

DIGITAL DIVIDE AND ITS PSYCHOLOGICAL IMPACT ON STUDENTS' ACADEMIC SELF-CONCEPT IN AI-SUPPORTED LEARNING ENVIRONMENTS

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Abstract

The digital disparity is still a major obstacle to successfully deploy Artificial Intelligence (AI)-mediated learning environments. This paper investigates the psychological consequences of digital inequality on the academic self-concept of students, or how digital disparities affect their view of their academic capabilities. The present quantitative investigation focuses on how the digital divide has a psychological effect on the academic self-concept of 300 university students in AI learning settings. Data were gathered by a structured questionnaire that measured the access of AI technology and the academic self-concept, which is measured by a validated self-concept scale. They were investigated with the help of such statistical tools as correlation or regression analysis to reveal the connection between the availability of AI tools and self-perception of academic performance by students. The findings indicated that there was a significant negative relationship between the low access to AI technology and low scores in academic self-concept. Students who had more access to AI resources had a more positive academic self concept. These results highlight the urgency of the issue of digital inequality, which is necessary to improve the academic performance in AI-enhanced learning settings.

Keywords: Digital divide, academic self-concept, AI-supported learning, university students, quantitative study, technology access.

Introduction

The rapid integration of Artificial Intelligence (AI) into higher education has transformed instructional delivery, assessment practices, and student engagement. AI-based learning systems, adaptive tutoring systems, as well as generative artificially intelligent models including ChatGPT, META, Gemini etc, are now being placed as means to personalize learning and enhance academic performance. There is empirical evidence indicating that AI-based educational tools have the potential of improving efficiency, motivation, and performance in

learning (Byers, 2024; Echiverri et al., n.d.). Besides, AI-mediated teaching has been linked to the increase of psychological constructs, including self-esteem, mindfulness, and academic confidence (Hou, 2025; Xiao et al., 2024). Although such positive trends are observed, AI technologies are not equally available. The continuity of digital divide creates a significant obstacle to the equal involvement in the AI-enhanced learning settings and could potentially affect the psychological development and academic self-concept of students.

Digital divide is a traditionally referred term to differences in access to digital infrastructure, equipment, connectivity, and technological fluency. This disparity is not limited to accessing the internet in AI-assisted contexts and ranges to the variability of exposure to highly developed AI technologies, dynamic platforms, and smart response mechanisms. Since AI-driven education changes the ways of interaction between teachers and students, as well as the principles of how learning occurs (Yan et al., 2025), inequitable access to implementation could create not only academic achievement disparities but also the difference in how the students view their own capabilities. Since the use of AI-mediated platforms is becoming more widespread, restricted access can cause students to feel less competent or less competitive in digitally mediated learning environments.

Academic self-concept: This is a key psychological construct, which is related to motivation, persistence, and achievement, and it is defined as individual perception of their academic abilities and their competence. It has always been found that positive academic self-concept can predict better academic performance and adaptive learning behaviour. In the context of the AI-assisted learning, a number of studies suggest that AI-interventions are able to boost the self-esteem and self-concept of students. As an illustration, self-concept positive change has been seen in concept-based activities with the support of AI in elementary learners (Ayaz et al., 2025). On the same note, AI counseling interventions are also associated with improved self-esteem in high school students (Bolen, 2024). The AI-powered systems have been linked to the enhancement of self-esteem, emotional control, and academic pleasure in the context of online language learning (Xiao et al., 2024). Such results indicate that artificial intelligence technologies could act as psychological facilitators in case access and participation is fair.

Nonetheless, the psychological effect of AI is also complex as noted by the emerging scholarship. Although AI tools have the potential to foster confidence and efficiency, they can also foster the sense of inadequacy or impostor syndrome in case students will contrast their performance with AI-generated outputs (Domingo, 2025). The overlaps of self-esteem, academic mindfulness, and emotional experiences have been reported in AI-supported English as a Foreign Language (EFL) settings, which proves that AI-mediated learning may affect the psychological condition and resultant performance of students (Hou, 2025). Also, the impact of AI on the emotional well-being of adolescents highlights the socio-emotional implication of the implementation of technologies in learning institutions (Simos et al., 2026). These results suggest that the psychological impact of AI depends on the context and is mediated by the experiences of students and their levels of access.

