Academic Writing in the Digital Age: A Systematic Literature Review of Writing Obstacles, Pedagogical Interventions, AI-Enhanced Practices, and Assessment Literacy

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ABSTRACT

Academic writing in higher education has become increasingly complex in the digital age. This type of writing puts linguistic, cognitive, affective, technological, and ethical demands on students. This lead to writing difficulties, anxiety, and challenges for students as they strive to develop academic identity in the midst of rapid technological advancements and evolving assessment practices. Despite a growing body of research, existing studies often examine writing obstacles, pedagogical interventions, AI-assisted practices, or assessment literacy in isolation, creating a fragmented understanding of academic writing development. To address this gap, this systematic literature review aims to identify and synthesize the state of the art in academic writing research through four integrated themes: (1) academic writing obstacles; (2) pedagogical interventions; (3) AI and digital tools; and (4) assessment literacy, integrity, and academic practices. Guided by the PRISMA protocol, a systematic search was conducted across two major databases: Web of Science and Scopus. A total of 600 records were initially identified, of which 24 primary studies met the inclusion criteria following screening, eligibility checking, and quality appraisal. The findings reveal that academic writing challenges are multidimensional, encompassing cognitive overload, linguistic limitations, emotional factors, and identity-related tensions. Evidence further demonstrates that scaffolded pedagogical approaches, including grammar-focused instruction, collaborative writing, blended learning, and critical thinking-oriented tasks, significantly support writing development. AI and digital tools such as ChatGPT, Grammarly, and AI-driven project-based learning enhance autonomy, confidence, and engagement but also necessitate critical AI literacy and ethical guidance. Finally, strong assessment literacy and transparent feedback practices are shown to mitigate writing anxiety and reduce academic misconduct. Overall, this review underscores the need for integrated instructional, technological, and assessment strategies to support ethical, confident, and effective academic writing in contemporary higher education.

Keywords: Academic Writing, Writing Obstacles, Pedagogical Interventions, AI-Enhanced Practices, and Assessment Literacy

INTRODUCTION

Research on academic writing consistently shows that students across contexts struggle with academic writing due to limited language proficiency, difficulties in planning and strategy use, low self-efficacy, and anxiety related to evaluation and expectations (Khozaei Ravari et al., 2023; Khatami et al., 2025; Anaktototy et al., 2023). These challenges are not merely technical but are closely tied to students' academic identity and sense of belonging, particularly among EFL, multilingual, and international students who often perceive academic writing as an exclusive or gatekeeping practice (Benton & Marwah, 2024; Hadizadeh & Kanık, 2025). At the same time,

higher education institutions increasingly emphasise academic writing as a core competence for assessment, knowledge construction, and scholarly participation (Ismayilli Karakoc et al., 2025).

To address these challenges, prior studies have examined pedagogical interventions such as explicit grammar instruction, collaborative writing, blended learning approaches, and writing tasks designed to foster critical thinking, all of which demonstrate positive effects on writing quality and learner engagement (Mishu & Jaashan, 2025; Memon et al., 2025; Alsalihi, 2025; Al Herz, 2025). Concurrently, the rapid adoption of AI-assisted and digital writing tools, including ChatGPT, Grammarly, and QuillBot, has transformed writing practices by enhancing idea generation, accuracy, confidence, and autonomy, while also raising concerns about overreliance, academic integrity, and ethical authorship (Pum, 2026; Ha, 2026; Thi et al., 2025; Stanko et al., 2026). Despite this growing body of research, existing studies remain fragmented, often examining writing challenges, pedagogy, AI tools, or assessment literacy in isolation. There is a clear research gap for a systematic synthesis that integrates these strands to provide a comprehensive understanding of academic writing development in the digital age, which this systematic literature review seeks to address.

