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Strategic Management of ChatGPT and Student Achievement in South African Tertiary Institutions

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Abstract: This paper explores the possibility of ChatGPT-powered academic support in solving the problem of academic support inequalities, accommodating the needs of different students, and increasing engagement, achievement, and retention in South African higher education institutions. The SLR approach was used to find, analyze, and synthesize the current research with the help of chosen databases, search terms, inclusion/exclusion criteria, and screening based on the PRISMA approach. Eligible sources were assessed and analyzed thematically to identify trends, advantages, limitations, gaps in research, and implications for equitable and responsible adoption. The Technology Acceptance Model (TAM), Technology-Organization-Environment (TOE) Framework and Constructivist Learning Theory were used as the basis for analyzing technological acceptance, organizational factors, and active learning. It has been found out that ChatGPT may be helpful for personalized learning, engagement, and academic performance because of explanations, examples, revision and feedback. However, such tools may be considered educational only under the condition of pedagogical adoption, literacy about AI and responsible use. Challenges include overdependence on ChatGPT, spread of misinformation, privacy issues, academic dishonesty risks, digital divide and lack of institutional readiness. Therefore, ChatGPT complements current academic support provided by lecturers and institutions, and the idea of ChatGPT-Enabled Academic Support Pathway is suggested.

Keywords: ChatGPT; generative artificial intelligence; higher education; student achievement; student engagement.

INTRODUCTION

The fast pace at which generative artificial intelligence (GenAI) evolves has revolutionized higher education teaching and learning with ChatGPT gaining popularity in research regarding explanations, feedback, writing, coding, tutoring and personalized learning (Baig & Yadegaridehkordi, 2024; Bhullar, Joshi, & Chugh, 2024). Recent systematic reviews show the movement towards empirical studies concerning the impact of GenAI on student engagement and outcomes of learning. It is especially significant in South African tertiary education due to diverse backgrounds of students, language skills, socio-economic status, digital inequality, large classes and shortage of lecturers. ChatGPT can be used as supplementary means of academic support, such as consultations, tutoring, and learning management

systems in providing additional access to explanations, examples, feedback and practice outside of scheduled teaching sessions. However, the use of ChatGPT for educational purposes goes beyond accessibility and personalization. The accuracy of responses, pedagogical relevance, students' AI literacy and critical evaluation play important role in its effectiveness. The risks include spread of misinformation, overreliance on AI, lack of critical engagement, violation of academic integrity and privacy issues (Lo, Hew, & Jong, 2024). Even though ChatGPT can contribute to academic success and affective-motivational outcomes, there are still methodological and evidential gaps in the field (Deng et al., 2025). Moreover, in the case of South Africa, there are some additional concerns related to plagiarism, digital inequality and institutional readiness (Sokhulu, Zulu, & Lott-Naidoo, 2025; Muringa, 2025).

Although there is increasing research concerning the educational uses and risks of ChatGPT, the systematic synthesis of technological readiness, pedagogical guidance, responsible use and existing institutional academic support does not provide insight into the ways in which they can be combined to create ChatGPT-enabled academic support in South African tertiary institutions equitably. Such research gap is addressed by this study in the form of systematic literature review (SLR) investigating the opportunities, challenges and enabling factors in relation to ChatGPT-enabled learning, and particularly its implications for student engagement, academic performance and retention. The innovation of the proposed study is in combining these aspects into one conceptual model called the ChatGPT-Enabled Academic Support Pathway that links technological readiness, AI-powered assistance, pedagogical guidance, student engagement and academic performance, considering the implications for retention. Unlike the mere adoption of ChatGPT for educational purposes, the conceptual model sees AI as a supplement to lecturer-led and institutional support. It is consistent with the human-centred approach to AI that is developed by UNESCO (2023).

THEORETICAL IMPLICATIONS

This study rests on three theoretical perspectives that complement each other: the Technology Acceptance Model (TAM), the Technology–Organisation–Environment (TOE) framework and Constructivist Learning Theory. Collectively, these perspectives imply that the educational potential of ChatGPT cannot be determined by mere access or use, but by the level of user acceptance, institutional conditions and appropriate pedagogical involvement.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) developed by Davis (1989) explains technology acceptance through perceived usefulness and perceived ease of use. In the current study, perceived usefulness pertains to the users' perception of ChatGPT as an instrument for explanations, examples, revision, feedback and other means of academic support. Perceived ease of use implies the users' ability to construct

prompts, interpret responses and utilise ChatGPT in learning and teaching processes. Recent studies confirm the relevance of technology-acceptance theories for ChatGPT adoption in higher education (Baig and Yadegaridehkordi, 2024).

Still, technology acceptance does not necessarily mean appropriate use. ChatGPT may provide inaccurate information and is prone to misuse regarding issues of academic integrity, privacy and over-reliance. According to Lo, Hew and Jong (2024), in the systematic review of 72 empirical studies, ChatGPT is associated with both engagement and disengagement, the issues of reduced critical thinking and over-reliance. The study consequently explores TAM theory beyond mere technology adoption by examining whether ChatGPT is considered useful, easy, credible and appropriate for educational purposes. Moreover, the study considers such factors as AI literacy, digital inequality, academic integrity and pedagogical context. Chauke et al. (2024) provide additional South African evidence with the help of postgraduate students' perceptions of ChatGPT and its potential to contribute to academic success at historically disadvantaged universities.