In this context, the digital divide gains a greater psychological importance. Individualized feedback, adaptive scaffolding and increased engagement may be advantageous to students who have regular use of AI-supported tools, and this can support the sense of mastery and competence. Conversely, those students who have limited or intermittent access can have fewer practice opportunities, less exposure to sophisticated learning tools, and lose confidence in working with AI-enhanced settings. The difference in access can thus be a cause of differentiated growth of academic self-concept. When the peers use AI tools to enhance performance and productivity properly, students who do not have access to these might internalize the perceived disadvantages as personal inadequacies instead of institutional injustices.

Moreover, education based on AI is becoming the part of general teaching design (Yan et al., 2025). Since AI is turned into a new norm in schools, technological skill and access can become tacit indicators of proficiency. Such a change can enhance the psychological implications of digital inequality. Students who are less exposed to AI might find it hard to not only cope with academic activities but also judge their abilities self-evaluatively. On the other hand, individuals with strong access can also feel more motivated and positive about themselves, since AI solutions can make learning more effective and successful (Byers, 2024; Echiverri et al., n.d.). Therefore, the digital divide can indirectly define academic self-concept by providing learning experiences and academic outcomes that are different.

Even though earlier researchers have analyzed the role of AI on self-esteem, academic confidence, and motivation (Ayaz et al., 2025; Bolen, 2024; Hou, 2025; Xiao et al., 2024), there is a relative lack of studies that have explicitly explored the role of disparities in AI access on academic self-concept among students in a higher educational setting. The majority of current studies are aimed at the positive aspects of the AI intervention and not at the psychological prices of exclusion. The connection between AI access and academic self-concept is crucial to inform the equitable educational policy and to make sure that technological innovation does not contribute to the existing inequalities.

This gap is filled by the current quantitative research based on investigating the psychological effects of digital inequality on the academic self-concept of university students in AI-based learning conditions. In particular, it explores the connection between the access to AI technologies and self-perceived academic competence among students through the use of structured questionnaires and statistical models. This paper provides a more delicate perspective of the digital divide as a structural and psychological phenomenon by determining whether a lack of access to AI tools is correlated with a lower academic self-concept.

Problem statement

Even though the use of AI-based learning technologies has rapidly gained popularity in higher education institutions, inequalities in access to devices with AI capabilities, high-quality connectivity, and premium AI services remain commonplace. It is possible that this digital divide not only decreases the learning opportunities of students, but also harms their academic self-concept because it does not allow them to enjoy the benefits of AI-mediated feedback, efficiency, and performance gains reported in AI-sustained settings (Byers, 2024; Echiverri et al., n.d.). Nevertheless, the mental effect of the inequality in AI access among university students on their academic self-perception has been not explored through quantitative studies.

Research objectives

1. To measure university students' level of access to AI-supported learning technologies (e.g., devices, connectivity, AI tools/platforms).
2. To assess university students' academic self-concept in AI-supported learning environments using a validated self-concept scale.
3. To determine the relationship between AI technology access and academic self-concept.
4. To examine whether AI access significantly predicts academic self-concept outcomes among university students.

Research questions

1. What is the level of university students' access to AI-supported learning technologies in AI-mediated learning environments?
2. What is the level of academic self-concept among university students learning in AI-supported environments?
3. Is there a significant relationship between access to AI-supported learning technologies and students' academic self-concept?

4. To what extent does access to AI-supported learning technologies predict students' academic self-concept in AI-supported learning environments?

