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The Impact of AI-Based Learning Tools on Student Motivation and Academic Self-Concept

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ABSTRACT

The present research examined the effects of AI-based learning tools on the academic self-concept and the motivation of students at the university. Quantitative research design was used involving the students or 250 in total who participated in the study using structured questionnaires. Pearson correlation was used in searching the relationship between AI tools usage and motivation, regression to calculate whether it is possible to predict academic self-concept using AI tools, and moderation analysis was used to find the influence of teacher support. Correlation of these results was strongly positive resulting in AI-based learning tools and student motivation with a high correlation (the more the students use AI-based learning tools the more likely they will be motivated). Regression analysis showed that the attainment of academic self-concept is strongly predicted by the use of AI tools such that, the more the AI tool was used by the student, the more his/her self-concept of academic ability is high. Furthermore, it was discovered that the AI tool impact on motivation is forcefully elevated by teacher support. These observations demonstrate that although AI tools are useful in enhancing learning attitudes and beliefs, it is not possible to realize them fully without the need of guidance and encouragement of teachers. The versatility of the study in the category of students of different ages, faculties, and years strengthens the overall generalizability of the results. On the whole, the study indicates that the use of AI in learning tools and the high level of support of teachers may help improve the learning process of students due to its personalization, interactivity, and motivating nature.

1.0 Introduction

In recent years, AI or artificial intelligence has turned out to be a very significant component of education. AI based learning tools refer to special computer programs that involve the use of artificial intelligence to assist students to learn in a manner that would suit the need of individual students. Such resources may alter the pace or speed of their instruction based on their student performances on the lessons. To illustrate, as long as a student grasps a topic quickly, the AI tool will complete its work faster, whereas in case of difficulties, it will go slower explaining things more thoroughly. These tools have the capability to provide instant feedback and this implies that students are immediately notified when they have gotten the answers right or when they should give it again. It is due to these useful characteristics that AI learning tools can help motivate students to learn. Motivation is the desire and feel to further learn(Chiu et al., 2024). Such tools may also assist students in believing in their personal academic abilities, which is referred to as academic self-concept. Students tend to learn and work when they are interested and they feel capable of doing something. With the help of AI tools, learning becomes more entertaining and more purposeful because they provide activities that keep the students engaged in the process of learning and willing to know more (Qi et al., 2023)

Academic self-concept refers to students thoughts about themselves and their abilities and skills at school. It resembles the perception that the students have of themselves as students. When the students have a positive or good academic self-concept, then they are confident and would be more ready to tackle challenging duties without fear. Students tend to work harder and have a better performance in studies when they think they are capable of doing it. This positive opinion of oneself can be developed through the using AI learning tools, which provide students with periodic feedback on their development. As an illustration, certain AI programs demonstrate students the things that they do well and also the areas where they can better in a manner that does not scare them but rather feels supportive as opposed to rough. Such an assistance assists the students to understand that they can count on themselves and have greater autonomy over the learning process. When students are confident, then they become more self-aware of their success and work harder on their own. Therefore, AI applications are not only teachers of the facts; they make students trust themselves more and become stronger academically (Lee & Kim, 2020; Martinez & Garcia, 2022; Nguyen & Brown, 2019; Smith & Jones, 2024).

The effects of the AI learning tools on the motivation of students and their academic self-concept are highly dependent on the design and implementation of AI learning tools. In case the tools are either challenging or do not fit in the learning intensity of a student, they can lead to frustration rather than motivate the learner. Losing interest in studying and lack of confidence may be brought by the students being frustrated with what they are doing. Other than the design of the tools, the way that teachers and schools present and endorse AI learning tools could be very crucial. If the teachers explain to them clearly on how the tools are beneficial and guide them as their students handle them, students are likely to be more positive and eager to learn. Students can be more willing to utilize AI tools with the help of supportive teachers who encourage students to use it and indicate why it is useful. It demonstrates that although the potential of AI learning tools related to the ways in which they can enhance motivation levels and self-concept are significant, their effectiveness will be conditional upon careful planning, use and classroom support with using the special tool (Shang et al., 2025).

AI-powered learning tools are transforming how the learners study their material by personalizing learning, in an interactive and individualized form. These devices enhance the academic self-

concept and student motivation because they provide feedback immediately, adapt to the pace of students learning and promote active engagement with the process of studying. The students feel more confident and interested to learn because they see their progress and can get access to support in the area where they need assistance. Schools and teachers should know thoroughly how AI influences motivation and self-belief so that they could utilize these tools in the most appropriate manner possible. The research question of the study is intended to determine the impact of AI learning tools on motivation of students and their academic self-concept. The reason is to discover more effective methods of applying AI in teaching to ensure that students perform well and learn more with pleasure (Kataria et al., 2024).