Technology–Organisation–Environment (TOE) Framework

The Technology–Organisation–Environment (TOE) framework developed by Tornatzky and Fleischer (1990) supplements TAM with the examination of wider contexts of technology adoption in organisations. The TOE framework considers technological, organisational and environmental contexts, which makes this theory applicable to the use of ChatGPT in tertiary education.

The technological context involves access, connectivity, digital literacy, AI literacy, usability and the perception of credibility of AI-produced responses. The organisational context involves policies, preparedness of lecturers, AI governance, privacy needs, academic integrity processes and existing structures of academic support. The environmental context includes issues of digital and socioeconomic inequality, expectations related to the use of artificial intelligence and approaches to the responsible use of AI in South African higher education.

In this way, the study explores the TOE framework to find out whether institutional and contextual conditions have any impact on ChatGPT-enabled academic support. This corresponds to the evidence that ChatGPT adoption involves multiple users, applications and contexts (Baig and Yadegaridehkordi, 2024). The mixed-methods approach allows obtaining quantitative data on the relationships between the relevant factors, while the interviews may reveal how the institutional and contextual conditions influence ChatGPT use. Thus, TOE corresponds to the hypothesis that the educational value of ChatGPT cannot be explained by mere availability, but also institutional conditions of responsible and pedagogically appropriate use of this technology.

Constructivist Learning Theory

Constructivist Learning Theory, especially sociocultural perspective formulated by Vygotsky (1978), implies that the learner is actively involved in constructing knowledge through interaction with instruments and social context. In this study,

ChatGPT can function as a learning-support instrument with the help of explanations, examples, feedback and provision of opportunities for asking questions and clarifying concepts. However, mere access to ChatGPT does not mean the effective process of learning. The students may interact with ChatGPT to explore explanations, test hypotheses, identify knowledge gaps and receive feedback, which promotes the process of knowledge construction. Otherwise, copying of AI-produced answers may encourage passive learning and over-reliance.

According to Lo, Hew and Jong (2024), there is evidence of both engagement and disengagement in relation to ChatGPT. Deng et al. (2025) report additional evidence of the relationship between ChatGPT and academic performance, affective-motivational outcomes and higher-order thinking with the emphasis on the need to understand the conditions of those relationships. Thus, the study views ChatGPT as a learning-support instrument rather than a substitute of lecturers and learning process. The study aims to examine whether the interaction supported by ChatGPT is associated with engagement, comprehension and academic achievement and takes into consideration the perceptions of appropriate use among students and academics. The additional South African evidence of the academic benefits of ChatGPT while stressing the importance of understanding ChatGPT in local higher education context is provided by Chauke et al. (2024) and Otto (2024).

Overall, the three theoretical perspectives provide complementary explanations: TAM examines user acceptance, TOE examines institutional and contextual conditions, and Constructivist Learning Theory examines the conditions of knowledge construction with the help of ChatGPT-supported interaction. Consequently, the combination of these theories provides the basis for the examination of the relationship between ChatGPT-enabled academic support and student engagement and achievement considering technological, institutional, pedagogical and student factors in South African tertiary education.

LITERATURE REVIEW

This literature review analyses evidence related to five research questions guiding the study. These include ChatGPT as academic support, its influence on student engagement and academic achievement, factors that affect effective and equitable use, challenges of responsible use and the evidence from South African tertiary education. The analysis is based on the Technology Acceptance Model (TAM), Technology–Organisation–Environment (TOE) framework and Constructivist Learning Theory.

ChatGPT as Academic Support and Personalised Learning

The first research question is the following: How is ChatGPT being used to provide academic support and personalised learning in higher education?

ChatGPT is increasingly used as a supplementary academic-support tool for explanations, examples, feedback, revision, problem-solving and personalised learning. The conversational character of this technology allows using ChatGPT

beyond scheduled teaching and consultation hours. According to Baig and Yadegaridehkordi (2024), personalised learning, feedback and problem-solving are essential applications of ChatGPT. Bhullar, Joshi and Chugh (2024) identify the growing importance of generative AI in higher education.

However, the personalised responses do not automatically lead to the effective process of learning. The effectiveness of ChatGPT-supported learning depends on the correctness of the response, students' ability to assess information and proper pedagogical guidance. Therefore, UNESCO (2024) emphasizes the importance of AI literacy, human agency and information assessment. Consequently, in this study, ChatGPT is viewed as a complement to lecturers and academic-support services and not as a substitute for them.

ChatGPT, Student Engagement and Academic Achievement

The second research question is: What evidence exists regarding the influence of ChatGPT on student engagement and academic achievement?

The available research proves the potential to improve student engagement, motivation and academic performance, although all findings are not always positive. According to the review of 72 empirical studies conducted by Lo, Hew and Jong (2024), there is the evidence of engagement, satisfaction and perceived understanding, but also issues of academic dishonesty, reduced critical thinking and over-reliance.

According to the review of 69 experimental studies by Deng et al. (2025), the use of ChatGPT produced positive effects on academic performance, affective-motivational outcomes and higher-order thinking, despite methodological limitations. Sun and Zhou (2024) provide additional evidence of positive effects of generative AI on academic achievement of college students.