Literature Review

AI-Supported Learning Environments and Academic Outcomes

The introduction of Artificial Intelligence (AI) in education has been a major transformer of both the processes of teaching and learning, the planning of instruction and student interaction. The AIs used in learning are adaptive tutoring systems, automated feedback systems, content generators based on AI, and chatbots like ChatGPT. These are devices, which are becoming more popular to customize learning, improve efficiency, and offer instant feedback, thus changing the academic experiences of students (Yan et al., 2025). AI-based education does not only alter the way instruction is provided but also transforms the relationship between teachers and students so that it could be data-driven and sustainable in its approach to instruction.

Evidence shows that AI-based tools can enhance academic performance and efficiency in learning. Echiverri et al. (n.d.) considered ChatGPT as a mediating educational resource and found that in effort-talent-based settings, the academic performance and self-concept of academic achievement were observed to be improved. According to their results, AI tools can be used as cognitive scaffolds, to assist students to refine understanding, clarify misconceptions, and do so to enhance the rate of task completion. Likewise, the study by Byers (2024) has demonstrated that AI-based education resources have a positive impact on the motivation of students in online learning environments, which emphasizes the importance of AI adoption in enhancing engagement and persistence.

Other studies in the field of language learning also indicate the beneficial educational effects of AI. Xiao et al. (2024) examined the use of AI in online language learning and revealed a significant correlation between the use of AI and self-esteem, emotional control, academic enjoyment, and language achievement of the learners. AI systems seemed to improve cognitive as well as affective learning; the adaptive feedback and the methods of structured support. The results are consistent with the study by Hou (2025), who investigated the idea of AI-supported environments in English as a Foreign Language (EFL) learners and found that there were much more intersections between self-esteem, academic mindfulness, emotional experiences in the course of testing, psychological wellness, and academic success.

Concept-based activities with the help of AI have also proved to be beneficial in development at the school level. According to Ayaz et al. (2025), elementary students who were subjected to science activities supported by AI showed an improvement in the development of self-concepts. Similarly, Bolen (2024) discovered that AI counseling interventions strongly enhanced the level of self-esteem among high school students in a quasi-experimental study. All these studies point to the fact that AI technologies can have a positive effect on academic performance and psychological constructs that are at the heart of learning success.

Academic Self-Concept in AI-Mediated Contexts

Academic self-concept is the way the students feel about their academic competence and ability. It is a multidimensional construct that is related to motivation, achievement, persistence, and emotional well-being. In the context of AI-assisted learning, academic self-concept can be influenced on the quality of feedback, mastery, and communication between students and intelligent systems. Some of the studies point to the positive psychological effects of AI integration. True to the expectation, Hou (2025) discovered that emotional control and academic performance had a strong correlation with self-esteem and academic mindfulness in AI-assisted EFL environments. The results indicate that AI-mediated responses and systematic learning trajectories may lead to the improvement of self-concepts of competence. Similarly, Xiao et al. (2024) also showed that AI-assisted online learning environments had a positive

effect on both self-esteem and academic enjoyment of learners, which are directly connected to academic self-concept.

AI tools can also be used as mediators that facilitate the feeling of competence through prompt support and minimization of uncertainty in academic activities. Echiverri et al. (n.d.) found a positive response to the use of ChatGPT by students, with greater difference in academic self-concept in a setting where performance indexing is more than talent and ability. This research indicates that there is a possibility of AI systems endorsing growth-related ideologies when applied positively. Moreover, Ayaz et al. (2025) observed statistically significant improvements in the self-concept of students when concept-based learning was administered with AI-based activities in science-based instructions.

However, AI does not have an entirely positive psychological effect. Domingo (2025) conducted a study on AI-induced impostor syndrome in ESL learners and determined that AI-motivated tools have the potential to enhance the feelings of inadequacy and academic self-doubt in certain students. Comparisons may cause a lack of confidence instead of confidence when students feel that AI is better than their work. This dynamic highlights the complexity of the role of AI in academic self-concept and implies that psychological outcomes are a factor of circumstantial and personal contexts.