LITERATURE REVIEW

Theoretical Framework

The Writing Process and Cognitive Load Theory

From the perspective of **Cognitive Load Theory** (Sweller, 1988), academic writing presents significant challenges because it imposes a high cognitive demand on learners limited working memory. Writing requires students to simultaneously manage multiple elements, such as generating ideas, organizing arguments, applying linguistic rules, and adhering to academic conventions. When these demands exceed cognitive capacity, learners experience overload, which negatively affects writing performance. This view aligns closely with Flower & Hayes, 1981) **cognitive process model of writing,** which conceptualises writing as a recursive interaction among **planning, translating (composing), and reviewing** processes. During the planning stage, writers must retrieve content knowledge and organize ideas, creating intrinsic cognitive load. In the translating stage, learners convert ideas into text while monitoring grammar and coherence, adding extraneous load, especially for novice writers or second-language learners. Finally, the reviewing stage requires evaluation and revision, which further taxes working memory if earlier stages were inefficient. Cognitive overload occurs when these processes compete for attention without adequate automation or support, resulting in fragmented ideas, avoidance behaviours, or writing anxiety. Therefore, academic writing obstacles can be understood as the consequence of unmanaged cognitive load across the composing process. Instructional strategies such as scaffolding, outlining, modelling, and staged writing tasks help reduce extraneous load and support learners in navigating the complex cognitive demands inherent in academic writing.

Scaffolding Theory and Pedagogical Interventions

The **scaffolding theory** rooted in (Vygotsky's (1978) **sociocultural theory**, provides a strong theoretical justification for pedagogical interventions designed to facilitate the learning of academic writing. Vygotsky proposed that effective learning occurs within the **Zone of Proximal Development (ZPD)**, where learners can perform tasks with guidance that they are not yet able to accomplish independently. Academic writing, which requires mastery of complex cognitive, linguistic, and disciplinary conventions, often exceeds students' current capabilities, particularly for novice or second-language writers. Scaffolding-based interventions such as explicit modelling of texts, guided drafting, structured feedback, and peer collaboration function as temporary supports that help learners bridge this gap. As students gain competence, these supports are gradually withdrawn, promoting autonomy and confidence in writing. In academic writing instruction, teachers act as mediators who guide learners in developing genre awareness, argument structure, and revision strategies through interactive dialogue and formative feedback. Additionally, collaborative writing and peer review align with scaffolding principles by allowing learners to co-construct knowledge through social interaction. Thus, scaffolding theory supports pedagogical practices that view writing not as an isolated product but as a **socially mediated, developmental process**, enabling learners to internalise academic writing conventions and gradually participate as competent members of academic discourse communities.

Technology Acceptance Model and Scaffolding

The use of **AI tools in academic writing** can be effectively explained by the **Technology Acceptance Model (TAM)** of (Davis, 1989) and **by Scaffolding Theory,** grounded in (Vygotsky, 1978) sociocultural perspective. From the TAM viewpoint, students' adoption of AI tools such as ChatGPT, Grammarly, or paraphrasing software is largely influenced by **perceived usefulness** and **perceived ease of use**. When learners believe that AI tools can improve writing quality, save time, reduce errors, or enhance confidence, they are more inclined to integrate them into their writing practices. Ease of use further strengthens acceptance, as intuitive interfaces lower the effort required to engage with complex academic writing tasks. From a scaffolding perspective, AI tools function as **digital scaffolds** that provide immediate, adaptive support within learners' Zone of Proximal Development. AI tools can guide learners in brainstorming ideas, structuring arguments, revising drafts, and improving language accuracy, thereby supporting writing development beyond learners' current independent abilities. As competence increases, reliance on AI may gradually decrease, aligning with the principle of scaffold withdrawal. When viewed together, TAM explains **why** students are willing to adopt AI tools, while scaffolding theory explains **how** these tools support learning. This combined perspective highlights AI tools as pedagogically valuable supports that promote autonomy, skill development, and confident participation in academic writing.

Theory of Planned Behaviour

From the perspective of the **Theory of Planned Behaviour (TPB)** proposed by (Ajzen, 1991) **Ajzen (1991),** academic integrity can be understood as a form of intentional behaviour shaped by three key determinants: **attitude, subjective norms**, and **perceived behavioural control**. Attitude refers to students' personal evaluations of academic integrity or misconduct, such as whether practices like plagiarism are viewed as acceptable, harmless, or unethical. Students who perceive academic honesty as valuable and misconduct as harmful are more likely to intend to behave ethically. Subjective norms involve perceived social pressures from peers, instructors, and institutions. When students believe that significant others expect honesty and that unethical behaviour is socially disapproved of, their intention to uphold academic integrity increases. Perceived behavioural control reflects students' beliefs about their ability to act with integrity, including confidence in skills such as paraphrasing, citing sources, and managing workload. Students who feel capable of completing assignments independently and ethically are less likely to engage in misconduct, even under pressure. Within this framework, academic misconduct is not merely a moral lapse but a planned response influenced by beliefs, norms, and perceived constraints. Therefore, fostering academic integrity requires pedagogical interventions that shape positive attitudes, reinforce ethical norms, and strengthen students' skills and self-efficacy, thereby supporting ethical intentions and behaviour in academic contexts.

