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Global Accreditation Standards and the Role of AI in Shaping Academic Performance: Perspectives from Gen Z in Jharkhand's Higher Education

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Abstract: Global accreditation standards ensure quality and consistency across educational programs, focusing on areas like curriculum, faculty qualifications, student services, and learning outcomes. While AI-based tools (ABTs) are widely used in global academia, their adoption in Jharkhand's higher education system remains limited despite its status as an educational hub. This study aims to analyze the perceptions of Gen Z regarding the challenges of implementing ABTs and their impact on academic performance in Jharkhand. Additionally, the study explores their awareness of ABTs' relevance and applications. Data was collected using random sampling from 273 respondents born between 1997 and 2010, through a structured 7-point Likert scale questionnaire. Analysis was conducted using SPSS with Correlation, Regression, Mann-Whitney U, and Kruskal-Wallis tests to understand relationships between perceptions, academic performance, and challenges. Findings revealed that Gen Z believes ABTs can enhance academic performance but faces significant implementation challenges. There was a clear distinction in how ABTs were perceived, either as opportunities or obstacles. The questionnaire's validity was ensured using Cronbach's reliability test. Given the limited research on this topic in Jharkhand and India, this study provides valuable insights and recommendations to help institutions and students address ABT implementation barriers in Jharkhand.

Keywords: Global accreditation, Artificial intelligence-based tools(ABTs), academic performance, Gen Z, Jharkhand, Higher Education System

1. Introduction

Global accreditation plays a vital role in enhancing academic performance in higher education by ensuring institutions meet internationally recognized quality standards. (K. Reddy et al., 2024)It guarantees rigorous academic standards in areas like curriculum design, faculty qualifications, and student outcomes, which directly contribute to improved academic achievements.(J. S. Reddy et al., 2024) (Fernandes & Singh, 2022)Accreditation also provides global recognition, allowing students from accredited institutions to pursue further studies or careers internationally, expanding their opportunities. Additionally, it promotes continuous improvement by requiring regular evaluation and refinement of academic practices, fostering innovation, better teaching methods, and enriched learning experiences. Moreover, accreditation enhances accountability and transparency, holding institutions responsible for delivering educational excellence and operational efficiency. (Teo, 2024) By focusing on outcomes-based education aligned with industry needs, accreditation ensures programs are designed for student success, ultimately leading to better academic performance. In essence, global accreditation strengthens the quality of higher education through standards, accountability, and continuous progress.

Artificial Intelligence, a term coined in 1955 by emeritus Professor John McCarthy, has been causing stirs in academics, (Dec et al., 2022) ushering a new era of innovation and analytics. (Holloway & Hand, 1988) It emphasizes non-algorithmic approaches to problem-solving and symbol manipulation. Its effectiveness relies on adept symbol mapping skills.(Gable & Page, 1980) The advent of new applications (ABTs) has opened significant avenues for information researchers, including multimedia systems, digital libraries, GISs, and e-commerce. As these applications grow in power, diversity, and urgency, various existing challenges in information retrieval gain even greater significance in this technological era. (Kramer, 2022) "AI for all" is also being propagated by UNESCO. (Gómez-Camacho et al., 2023; Islam et al., 2021)

Academicians (Gupta, 1994) (Ali et al., 2023; Gendron et al., 2022; Kramer, 2022; Nawaz & Saldeen, 2020) (Crombag, 1993)have been working to understand the implications of AI on academic performance (Martín-Sómer et al., 2024; Wildgaard et al., 2023) especially in higher education institutions (Pikhart & Klímová, 2020) (Lai & Chen, 1995). AI is revolutionizing the higher education landscape by improving academic outcomes, enhancing teaching methodologies, and ensuring efficient administration. As institutions adopt AI-driven tools, global accreditation standards must evolve to integrate AI technologies while maintaining quality assurance and ethical use in educational practices.