All these findings suggest that ChatGPT has the potential to promote engagement and achievement if appropriately incorporated in learning process. Nevertheless, the outcome depends on students' prior knowledge, AI literacy, assessment methods, discipline and lecturers' guidance. The current study investigates these aspects without assuming the automatic improvement of achievement with the help of ChatGPT.

Factors Influencing Effective and Equitable Use

The third research question is: What technological, institutional, pedagogical and student-related factors influence the effective and equitable use of ChatGPT in higher education?

The effective use is conditioned by several factors, which interact with each other. The technological factors include access to devices, connectivity, digital infrastructure, usability and AI literacy. The institutional factors involve policies, staff development, AI governance, privacy protection measures and academic-

support systems. The pedagogical factors include lecturers' guidance, proper assessment design and integration of ChatGPT into meaningful learning activities.

The factors related to the students are digital and AI literacy, prior knowledge, motivation and ability to assess information provided by AI. TAM (Davis, 1989) explains the significance of perceived usefulness and ease of use, while TOE (Tornatzky and Fleischer, 1990) stresses the importance of technological, organisational and environmental factors of adoption. Additionally, Constructivist Learning Theory highlights the active process of knowledge construction rather than passive use of generated answers.

The above-listed factors are especially significant for the issue of equity since disparities in access and skills can affect the users' benefits from ChatGPT.

Equity, Academic Integrity, Privacy and Responsible Use

The fourth research question is: What challenges relating to equity, academic integrity, privacy, AI literacy and responsible use are reported in the literature?

Despite the opportunity of expanding access to academic support with the help of ChatGPT, the disparities in access to devices, connectivity and AI literacy can make people experience unequal benefits from the use of ChatGPT. Such an issue is especially topical for South African higher education where digital inequality is still pronounced (Sokhulu, Zulu and Lott-Naidoo, 2025).

The issue of academic integrity is another challenge since ChatGPT can be used to generate information that is submitted as students' own one. Over-reliance on ChatGPT can reduce students' independent thinking and critical engagement (Lo, Hew and Jong, 2024). The issues of privacy, inaccuracies and responsible use require institutional guidance and human agency. According to UNESCO (2023), the ethical, human-centred and privacy-conscious use of generative AI is required. Additionally, Chaka et al. (2024) provide evidence of increasing attention to generative AI policies in South African higher education.

ChatGPT and Generative AI in South African Tertiary Education

The fifth research question is: What evidence is available regarding ChatGPT and generative AI use within South African tertiary education?

The South African tertiary institutions operate in diverse socioeconomic, educational and technological environments that may affect how students and lecturers access and use ChatGPT. Chauke et al. (2024) stress the importance of understanding ChatGPT perceptions in the environment of historically disadvantaged universities. Sokhulu, Zulu and Lott-Naidoo (2025) identify the opportunities and challenges related to digital access, literacy, plagiarism and over-reliance.

According to Chaka et al. (2024), there is increasing attention to generative AI policies in South African higher education institutions. Nevertheless, there is much

less evidence compared to the international literature, especially evidence of the relationship between ChatGPT-enabled academic support, student engagement, achievement and equitable use.

Synthesis and Research Gap

The literature review shows that ChatGPT has the potential to provide extended academic support in the form of personalised explanations, feedback, practice and problem-solving. The literature also demonstrates emerging evidence of the potential benefits of ChatGPT for student engagement and academic achievement.

The literature indicates several challenges associated with the issues of digital inequality, academic integrity, privacy, AI literacy and over-reliance. While international literature expands, there is relatively little evidence in the South African context, which is more specific and limited.

There is a lack of integrated evidence of ChatGPT-enabled academic support, student engagement and academic achievement and of the factors that affect the effective and equitable use.

Such a gap is addressed in the current study with the help of the examination of the use of ChatGPT in South African tertiary education including the issues of academic and personalised support, the relationship between ChatGPT and student engagement and achievement, factors that affect effective use and the challenges of responsible and equitable integration.

Table 1. Overview of Sources Examined in the Systematic Literature Review

Study	Thematic Focus	Key Contribution
Baig and Yadegaridehkordi (2024)	ChatGPT applications in higher education	Highlights the need for further empirical research into its educational use.
Bhullar, Joshi and Chugh (2024)	ChatGPT in higher education: applications, opportunities and challenges	Synthesises the rapidly growing literature on ChatGPT in higher education and identifies opportunities alongside challenges including plagiarism, academic integrity and implications for teaching and learning.
Lo, Hew and Jong (2024)	Student engagement	Highlights potential benefits for student engagement while identifying concerns about academic dishonesty, reduced critical thinking and over-reliance.
Sun and Zhou (2024)	GenAI and academic achievement	Finds a medium positive effect of GenAI on college students' academic achievement, while showing that effects

