Prestige Journal of Counselling Psychology, Vol. 9, No. 1, March 2026
A publication of the Association for the Promotion of Innovation in Education (APIE)
ISSN: 2651-5687 (Print)
ISSN: 2651-5709 (Online)

Artificial Intelligence, Gender and Academic Adjustment: Insights from High-Ability Under-Achieving Students

[1]**Adebayo Adeyinka Salako, Ph.D**
salakoaa@eauedoyo.edu.ng

[1]**Olusola Akintunde Adediran, Ph.D**
adediranoa@eauedoyo.edu.ng

[1]**Bolade Deborah Falope, Ph.D**
falopebd@eauedoyo.edu.ng
[1]*Department of Special Education and Guidance and Counselling, Emmanuel Alayande University of Education, Oyo*

Abstract
This study investigated the influence of artificial intelligence and gender on the academic adjustment of high-ability underachieving students. The population comprised all high-ability under-achievers in Oyo State, Nigeria. Simple random sampling technique was used to select twelve secondary schools while purposive random sampling was used to select 120 high-ability students who consistently scored below the 70th percentile. Two null hypotheses were formulated and tested at 0.05 level of significance. Data were collected through an adapted and pilot-tested questionnaire (with reliability coefficients of r = 0.87 for AI and academic adjustment, and r = 0.82 for gender and academic adjustment) and through unstructured interviews. Data collected were analysed with Pearson Product Moment Correlation (PPMC) and T-test. The findings show a significant relationship between AI usage and academic adjustment. More so, there is difference between male and female high-ability under-achievers on their academic adjustment. The study recommends, among others, the integration of AI tools into classroom instruction and academic support systems to enhance engagement and learning outcomes among underachieving high-ability students.

Keywords*:* artificial intelligence, gender, high-ability under-achieving students, academic adjustment, secondary school.

Introduction
For decades, the phenomenon of academic underachievement has captured the attention of researchers, educators, and policymakers within the field of gifted education. The concern

is on why some students, despite possessing exceptional cognitive abilities, fail to perform at expected academic levels. This is an important question. Although these students often exhibit high intellectual potential, but a substantial number fail to fully realize their capabilities. Research indicates that approximately 9% to 28% of gifted learners experience academic underachievement during compulsory schooling (Ayoub et al., 2022). Similarly, other studies estimate this figure to be around 10%, with dropout rates among high-ability students ranging between 5% and 25% (Barbier et al., 2023).

According to Deloitte (2022), gifted individuals demonstrate exceptional aptitude (the ability to reason and learn) or competence (performance within the top 10% or higher) in one or more domains. These domains may include areas such as mathematics, music, language, sports, or visual arts. Moreover, Reis and Renzulli (2011) stated that gifted individuals are those with significantly above-average intellectual abilities, typically reflected by an IQ score of 130 or higher, representing roughly 2% of the population.

This study explores the academic adjustment of underachieving high-ability students. Academic adjustment refers to how well students adapt to academic demands and how satisfied they are with their learning environment. It is one of six key areas of student adjustment, alongside cultural, emotional, financial, intellectual, and social dimensions (Davis & Rimm, 2024). Numerous studies underscore the importance of academic adjustment in predicting academic success (Wang et al., 2021). High-ability students who effectively navigate academic challenges tend to perform better across their courses. Further evidence suggests that academic adjustment is linked to students' motivation, particularly in science education. Chen (2021) found that academic adjustment positively predicted science motivation among Chinese college students. This implies that students with strong academic adjustment exhibit higher intrinsic motivation for learning.

Despite this body of research, limited attention has been paid to how academic adjustment specifically affects high-ability underachievers. This study aims to address this gap by investigating the perceived impact of integration of artificial intelligence (AI) on the academic adjustment of high-ability under-achieving students.

In recent years, AI has become increasingly prominent in education, offering tools that transform learning experiences and instructional practices. One notable advancement is ChatGPT, a large language model capable of generating human-like responses and novel content. This innovation is part of a broader trend where AI technologies are reshaping fields

ISSN: 2651-5687 (Print)
ISSN: 2651-5709 (Online)

such as education, healthcare, and computer science (Wang et al., 2021). This study focuses on Chat Generative Pre-trained Transformer (ChatGPT). This is a conversational AI model based on transformer architecture, pre-trained on vast amount of data to generate human-like responses which can be used as a tool for educational purposes, exploring its role in supporting academic adjustment among underachieving gifted students. AI-driven technologies have revolutionized educational systems by enabling personalized learning, optimizing instructional methods, and addressing individual student needs through data-informed decisions (Wang et al., 2021).