Adaptive learning platforms, intelligent tutoring systems (ITS), data analytics for educational insights, and chatbots for student support are some of the artificial intelligence tools used in academia. The implications of AI on academics are multifaceted. (Kannan et al., 2023)Generative AI like ChatGPT (Adetayo, 2023; Dwivedi et al., n.d.; F. J. Pinzolits, 2023; Liu et al., 2023; Yatoo & Habib, 2023), article rewriter tools, etc. have become a major concern as the students may misuse these tools (Pijls et al., 1987)for their assignments and research work (Birks & Clare, 2023) and this technology abuse may deteriorate academic performance in Higher Education Institutions (Elkhatat, 2023). However, some ABTs like MOOCs, and Coursera enhance academic performance by assisting both faculties as well as students. (Pisica et al., 2023)

Integrity has to be maintained by balancing the use of AI in academics (Sullivan et al., 2023)(Fidas et al., 2023). By embracing these technologies and integrating controlled AI-based approaches, educators can equip students with the tools they need to become innovative (Giray, 2023), creative, and responsible members of society. (Fathoni, 2023) Academicians (Marshall, 1986)(Karsenti, 2019) (Carabantes et al., 2023)and students (Colomo-Magaña et al., 2020)need to balance their use for academic excellence. Jharkhand boasts a profound history of cultivating professionals across various domains, consistently leading the way in academic excellence. The Gen Z of Jharkhand, being the future of the state, needs to navigate the ethical challenges and ensure that the benefits of ABTs are harnessed responsibly for academia.

2. Need for Study

2.1. Research Justification

Artificial Intelligence and academics are widely studied topics. Scopus search for article title, abstract, and keywords for "artificial intelligence" AND *academic" OR "artificial intelligence" AND *education", 23223 documents were found. However, search within with keywords - "Gen Z" OR "Generation Z" OR "iGen" OR "iGeneration" OR "postmillennial", only 26 documents were found. Advanced search within the abovementioned keywords with the keywords - *university OR *college OR *higher AND education, only 13 documents (conference papers – 5, article – 4, conference -3, review - 1) were listed. The list of the papers is presented in Table 1 There was no work done in the context of India and more specifically, in Jharkhand in Scopus and Google Scholar. The dearth of primary research uniquely identifies this paper.

Table 1

Scopus Indexed Papers for the AI and Academic Performance

Sl. No.	Authors	Document	Arguments
1	(Altinsoy et al., 2023)	Article	A General Satisfaction Index was created.
2	("International Conference on Information Technology and Systems, ICITS 2022," 2022)	Conference Review	
3	(Bińczycki & Dorocki, 2022)	Article	The authors argued that machines cannot substitute humans.
4	(Basinger et al., 2022)	Conference Paper	The authors analyzed the perception of Gen Z and the variables used were performance-based learning and engagement while comparing active learning as compared to traditional passive online learning.
5	(Lee, 2022)	Article	The authors analyze the perception of Millennials and Generation Z about the metaverse.

6	(Caratozzolo et al., 2021)	Conference Proceedings	At the conference, the authors made contributions to the field of active learning in STEAM.
7	("ACIS 2021 - Australasian Conference on Information Systems, Proceedings," 2021)	Conference Proceedings	
8	(LeAnne Basinger et al., 2021)	Conference Proceedings	
9	(Mendonça et al., 2020)	Conference Proceedings	
10	(Pikhart & Klímová, 2020)	Article	The authors compare traditional and blended learning by online methods and study the student's perceptions regarding the same.
11	("14th International Conference On Virtual Learning, ICVL 2019," 2019)	Conference Proceedings	
12	(Baltusite & Briede, 2018)	Conference Paper	The study analyses the cultural, historical, and technological background of Gen Z and highlights their habits and values

Source: Scopus Indexed – Compiled by Authors

2.2. Research Questions

Based on the above research gap, the objectives of this study are to address the following research questions:

RQ1. What is the perception of Gen Z about the impact of ABTs on academic performance in the public higher education sector of Jharkhand?

RQ2. What is the perception of Gen Z about the impact of ABTs on academic performance in the private higher education sector of Jharkhand?

RQ3. What are the challenges in implementing ABTs for academic excellence in the public higher education sector of Jharkhand?

RQ4. What are the challenges in implementing ABTs for academic excellence in the private higher education sector of Jharkhand?

