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Future Anxiety Due to Rapid Technology Change

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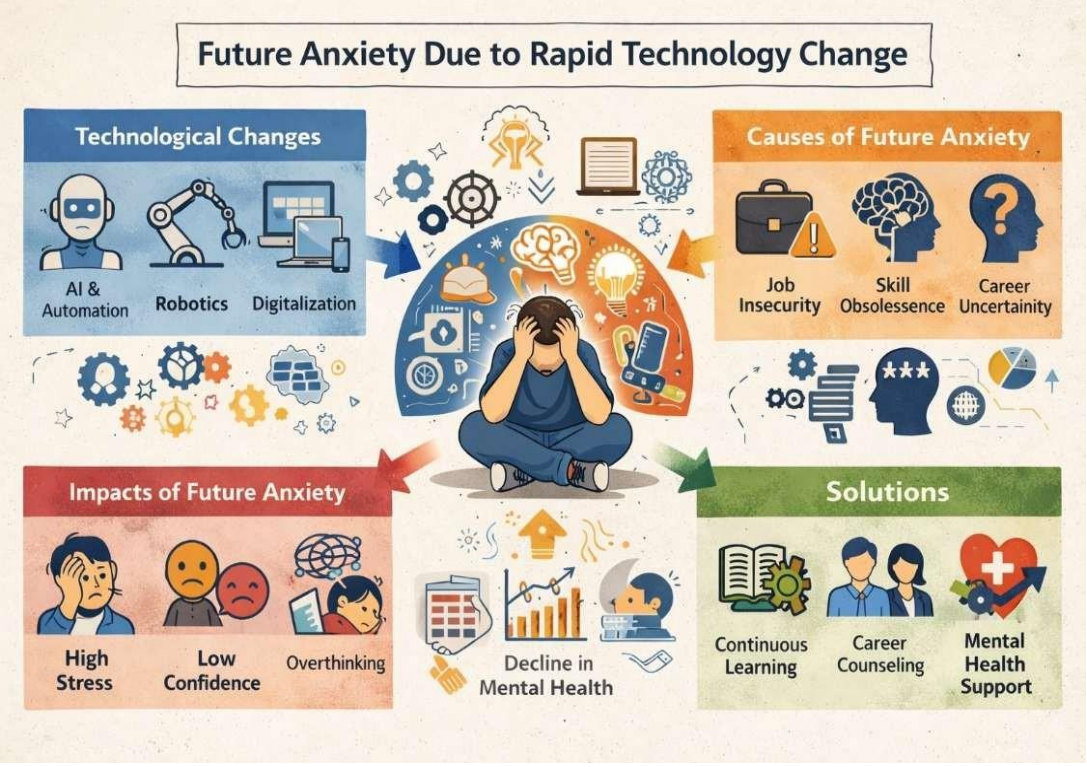
ABSTRACT - The rapid pace of technological advancement in recent years has significantly transformed education, employment, and everyday life. Technologies such as artificial intelligence, automation, and digital platforms have created new opportunities while simultaneously generating uncertainty about future careers and skill relevance [1], [5]. The general purpose of this study was to examine future anxiety caused by rapid technological changes among college students. A descriptive survey research design was adopted for the study. The population comprised undergraduate college students, and a sample of one hundred students was randomly selected. Data were collected using a researcher-designed questionnaire and analyzed using frequency counts, percentages, mean scores, and standard deviation. The findings revealed that rapid technological changes contribute significantly to students future anxiety, particularly through fear of job replacement, skill obsolescence, and continuous learning pressure [2], [3]. The study concludes that proper guidance, adaptive learning strategies, and ethical integration of technology are necessary to reduce future anxiety among students [4].

Keywords: Future Anxiety, Technological Change, Artificial Intelligence, Automation, Student



Graphical abstract

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INTRODUCTION

Technology has become one of the most powerful forces shaping modern society. Developments in artificial intelligence, automation, machine learning, and digital communication systems have transformed how people learn, work, and interact [1]. These technological changes have improved efficiency and innovation but have also introduced uncertainty regarding job security and long-term career prospects [5].

Reports indicate that automation and intelligent systems are expected to significantly reshape global employment patterns [2].

College students are among the most affected groups because they are preparing to enter a workforce that is constantly changing. Exposure to information about automation replacing jobs and the need for continuous skill upgrading has created fear and stress among students[3]. Many students worry about whether their current skills will remain relevant in the future. This worry often develops into future anxiety, which refers to persistent concern or fear about one's future due to uncertainty. Research suggests that automation trends and labour market shifts may intensify these concerns [5].