The general emotional implications of AI also manifest in the wider educational context. Simos et al. (2026) investigated the topic of AI and emotional well-being of adolescents as well, highlighting that the introduction of technology also has an impact on emotional development, as well as academic performance. These results suggest that AI-based learning conditions can influence the self-perception of students, their emotional control, and well-being. In turn, academic self-concept in the context of AI mediation should be perceived as the outcome of the interplay of technological availability, learning experience, and emotional reaction.

Digital Divide and Psychological Implications in AI-Supported Learning

Though AI-assisted learning proves to have a potential to enhance academic and psychological results, the lack of digital access in some cases is also a pressing issue. The digital divide includes disparities within access to gadgets, reliable online connectivity, technological literacy, and enhanced AI applications. This gap can be applied to AI-enhanced learning settings in terms of dissimilarity in exposure to adaptable platforms, high-quality AI options, and customized feedback mechanisms.

With AI becoming a key educational practice (Yan et al., 2025), the access to AI tools can affect the perceptions of competence of students. Adaptive support, immediate feedback, and increased productivity can be used to benefit students with consistent access, which may have a strong impact on their academic self-concept. According to Byers (2024), AI-based tools have proven to increase motivation, which is directly related to the development of self-concept. On the same note, Echiverri et al. (n.d.) also found that when students were able to effectively use AI tools, their academic performance and self concept improved.

In its turn, the possibility of a restricted access to AI technologies might limit the opportunities to learn and be exposed to customized support. Student accessibility may also make students feel less competent in situations where peers are using AI tools to achieve the efficiency and performance gains. These positive psychological implications to be found by Hou (2025) and Xiao et al. (2024) might be conditional on a fair access. In the absence of proper access, students might not achieve the confidence building advantages of AI-mediated feedback and guided learning.

In addition, the potential threat of AI-driven impostor syndrome that Domingo (2025) described implies that the variations in familiarity and proficiency could be possible to increase the negative self-perceptions. Lack of experience with AI tools can make the students feel more anxious or self-doubtful upon having to work in AI-enhanced systems. Simos et al. (2026) also

re-emphasized that emotional well-being depends on technological context, something that supports the idea that digital disparities have the potential to affect psychological aspects other than the academic performance.

Despite already existing studies that identify the positive effects of AI on self-esteem, self-concept, and motivation (Ayaz et al., 2025; Bolen, 2024; Hou, 2025; Xiao et al., 2024), little empirical focus has been placed on analyzing the impact of unequal access to AI technologies on the academic self-concept in higher education. The majority of researches concentrate on the results of the intervention and not structural inequalities. Since the process of AI-collaborated learning is becoming increasingly normalized, disparities in access can drive the development of unequal psychological patterns among students.

Theoretical Framework

The current research is based on Self-Concept Theory and Technology-Enhanced Learning Perspective in the context of AI-mediated learning.

1. Self-Concept Theory

Academic self-concept is a concept that entails the perceptions of students towards their academic ability and competence. It is built up by performance experiences, feedback, social comparison and environmental reinforcement. Intelligent systems used in the learning environment based on AI offer ongoing feedback, adaptive scaffolding, and performance analytics, all of which can impact self-judgment. Good mastery experiences and positive AI-mediated feedback will probably enhance academic self-concept, and the lack of access to these systems is likely to decrease the possibilities of competence reinforcement.

2. Assisted by AI, Learning and Psychological Mediation

It has been shown that AI-powered applications do have an impact on motivation, self-esteem, academic mindfulness, and confidence (Ayaz et al., 2025; Bolen, 2024; Hou, 2025; Xiao et al., 2024). The AI tools are mediators between cognitive and affective learning processes (Echiverri et al., n.d.). Nevertheless, the differences in the accessibility of AI can change these psychological advantages. Students, who do not get enough exposure to AI systems, are at risk of having low academic performance, mastery experiences, and confidence. On the other hand, an increase in AI can boost motivation and academic performance (Byers, 2024; Yan et al., 2025), hence, reinforcing academic self-concept.