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Conceptual Framework

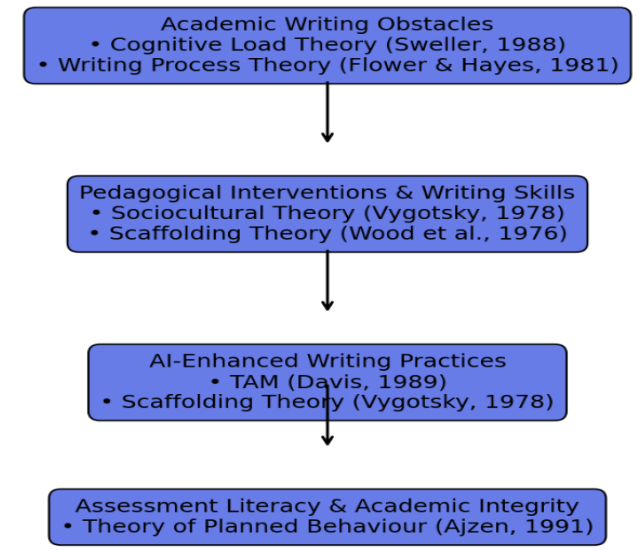

Figure 1- Conceptual Framework Linking Writing Obstacles, Scaffolding, AI Tools, and Academic Integrity

At the top of the framework (Figure 1), **Academic Writing Obstacles** are explained through **Writing Process Theory** (Flower & Hayes, 1981) and **Cognitive Load Theory** (Sweller, 1988) . Writing difficulties arise when learners struggle to manage planning, translating, and reviewing processes simultaneously, causing cognitive overload that negatively affects composing quality and confidence.

These obstacles necessitate **Pedagogical Interventions**, justified by (Vygotsky, 1978) **Vygotsky's Sociocultural Theory (1978)**. Instructional support such as modelling, guided practice, collaboration, and feedback functions within learners' Zone of Proximal Development, gradually leading to independent and competent academic writing.

The framework then incorporates **AI-Enhanced Writing Practices**, supported by the **Technology Acceptance Model (TAM)** (Davis, 1989) (Davis, 1989) and **Scaffolding Theory**. Learners adopt AI tools when they perceive them as useful and easy to use, while these tools simultaneously act as digital scaffolds that assist idea generation, organization, language refinement, and revision.

Finally, **Assessment Literacy and Academic Integrity** are positioned as the outcome of sustained writing development, justified by the **Theory of Planned Behaviour** (Ajzen, 1991) (Ajzen, 1991). Attitudes toward ethics, perceived norms, and behavioural control shape students' intentions to engage in responsible academic practices.

Overall, the framework presents academic writing as a **theoretically integrated, evolving system** where challenges, instruction, technology, and ethical assessment practices mutually influence learners' writing development.

Research Question

Research questions are important to a systematic literature review (SLR). The questions provide the foundation and direction for the entire review process. A well-defined research question ensures that the literature search is exhaustive and systematic, covering all relevant studies that address key aspects of the topic (Kitchenham, 2007). The research questions in this SLR are formulated based on the PICo framework. This framework is a mnemonic style used to formulate research questions, particularly in qualitative research, proposed by Lockwood et al. (2015).PICo stands for Population, Interest, and Context. This SLR is done to answer the four research questions below;

RQ1
How do higher education students experience academic writing obstacles and anxiety, and in what ways do these experiences influence the construction of student identity within academic writing contexts?

RQ2
What pedagogical interventions have been implemented to support the development of academic writing skills among higher education students, and how effective are these interventions across different disciplinary and instructional contexts?

RQ3
How are AI-based and digital writing tools being used to support academic writing development in higher education, and what impacts do they have on students' writing practices, autonomy, and learning experiences?

RQ4
How do assessment literacy initiatives and academic integrity practices shape students' academic writing behaviours and understanding of ethical writing within higher education contexts?

MATERIAL AND METHODS

For conducting systematic literature reviews, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach is a widely accepted standard that guarantees transparency, completeness, and consistency throughout the procedure by Page et al. (2021).