2.3. Hypothesis Formulation

To address the research questions and to analyze the data statistically, primary data were collected and the hypothesis, thus, formulated as follows:

H_1 - There is a significant relationship between Perception and Academic Performance in the public higher education sector in Jharkhand.

H_2 - There is a significant relationship between Perception and Academic Performance in the private higher education sector in Jharkhand.

H_3 - There is a significant positive impact of the Perception of ABTs on Academic Performance in the public higher education sector in Jharkhand.

H_4 - There is no significant positive impact of the Perception of ABTs on Academic Performance in the private higher education sector in Jharkhand.

3. Research Methodology

The study focused on Gen Z respondents from Jharkhand, employing a random sampling method for data collection. Primary data was gathered through an online survey using questionnaires, while secondary data was sourced from

the internet, magazines, and articles published in newspapers, supplemented by a thorough review of the literature using archival techniques. The researcher designed the questionnaire based on a literature survey and observations to assess Gen Z's perception of the impact of artificial intelligence-based tools (ABTs) on academic performance and the challenges encountered. Responses were collected on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Google Forms facilitated data collection, and responses were tabulated using Google Sheets. Data analysis was conducted using SPSS software, where frequencies were calculated, and charts were generated. Microsoft Word and Excel were utilized for compiling the data, while Mendeley was employed for referencing.

4. Data Analysis and Hypothesis Testing

Data was collected from 273 respondents. All the indicators for the variables "Perception", "Academic Performance" and "Challenges" were checked for outliers using **Stem and Box Plot** and **z-scores** of the variables. No spurious outliers were found. The normality of the variables was checked using the **Shapiro-Wilk test**. The variables were not normally distributed and hence, non – non-parametric methods have been used for analysis.

4.1. Demographic Profile

The frequency table was generated to describe the distribution of gender in the sample. As shown in Table 2, the majority of respondents were female (n=175, 64.1%) while 98 respondents (35.9%) were male. The results for gender-wise distribution of the respondents are represented in Table 2.

Table 2

Frequency Table of Gender Distribution in the Sample

	Frequency	Percent
Male	98	35.9
Female	175	64.1

Source: Primary Data

The frequency table was generated to describe the distribution of the sample according to the type of educational sector they have studied or are studying. As shown in Table 3, the majority of respondents are studying or have studied in private schools/colleges/universities (n=196, 71.8%) while 77 respondents (28.2%) are studying or have studied in public schools/colleges/universities. The results for educational sector-wise distribution of the respondents are represented in Table 3.

Table 3

Frequency table of Distribution of Type of Educational Sector of the Sample

	Frequency	Percent
Public Sector	77	28.2
Private Sector	196	71.8

Source: Primary Data

The frequency table was generated to describe the distribution of the sample according to the employment status. As shown in Table 4, the majority of respondents are students (n=234, 85.7%) while 21 respondents (7.7%) have completed their studies and are employed and 18 respondents (6.6%) have completed their studies but are unemployed. The results for educational sector-wise distribution of the respondents are represented in Table 4.

Table 4

Frequency table of Distribution of Respondents according to their Employment Status

	Frequency	Percent
Student	234	85.7
Completed Studies and Employed	21	7.7
Completed Studies and Unemployed	18	6.6

Source: Primary Data

The frequency table was generated to describe the distribution of samples according to their stream. As shown in Table 5, the majority of respondents belong to commerce (n=193, 70.7%) while 52 respondents (19.0%) belong to

the science stream and 28 respondents (10.3%) belong to arts & humanities. The results for the educational stream-wise distribution of the respondents are represented in Table 5.

Table 5

Frequency table of Distribution of Respondents according to their Streams

	Frequency	Percent
Science	52	19.0
Commerce	193	70.7
Arts and Humanities	28	10.3

Source: Primary Data

The frequency table was generated to describe the distribution of districts in the sample. As shown in Table 6, the majority of respondents were from Ranchi (n=248, 90.8%) while 25 respondents (9.2%) were from other districts of Jharkhand. The results for district-wise distribution of the respondents are represented in Table 6.