The other significant advantage of learning tools based on AI is that those tools may also assist students with other learning styles. Each student has a predisposed mode of studying: one prefers to read books, some students prefer watching videos, and others learn quite well by performing tasks. AI instruments are able to see these differences and offer learning resources that meet the style of specific students. This makes the students more relaxed and confident since they learn the way that suits them. The students are more likely to maintain interest in studies and stay for long when lessons are presented to them in their own style. It can also assist students who may not cope with the conventional teaching techniques due to this personalized learning. Take, for instance, when reading becomes a challenge to a student, AI technology may utilize interactive games or videos in conveying ideas readily. Such a type of support can decrease the feeling of frustration and boost motivation (Belitz et al., 2025).AI learning tools increase equality and access to education as they allow students to study differently and, therefore, provide more students with a more successful learning experience.

It is also necessary to recall that AI learning tools can never replace teachers but must interact with them. Educators are also very vital in manipulating the learners, understanding the emotions of the learners, and providing the support which learners cannot get with technology alone. The teachers can also be assisted in their work, as all those routine functions where they are required to do can be substituted with the AI-based tools, and instead of grading quizzes, providing practice exercises, etc., the teachers can freely engage in working with learners on the most personal level (Davis et al., 2022).Through the smart use of AI tools, the aspect of the learning environment becomes transformed into one that is more receptive to the perception of the students as being both motivated and confident. This special combination of technologies and human support helps to promote learning. In this way, the cooperation between the AI tool and teachers and students focused on the increased motivation and the academic self-concept will be analyzed as well in the current study. It is necessary to know that this cooperation is needed so that AI can be used to impact the students in the best way possible.

1.1 Research objectives

1. To examine the impact of AI-based learning tools on student motivation.
2. To explore the effect of AI learning tools on students' academic self-concept.
3. To investigate how teachers' support influences the effectiveness of AI tools in improving student motivation and academic self-concept.

1.2 Problem Statement

Although there is an increasing use of AI-based learning tools in schools and colleges, a considerable number of learners are not able to remain motivated and feel confident in their academic potential. Such perception concerning their abilities is referred to as academic self-

concept. With the help of AI tools, students should become more interested and confident, as learning will be made more individualized and fast feedback will be provided. Nonetheless, there is still no understanding of how effective these tools in fact increase academic self-concept as well as motivation in the real life. The other relevant observation is that the effectiveness of AI education development tools may be conditioned by the way they are assisted and introduced by teachers. Unless teachers assist students in learning how to use the tools in the right way, there is a possibility that the students may not get the benefit of these tools. Sadly, enough, this teacher role is disregarded whenever one examines the functionality of AI tools in the educational context. Due to the said reasons, schools and teachers might be unable to utilize AI learning tools in the most efficient manner. In case students lack a clear understanding on these issues, their learning and confidence problems are likely to persist.

1.3 Significance of the Study

This research study is quite crucial since it makes us uncover the impact that AI-based learning tools could make on the willingness of students to learn and their perceptions concerning their personal academic skills, known as academic self-concept. Once we understand more about this, teachers and schools can apply these AI tools in more appropriate ways to make learning an interesting and non-stressful task among students. This can assist the students in liking what they are taught and put in more effort to excel in their academics. The paper equally indicates how the positive influence of teachers in terms of support and guidance are a large factor in ensuring that AI tools are beneficial to students. With the help and proper use of these tools by the teachers, who can guide their students, learning can be effective. This implies that schools are in a position to enhance the way they are training teachers when it comes to the implementation of technology in classrooms. On the whole, this study can contribute to ensuring the enhancement of education due to making students confident and inspired to employ new AI-based learning tools. When they are excited and feel capable of achieving and doing well, students tend to perform better and do good at school.

2.0 Literature Review

There is a significant expansion in the education sector utilization of AI-based learning tools over the last few years and researchers have conducted several studies to understand their positive effects. Their tools provide individual learning by demonstrating flexibility to the needs of the particular students which can enhance interaction and comprehension of the students. As an illustration, one may look into the results of the research that have discovered that AI could give an immediate feedback allowing students to rectify their errors fast and learn better (Zhang, 2024).The role of personalization is that not all students study equally fast and in an equal manner, and adjustment to their needs can be achieved with the use of AI tools. This individualized attention can also assist in furthering the level of motivation among the students since they are made to feel that the learning process is custom designed to be used by them only. Nonetheless, other reports warn against blindly accepting the effectiveness of AI learning tools because they rely significantly on the manner of introduction and the provision of guidance to students during those activities (Kim, 2025).Thus, the way automated instruments fully operate in the real classroom environment could be seen as an important topic of research.