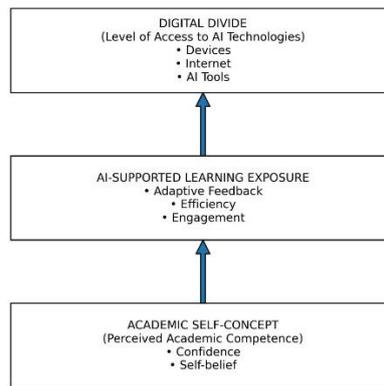
3. Digital Divide as a Structural Predictor

In this context, the digital divide (measured as access to AI technologies) will be an independent structural variable with an effect on academic self-concept of students. The model assumes:

- Availability of AI tools - More learning assistance and feedback and engagement.
- Greater support- Improved academic confidence.
- Poor accessibility means less reinforcement and even doubt to self.

Therefore, academic self concept is theorized as a psychological phenomenon that is brought about by the degree of access to AI technology in learning settings.

Conceptual Framework



Research Methodology

The research design used in this study was quantitative, cross-sectional survey to study the psychological effect of digital divide on the academic self-concept of university learners studying in AI-based learning devices. The sample of 300 university students was estimated based on the institutions where AI-mediated learning support tools were applied. The structured questionnaire was utilized to gather data based on two primary elements: (a) access to the AI technology (e.g., the access to appropriate devices, access to the internet, and access to AI educational resources and platforms), and (b) academic self-concept assessed with an academic self-concept scale that was successfully validated. Before analysis, the responses were filtered in terms of completeness and coded to perform statistical analysis. The levels of AI access and academic self-concept of the participants were summarized using descriptive statistics. Analysis was done using Pearson correlation in order to identify the direction and strength of relationship between the access to AI technology and academic self-concept scores. Analysis with the use of simple linear regression was further used in determining the predictive value of AI access in academic self-concept in AI-supported learning environment. The statistical significance was compared to the standard alpha levels and the results were discussed to assess whether the less access to AI technology was associated with the lower academic self-concept in accordance to the assumptions of the study.

Results and Findings

Table 1

Descriptive Statistics for Study Variables

Variable	Mean	SD	Minimum	Maximum
AI Technology Access	3.42	0.76	1.20	5.00
Academic Self-Concept	3.58	0.68	1.50	5.00

Table 1 presents the descriptive statistics for the two main study variables: AI Technology Access and Academic Self-Concept. The mean score for AI Technology Access ($M = 3.42$, $SD = 0.76$) indicates a moderate level of access among university students. This suggests that, on average, students reported relatively favorable but not optimal access to AI-supported learning tools. The minimum value of 1.20 and maximum value of 5.00 reflect substantial variability in access, indicating that while some students experience very limited access, others report full access to AI technologies.

Similarly, Academic Self-Concept shows a mean of 3.58 (SD = 0.68), indicating moderately positive perceptions of academic competence. The range (1.50–5.00) suggests variability in students’ academic self-beliefs. The slightly higher mean for academic self-concept compared to AI access suggests that students generally perceive themselves as academically capable, even though access to AI resources is not uniformly high. The relatively moderate standard deviations for both variables indicate acceptable dispersion without extreme variability.

Table 2

Pearson Correlation Between AI Technology Access and Academic Self-Concept

Variable 1	Variable 2	R	p-value
AI Technology Access	Academic Self-Concept	.47**	.000

Table 2 presents the Pearson correlation between AI Technology Access and Academic Self-Concept. The correlation coefficient ($r = .47$, $p < .001$) indicates a moderate, positive, and statistically significant relationship between the two variables. This means that students who report higher levels of AI access tend to report higher academic self-concept.

The p-value (.000) confirms that the relationship is statistically significant at conventional levels, suggesting that the association is unlikely due to chance. The magnitude of the correlation (.47) indicates a meaningful relationship, though not a strong one, implying that AI access is an important but not sole contributor to academic self-concept.