Table 6

Frequency Table of District Distribution in the Sample

	Frequency	Percent
Bokaro	4	1.5
Dhanbad	6	2.2
East-Singhbhum	1	0.4
Gharwha	1	0.4
Giridih	1	0.4
Gumla	1	0.4
Hazaribagh	2	0.7
Pakur	1	0.4
Palamu	5	1.8
Ramghar	2	0.7
Ranchi	248	90.8
West-Singhbhum	1	0.4

Source: Primary Data

The frequency table was generated to describe the distribution of respondents according to their year. As shown in Table 7, the majority of respondents were from 1999-2006 (n=243, 89.01%) other 30 respondents (10.01%) were born in 1997, 1998, and 2007 - 2010. The results for the year of birth-wise distribution of the respondents are represented in Table 7.

Table 7

Frequency table of Distribution of the Sample according to the Year of Birth.

Source: Primary Data

	Frequency	Percent
1997	12	4.4
1998	9	3.3
1999	21	7.7
2000	22	8.1
2001	26	9.5
2002	39	14.3
2003	38	13.9
2004	35	12.8
2005	37	13.6
2006	25	9.2
2007	6	2.2
2008	1	0.4
2009	1	0.4
2010	1	0.4

4.2. Cronbach's Alpha Reliability Test

The study employed three scales to assess the perceptions and experiences of Gen Z in Jharkhand regarding artificial intelligence-based tools (ABTs). The "Perception" scale consisted of 7 items, such as "AI is very human-friendly,"

and was administered to a sample of 273 participants, yielding a Cronbach's Alpha coefficient of 0.828, indicating high internal consistency. Similarly, the "Academic Performance" scale, which included 7 items like "I use/used AI to help write school/college reports," also demonstrated robust reliability with a Cronbach's Alpha of 0.958. Lastly, the "Challenges" scale comprised 10 items, including statements like "AI cannot replace human intelligence or creativity," and achieved a Cronbach's Alpha coefficient of 0.811, reflecting strong internal consistency. These findings support the reliability of the scales used in measuring various dimensions of ABT perception and its implications for academic performance among the respondents. (Table 8)

Table 8

Variables and their Cronbach's Alpha Reliability Coefficients

Variables	No. of Items	Cronbach's Alpha coefficient
Perception	7	0.828
Academic Performance	7	0.958
Challenges	10	0.811

Source: Primary Data

4.3. Hypothesis Testing

Hypothesis 1 and Hypothesis 2

H_1 - There is a significant relationship between Perception and Academic Performance in the public higher education sector in Jharkhand.

H_2 - There is a significant relationship between Perception and Academic Performance in the private higher education sector in Jharkhand.

Table 9

Correlation between Perception and Academic Performance

	Spearman Correlation Coefficient	Sig	N
Public Sector	.787	.000	77
Private Sector	.676	.000	196

Source: Primary Data

Statistical Method: Bivariate Analysis using Spearman's Rank Correlation

Findings: A Spearman's correlation was run to determine the relationship between 273 perception and academic performance. A statistically significant and strong positive correlation (r_s = .787, p = .000) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for public sector (N=77) and a statistically significant and strong positive correlation (r_s = .676, p = .000) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for private sector (N=196). (Table 9)

Thus, the null hypothesis is rejected.

Conclusion: There is a significant and positive relationship between the perception of ABTs and academic performance in the public and private higher education sector in Jharkhand.

Hypothesis 3 and Hypothesis 4

H_3 - There is a significant positive impact of the Perception of ABTs on Academic Performance in the public higher education sector in Jharkhand.

H_4 - There is no significant positive impact of the Perception of ABTs on Academic Performance in the private higher education sector in Jharkhand.