		vary according to learning conditions and intervention characteristics.
Chaka, Shange, Nkhobo and Hlatshwayo (2024)	GenAI governance in South African HEIs	Reviews GenAI policies and guidelines from 26 South African higher education institutions, demonstrating the growing importance of institutional governance, responsible use and policy responses to GenAI.
Sokhulu, Zulu and Lott-Naidoo (2025)	ChatGPT and student learning in South African HE	Systematically examines ChatGPT's role in South African higher education, highlighting potential benefits for learning while identifying uneven technology access, digital literacy and academic-integrity concerns as important contextual challenges.
Deng, Jiang, Yu, Lu and Liu (2025)	ChatGPT and student learning outcomes	Reports positive effects on academic performance, affective-motivational outcomes and higher-order thinking, while identifying methodological limitations requiring further research.
Naznin, Al Mahmud, Nguyen and Chua (2025)	Personalised learning, academic writing and coding	Highlights both educational opportunities and challenges associated with integration.
Otto (2024/2025)	ChatGPT as a pedagogical tool in South Africa	Finds useful pedagogical applications while emphasising the need for institutional policies, guidance on AI plagiarism and student training in effective prompting.
Muringa (2025)	AI adoption and institutional challenges in South African universities	Examines how South African university students use AI tools in academic practices and identifies ethical and institutional challenges affecting AI adoption and learning.
Baidoo and Sihele (2026)	Human-centred and responsible GenAI	Provides a human-centred approach to GenAI in education, emphasising ethical use, data privacy, human agency, inclusion and institutional capacity to govern AI applications.

Positioning This Review Relative to Prior Work

As seen from the literature review in the table above, the following aspects have been studied in relation to ChatGPT-enabled academic support, ChatGPT applications, personalized learning, engagement, achievement, responsible AI and challenges for South African institutions. However, the mentioned dimensions have been studied independently from each other. Although literature proves the potential of ChatGPT in terms of providing help to the students, at the same time the mentioned source raises some issues associated with digital divide, academic integrity, literacy in AI and institutional readiness. The interrelation between those dimensions has not received much attention in the context of ChatGPT-enabled academic support in South Africa.

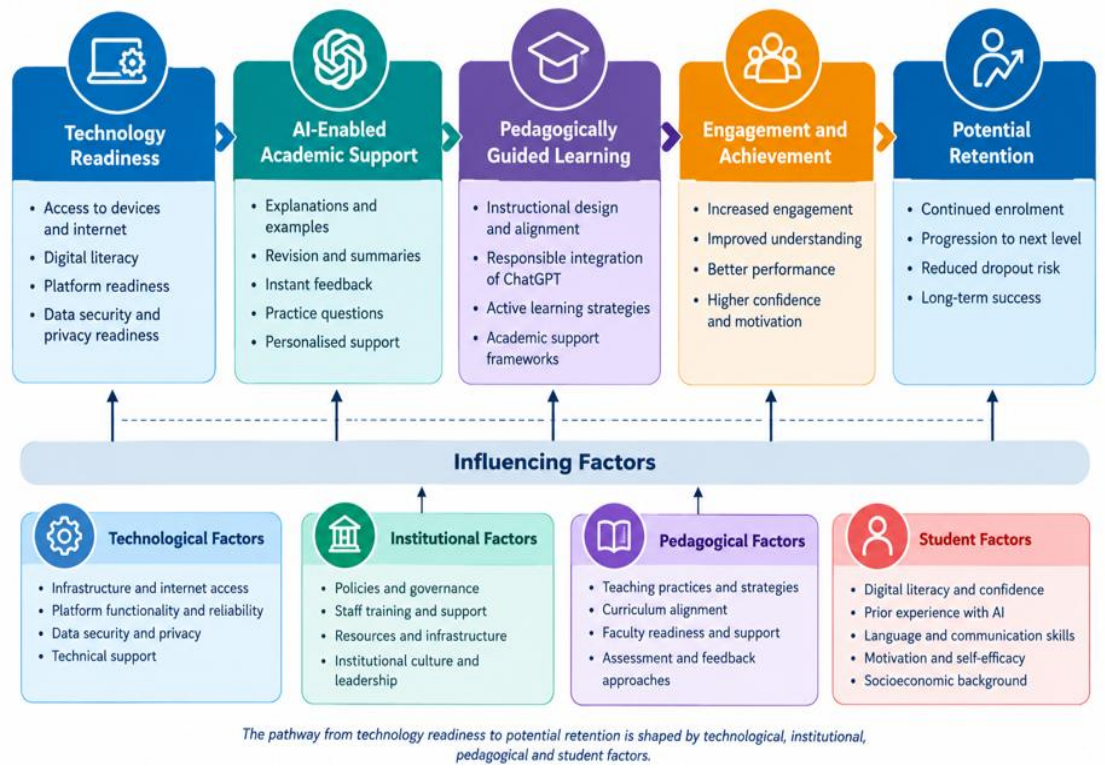
The current research aims to address this gap by studying the relationship between ChatGPT-enabled academic support and engagement and achievement considering various contextual factors.

Table 2 shows the positioning of the present study in relation to prior ChatGPT and GenAI research.

