareness programs on managing screen time.
4. Time management training programs and workshops should be organized to help students plan and prioritize academic tasks effectively in digital learning environments.
5. Teach management systems should be designed to be user-friendly, minimizing confusion and stress related to technology usage.
6. Counselling and mentoring support should be strengthened to help students cope with academic stress and adapt to technology-driven education.
7. Educational policymakers should ensure that technology integration focuses on enhancing learning outcomes without compromising students' mental health

Limitations of the Study

Despite providing valuable insights into academic stress among students in the era of innovative educational skills, the study has certain limitations:

1. The study is initiated on a limited sample size, which may restrict the generalization of findings to a superior student population.
2. The data were collected using a self-reported questionnaire, which may be subject to personal bias and respondents' perceptions.
3. The study focuses primarily on technology-related academic factors, while other psychological, social, and environmental factors influencing academic stress were not extensively examined.
4. The research was confined to students from specific educational institutions, which may not fully represent diverse academic and cultural contexts.
5. The study adopted a cross-sectional research design, capturing responses at a single point in time, and therefore does not reflect changes in stress levels over an extended period.
6. Advanced statistical techniques were not employed due to time and resource constraints.

Results and Discussion

The chi-square analysis reveals that technology-related academic factors knowingly influence academic stress among students. Digital academic workload shows a strong association with stress, indicating that continuous online assignments, frequent digital assessments, and academic pressure in virtual learning environments increase stress levels. The findings further highlight that prolonged screen time and digital fatigue significantly contribute to academic stress. Extended online classes and excessive screen exposure lead to physical and mental exhaustion, thereby affecting students' concentration and academic well-being. Additionally, the study confirms that time management skills play a crucial role in managing academic stress. Students who demonstrate effective planning, task prioritization and deadline management experience comparatively lower stress levels in technology-enabled learning systems.

Conclusion

The study concludes that academic stress among students has increased significantly in the era of innovative educational technologies. Although digital learning platforms, online assessments, and virtual classrooms have transformed the educational landscape by improving accessibility and efficiency, they have also introduced new stressors related to digital workload, prolonged screen exposure, and time management challenges. The findings emphasize that academic stress is not caused by technology itself but by its excessive and unbalanced use. Effective time management, institutional support, and responsible integration of educational technologies play a crucial role in mitigating academic stress. Therefore, educational institutions must adopt a holistic approach that balances technological advancement with students' academic and psychological well-being.

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