Researchers can improve the accuracy and rigour of their analysis by adhering to PRISMA guidelines, which guide how to systematically identify, screen, and include studies in their review. In the context of this SLR, the writers involved in this article act as researchers and work together to analyse the articles deemed relevant for the title. Two important databases, Web of Science and Scopus, were used in this analysis because of their wide coverage and robustness.

The PRISMA approach is organized into four key stages: identification, screening, eligibility, and data abstraction. In the identification phase, databases are searched to locate all relevant studies. The screening phase then involves evaluating these studies against predefined criteria to eliminate irrelevant or low-quality research. During the eligibility phase, the remaining studies are thoroughly assessed to confirm they meet the inclusion criteria. Finally, data abstraction focuses on extracting and synthesizing data from the included studies, which is essential for deriving meaningful and reliable conclusions. This structured method ensures that the systematic review is conducted with rigor, leading to trustworthy results that can guide future research and practice. The PRISMA framework lists three main stages for analysis: (i) identification, (ii) screening, (iii) eligibility, (iv) data abstraction and analysis, as well as (v) quality of appraisal.

Identification

In accordance with the PRISMA framework, the identification phase represents a critical starting point in the systematic literature review process, as it is designed to ensure exhaustive coverage of relevant studies while reducing the risk of selection bias. In this study, a structured and comprehensive search was conducted across two leading bibliographic databases, Scopus and Web of Science (WoS), using the keywords “academic writing,” “obstacles,” and “higher institutions.” Table 1 below shows the search string. These databases were deliberately selected because of their extensive multidisciplinary coverage, stringent indexing criteria, and strong representation of high-quality, peer-reviewed journals. The search process resulted in the retrieval of 252 records from Scopus and 348 records from Web of Science, yielding a combined total of 600 records prior to the removal of duplicates. The higher number of results obtained from Scopus can be attributed to its broader inclusion of journals and stronger coverage in the social sciences, whereas WoS contributed a more targeted collection of highly cited and methodologically rigorous studies. As shown in Table 1, the identification of 600 records reflects the growing academic interest in writing within higher education and highlights the conceptual diversity of research spanning linguistic, pedagogical, and psychological perspectives. Employing multiple databases enhances the methodological robustness of the review by minimizing database-specific bias and increasing the likelihood of capturing diverse research traditions and geographical contexts. Additionally, the use of carefully designed search terms ensured sensitivity to terminological variation while maintaining alignment with the review’s objectives. Overall, this transparent and systematic identification process establishes a strong foundation for subsequent screening and eligibility stages, consistent with PRISMA standards and expectations for rigorous, replicable research.

Table 1 The search string.

Scopus	**(("challenge*" OR "barrier*" OR "obstacle*" OR "difficulty*") AND ("motivation*" OR "incentive*" OR "drive*" OR "interest*" OR "engagement") AND ("academic writing" OR "scholarly writing" OR "university writing" OR "higher education writing" OR "essay writing") AND (university* OR "higher education" OR college* OR "tertiary** **Date of Access: Apr 2026**
WoS	(("challenge*" OR "barrier*" OR "obstacle*" OR "difficulty*") AND ("motivation*" OR "incentive*" OR "drive*" OR "interest*" OR "engagement") AND ("academic writing" OR "scholarly writing" OR "university writing" OR "higher education writing" OR "essay writing") AND (university* OR "higher education" OR college* OR "tertiary **Date of Access: Apr 2026**

Screening

During the screening stage of the systematic literature review, potentially relevant studies were evaluated to ensure their alignment with the four established research questions. This phase focused on refining the initial pool of records by removing duplicates and applying predefined inclusion and exclusion criteria. Following the initial review, 423 publications were excluded for failing to meet the scope and relevance requirements of the study, leaving 177 articles for further consideration, as outlined in Table 2. The primary inclusion criterion was the type of literature, with priority given to scholarly sources that offer substantive and empirical insights. As a result, materials such as book reviews, book series, meta-syntheses, meta-analyses, conference proceedings, and book chapters not directly related to the core focus of the review were excluded. To ensure consistency and relevance to contemporary academic discourse, only peer-reviewed publications written in English and published between 2022 and 2026 were retained. Additionally, a duplication check led to the removal of 14 repeated records across the databases. This systematic and criteria-driven screening process enhanced the focus and quality of the evidence base, ensuring that only the most relevant and methodologically sound studies progressed to the subsequent stages of analysis.