Prior Source	Examines ChatGPT/Gen AI Academic Support?	Examines Student Engagement/ Achievement ?	Examines SA Equity/Insti tutional Context?	onnects These Dimensions Directly?
Baig & Yadegaridehkordi (2024) — ChatGPT in higher education SLR	Yes	Partial	No	No
Bhullar, Joshi and Chugh (2024) — ChatGPT in higher education	Yes	Partial	No	No
Lo, Hew and Jong (2024) — Student engagement SLR	Yes	Yes	No	No
Sun and Zhou (2024) — GenAI and academic achievement	Yes	Yes	No	No

Chaka et al. (2024) — SA GenAI policies	Partial	No	Yes	No
Sokhulu, Zulu and Lott-Naidoo (2025) — SA ChatGPT and learning	Yes	Partial	Yes	Partial
Deng et al. (2025) — ChatGPT and learning outcomes	Yes	Yes	No	No
Naznin et al. (2025) — Personalised learning	Yes	Partial	No	No
Otto (2025) — ChatGPT as a pedagogical tool in SA	Yes	Partial	Yes	Partial
Muringa (2025) — AI adoption in SA universities	Partial	Partial	Yes	Partial
Baidoo and Sihele (2026) — Responsible AI and AI competencies	Partial	No	Yes	No

Authors Source: Figure 1 the SLR methodology for this study



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METHODOLOGICAL APPROACH

After a review of the literature on the application of ChatGPT for academic support within higher education institutions, this section highlights the methodology used for screening and synthesizing the literature. The literature review process adopted in this study was systematic and based on PRISMA criteria to ensure transparency and consistency in the identification and selection of relevant studies.

Research Questions and Eligibility Criteria

Accessible sources that investigated ChatGPT or generative AI in higher education, in terms of its involvement in academic support, personalization, learner engagement, academic success, retention and equity were considered for this study. More emphasis was laid on the local literature that included South African research along with the international peer-reviewed research on this topic. The time for this literature ranged from 2021 to 2026, inclusive of the relevant UNESCO publications on responsible AI. Those research which had an area other than higher education, AI development and other than academic support and learner engagement were excluded.

Search Strategy

A structured search strategy was employed using the following search engines: Scopus, Web of Science, ScienceDirect, SpringerLink, SAGE, Google

Scholar and DOAJ, and supplemented by searching South African studies, institutional evidence, and relevant policy documents.

Search terms comprised those related to ChatGPT or Generative AI, higher education, academic support, and outcomes for students, and specifically to South Africa. Moreover, digital inequality, AI literacy, academic integrity, privacy, responsible AI, institutional readiness, adoption of AI, and AI pedagogy were also searched for. Both the international evidence related to educational uses and outcomes and South African evidence related to equity, readiness, governance, responsible use, and experience of students and academics were included.

Table 3 shows the search and dates for the study

Search	Dates
Scopus	15 September 2026
Web of Science	17 September 2026
IEEE Xplore	20 September 2026
ScienceDirect	26 September 2026
SpringerLink	01 October 2026

Screening and Eligibility Assessment

Records retrieved from the databases were consolidated before screening. Duplicate records were identified using DOI, title, author, and bibliographic metadata. The remaining records were screened first by title and abstract, then by full text, against the predefined eligibility criteria. Full-text exclusions were documented for the principal reason. The final evidence set was then transferred to the extraction and appraisal stages.

PRISMA 2020 Selection Audit

Table 4. PRISMA 2020 selection audit process

Selection stage	Required result
Records identified from Scopus	215
Records identified from Web of Science	105
Records identified from IEEE Xplore	82
Records identified from ScienceDirect	68
Records identified from SpringerLink	59
Records identified from Google Scholar	48
Total records before deduplication	577
Duplicates removed	117
Records screened	460
Records excluded at title/abstract stage	366

Full-text reports assessed	94
Full-text reports excluded	76
Final studies included in synthesis	18

Source: *compiled by the author based on Page et al. (2021).*

Study Selection and Quality Appraisal

All retrieved studies were screened on their titles, abstracts, and full texts based on the inclusion criteria. An effort was made to give preference to systematic reviews, meta-analysis, empirical studies, and relevant South African studies. The studies were appraised in regard to relevance, methodological rigor, empirical contribution, contextual relevance, and source credibility. Also, ChatGPT uses were distinguished from the evidence of its impact on academic support and educational outcomes.

The literature was synthesized thematically into six areas: academic support and personalization of learning; engagement and performance of students; equity and diverse student needs; academic integrity, privacy, and responsible AI; competence of lecturers and institutional readiness; and South African context and research gap. The synthesis guided the research questions and mixed-methods sequential explanatory design.

Data Synthesis

The narrative thematic synthesis approach was applied to consolidate the findings from systematic reviews, meta-analysis, empirical and South African research. The findings were consolidated based on the following themes: chatgpt-enabled academic support and personalised learning; student engagement and achievement; equity and diverse student needs; academic integrity, privacy and responsible AI; lecturer capability and institutional readiness; South African tertiary education context. The findings were interpreted in light of TAM, TOE and Constructivist Learning Theory to identify converging evidence, contextual differences and evidence gaps requiring further investigation.

DISCUSSION AND FINDINGS

This section critically analyses the systematic literature review findings regarding the feasibility of ChatGPT-based academic support for South African tertiary institutions. Instead of interpreting the adoption of ChatGPT technology as an indication of educational improvement, the following discussion explores the conditions under which its implementation could address the problems of academic support inequity, diversity, and engagement and achievement of students. The findings are interpreted considering the Technology Acceptance Model (TAM), Technology–Organisation–Environment framework (TOE) and Constructivist

Learning Theory. The contribution and limitations of the proposed ChatGPT-Enabled Academic Support Pathway are also considered in this section.