Table 3

Simple Linear Regression Analysis Predicting Academic Self-Concept

Model Summary

R	R ²	Adjusted R ²	Std. Error
.47	.22	.22	0.60

Table 3.1

ANOVA

Source	SS	df	MS	F	p-value
Regression	31.68	1	31.68	87.94	.000
Residual	107.35	298	0.36		
Total	139.03	299			

Table 3.2

Coefficients

Predictor	B	SE	Beta	t	p-value
(Constant)	1.84	0.19	—	9.68	.000

Predictor	B	SE	Beta	t	p-value
AI Technology Access	0.51	0.05	.47	9.38	.000

Table 3 showed the regression model summary shows that AI Technology Access significantly predicts Academic Self-Concept. The correlation coefficient ($R = .47$) matches the Pearson correlation value, confirming consistency between analyses. The coefficient of determination ($R^2 = .22$) indicates that 22% of the variance in academic self-concept is explained by AI technology access.

An R^2 value of .22 represents a moderate explanatory power in social science research, suggesting that AI access is a meaningful predictor, although other variables also influence academic self-concept. The adjusted R^2 (.22) confirms that the model remains stable after adjusting for sample size. The standard error of estimate (0.60) indicates a reasonable level of prediction accuracy.

The ANOVA table 3.1 confirms that the regression model is statistically significant, $F(1, 298) = 87.94$, $p < .001$. The significant F-value indicates that AI Technology Access significantly improves the prediction of Academic Self-Concept compared to a model without predictors.

The regression sum of squares (31.68) compared to the residual sum of squares (107.35) shows that a substantial portion of variability in academic self-concept is explained by AI access. The statistical significance reinforces the reliability of the regression findings.

The regression coefficients indicate in table 3.2 that AI Technology Access is a significant positive predictor of Academic Self-Concept ($B = 0.51$, $\beta = .47$, $t = 9.38$, $p < .001$). The unstandardized coefficient ($B = 0.51$) suggests that for every one-unit increase in AI access, academic self-concept increases by approximately 0.51 units.

The standardized beta coefficient ($\beta = .47$) confirms a moderate effect size, consistent with the correlation analysis. The statistically significant t-value further confirms that AI access contributes meaningfully to predicting academic self-concept. The constant ($B = 1.84$) represents the expected academic self-concept score when AI access is zero.

Table 4

Mean and Standard Deviation of AI Technology Access Scale Items

No.	Statement	Mean	SD
1	I have reliable internet access for AI-supported learning.	3.61	0.89
2	I have personal access to a suitable digital device for AI use.	3.74	0.82
3	I can regularly access AI tools for academic purposes.	3.38	0.91
4	My institution provides adequate AI-based learning platforms.	3.21	0.88
5	I feel confident navigating AI learning systems.	3.29	0.85
6	I can afford paid AI learning tools if required.	3.18	0.94
7	AI tools are easily accessible when I need them.	3.46	0.87
8	I receive technical support when facing AI-related issues.	3.11	0.92
9	My learning environment encourages the use of AI technologies.	3.52	0.84

No.	Statement	Mean	SD
10	I have uninterrupted access to AI tools during assignments.	3.34	0.90
11	I have sufficient training to effectively use AI tools.	3.07	0.93
12	AI technologies are integrated into most of my courses.	3.26	0.88
Total Score		3.35	0.79

The item-level analysis of AI Technology Access reveals moderate overall access (Total $M = 3.35$, $SD = 0.79$). The highest mean was observed for personal access to digital devices ($M = 3.74$), indicating that most students possess appropriate hardware for AI-supported learning. Reliable internet access ($M = 3.61$) and institutional encouragement of AI use ($M = 3.52$) were also relatively high.

However, lower means were found for technical support ($M = 3.11$), affordability of paid AI tools ($M = 3.18$), and sufficient AI training ($M = 3.07$). These lower scores suggest that while basic access exists, structural and support-related aspects of AI integration remain limited. The standard deviations (ranging from 0.82 to 0.94) indicate moderate variability in access experiences across students.