Table 10

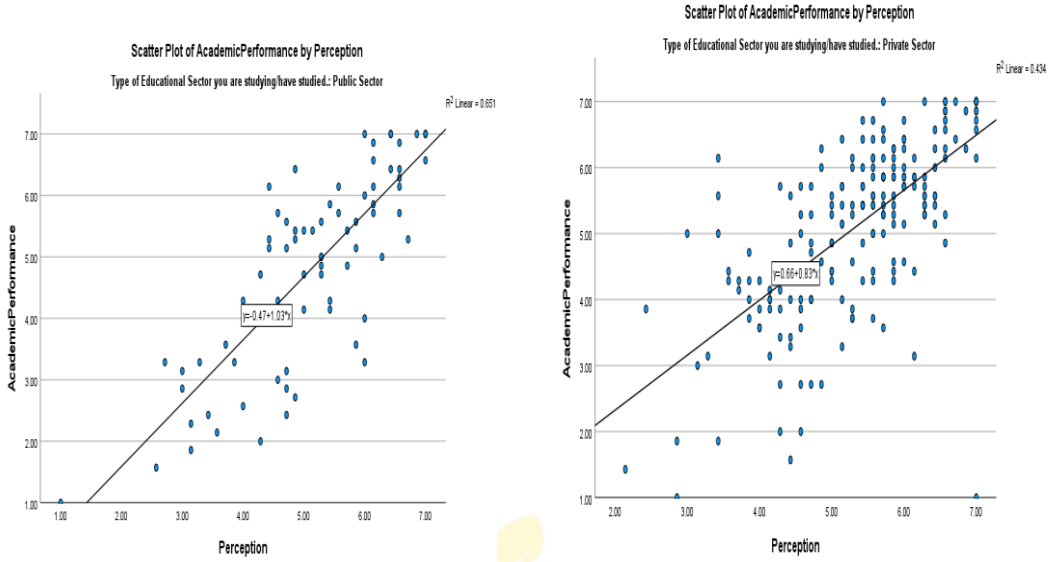
Linear Regression Analysis for Perception and Academic Performance

Hypothesis	Regression Weights	B	T	p-value	Result
H_3	Perception--->AP	.1.029	.807	.000	Supported
H_4	Perception--->AP	.834	.658	.000	Supported
R-square(Public)	.651				
R-square(Private)	.434				
F(1,75)	139.818				
F(1,194)	148.778				

Source: Primary Data

Figure 1

Scatter Plot to show the relationship between perception of ABTs and Academic Performance



Statistical Method: Linear Regression Analysis

Findings: A simple linear regression was conducted to assess the Perception of ABTs to predict the Academic Performance of the Gen Z of Jharkhand. A scatter plot showed the relationship between Perception and Academic Performance as positive and linear. A linear regression established Perception can statistically predict academic performance, F (1, 75) = 139.818, p = .000, R^2 = .651 for the public educational sector. The R^2 was .651 which means 65.1% of the variance in Academic Performance can be predictable Perception in public educational sectors. According to the coefficients, Perception was a significant predictor of Academic Performance, β = 1.029, t = .807, p = .000 in public educational sectors. This is a highly strong relationship.

A linear regression established Perception can statistically predict academic performance, F (1, 194) = 148.778, p = .000, R^2 = .434 for the private educational sector. The R^2 was .434 which means 43.4% of the variance in Academic Performance can be predictable Perception in private educational sectors. According to the coefficients, Perception was a significant predictor of Academic Performance, β = .834, t = .658, p = .000 in private educational sectors. This is a highly strong relationship.

Thus, the null hypothesis is rejected.

Conclusion: Hence, it can be concluded statistically that Perception of ABTs can significantly predict academic performance in the public and private higher education sector of Jharkhand.

4.4. Data Analysis

Spearman's correlation, Mann Whitney U Test, and Kruskal Wallis Test were run to determine the relationship and the mean differences between 273 perceptions, academic performance, and challenges based on gender, employment status, and stream.

Table 11

Comparative Analysis to Analyze Impact of Perception of ABTs on Academic Performance in Public and Private Higher Educational Sectors by Spearman Correlation Method.