Critical Synthesis of Findings Against Theory and Literature

According to the reviewed literature, ChatGPT has a wide range of applications for academic support in terms of explanations, examples, summaries, feedback, revisions and practices (Baig & Yadegaridehkordi, 2024; Bhullar, Joshi, & Chugh, 2024; Naznin et al., 2025). The mentioned capabilities become particularly relevant in higher education settings characterised by the large size of the group and limited possibilities of individual assistance provided by a lecturer. However, the availability of conversation should not be interpreted as the possibility of learning. Although ChatGPT can answer individual questions, its answers may be inaccurate and incomplete as well as lack disciplinary relevance or pedagogical appropriateness. Thus, the convenience of obtaining an answer does not mean that students acquire a deeper understanding of the subject.

The importance of this consideration lies in the interpretation of findings related to the students' engagement and academic achievement. Thus, Lo, Hew and Jong (2024) identify both the positive and negative engagement outcomes associated with the use of ChatGPT technology, while the work of Deng et al. (2025) suggests both the potential educational and affective-motivational benefits and the limitations of the evidence base. Thus, the evidence indicates that the educational value of ChatGPT technology is conditional, depending on the specifics of learning activities, instructional guidance, assessment design and students' evaluation of the information generated by the system. The important finding is that the increase in students' interactions with ChatGPT technology should not necessarily be interpreted as the increase in engagement and learning outcomes.

Thus, the main implication is that the use of TAM for explaining the evidence of student engagement and achievement is not fully valid. According to TAM, the perception of usefulness and ease of use influence technology acceptance (Davis, 1989). However, the technology acceptance means that students accept the information produced by ChatGPT without verification, which does not necessarily mean that it promotes educational gains. In other words, TAM explains why students choose to use the technology and its acceptance but does not help to explain the educational value of this choice.

The Technology–Organisation–Environment (TOE) framework adds another dimension to the issue of technological implementation in the learning environment because it draws attention to technological infrastructure, organisational readiness and environmental factors affecting the implementation (Tornatzky & Fleischer, 1990). In the context of South African tertiary education, these factors become particularly important because of the possible difference in

students' access to devices, connection and online learning resources. Thus, according to Sokhulu, Zulu and Lott-Naidoo (2025), students may experience the problems of digital inequality, plagiarism and overreliance on ChatGPT technology. Also, according to Muringa (2025), students' decisions in this situation depend on institutional and technological conditions. Overall, these findings indicate that the use of ChatGPT technology by the students increases learning opportunities but does not guarantee equality in those opportunities. Students with reliable access and sufficient AI literacy may have more opportunities for learning than those experiencing any technological or skills-related difficulties.

It is important to note that digital inequality should not be viewed only in terms of whether the students have access to the discussed technology. Equitable academic support also requires students to formulate adequate prompts, evaluate the accuracy of information, compare explanations and apply generated information to their coursework. Without these competences, the students' access may produce unequal learning opportunities. Therefore, institutions should distinguish between the provision of the opportunity to access the AI and the development of the competences necessary for its responsible and effective use.

Another theoretical perspective used in the analysis of the discussed issue is Constructivist Learning Theory, which explains the role of active knowledge construction based on questioning, interpretation and engagement with learning experiences (Vygotsky, 1978). In this sense, ChatGPT may facilitate this process because it provides an opportunity for explanations, generation of examples and practising certain tasks. Nevertheless, this benefit depends on how the students utilise this tool. While the students question the information provided, compare it with information from authoritative sources and test their own knowledge, the technology becomes a learning tool. In case of uncritical acceptance of ChatGPT-generated answers and over-reliance on the information provided by the technology, it may interfere with the development of critical cognitive engagement.

These theoretical perspectives are complementary but still provide different insights into the issue. TAM explains technology acceptance, TOE highlights technological and organisational issues while Constructivist Learning Theory focuses on the learning process itself. However, none of these theories, taken separately, allows providing a comprehensive understanding of the problem under discussion. The combined application of the mentioned theoretical perspectives provides a more comprehensive basis for interpreting ChatGPT-based academic support. Also, the issues of academic integrity, privacy and responsible use become relevant for the implementation of ChatGPT in the teaching and learning process. The risks described in the reviewed literature prove that the institutional guidance should cover not only the issue of whether to use the tool. The students should

receive information on expectations in terms of appropriate AI assistance, the verification of generated information, attribution, assessment requirements and protection of sensitive information. UNESCO (2023, 2024) stresses the importance of human-centric and responsible approach to AI. Within this approach, the participation of the lecturer becomes vital for disciplinary clarification, feedback, judgment and critical thinking development.

In general, the reviewed evidence supports a conditional interpretation of the use of ChatGPT technology in terms of academic support. The educational value of technology is the result of the interaction of several factors: technology acceptance, technological readiness, institutional capacity, pedagogical integration and responsible use of students. Nevertheless, the reviewed evidence cannot prove that the use of ChatGPT technology causes improvement in achievement and retention. Multiple educational and contextual factors influence these outcomes, and the corresponding empirical study is needed. This finding serves as the basis for the proposed ChatGPT-Enabled Academic Support Pathway.

The ChatGPT-Enabled Academic Support Pathway

Based on the synthesis presented above, the ChatGPT-Enabled Academic Support Pathway is offered as a conceptual representation of how the use of ChatGPT may supplement the existing academic support at South African tertiary institutions. It starts with technology readiness and ends with the possible implications for student retention. The central idea is that the educational value of ChatGPT use depends on the interaction of technological, institutional, pedagogical and student factors rather than the access to the tool only.