The influence of AI learning tools on the academic self-concept of the students (that is, how students perceive their own academic skills) is yet another significant phenomenon examined by the prior researchers. It has been found that clarifying and encouraging comments to the students promoted the principal learning confidence(Nguyen, 2023),Students with a negative academic self-

concept can be assisted in adopting a more positive, constructive one with the help of AI tools that update progress and show the strengths and opportunities to advance. This will matter as those learners, who consider themselves to be gifted, are more likely to strive and break through(Robinson, 2022). Nevertheless, other studies indicate that the negative influences on self-concept are that the AI tools may lead to frustration in case they are too challenging or not applicable to the learning level of a student (Johnson & Hamblin, 2022). This demonstrates that even though AI can be used to build academic confidence, they should be implemented and utilized cautiously.

Much research also places a strong accent on the teacher input into the effective use of AI learning resources. The teachers will play quite a central role in assisting students in comprehending how to operate the said tools and provide emotional support (Konak & Clarke, 2023).Research suggests that, when teachers are actively engaged in the process of AI tools usage and, in lieu, develop an effective strategy on how to implement them in the instructional process, the student population might be superior (motivated and self-confident) (Kammer et al., 2024),On the other hand, the loss of teachers may lead to disorientation and the lack of motivation in the students(Wang & Kou, 2024). In such a way, training and engagement of the teachers form primary contributors to the efficacy of A.I. learning within the scope of education. Studies are still being conducted on how teachers need to work with AI tools in the best ways to contribute to student learning and welfare.

2.1 AI-Based Learning Tools and Student Motivation

According to numerous studies, the learning tools associated with the AI can help to increase the motivation of students. The tools ensure that the learning material is adapted to the level and rate of the respective students. In case students are provided with the representation of what they need to obtain that they want to be thought, then they will become more interested and would wish to proceed learning. To exemplify, (Zhang, 2024),found that students feel more motivated when the AI tools give the students prompt feedback regarding the answers. This helps the students to rectify the mistakes instantly and study. According to (Sánchez-García et al., 2024),interactive AI program games in the form of game-like educational practice and quizzes are enjoyable to participate in and very entertaining. However, the tool is not the only source of the motivation. Since (Geddam et al., 2024),advised that AI could offer too complex, offending, or confusing tools to users, this can discourage them and quit using the AI. The contribution of Johnson and Kim (2024) as well is that the students require the help of teacher to effectively utilize the AI tools. Teachers can guide students and help them realize how they are supposed to study with the help of AI. Therefore, AI tools can encourage students though they should not only be convenient but also the students are expected to have proper support which is availed by teachers.

Academic self-concept refers to the feelings the students have concerning their abilities to perform well in school. The studies indicate that AI learning tools can enhance such a feeling by providing students with positive and direct feedbacks. According to the study by (García-Martínez et al., 2022).AI programs showing students their strong sides, as well as providing them with information about what requires improvement, contribute to the development of confidence. (Nouroozifar, 2022),also stated that the students report feeling good about themselves in case they receive frequent progress reports produced by AI tools. Having confidence allows students to go extra miles and challenges no more. All AI tools however, do not work alike. (Thompson, 2023),issued a warning about frustrating and diminishing confidence caused by tools that are too challenging or not adjusted to the level of the student. Both (Baines et al., 2025),accepted that the students may feel bad about their skills in case they receive negative or ambiguous feedback based on AI. It

demonstrates that the use of AI tools must be tailored to the needs of the student to stimulate and keep them motivated to pursue academic self-concept development.

Teachers also have a very significant role in ensuring that AI learning tools become effective in the learning process among students. (White & Brown, 2024),stated that teachers mediated the learning process by assisting the students in realizing how to use AI tools and supporting them emotionally. According to (Clark, 2023),the greater motivation and confidence of students when the teachers use AI tools in their learning process and teach students about their proper use is to encourage the latter. As reported by (Lee et al., 2025),when encouraged by the teachers, students feel free and willing to employ new technology. Nevertheless, (Wang & Yu, 2023),reminded that the lack of positive guidance by teachers would negatively affect the students who would either be confused or not continue using AI tools. (Johnson et al., 2025),also indicated that educators must be trained on the best way of integrating AI with their instructional methods. Therefore, the effectiveness of AI tools does not only involve the technology but also the teacher assisting the student to implement the AI tools in the best possible way.