Future anxiety can negatively affect students' academic performance, mental well-being, and confidence in career decision-making. Therefore, it is important to understand how rapid technological changes contribute to future anxiety and how students perceive these changes.

STATEMENT OF THE PROBLEM

In recent years, technological advancement has accelerated at an unprecedented rate. Developments in artificial intelligence, automation, robotics, and digital platforms have significantly transformed education systems and job markets [1], [2].While these technologies offer innovation and efficiency, they also raise serious concerns about job security, skill relevance, and career stability [5]. Global employment reports suggest that many traditional roles may be replaced or transformed due to automation [2]. Additionally, studies on artificial intelligence and skills highlight the increasing demand for advanced technological competencies [3].

College students, who are preparing to enter the workforce, are increasingly exposed to information suggesting that machines and intelligent systems may replace human roles in the future [1], [3].

This continuous exposure has created fear and uncertainty among students regarding their future careers. Many students feel pressured to constantly upgrade their skills to remain relevant, while others worry that their efforts may still not be enough due to the rapid pace of technological change. As a result, students experience future anxiety, characterized by stress, fear, and uncertainty about what lies ahead.

Despite the growing relevance of this issue, limited attention has been given to the psychological impact of rapid technological change on college students. Ethical discussions surrounding artificial intelligence further emphasize the importance of considering the human impact of technological transformation [4].Most discussions focus on technological benefits, with little emphasis on how students emotionally respond to these changes. If this anxiety is not addressed, it may negatively affect students' academic performance, mental health, and career decision-making. Therefore, this study seeks to investigate future anxiety caused by rapid technological changes among college students.

PURPOSE OF THE STUDY

The general purpose of this study is to examine future anxiety due to rapid technological changes among college students.

Specifically, the study seeks to:

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1. Determine the level of future anxiety experienced by college students.
2. Identify major technological factors contributing to future anxiety.
3. Examine students' perceptions of job security in the era of automation.
4. Investigate the relationship between awareness of emerging technologies and future anxiety.
5. Analyze how pressure to continuously learn new technologies affects students' confidence in their future careers.

RESEARCH QUESTIONS

The following research questions guided the study:

1. What is the level of future anxiety among college students due to rapid technological changes?
2. What technological factors contribute most to future anxiety?
3. Is there a relationship between awareness of emerging technologies and future anxiety?
4. Does fear of job replacement influence students' future anxiety?

METHODOLOGY

Research Design:

A descriptive survey research design was adopted for this study. This design was considered appropriate because it allows the researcher to collect data from a large group of respondents and describe their opinions, perceptions, and experiences regarding future anxiety and technological change. The design helps in understanding the current state of affairs without manipulating any variables.

Population of the Study:

The population of the study comprised undergraduate college students who are exposed to digital technologies and are preparing for future employment. These students were considered suitable because they are directly affected by rapid technological changes.

Sample and Sampling Technique:

A sample of 100 undergraduate students was selected for the study using a simple random sampling technique. This method ensured that all students had an equal chance of participating in the study and helped reduce bias in the selection process. The respondents were drawn from different academic backgrounds to ensure diversity in perspectives.

INSTRUMENTATION

confirming the reliability of the instrument A researcher-designed questionnaire titled "Future Anxiety Due to Technological Change Questionnaire (FADTCQ)" was used to collect data for the study. The questionnaire was structured into two main sections:

Section A: Demographic Information

This section collected information such as:

- Age
- Gender
- Academic level
- Field of study

Section B: Future Anxiety and Technology- Related Factors

This section consisted of statements related to:

- Fear of job replacement by technology
- Skill obsolescence
- Pressure to learn new technologies
- Career uncertainty
- Confidence in adapting to technological changes

The questionnaire was designed using a four-point Likert scale:

- ❖ Strongly Agree (SA)
- ❖ Agree (A)

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- Disagree (D)
- Strongly Disagree (SD)