Table 2 The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Subject area	Social Sciences Arts and Humanities	Apart from Social Sciences & Arts and Humanities
Timeline	2022 – 2026	< 2022
Literature type	Journal (Article)	Conference, Book, Review

Eligibility

In the third phase of the review process, known as the eligibility stage, 177 articles were retained for detailed assessment. At this stage, the titles and core content of each study were carefully scrutinized to confirm compliance with the established inclusion criteria and relevance to the research objectives. Following this evaluation, 129 articles were excluded for several reasons, including being outside the scope of the study, having non-significant titles, presenting abstracts that did not align with the review aims, or lacking full-text access to empirical evidence. As a result of this rigorous filtering process, a final set of 24 articles was deemed eligible and selected for inclusion in the subsequent review.

Data Abstraction and Analysis

An integrative analysis approach was adopted to synthesize evidence from diverse quantitative research designs and to identify key themes and subthemes relevant to academic writing in higher education. The process began with systematic data collection, as illustrated in Figure 2, during which 24 selected studies were examined for statements and findings aligned with the study's focus. The authors analyzed the methodologies and reported outcomes of each study, with particular attention to academic writing difficulties in higher education contexts. Theme development was conducted collaboratively among the authors, using accumulated evidence to ensure contextual relevance and analytical consistency. Throughout the analysis, detailed logs were maintained to document interpretations, analytical reflections, and emerging issues. Finally, the authors compared findings across studies to identify and resolve any inconsistencies through discussion, ensuring coherence and credibility in the thematic framework.

Quality of Appraisal

According to Kitchenham and Charters (Kitchenham, 2007), the researchers need to assess the quality of the research chosen. The next stage is applying quality asseesment suggested by Abouzahra et al., (2020), which consitst of six questions complying to a scoring procedure for evaluating each criteria. The possible raitngs are

"Yes" (Y) with a score of 1 if the criterion is fully met, "Partly" (P) with a score of 0.5 if the criterion is somewhat met but contains some gaps or shortcomings, and "No" (N) with a score of 0 if the criterion is not met at all.

Table 3- Possible ratings for 6 question by Abouzahra et al., (2020),

No	Question
QA1	Is the purpose of the study clearly stated?
QA2	Is the interest and the usefulness of the work clearly presented?
QA3	Is the study methodology clearly established?
QA4	Are the concepts of the approach clearly defined?
QA5	Is the work compared and measured with other similar work?
QA6	Are the limitations of the work clearly mentioned?

Each writer independently assesses the study according to these criteria, and the scores are then totalled across all experts to determine the overall mark. For a study to be accepted for the next process, the total mark, derived from summing the scores from all three experts, must exceed 3.0. This threshold ensures that only studies meeting a certain quality standard proceed further.