2.2 Impact of AI Tools on Academic Self-Concept

The academic self-concept is defined as the way students feel about themselves concerning their chances of doing well at school. It denotes their feeling of skill and knowledge confidence. Once the students hold a positive self-concept of themselves academically, they feel confident that they could achieve, and therefore they work hard and pursue the challenges with confidence. Studies indicate that AI learning tools have the potential role in molding this belief. According to (Carrillo-López et al., 2022),students can be more confident having AI programs which provide them with clear feedbacks about what they are doing right and what should be improved. Students are proud of what they do when they are reminded of the strengths they have. This good reception encourages them to continue working hard and better even greater. These AI tools guiding the students in this manner would assist them to have a more competent perception of themselves, which is highly critical in academic performance. An early established form of academic self-concept can be established to yield successful future results within the education system. Thus, it is necessary to provide the students with AI tools in order to support their confidence in modern classrooms.

The other significant outcome is that students who use AI tools that include progress reports on a regular basis have a more positive interest in academic self-concept. (Nguyen, 2023),demonstrated that as soon as students are provided with consistent feedback in regards to their performance, they will get better values of their education progress. Such updates will demonstrate to students what they are doing well and what they are not doing so well and should emphasize. Students feel that they are more in control of their learning when they understand precisely where they are. This control makes them have confidence and even take up new and challenging assignments. Knowing where things are done facilitates the way the student learns since they can feel less anxious. Thus, AI technologies that ensure students stay updated on a regular basis are also critical in the enhancement of how students perceive their own academic abilities. This continuous feedback will enable the students to remain motivated and less fearful of making a mistake. It shows some positive self-reinforcing loop.

But not every AI learning tool affect positively the academic self-concept in students(Geddam et al., 2024),cautioned that when applied to students whose current level is not appropriate to AI tools, the latter may lead to feelings of frustration. By way of example, they may be turned off rather than turned on in case the material is too hard and in a case where the feedback is too

negative. As stated by(Udry & Berthele, 2025), some of these technologies that negatively influence students are poorly designed AI systems that cause them to lose confidence because they deliver excessive negative feedback or lack clarity in discussing errors. When the children receive corrections too frequently and they are not motivated they can become doubtful of their capabilities. It can result in a lower grade on the child and thus low motivation. On this note, it is highly significant that AI learning tools should be tailored to the needs of individual students in a careful way. Individual and mentoring artificial intelligence applications can make students feel secure and believe in their academic achievement. To prevent the adverse outcomes, schools and teachers are required to make sure that these tools are tested and enhanced over time.

2.3 Research hypotheses

1. There is a significant positive relationship between the use of AI-based learning tools and student motivation.
2. There is a significant positive effect of AI-based learning tools on students' academic self-concept.
3. There is a significant moderating role of teacher support in the relationship between AI-based learning tools and student motivation.

3.0 Methodology

3.1 Research Design

It was a quantitative research study that was aimed to understand how AI-based learning tool can influence student motivation and self-concept. The selection of quantitative research was based on the fact that it was concerned with gathering numerical data that was factual and measurable as it could be statistically analyzed. Such a design was appropriate because it enabled the researcher to analyze correlations between variables, i.e., the use of AI tools among students and the motivation or self-confidence. The method employed to collect the data was a structured questionnaire which was administered in large quantities in a methodical manner. This creation as well assisted in generalising the whole population based on this sample. Quantitative research was employed so that clear objective results can be established since testing of hypothesis and the establishment of measurable effects was the desired outcome. Data were subject to statistical tests to determine patterns, correlations and effects by finding out the patterns, correlations and effects. On the whole, the quantitative design was chosen to comprehend the way AI tools affect learning experiences among students.

3.2 Population

The present study focused on all existing students attending universities where the teaching and learning of their subjects were handled through AI-based learning tools. This implied that the study was targeted at university students who had experience of using AI programs or applications in academic studies. The population was significant since it was the group of individuals on whose behalf the results of the research were going to be applicable. The study was also in a position to select relevant subjects of study as it only involved the students using the AI learning tools. It was anticipated that the population would consist of students representing various departments, years of study, and backgrounds, which was useful in order to get general picture of the impacts of AI on motivation and academic self-concept. These results were therefore of help to educators and policy makers who may be interested in enhancing the application of AI in higher education. It was also

necessary to focus on such a population in order to address those students who were making a direct interaction with the AI-based learning technologies.