Table 5

Mean and Standard Deviation of Academic Self-Concept Scale Items

No.	Statement	Mean	SD
1	I am confident in my ability to succeed academically.	3.66	0.78
2	I perform well in most academic tasks.	3.54	0.74
3	I understand complex academic concepts quickly.	3.47	0.81
4	I believe I can achieve high academic results.	3.71	0.76
5	I feel competent completing academic assignments.	3.59	0.73
6	I consider myself academically capable compared to peers.	3.50	0.80
7	I am satisfied with my academic performance.	3.55	0.77
8	I can overcome academic challenges successfully.	3.63	0.75
9	I learn new academic skills efficiently.	3.48	0.79
10	I am capable of meeting high academic expectations.	3.67	0.72
11	I feel confident participating in academic discussions.	3.44	0.83
12	I believe I have strong academic abilities.	3.60	0.76
Total Score		3.57	0.71

The Academic Self-Concept scale shows moderately positive perceptions overall (Total $M = 3.57$, $SD = 0.71$). The highest means were found for belief in achieving high academic results

($M = 3.71$) and meeting high expectations ($M = 3.67$), suggesting strong aspirational academic confidence among students.

Items reflecting task performance and peer comparison showed slightly lower means (e.g., understanding complex concepts quickly, $M = 3.47$; confidence in discussions, $M = 3.44$), indicating some variability in specific competence perceptions. Nevertheless, all item means are above the midpoint (3.00), suggesting generally positive academic self-perceptions.

The relatively consistent standard deviations (0.72–0.83) indicate moderate dispersion, suggesting that while most students report positive academic self-concept, differences in self-belief exist within the sample.

Discussion

The current research studied the correlation between access to AI technology and academic self-concept among university students who studied in AI-supported learning settings. The results indicated that there was a moderate, positive, statistically significant association between AI access and academic self-concept where the AI technology access had 22% variance in explaining the academic self-perceptions of students. These findings indicate that digital inequalities are not only structural or technological issues, but also psychological issues affecting attitudes of students towards their academic competence. The inequality in access, as AI becomes more deeply integrated into the higher education sector, can be one of the reasons why academic identities and the level of confidence among learners differ.

The correlation between access to AI technology and self-concept of academics is positive, which is in line with the earlier literature that indicates positive psychological impacts of AI-based learning tools. To give an example, Echiverri et al. (n.d.) discovered that ChatGPT served as a mediational factor that improved academic performance and academic self-concept, especially in settings where effort is valued but not talent. The existing results build on this insight and propose that these psychological advantages can be contingent on the possibility of students accessing and making use of AI tools. Students who have more access would probably tend to have more chances of mastery, structured feedback and performance of tasks which supports their beliefs of competence.

On the same note, Byers (2024) has indicated that AI-based educational technologies have a positive effect on student motivation in distance learning. Academic self-concept is closely connected with motivation because a student who believes that he/she is supported and capable will continue to work on academic tasks. The moderate value of the correlation in the given study indicates that the availability of AI can indirectly reinforce the self-concept through improvement of motivational processes. When AI tools automate learning processes and give feedback as soon as possible, students can perceive positive results by regarding them as an indicator of their own academic performance.

The results are also in line with the studies that show the importance of AI in enhancing self-esteem and psychological views. Hou (2025) showed that there was a considerable interrelation between self-esteem, academic mindfulness, emotional control, and academic performance in AI-assisted learning settings. On the same note, Xiao et al. (2024) also discovered that online language learning accompanied by AI had positive effects on the self-esteem of the learners, cognitive-emotion regulation, and academic enjoyment. All these studies point toward the fact that AI integration can promote positive affective and cognitive experience. The current findings indicate that students who have adequate access to AI tools can receive a comparable amount of reinforcement on academic self-beliefs.

Ayaz et al. (2025) also reported positive changes in self-concept at an earlier educational level, where elementary students were involved in concept-based science activities with the aid of AI. Bolen (2024) also discovered that AI counseling intervention was associated with a positive increase in self-esteem scores by students in high school. Even though the studies themselves

were conducted among younger groups of individuals, they enhance the tendency in general, according to which AI-assisted interventions may have a beneficial effect on the self-perception of students. The following research applies these results to the case of university students, proving that the access to AI technologies will still be psychologically relevant in the situation of higher education.