Validity and Reliability of the Instrument

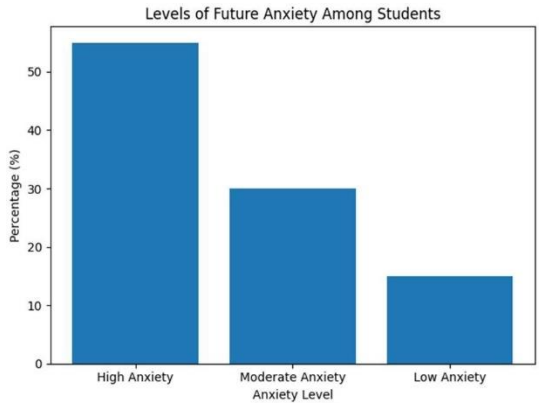
The questionnaire was given to experts in education and technology studies to assess its face and content validity. Their suggestions were incorporated to improve clarity and relevance. To ensure reliability, a test–retest method was employed by administering the questionnaire to a small group of students not
included in the main study. The responses showed consistency.

DATA ANALYSIS AND RESULTS

The data collected were analyzed using frequency counts, percentages, mean scores, and standard deviation. The analysis was guided by the research questions.

Table 1: Level of Future Anxiety Among College Students

Level of Anxiety	Frequency	Percentage (%)
Low	15	15
Moderate	30	30
High	55	55
Total	100	100



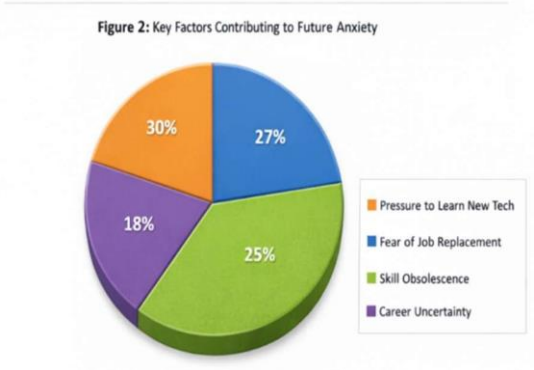
Interpretation

The table shows that above 50% of the respondents experience a high level of future anxiety, while 30% experience moderate anxiety. This indicates that a large proportion of students are significantly worried about their future due to rapid technological changes.

Table 2: Technological Factors Contributing to Factor

	Frequency	Percentage
Fear of Job Replacement by AI	27	27
Skill Obsolescence	25	25
Pressure to Learn New Technologies	30	30
Career Uncertainty	18	18

Future Anxiety



Interpretation

The data reveals that pressure to continuously learn new technologies is the most significant contributor to future anxiety. Fear of skill obsolescence and career uncertainty also strongly influence students' anxiety levels.

Table 3: Awareness of Emerging Technologies and Anxiety Level

Awareness Level	Frequency	Anxiety Level
High	40	High
Moderate	35	Moderate
Low	25	Low

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Awareness Level of Technology	Frequency	Anxiety Level
High	40	High
Moderate	35	Moderate
Low	25	Low

Interpretation

Students with high awareness of emerging technologies reported higher anxiety levels. This suggests that increased exposure to informationabout automation and rapid technological change may intensify fear about future career prospects.

DISCUSSION OF FINDINGS

The findings of the study reveal that rapid technological changes significantly contribute to future anxiety among college students. Fear of job displacement, pressure to continuously upgrade skills, and uncertainty about career stability were identified as major factors.These findings align with global employment trend analyses which suggest that automation reshapes labor markets and skill requirements [2], [5].Students who were more aware of emerging technologies experienced higher anxiety, likely due to increased exposure to information about automation and competition [3]. The concern regarding skill obsolescence is consistent with research highlighting the need for continuous adaptation in a technologically evolving economy [3].

Furthermore, ethical considerations in AI development emphasize the need to balance technological advancement with human well-being [4].

These findings suggest that while technological awareness is important, it should be balanced with guidance and reassurance to prevent unnecessary fear.

CONCLUSION

The study concludes that rapid technological changes are a major source of future anxiety among college students. Although technology brings innovation and opportunity, it also creates uncertainty regarding career prospects and skill relevance [1],[5]. Addressing future anxiety requires adaptive education systems, career guidance, and ethical consideration of the human impact of technological advancement [4].

RECOMMENDATIONS

1. Educational institutions should provide regular career guidance related to emerging technologies.
2. Students should be encouraged to adopt continuous but manageable skill development strategies.
3. Awareness programs should focus on opportunities created by technology, not only job replacement fears.
4. Curriculum planners should integrate future-ready skills with mental well-being support.
5. Further research should explore long-term psychological effects of rapid technological change.

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