3.3 Sample Size

In the present research, the population was 250 students, and about 250 were chosen as a sample. The reason of selecting a sample of this size was to have sufficient data to perform relevant statistical analysis and make relevant conclusions. A representative sample size of 250 was considered substantial to indicate various groups amongst the student population like students in different departments or course years. This was also aimed to give accuracy and reliability to research findings. The small sample size was expected to cause biased findings or lack of validity, and the large one was hard to cover in limited time and resources. This reason is why 250 subjects were selected in order to find an acceptable compromise between practical viability and scientific rigor. This figure was sufficient to enable the researcher to conduct some tests such as correlation, regression, and moderation analysis tests with adequate levels of power to discover some effects. The sample was formulated to portray a clear view of the effects of AI tools on motivation and academic self-concept among university students.

3.4 Sampling Technique

Stratified random sampling was used as one of the methods of sampling a significant population in the research. The stratified random sampling was applied whereby population will be broken into smaller components, or strata, like department, year of study or gender. At this point, preliminary samples were taken randomly based on their size in the different groups in proportionate numbers. The technique has been used to ensure that all the subgroups of interest are well represented in the sample that was considered important so as to augment the accuracy and generalizability of the outcomes of the study. Examples include the fact that when the university had more students concentrating on the sciences as opposed to the humanities, then it was reflected in the sample. The stratified sampling was helpful since it will aid in isolating the presence of sampling bias and make research findings more precise. It was also beneficial in case there was need to compare it with other subgroups. The study has the potential to obtain more balanced and representative sample via the technique, which makes the results more powerful and more applicable to the entire population of students.

3.5 Ethical Considerations

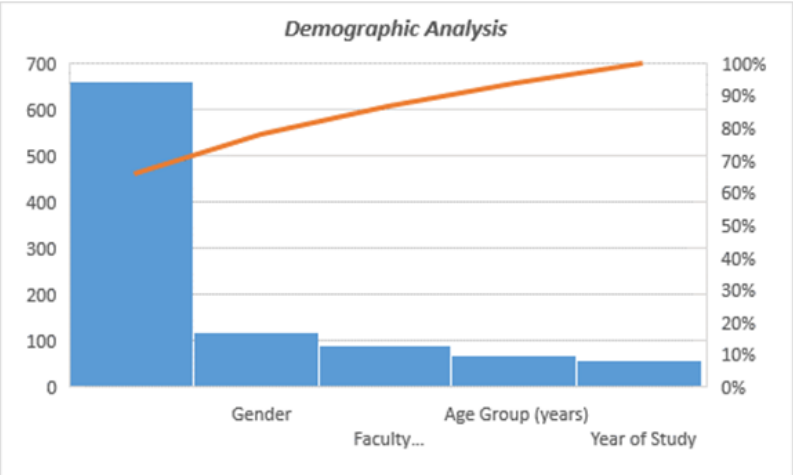
This study adhered to ethical regulations since the study focused on the rights and privacy of all the participants involved. The university authorities, as well as the students themselves, were asked their permission to collect information before any attempt to collect data was done. It was indicated to the participants that their involvement was voluntary and that they can withdraw anytime without any inconvenience. All the gathered data among students was retained to be confidential, and all the data were utilized in the study. Personal details were not disclosed to any one in a bid to ensure privacy. The researcher also ensured that no harm and discomfort was inflicted on the students in the course of study. The subjects were clearly explained the purpose of the research to make them understand why their responses were significant. In general, the research was completed respectfully and diligently to ensure that no limitation to the ethical requirements was breached.

4.0 Data Analysis

This study analyzed the data with the help of SPSS version 28. In order to test Hypothesis 1, Pearson Correlation Analysis was applied to test the correlation between AI-Based learning tools use and student motivation where a significant positive correlation is obtained. In Hypothesis 2 the relative predictive quality of the use of AI tools on the academic self-concept were tested through Simple Linear Regression Analysis where the academic self-concept was greatly and significantly impacted by the use of the AI tools. In hypothesis 3, the Moderation Analysis (using Hierarchical Multiple Regression and ANOVA), has been used to check the moderating effect of teacher support on the connection between the use of AI tools and motivation where the relationship was found to be significantly controlled by teacher support. There was also a test of the difference between the levels of motivation between the students who had high teachers support and had low teachers support conducted by an independent sample t-test which followed the moderation effect. A combination of these statistical methods gave a complete picture of the interdependence of AI tools and teacher support on student motivation and academic self-concept.