The first component of the path is access and technology readiness, which includes access to appropriate devices, reliable internet connection, digital literacy and AI literacy. The TAM explains the technology acceptance, while TOE highlights the conditions required for the use of ChatGPT (Davis, 1989; Tornatzky & Fleischer, 1990). However, technology readiness should not be seen as a prerequisite that ensures the success. The students may have different level of ability to evaluate AI-generated information despite the equal access. The technology readiness should therefore include not only the physical access to the tool but also the skills and competence of students to use it responsibly.

The second component is the AI-enabled academic support that ChatGPT provides in terms of explanations, examples, summaries, practice questions and feedback. This capability may increase the learning opportunities for students, especially when the lecturer is not available immediately. However, the availability of the tool creates the distinction between getting assistance and learning. The generated explanations may be incorrect or miss disciplinary requirements or the essence of the misconception. Thus, the AI-enabled assistance may be viewed as a

supplementary resource that depends on the quality and relevance of information and ability of the student to assess it.

The next component is personalised and pedagogically guided learning, which addresses this concern by placing the use of ChatGPT in purposeful learning activities. In accordance with the Constructivist Learning Theory, the students should be stimulated to ask questions, compare information with authoritative sources, practice and reflect on feedback (Vygotsky, 1978). The lecturer's guidance is important in establishing these expectations and designing appropriate learning activities encouraging critical thinking. The issues of academic integrity, privacy and appropriate AI use should be also incorporated into the component. Personalisation of learning may become educationally valuable only when AI-assisted activities enhance the disciplinary knowledge and independence of the students.

The next component is student engagement and academic achievement that become the possible results of this process. The relevant outcomes include understanding, participation, confidence and academic success. However, these results should not be interpreted as the possible outcomes of using ChatGPT technology but as the empirical issues to be studied. According to Lo, Hew and Jong (2024) and Deng et al. (2025), the relationship between ChatGPT and learning outcomes should be carefully analysed because the positive experiences of the students may co-exist with overreliance, lack of critical engagement and other problems. Thus, the assessment of this relationship should consider the students' engagement and their progress.

Finally, student retention is suggested as the downstream implication, not a direct consequence of the ChatGPT-enabled academic support. Improved accessibility and opportunities for independent practice may help students to cope with some learning difficulties. However, retention is also the result of financial pressure, personal issues, institutional support and other factors. The reviewed literature provides the rationale for investigating the possible impact of improved academic support on retention, but it does not prove the direct link.

The contribution of the path consists in the combination of the discussed issues into one coherent concept that requires future empirical research. At the same time, possible problems with the implementation are also pointed out: the unequal access may limit participation, low AI literacy may prevent students from using the technology adequately, poor pedagogical guidance may encourage over-reliance on the AI and the lack of institutional management may increase integrity and privacy risks. Thus, the path should be interpreted as a literature-informed proposal, not as the validated model or a proof of improvements in the learning outcomes.

Institutional Implications for South African Tertiary Education

The reviewed literature proves that the institutional guidance should go beyond the access and adoption of ChatGPT and pay attention to the quality, equality and educational purposes of this process. This distinction becomes particularly important for South African tertiary institutions because of the possible inequalities in the access to digital technologies and readiness for using the system.

First, the institution should promote digital readiness by considering the students' access to appropriate devices, reliable internet connection and learning resources. The provision of ChatGPT technology without solving the discussed problem may lead to the reproduction of existing inequality of learning opportunities among the students.

Second, the AI literacy should be promoted among the students. They should receive opportunities to learn how to formulate the right prompt, verify the generated information, detect inaccuracies, protect their personal data and use the tool in a way that will not violate the principles of academic integrity. The problem is important because the ease of the conversation may lead the students to the uncritical acceptance of plausible explanations. Thus, the institution should evaluate not only students' ability to use ChatGPT technology but also their competence in verifying this information.

Third, the lectures should be supported in integrating ChatGPT technology into the learning process. The professional development of the lecturers should focus on the design of AI-supported activities, the verification of generated information, the maintenance of the academic integrity of assessment and ways to foster independent learning. ChatGPT technology should not replace the lecturer, it should support him/her in providing academic assistance while the lecturer will remain responsible for the guidance, feedback and evaluation of learning outcomes.

Fourth, the institutions should develop clear and consistent guidelines concerning acceptable use, attribution, privacy and data protection of the students using the technology and assessment procedures. The institution should also communicate these guidelines in ways understandable and applicable to the students and staff members. Also, these guidelines should take into account the possible differences between disciplines and activities.

Finally, the evaluation of ChatGPT use should not be limited to the technology adoption, access statistics and student satisfaction. The more important thing to assess is the quality of learning experiences, student engagement, academic performance, equality of participation and the possible retention implications. If possible, these outcomes should be evaluated among various student groups and in the relation to digital readiness, pedagogical implementation and institutional support.

In general, this section shows that ChatGPT technology should be considered as a conditional and possibly beneficial addition to the existing academic support system. The proposed path provides the structure of institutional priorities and issues for further investigation. However, the effectiveness of this technology in addressing the problems of academic support inequity and improving learning outcomes in South African tertiary education remains an empirical question. Thus, the future research should examine how technological readiness, pedagogical guidance, institutional conditions and the responsible use of students are related to ChatGPT-based academic support.