Artificial intelligence (AI) presents both opportunities and challenges for educators aiming to enhance teaching and learning across different educational levels and settings. It can support a range of tasks including content generation, automated grading, student assessment, and the analysis of learning behaviours. Tools like ChatGPT, in particular, have the potential to enrich student engagement by mimicking human interactions and producing text based on natural language input, thereby reshaping traditional educational practices (Liu, 2024). Recent studies have highlighted the potential of AI to positively influence students' academic performance and learning outcomes. However, despite these advantages, concerns remain among some scholars. Critics argue that AI might impede the development of critical thinking skills, decrease students' intrinsic motivation, and weaken their overall engagement. These mixed perspectives suggest the importance of synthesizing existing research to better understand AI's overall impact on academic achievement and to clarify whether its influence is ultimately beneficial or detrimental (Yan & Chea, 2024).

There is a growing evidence supporting the effectiveness of AI in enhancing students' academic performance, particularly within formal education. Azamatova (2023) explored the role of digital tools and AI in foreign language education and found that AI-based strategies had a positive impact on students' language learning, highlighting the potential of AI-supported learning models in educational environments.

Besides, another area of concern as far as this study is concerned was on gender disparities among high-ability students who underachieve. These categories of students face social and psychological challenges that intersect with gender norms and expectations. These challenges can significantly impact their academic adjustment and performance. One key factor is the internalization of gender roles, often shaped by cultural expectations, familial pressures, and peer influence. As Schroeder and Liben-Nowell (2021) explained, many students feel compelled to conform to traditional gender roles dictated by their culture, a process referred to as self-stereotyping. This internalization can restrict a student's personal

adjustment and self-concept, limiting their aspirations and engagement in academic domains traditionally associated with the opposite gender. In this environment, high-ability underachieving students may find it particularly difficult to adapt academically, especially when their personal identities do not align with institutional expectations. Academic adjustment is further complicated by gender-based patterns in academic performance. These trends suggest that the influence of gender on academic adjustment is context-dependent, varying across disciplines.

Moreover, research by Smith (2016) suggests that instructional methods and learning preferences can be gendered. Female students, for instance, may respond more positively to collaborative learning and integrative teaching approaches, which are less prevalent in traditionally male-dominated disciplines. Smith (2016) also notes that disparities in academic adjustment between genders are often contingent upon the field of study, indicating that discipline-specific interventions are necessary to support academic adjustment equitably.

To effectively support high-ability underachieving students, it is essential for educators and institutions to critically examine how gender expectations and structural inequalities shape students' academic experiences. This includes adopting inclusive pedagogical strategies, diversifying curricula, and actively challenging stereotypes that limit students' potential. Recognizing the intersection between gender identity and academic adjustment is a crucial step toward creating equitable learning environments where all high ability students can thrive.

Gender imbalance was identified as a notable challenge in the AI field, including its application in education. Evidence from Canada's AI sector reveals significant gender disparities, emphasizing the need to promote inclusive practices in educational technology (Richardson & Woodley, 2021). Addressing these inequalities is key to developing fair and effective learning environments. To contribute to the growing body of knowledge, this study undertakes a systematic literature review to examine how AI, particularly ChatGPT, can influence the academic adjustment of high-ability underachievers. It also explores gender differences in its efforts to provide a more comprehensive understanding of AI's role in educational equity and performance enhancement.

While research has examined AI's general role in education, the specific impact of AI tools on the academic performance of gifted but underperforming students remains under-

ISSN: 2651-5687 (Print)
ISSN: 2651-5709 (Online)

investigated (Seo et al., 2021). Furthermore, existing studies often overlook gender disparities in AI adoption and its outcomes. This represents a critical gap, as understanding gender-related differences is essential for ensuring equity in AI-integrated educational settings.

Statement of the problem

High-ability students who underachieve often struggle with academic adjustment, which can lead to frustration, truancy, school dropout, and other negative outcomes. Despite the growing relevance of artificial intelligence (AI) in education, there is a lack of research addressing how AI might influence the academic adjustment of this particular group of students. Furthermore, existing literature offers limited insight into whether gender differences play a role in these experiences. To the best of the researchers' knowledge, limited study has specifically focused on using AI as a potential tool to mitigate the academic challenges faced by high-ability underachieving students. Therefore, this study seeks to examine the perceived influence of AI usage on under-achieving students and to determine potential gender differences in academic adjustment.

Objectives of this study

i. To examine the relationship between integration of Artificial Intelligence and academic adjustment of high-ability under-achievers.

ii. To investigate gender disparities in academic adjustment of high-ability under-achievers.

Hypotheses

Ho1: There is no significant relationship between the usage of Artificial Intelligence and academic adjustment among high-ability under-achieving students.

Ho2: There is no significant difference between male and female under-achieving students in their academic adjustment.