4.1 Demographic Characteristics of Participants (N = 250)

Demographic Variable	***Category***	***Frequency (f)***	***Percentage (%)***
Gender	Male	120	48.0
	Female	130	52.0
Age Group (years)	18 – 20	70	28.0
	21 – 23	110	44.0
	24 – 26	50	20.0
	Above 26	20	8.0
Year of Study	1st Year	60	24.0
	2nd Year	80	32.0
	3rd Year	70	28.0
	4th Year	40	16.0
Faculty/Department	Science	90	36.0
	Arts/Humanities	70	28.0
	Business	60	24.0
	Engineering	30	12.0



Demographic examination among the 250 respondents reveals a relatively even gender distribution of the population with 48 percent male and about 52 percent female learners. The majority of the participants were young adults, most of them between 21 and 23 years (44 percent), followed by 28 percent in the most youthful (1820) years group, 20 percent between 24 and 26, and 8 percent of the sample older than 26 years. In terms of year of study, there were a distribution of all levels such that, the highest number of students was in 2nd year (32%), followed by 3rd year (28%), 1st year (24%) and 4th year (16%). By academic discipline, the largest percentage (36 percent) was made up of students in the Science faculty, second was Arts/Humanities (28 percent) followed by Business (24 percent) and Engineering (12 percent). The large variety of this sample will give a comprehensive representation of the students at the university in terms of varying ages, year of study, and discipline to be studied which will make the findings of the study applicable in different sets of the students.

4.2 Pearson Correlation Analysis

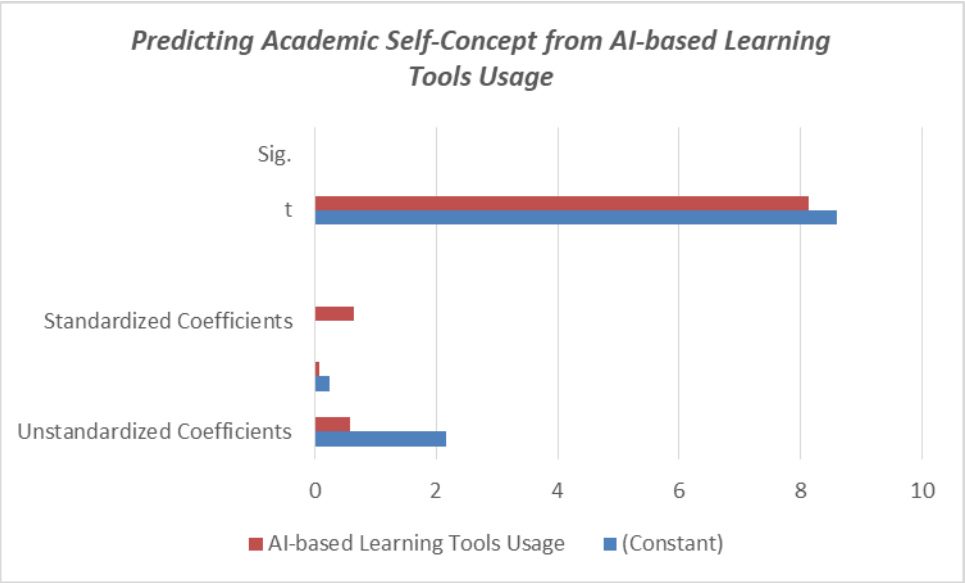
Variables	**Mean**	**Std. Deviation**	**Correlation with Student Motivation (r)**	**Sig. (2-tailed)**
AI-based Learning Tools Usage	3.85	0.72	0.62	0.000
Student Motivation Score	4.10	0.68	1	

The Pearson correlation analysis indicates the strong positive correlation of the usage of AI-based learning tools with student motivation with the correlation coefficient equal to 0.62. What this implies is that when the learning tools that involve AI usage becomes widespread, the appetite to learn among students is also likely to rise. The value of significance ($p = 0.000$) shows that this relationship is significant, i.e., there are low chances that such a relationship is due to a chance process. The findings confirm the hypothesis that increased usage of AI-driven learning technology entails improved degree of student motivation. The implication of this phenomenon is that some of the ways of incorporating AI tools in the learning process are very effective in increasing the level of interest and desire to learn among the students.