		Public Sector			Private Sector		
		Correlation Coefficient	Sig	N	Correlation Coefficient	Sig	N
Gender	Male	.520	.047	15	.637	.001	83
	Female	.797	.001	62	.697	.001	113
Employment Status	Student	.785	.001	51	.682	.001	183
	Completed Studies and employed	.628	.012	15	.493	.321	6

	Completed Studies and unemployed	.804	.003	11	.358	.431	7
Stream	Science	.841	.036	6	.375	.010	46
	Commerce	.774	.001	50	.745	.001	143
	Arts and Humanities	.793	.001	21	.847	.016	7

Source: Primary Data

A statistically significant and positive correlation (r_s = .520, p = .047) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for male respondents in public sector (N=15) and a statistically significant and strong positive correlation (r_s = .637, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for male respondents in private sector (N=83). (Table 11)

A statistically significant and strong positive correlation (r_s = .797, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for female respondents in public sector (N=62) and a statistically significant and strong positive correlation (r_s = .697, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for female respondents in private sector (N=113). (Table 11)

To evaluate the mean difference between the public and private sectors for the impact of perception of ABTs on Academic Performance, the **Mann - Whitney U-test** was utilized with gender as the grouping variable. The test revealed no significant differences in the perception of ABTs on academic performance in public and private higher education sectors based on gender.

A statistically significant and strong positive correlation (r_s = .785, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who were students in the public sector (N=51) and a statistically significant and strong positive correlation (r_s = .682, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who were students in private sector (N=183). (Table 11)

A statistically significant and positive correlation (r_s = .628, p = .012) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who have completed studies in the public educational sector and are employed (N=15) but a statistically insignificant correlation was found between perception and academic performance for respondents who have completed studies in the private educational sector and are employed. (Table 11)

A statistically significant and positive correlation (r_s = .804, p = .003) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who have completed studies in the public educational sector and are unemployed (N=11) but a statistically insignificant correlation was found between perception and academic performance for respondents who have completed studies in the private educational sector and are unemployed. (Table 11)

A **Kruskal Wallis Test** showed that there are no statistically significant mean differences between the three levels of the employment status of respondents - students completed their studies and are employed and completed their studies and are unemployed in the public sector, H(2) = 2.978, p = .226 and private sector, H(2) = 1.146, p = .564.

A statistically significant and strong positive correlation (r_s = .841, p = .036) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued science in public higher educational sector (N=6) and a statistically significant and positive correlation (r_s = .375, p = .010) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued science in public higher educational sector (N=46). (Table 11)

A statistically significant and strong positive correlation (r_s = .774, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued commerce in the public higher educational sector (N=50) and a statistically significant and strong positive correlation (r_s = .745, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued commerce in public higher educational sector (N=143). (Table 11)

A statistically significant and strong positive correlation (r_s = .793, p = .001) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued arts & humanities in the public higher educational sector (N=21) and a statistically significant and strong positive correlation (r_s = .847, p = .016) was found between perception and academic performance at the significance level of 0.01 in a 2-tailed test for respondents who pursued arts & humanities in the public higher educational sector (N=7). (Table 11)

A **Kruskal Wallis Test** showed that there is no statistically significant mean difference in the impact of perception of ABTs on academic performance between the three streams in the public higher educational sector, H(2) = .833, p=.659.

A **Kruskal Wallis Test** showed that there is a statistically significant mean difference in the impact of perception of ABTs on academic performance between the three streams in the private higher educational sector, H(2) = 9.609, p =.008. **Mann - Whitney U-test** was used to compare the pairs of groups to identify the exact groups.

Mann - Whitney U Test revealed significant mean differences in the perception of ABTs on academic performance in science (Mean Rank = 75.91, n = 46) and commerce (Mean Rank = 101.14, n = 143) streams for respondents of the private higher educational sector (U =2411.000, z = -2,723, p =.006, r = .198).

Mann - Whitney U-test revealed no significant mean difference in the perception of ABTs on academic performance in science and arts & humanities stream, commerce and arts & humanities streams for respondents of private higher educational sector.

5. Discussions and Conclusion

A comparative analysis of Gen Z from public and private educational sectors in Jharkhand revealed that the perception of AI-based tools (ABTs) has a significantly positive impact and can predict academic performance across both sectors, regardless of gender or stream. Notably, students from the public sector exhibited a stronger connection between ABTs and academic performance, likely reflecting the influence of global accreditation standards, which emphasize quality and innovation in education. However, respondents from private institutions, where global accreditation may be less prevalent, did not perceive a significant impact of ABTs on their academic outcomes. This underscores the importance of global accreditation in fostering an environment where technological advancements, such as ABTs, are effectively integrated to enhance academic performance.