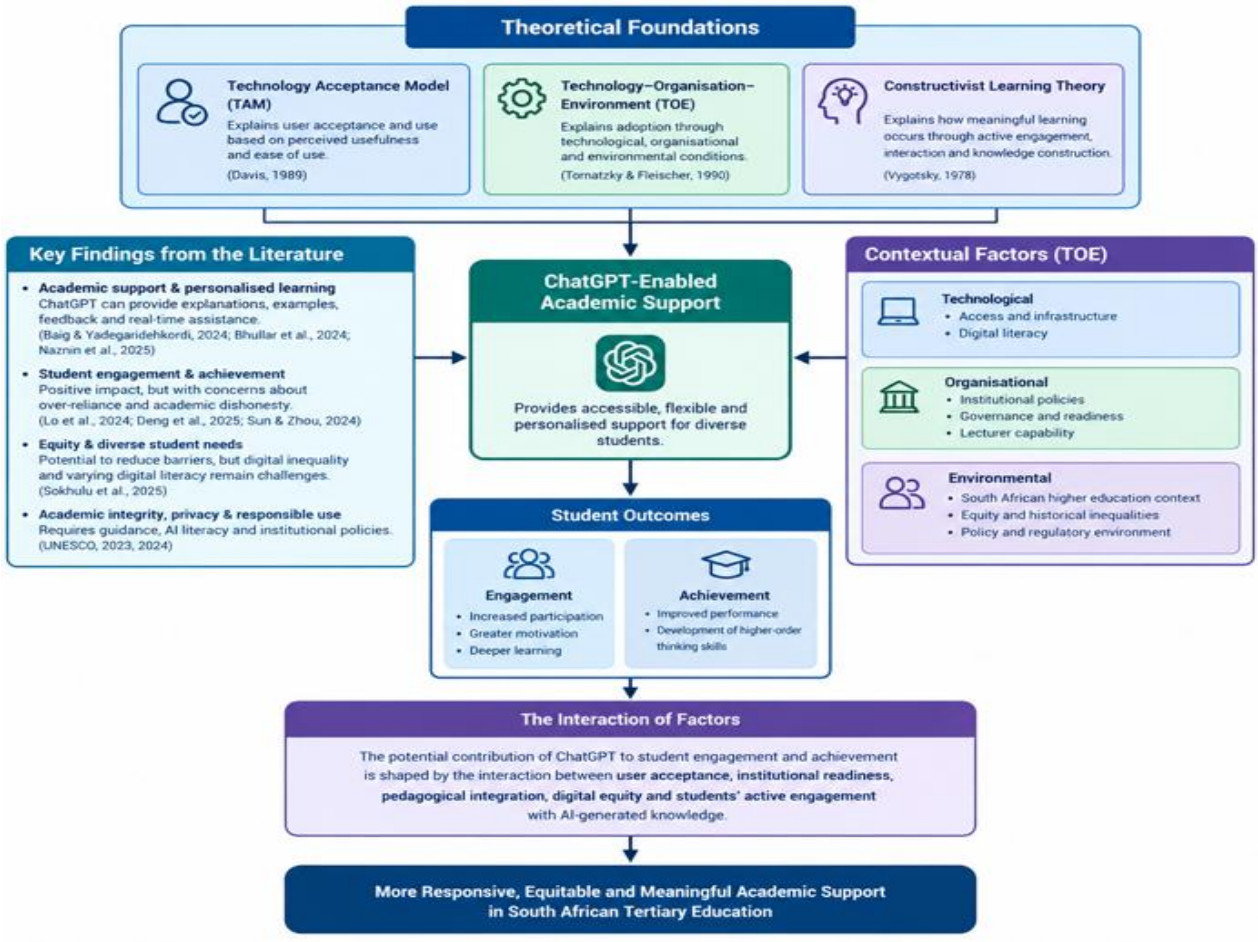


Figure 2: Theoretical Integration of ChatGPT-Enabled Academic Support, Student Engagement and Achievement

CONCLUSION

ChatGPT has the potential to enhance academic support through accessible explanations, feedback, practice and personalised assistance. Nevertheless, its contribution goes beyond technological access. According to TAM, usefulness and ease of use are critical (Davis, 1989). Meanwhile, TOE stresses the importance of technological, organisational and environmental conditions (Tornatzky and Fleischer, 1990). Constructivist Learning Theory emphasizes active construction of

knowledge (Vygotsky, 1978). Therefore, the pathway considers ChatGPT as a complementary technology and places its potential contribution to student achievement in the context of AI competence, digital readiness, pedagogical integration, institutional support, responsible use and active engagement of students. Digital inequalities of South African higher education institutions are another factor that makes the integration of the technology essential.

FURTHER STUDY

It would be necessary to investigate whether and how students and academic staff use ChatGPT in South African tertiary institutions and if such use is associated with academic achievement, engagement and retention. Research should pay attention to differences between institutions and student groups, especially digital access, AI competence and institutional support. The pathway needs empirical examination as well. It would be beneficial to find out the relationships between technology readiness, ChatGPT use, pedagogical integration, engagement and achievement. In this case, quantitative analysis would help to understand relationships between variables, while qualitative research could help to understand experiences of both students and academics. It would also be important to investigate the following factors: staff preparedness, institutional policies, assessment, AI governance, academic integrity, privacy and digital infrastructure.

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