Methodology

A descriptive survey research design was adopted for this study. The population comprised all high-ability under-achieving students in Oyo State, Nigeria. A multi-stage sampling technique was employed to select participants. Oyo State consists of thirty-three (33) local government areas (LGAs), distributed across three senatorial districts: Oyo North, Oyo Central, and Oyo South. Using a simple random sampling technique, six (6) LGAs were selected. From each selected LGA, two (2) secondary schools were randomly chosen, resulting in a total of twelve (12) secondary schools participating in the study. Within these

schools, purposive sampling was used to select one hundred and twenty (120) high-ability under-achieving students. These students were identified using the Slosson Intelligence Test, and further screened based on their academic records. Students who scored below the 70th percentile in core subjects (English and Mathematics) consistently over a term were classified as under-achievers.

The instruments utilized included an adapted Artificial Intelligence and Academic Adjustment Questionnaire (AIAA) and the Gender and Academic Adjustment Questionnaire (GAAQ). These tools were pilot-tested among a similar population not involved in the main study. The reliability coefficients of the instruments, determined using Cronbach's Alpha, were 0.87 for AIAA and 0.82 for GAAQ, indicating high internal consistency.

Data collected were analyzed using Pearson Product Moment Correlation (PPMC) and t-test. PPMC was used to determine the relationship between Artificial Intelligence usage and academic adjustment among high-ability under-achieving students, while t-test was employed to examine gender differences in academic adjustment. All hypotheses were tested at the 0.05 level of significance.

Presentation of results

Ho1: There is no significant relationship between usage of Artificial Intelligence and academic adjustment among high-ability under-achieving students.

Table 1: Relationship between integration of Artificial Intelligence and academic adjustment of high-ability underachieving students

Variables	**N**	**Mean ($\bar{x}$)**	**SD**	**DF**	**Cal-value**	**p.value**
Artificial Intelligence	120	36.43	3.62	118	0.308	0.001
Academic Adjustment	120	41.62	1.16			

P-value<0.05

Table 1 presents the result of a correlation analysis between Artificial Intelligence (AI) usage and academic adjustment among high-ability underachieving students. The analysis reveals a statistically significant positive relationship (r = 0.308, p = 0.001), indicating that

higher use or integration of AI is associated with better academic adjustment in these students. Since the p-value is less than 0.01, the relationship is significant at the 0.05 level of significance. Therefore, the null hypothesis is rejected.

Ho2: There is no significant difference between male and female under-achieving students in their academic adjustment.

Table 2: t-test analysis of gender difference on academic adjustment of high-ability underachieving students

Variables	N	Mean ($\bar{x}$)	SD	DF	T-value	p.value
Male	40	38.70	4.40			
				118	2.93	0.004
Female	78	42.85	5.95			

P-value<0.05

Table 2 shows a comparison of academic adjustment scores between male and female high-ability underachieving students. The result indicates a statistically significant difference (t = 2.93, df = 118, p = 0.004). Female students demonstrated higher academic adjustment scores ($\bar{x}$= 42.85) compared to male students ($\bar{x}$= 38.70). Since the p-value is less than 0.05, the null hypothesis is rejected, suggesting a significant gender difference in academic adjustment.

Discussion of the findings

The present study explored the impacts of Artificial Intelligence (AI) usage and gender on academic adjustment among high-ability underachieving students. Two hypotheses were formulated and tested at a significance level of 0.05. The first hypothesis proposed that there was no significant relationship between the integration of AI and the academic adjustment of high-ability underachievers. However, the study's findings led to the rejection of this null hypothesis, revealing a positive correlation between AI usage and academic adjustment among high-ability underachieving students. This outcome aligns with Chen's (2021) research, which indicated that academic adjustment is a positive predictor of successful academic outcomes and achievements among intellectually gifted students. Moreover, the results suggest that integration of AI fosters a greater intrinsic motivation for learning among underachievers. This implies that academic adjustment serves as a mediator between school environments and academic success. This finding agrees with Yan and Chea (2024) who emphasized AI's potential to enhance students' academic performance and overall learning outcomes.

The second hypothesis, which posited that there is no significant difference in academic adjustment based on gender among high-ability underachieving students, was also rejected due to the evidence of a significant difference among the variables. This finding correlates with that of Richardson and Woodley (2021), who discovered that male students often excel in mathematics, while female students tend to perform better in biological sciences. Such trends indicate that the impact of gender on academic adjustment is context-specific, varying across different academic disciplines. Furthermore, female students often respond more favourably to collaborative learning environments and integrative teaching methods, which are less common in traditionally male-dominated fields. Additionally, Smith (2016) pointed out that the academic achievement disparities between genders frequently depend on the chosen field of study, suggesting that discipline-targeted interventions are essential for promoting equitable academic adjustment.