Statistical analysis indicated no significant difference in the perception of ABTs on academic performance between public and private educational sectors based on gender, employment status, or stream. However, a small mean difference was observed between the academic performance of science and commerce students in the private sector. This minor variation highlights the potential influence of global accreditation, which ensures consistency in educational quality and promotes equitable academic outcomes across different fields of study. The presence of global accreditation standards could help minimize these differences, fostering a more uniform integration of AI-based tools (ABTs) and enhancing academic performance across all streams.

The study revealed a significant and positive relationship between the perception of artificial intelligence-based tools (ABTs) and academic performance among both male and female respondents in the public and private higher education sectors in Jharkhand. Importantly, there were no significant differences in this relationship based on gender, suggesting that the benefits of ABTs are universally recognized across the student population. This finding underscores the critical role of global accreditation standards, which advocate for equitable access to quality education and the effective integration of technology in teaching and learning processes. By adhering to these standards, institutions can foster environments where all students can benefit from ABT utilization, thereby enhancing academic outcomes.

Furthermore, the analysis indicated a strong positive correlation between the perception of ABTs and academic performance across various levels of employment status among respondents who studied in public higher education institutions. This included current students, graduates who are employed, and those who are unemployed. The consistent positive relationship across these groups highlights the importance of integrating ABTs into the educational framework to support all students, regardless of their employment circumstances. By aligning curricula

with global accreditation standards, institutions can ensure that graduates are equipped with the necessary skills and knowledge to effectively use ABTs, ultimately enhancing their academic performance and future career prospects.

The study found a significant and positive relationship between the perception of artificial intelligence-based tools (ABTs) and academic performance among students in private higher education sectors. However, this positive relationship did not extend to graduates who are employed or unemployed, suggesting that the perceived benefits of ABTs may be more impactful during active learning phases than in post-graduation contexts. This emphasizes the need for institutions to ensure that the integration of ABTs remains relevant and beneficial even after students transition into the workforce, a principle aligned with global accreditation standards that prioritize continuous learning and adaptability.

Additionally, the research revealed a significant and positive correlation between the perception of ABTs and academic performance across all three academic streams—science, commerce, and arts & humanities—within both public and private sectors. However, notable differences emerged in the private sector between the science and commerce streams, indicating that while the perception of ABTs positively influences performance, the degree of this impact can vary by discipline, albeit the differences are small. This variability underscores the importance of tailoring AI integration strategies to meet the specific needs of different academic fields, a practice supported by global accreditation standards that advocate for contextualized learning experiences.

Furthermore, respondents across all streams, employment statuses, and genders reported challenges in implementing ABTs for academic excellence in Jharkhand's educational sectors, with no statistically significant differences identified. This finding highlights a universal awareness of the obstacles to effective ABT integration, emphasizing the necessity for institutions to develop comprehensive strategies that address these challenges. Global accreditation can play a pivotal role in guiding institutions to create robust frameworks for AI adoption, ensuring that all students can overcome barriers and fully leverage ABTs to enhance their academic performance.

Gen Z respondents identified several significant challenges in implementing artificial intelligence-based tools (ABTs) for academic excellence. The primary concerns included a lack of internet connectivity (Mean = 5.32, S.D. = 1.868) and the belief that AI cannot replace human intelligence or creativity (Mean = 5.10, S.D. = 1.969). Additional challenges highlighted were inadequate facilities for ABT implementation (Mean = 4.44, S.D. = 1.765), fears that reliance on AI would create a generation lacking in creativity and critical thinking (Mean = 4.43, S.D. = 1.771), and concerns about errors in AI-generated results (Mean = 4.32, S.D. = 1.635). Respondents also pointed to a general unawareness among authorities and faculty regarding the significance of ABTs (Mean = 4.27, S.D. = 1.845) and the ethical implications of using AI for academic assignments, which they perceived as cheating and plagiarism (Mean = 3.96, S.D. = 1.888). Other challenges included the mental health impact of AI (Mean = 3.94, S.D. = 1.835), limited technology availability in Jharkhand (Mean = 3.67, S.D. = 1.867), and user-unfriendliness of ABTs (Mean = 3.47, S.D. = 1.643).