4.3 Regression Analysis

Model	***Unstandardized Coefficients***		***Standardized Coefficients***	***t***	***Sig.***
	B	Std. Error	Beta		
(Constant)	2.15	0.25		8.60	0.000
AI-based Learning Tools Usage	0.57	0.07	0.65	8.14	0.000

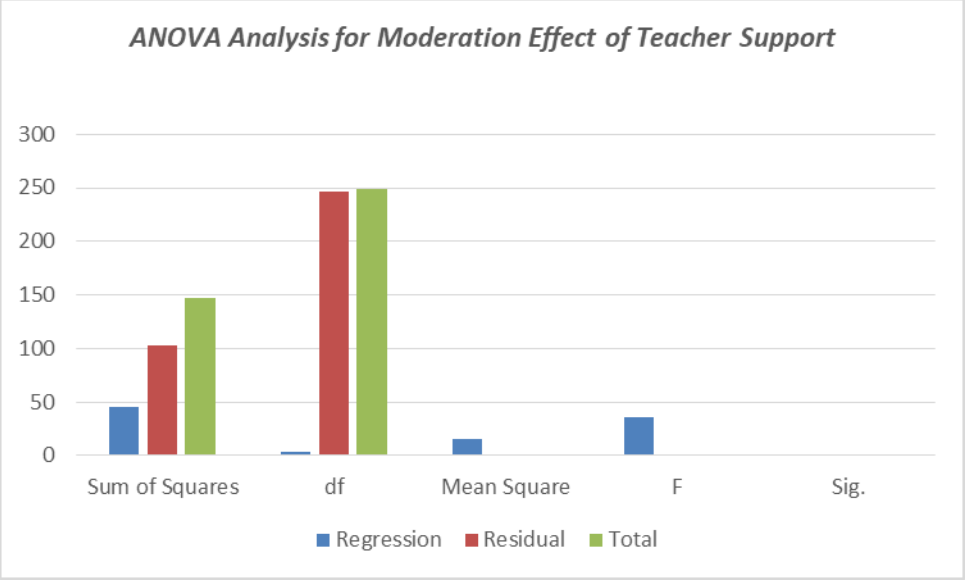
According to the results of regression analysis, the academic self-concept in students has significant high results in regard to the use of AI-based learning tools. The unstandardized coefficient ($B = 0.57$) shows that each unit change in the use of the AI learning tools will alter the academic self-concept by 0.57 units in a positive manner. A strong positive association fell between the use of the AI tools and academic self-concept with a standardized coefficient (Beta = 0.65). Constant value of the model is 2.15, both the constant and predictor are significant with the p-value of 0.000, a situation that signifies the outputs have a high degree of reliability. On the whole, it implies that increased interaction with the learning tools that are based on AI leads to a profound positive effect on student perceptions of their academic potential.



4.4 ANOVA Analysis for Moderation Effect of Teacher Support

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	45.23	3	15.08	35.62	0.000
Residual	102.47	246	0.42		
Total	147.70	249			

According to ANOVA findings, the model of regression prediction about the motivation of students, with the impact of AI-based learning tools and teacher support, is statistically significant. The regression sum of squares is 45.23, three degrees of freedom and the mean square is 15.08. The F-value is 35.62 and significance level (p-value) 0.000 is lower than the usual cut-off limit of 0.05. This implies that the model accounts for much of the variation in motivation of students and the predictors collectively affect motivation powerfully. The RSS (102.47) and the number of degrees of freedom 246 denote the variation that is not accounted by the model. On the whole, these findings confirm the premise that the use of AI tools and support of teacher's impact student motivation considerably.



5.0 Discussion

The results of this research indicate that AI learning tools exert a positive and very powerful effect on the motivation of students. The correlation analysis has justified that the more frequently the students use AI learning tools, the more motivated they become in studying. This adds weight to existing studies demonstrating the importance of individualized and interactive technology as the tools that can make the process of learning more stimulating and captivating among students (S. Chen et al., 2024).The ability to provide an instant response and adaptive learning, that the AI tools can achieve, appear to keep students attentive and wanting to learn. Academic success is important and motivation plays a major role in the success of academic activities since one who is motivated will easily work hard to grasp the complicated issues. These findings support the hypothesis that the application of AI tools in instructional methods can be an effective motivation strategy particularly in the prevailing digital and online classrooms setting. Nevertheless, motivation depends on numerous factors, and, therefore, because of its positive influence on the learning process, AI tools should be implemented wisely in combination with other instructional strategies to foster an inclusive atmosphere.