Nevertheless, the findings also highlight the necessity of structural inequality to be taken into account regarding AI integration. Although a significant part of the existing research has focused on the positive aspects of AI tools, less literature has focused on the psychological impacts of restricted access. The medium explanatory power ($R^2 = .22$) in this study shows that the access to AI is a significant predictor of academic self-concept, but not the only one. Students who have less access to AI can get fewer chances to have guided practice, feedback, and adaptive learning, which can result in lower beliefs in own academic competence.

Digital inequality has a psychological aspect that is especially relevant when it comes to the results presented by Domingo (2025), who discovered AI-related impostor syndrome in ESL students. Students that have limited access to or familiarity with AI tools can be relatively disadvantaged in situations where AI is widely adopted. Provided that peers enjoy AI-improved gains in performance, the students who are not affected may blame performance differences on personal failure instead of structural inequality. This dynamism can undermine academic self-concept and lead to self-doubt.

In addition, Simos et al. (2026) reiterated that the introduction of AI has a significant impact on the emotional state of adolescents in inclusive schools. Even though the current research was done among university students, the overall implication is that emotional and psychological development is influenced by technological contexts. Artificial intelligence can increase inequality where access is not equal. Constant exposure to AI systems will allow students to internalize positive reinforcement, but those who are left out can lose confidence.

The results of the regression which showed that the access to AI predicts academic self-concept confirm the assumption that technological access is closely coupled with psychological development. The education with AI changes the relations between teachers and students, as well as the learning process, as suggested by Yan et al. (2025). Within these changed environments, academic success might become the implicit requirement when using AI tools. Thus, the digital inequalities can be further broadened in the results of academic performance to also affect identity and self-confidence.

In spite of the fact that the study indicates that there is a strong relationship, the medium intensity of association indicates that academic self-concept is affected by various factors other than AI access. Emotional control, inspirational focus, mindfulness, and past success as addressed by Hou (2025) and Xiao et al. (2024) are probably interacting with technological access to influence academic perception of self. Thus, on the one hand, it is crucial to deal with digital inequality, but on the other hand, interventions must be based on broader psychological and pedagogical variables.

The results have significant implications on institutions of higher learning. Equitable access to AI tools, sufficient training, and technical support can also help not only boost academic performance but enhance academic self-concept in students. Unless specifically focused on narrowing digital inequalities, the implementation of AI can contribute to the expansion of psychological and educational inequalities.

Conclusion

The research paper is added to the body of literature on AI-assisted learning because it raises awareness of the psychological impacts of the digital divide. In line with the previous studies that showed that AI could positively contribute to motivation, self-esteem, and academic performance (Ayaz et al., 2025; Bolen, 2024; Echiverri et al., n.d.; Xiao et al., 2024), the

findings show that the access to AI technologies is positively linked to academic self-concept. Nevertheless, the imbalanced access can reduce these advantages and cause poorer academic self-perceptions. With the further development of AI in the educational system, it is crucial to encourage equal access to education to contribute to academic success and the psychological health of students.

Recommendations

1. Universities must make sure that they have fair access to AI the learning devices by offering institutional licenses, equipment support programs, and stable campus-wide internet access to reduce digital differences.
2. Educational institutions ought to have formal training programs, in order to increase technical competence and confidence of students to use AI tools effectively in academic activities.
3. The academic community needs to incorporate AI tools in a pedagogical manner with the focus on guided use and effort-based learning strategies to build the academic self-concept of students.
4. To minimize frustration and the possibility of negative self-perception, universities are required to create technical support systems that can help the students who are struggling with the challenges posed by AI.
5. The policymakers ought to set aside funds that specifically target lifting AI-related digital disparities, especially to the underprivileged students.
6. The psychological effect of AI implementation should be monitored in institutions, which can happen through regular evaluation of students academic self-concept and their well-being to assure that the AI-supported environments foster not only academic achievement but also positive self-beliefs.

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