Moreover, respondents expressed concerns about the emotional disconnect of AI, its limited options, lack of uniqueness, and the difficulty in crafting precise prompts, which often yield varying answers. These challenges highlight the necessity for educational institutions to align with global accreditation standards, which emphasize the importance of providing robust infrastructure and training for the effective use of technology. By addressing these issues, institutions can create an environment that not only fosters academic excellence but also prepares students to navigate the complexities of AI in a way that enhances, rather than undermines, their creative and critical thinking abilities. This approach will ensure that students can fully leverage ABTs while maintaining the ethical and intellectual integrity that global accreditation standards uphold.

Despite recognizing the benefits of AI-based tools (ABTs) for academic excellence, respondents identified several critical challenges in their implementation. The primary issue highlighted was poor internet connectivity, which hampers the effective use of ABTs. Additional concerns included difficulty in selecting appropriate prompts, interpreting results, plagiarism issues, and an overreliance on AI that may diminish heuristic and creative skills. The lack of personal interaction and human touch also contributed to the resistance towards ABTs. Global accreditation standards play a crucial role in addressing these challenges by ensuring that institutions have the infrastructure, support systems, and quality controls needed to effectively integrate ABTs. Accreditation can promote improved internet connectivity, offer guidance on ethical AI use, and enhance the human element in educational technology, thereby fostering a more effective and widely accepted implementation of ABTs that support academic performance.

6. Practical Implications

Jharkhand, with its distinguished history of producing professionals and pioneering academic excellence, faces a concerning gap in awareness and implementation of AI-based tools (ABTs) within its higher education institutions (HEIs). Despite reasonable ABT implementation in larger cities, less developed areas lag significantly. To address this, it is essential to integrate Artificial Intelligence as a mandatory component in both school and university curricula, ensuring students understand how to formulate effective prompts, utilize the internet judiciously, and navigate AI tools ethically.

Global accreditation standards underscore the importance of comprehensive and up-to-date curricula that include emerging technologies like AI. Accreditation can drive the inclusion of AI education by setting benchmarks for curriculum development and ensuring institutions adhere to these standards. It also emphasizes the need for ethical training, making ethics in AI and professional conduct a mandatory part of undergraduate programs to address issues such as plagiarism and responsible AI use.

Furthermore, faculties should receive orientation on AI tools and their educational benefits, ensuring they are well-equipped to integrate these technologies into their teaching. Establishing clear guidelines, policies, and procedures for AI use, as mandated by global accreditation standards, can address the challenges Gen Z perceives in leveraging ABTs for academic success. By fostering awareness and implementing these standards, institutions can enhance academic performance and prepare students for a future where AI plays a crucial role in education and professional development.

7. Limitations and Scope of the Study

The study identified several important limitations and recommendations for future research regarding artificial intelligence-based tools (ABTs) in Jharkhand's higher education sector.
Firstly, the geographical concentration of respondents—90.8% from Ranchi—may restrict the generalizability of the findings across the broader state. Future studies should aim to include a more diverse range of districts to capture the varied experiences and perceptions of Gen Z.
Secondly, a notable lack of awareness about ABTs among respondents emphasizes the need for educational institutions to integrate AI literacy into their curricula. Global accreditation standards can provide a valuable framework to prioritize AI education, enhancing student engagement and understanding. Moreover, collecting data equitably from all districts would yield more unbiased results, aligning with the inclusivity principles emphasized by global accreditation.

Additionally, if respondents had received training on basic ABTs prior to data collection, the findings could have been more insightful. Such training would align with global accreditation standards advocating for continuous improvement in educational practices. Employing a paired t-test could further refine the analysis of how training influences perceptions of ABTs. Lastly, incorporating data from faculty members could enrich the findings, providing a comprehensive view of the challenges and opportunities associated with ABTs. Global accreditation highlights the importance of collaboration among educators to foster effective learning environments, suggesting that inclusive research methodologies should consider both student and faculty perspectives. By addressing these limitations and following these recommendations, future research can enhance the understanding of ABTs and their impact on academic performance in Jharkhand's higher education landscape.

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