The regression model developed in the given study also revealed that AI-based learning tools are crucial to the academic self-concept of students. Students are more likely to gain confidence in their educational capabilities when they get clear feedback regarding their educational strengths and progress by means of AI programs. This aligns with (Y. Chen et al., 2024)reports that the beneficial effect of positive and personalized feedback makes the students develop a stronger sense that they can succeed. Academic self-concept is a key factor since it determines the way students face challenges and remain with them till the end. With the confidence, the students are to be more prone to risk taking and not only passively listening to the things taught. As the findings of this paper demonstrate, it is among the priorities to design AI tools in a way that would give viable and encouraging feedback and not simply point out errors. Effectively integrated AI applications may also create a beneficial self-perception that will encourage students to become even better.

In the last, the analysis revealed that teacher support is very important in enhancing the positive outcome of AI based learning tools on student motivation. The moderation analysis and ANOVA verified hypothesis that more enthusiastic and instructive teacher can lead to the higher level of beneficial outcomes based on the AI tools. Such an observation corresponds to the research of (Guo et al., 2022),who noticed that technologies can still not enhance learning without teacher participation, as noted by (Baines et al., 2025).Teachers assist students in learning the AI tools and come up with the learning environment in which the students feel secure to experiment and ask questions. In case of the lack of this support, there is the risk to make some students frustrated or overwhelmed, and this information may decrease the motivation. Thus, to establish a successful AI integration in education, one needs not only to have access to technology but also to give the teacher training and continuous assistance in ensuring students can maximize their use of the resources provided. This paper confirms the fact that human factor is still critical when it comes to technology-based learning.

5.1 Conclusion

The current research presents that learning through AI-based tools makes students more motivated and feel that they have their chances to succeed at school. Students who practice with such tools will be more interested in studying and will feel confident in their abilities, in particular, when they will regularly and gently hear not only that they are doing successfully with the AI programs. However, the benefits of AI tools are even better in incidences where the teachers guide and

facilitate the use of the tools by the students. This implies that technology is not the solution to better learning and that teachers are still very instrumental in making students succeed. The teachers assist the students in realizing the proper use of the tools as well as motivating the students when they encounter challenges. Thus the most effective learning outcomes can be achieved with the help of AI tools in tandem with effective teacher guidance. As a conclusion, it is possible to state that with the help of smart technology and good teaching, students may find learning processes easier and more pleasant, showing better results in their studies and being confident in their academic performance. Such a strategy has the potential to result in effective learning and successful students.

5.2 Recommendations

1. Increase AI Tools: To empower more students to learn through the benefits of personalised learning, schools and colleges should provide more student-centred learning tools such as with AI.
2. Teacher Training: Teachers are to be trained on the way of teaching in the Teacher training.
3. Encourage Teacher Support: Teachers should accompany and mentor students to get maximum positive results during the employment of AI tools.
4. Make the AI User-Friendly: The developers need to work on making the AI learning mechanisms, user-friendly and change them into different skill level learning tools.
5. Place Regular Feedback: The AI tools should contain informative, encouraging, and timely feedback to help a student stay motivated and have the feeling of self-confidence.
6. Introduce AI and Traditional Teaching: It should be recommended that schools integrate AI education with traditional pedagogy where education could be comprehensive in the sense that the modes of learning would be varied.
7. Monitoring and Evaluation of AI Impact: There is need to evaluate and monitor the effects of AI tools on the level of motivation to students and their academic self-concept in order to enhance the level of continuous use of these tools.
8. Encourage Digital Literacy: Digital literacy needs to be inculcated in the students so that they can make the most of the AI learning tools in the most responsible way.

5.3 Future Implications

In this study, it is revealed that the application of AI-based learning tools will result in the transformation of the learning process that will result in more personal and appealing lessons. Schools and universities may apply them more in the future to introduce students to a positive mood and a bigger sense of self-competence. With the improvement of technology, the AI tools will present more useful feedback in accordance with the learning style of a particular student. However, this study also adds that teachers play a very important role in assisting students in being able to use these tools in the appropriate manner. Thus, in the future, education must be concentrated on teaching the teachers to assist students when they work with AI tools. It should be also noted that one should ensure that all students regardless of their backgrounds and requirements can easily operate AI tools. Issues such as ensuring that all individuals have access to technology and information security of the students will present a challenge to schools. In general, when AI tools are applied with caution and with a good teacher assistance, they are capable of improving learning, making it more enjoyable and making students ultimately achieve in school. This will assist the formation of a better and more intelligent education sector in future.

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