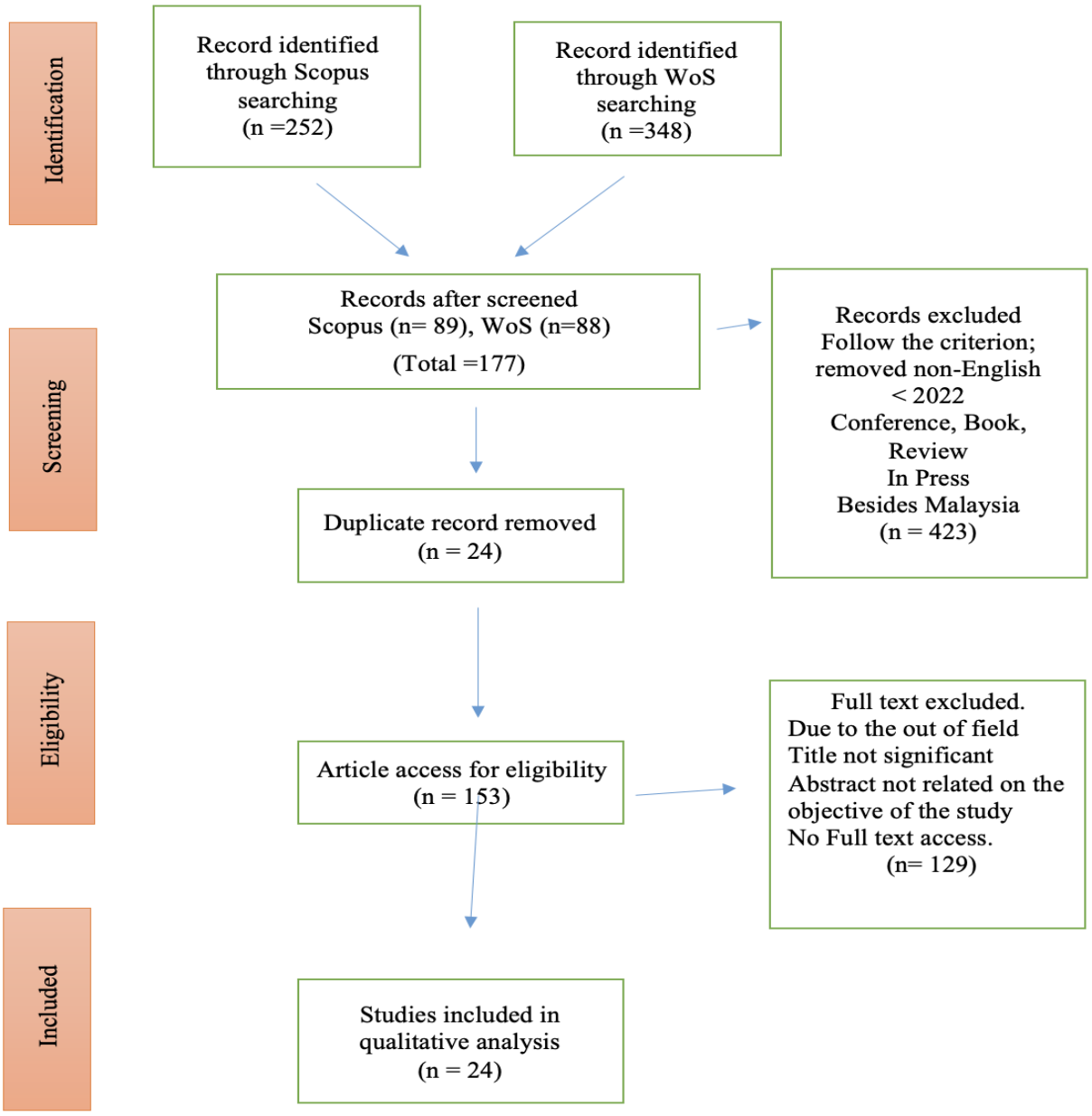

FIGURE 2. Flow diagram of the proposed searching study (Moher et.al. 2009)

RESULT AND FINDING

Quality Assessment

Table 4 shows the result of the assessment performance for selected primary studies. The overall quality of the articles is as follows;

- **High quality (≥80%):** Majority of studies
- **Moderate quality (60–79%):** Conceptual or descriptive studies
- **Lower quality (<60%):** Primarily survey-only or exploratory abstracts

Table 4- Quality Assessment for the selected 24 papers

Author	Title	PS	QA1	QA2	QA3	QA4	QA5	QA6	Total	%
(McDowell, 2025)	From anxiety to agency: enhancing student confidence and engagement with assessments via the SkillSense Programme	PS1	Y	Y	Y	Y	P	N	4.5	75%
(Khozaei Ravari et al., 2023) (2023)	Factors that hinder the thesis writing process of non-native MA students in ELT: supervisors' perspectives	PS2	Y	Y	Y	Y	P	N	4.5	75%
(Ayton et al., 2022)	Why do students plagiarise? Informing higher education teaching and learning policy and practice	PS3	Y	Y	Y	Y	Y	N	5.0	83%
(Mishu & Jaashan, 2025)	Effects of Transformational Generative Grammar (TGG) on Writing Skills of KKU EFL Students	PS4	Y	Y	Y	Y	P	P	5.0	83%
(Pum, 2026)	The Perceived Impact of AI-Assisted Writing Tools on Writing Autonomy, Confidence, and Creativity Among Cambodian First-Year University Students: A Quantitative Study	PS5	Y	Y	Y	Y	P	Y	5.5	92%
(Ndruru et al., 2025)	Unpacking The Impact Of Writing Task Complexity, Use Of Digital Tools, And Engagement Strategies On University Students' Academic Writing Performance	PS6	Y	Y	Y	Y	Y	Y	6.0	100%
(Memon et al., 2025)	Collaborative Writing in Omani ESL Classrooms: A Quasi Experimental Study from a Sociocultural Perspective	PS7	Y	Y	Y	Y	P	N	4.5	75%