Conclusion

Supporting the academic adjustment of high-ability underachieving students requires more than just academic interventions; it demands a deep understanding of the social and cultural contexts in which learning takes place. Gender norms, institutional biases, and traditional conceptions of academic success can all contribute to the underperformance of capable students, particularly when their identities or learning styles do not align with dominant expectations. By recognizing that academic inequity is socially constructed, educators and institutions can begin to dismantle the structural barriers that limit student potential. Efforts must be made to cultivate inclusive, gender-responsive learning environments that value diverse forms of knowledge and support differentiated teaching strategies. Only by addressing these underlying issues can it be ensured that all students, not just those who fit traditional molds, are empowered to achieve academic success and reach their full potential.

Recommendations

Based on the findings, the study recommends the following:

1. Integration of AI tools into classroom instruction and academic support systems to enhance engagement and learning outcomes among underachieving high-ability students.
2. Gender-sensitive interventions that address specific academic and emotional needs of both male and female students.
3. Regular monitoring and evaluation of students' academic adjustment to provide early support for those at risk of underachievement.
4. Teacher training programmes should incorporate on how to effectively leverage AI technologies and recognize gender-based differences in academic behaviour.

References

Ayoub, A. E. A., Aljughaiman, A. M., Alabbasi, A. M. A., & Abo Hamza, E. G. (2022). Do different types of intelligence and its implicit theories vary based on gender and grade level? *Frontiers in Psychology, 12,* Article 712330. https://doi.org/10.3389/fpsyg.2021.712330

Azamatova, A. (2023). The effect of using artificial intelligence and digital learning tools based on project-based learning approach in foreign language teaching on students' success and motivation. *International Journal of Education in Mathematics, Science, and Technology (IJEMST)*, 11(6), 1458-1475. https://doi.org/10.46328/ijemst.3712.

Barbier, K., Struyf, E., Verschueren, K., & Donche, V. (2023). Fostering Cognitive and Affective-Motivational Learning Outcomes for High-Ability Students in Mixed-Ability Elementary Classrooms: A Systematic Review. *European Journal of Psychology of Education,* 38, 83-107. https://doi.org/10.1007/s10212-022-00606-z

Chen, X. (2021). Application and Theory Gaps during the Rise of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 1, Article ID: 100002. https://doi.org/10.1016/j.caeai.2020.100002

Davis, G. A., & Rimm, S. B. (2024). *Education of the Gifted and Talented*. Boston, MA: Pearson Education Press.

Deloitte (2022). Recognizing and celebrating differences. Diversity, Equity, and Inclusion at Deloitte. Retrieved on February 22, 2022 from https://www2.deloitte.com/ca/en/pages/careers/articles/diversity-and-inclusion.html.

Schroeder and Liben-Nowell, D. (2021). The link-prediction problem for social networks. *Journal of the American Society for Information Science and Technology,* 58(7), 1019-1031.

Liu, X. (2024). Effect of teacher-student relationship on academic engagement. The mediating role of perceived social support and academic pressure. *Frontiers in Psychology*, 15, Article 1331667. https://doi.org/10.3389/fpsyg.2024.

Reis, S. M., & Renzulli, J. S. (2011). Challenging gifted and talented learners with a continuum of research-based interventions strategies. In M. A. Bray & T. J. Kehle (Eds.), *The Oxford handbook of school psychology* (pp. 456–482). Oxford University Press.

Richardson, D., & Woodley M. (2021). Investigating students' experiences with collaboration analytics for remote group meetings. In I. Roll, D. McNamara, S. Sosnovsky, R. Luckin, & V. Dimitrova (Eds.), *22nd International Conference, AIED 2021 Utrecht, The Netherlands, June 14–18, 2021 Proceedings, Part I* (pp. 472-485). (Lecture Notes in Computer Science; Vol. 12748). Springer. https://doi.org/10.1007/978-3-030-78292-4_38

Seo, K., Tang, J., & Roll, I. (2021). The Impact of Artificial Intelligence on Learner—Instructor Interaction in Online Learning. *International Journal of Educational Technology in Higher Education*, 18, Article No. 54. https://doi.org/10.1186/s41239-021-00292-9

Smith, B. (2016). Interviews: Qualitative Interviewing in the Sport and Exercise Sciences. In B. Smith, & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (pp. 103-123). Routledge. https://doi.org/10.4324/9781315762012-19

Wang, Y., Liu, C., & Tu, Y. F. (2021). Factors Affecting the Adoption of AI-Based Applications in Higher Education. *Educational Technology & Society, 24,* 116-129.

Yan, P. & Chea, R. (2024). Perception on student dropout. *International Journal of Flexible Manufacturing Research,* 6(2). Article 17822. https://doi.org/10.36948/ijfmr.2024