(Shimray & Subaveerapandiyan, 2025)	Artificial Intelligence in Academic Writing and Research: Adoption and Effectiveness	PS8	Y	Y	Y	Y	P	N	4.5	75%
(Benton Z & Marwah, 2024)	The Challenges of Writing: The 'Long and Winding Road' of Belonging to Academia	PS9	Y	Y	P	Y	N	N	3.5	58%
(Ha, 2026)	EFL Students' Attitudes Towards the Use of ChatGPT in Learning How to Write Essays: Vietnamese Context	PS10	Y	Y	Y	Y	P	P	5.0	83%
(Namatovu & Kyambade, 2025)	Leveraging AI in academia: university students' adoption of ChatGPT for writing coursework (take home) assignments through the lens of UTAUT2	PS11	Y	Y	Y	Y	Y	P	5.5	92%
(Anthony et al., 2025)	Is ChatGPT the Future of Academic Writing? A Sequential Explanatory Study to Explore Generative Conversational AI as an Academic Writing Support Tool for Research Scholars	PS12	Y	Y	Y	Y	P	P	5.0	83%
(Thi et al., 2025)	Enhancing writing skills through AI-powered tools: perceived benefits and challenges among Vietnamese EFL students	PS13	Y	Y	Y	Y	P	N	4.5	75%
(Ismayilli Karakoc et al., 2025)	First-year writing in the humanities and social sciences: Requirements, expectations, and perceived weaknesses	PS14	Y	Y	Y	Y	N	P	4.5	75%
(Mohd Sham et al., 2025)	Exploring Students' Perception Towards the Use of Grammarly to Improve Grammatical Accuracy in Essay Writing	PS15	Y	Y	Y	Y	N	P	4.5	75%
(Stanko et al., 2026)	Developing Critical AI Literacy in Academic Writing Classrooms	PS16	Y	Y	Y	Y	P	Y	5.5	92%
(Khatami et al., 2025)	Navigating Writing Anxiety: Sources and Coping Strategies of University Students in Bangladesh	PS17	Y	Y	Y	Y	P	N	4.5	75%
(Anaktototy et al., 2023)	Beyond Linguistics: Exploring the Cognitive and Motivational Barriers	PS18	Y	Y	Y	Y	P	N	4.5	75%

	to Essay Writing for Tertiary Students									
(Hadizadeh & Kanık, 2025)	Undergraduate Students' Conceptions of Academic Writing at the Intersection of English Medium Instruction and the Digital Age	PS19	Y	Y	Y	Y	P	N	4.5	75%
(Alsalihi, 2025)	The Effect of a Blended Approach in Enhancing Paraphrasing and Summarization Skills Among EFL Female Students in Academic Writing	PS20	Y	Y	Y	Y	P	N	4.5	75%
(Al Herz, 2025)	Developing Critical Thinking Skills Through English Writing Assignments at King Faisal University	PS21	Y	Y	Y	Y	P	Y	5.5	92%
(Nguyen et al., 2024)	Human-AI collaboration patterns in AI-assisted academic writing	PS22	Y	Y	Y	Y	Y	N	5.0	83%
(Aaron et al., 2025)	Applications of human–AI interaction to optimize teaching workload and improve student writing	PS23	Y	Y	Y	Y	P	P	5.0	83%
(Wikanengsih et al., 2025)	Enhancing Academic Writing In Higher Education: The Impact Of Chatgpt And Quillbot In Ai-Driven Project-Based Learning	PS24	Y	Y	Y	Y	P	N	4.5	75%

This table summarises a quality appraisal of 24 academic studies on student writing, anxiety, digital tools, and AI-assisted writing. Each study is identified by a primary study (PS) code and evaluated against six quality assessment criteria (QA1–QA6), where "Y" indicates the criterion was fully met, "P" partially met, and "N" not met. The total score reflects the cumulative quality rating, which is then converted into a percentage to indicate overall methodological robustness. Scores range from 3.5 (58%) to 6.0 (100%), showing variability in study quality. Most studies achieved between 75% and 83%, suggesting generally sound research designs with some minor limitations, often in later criteria such as applicability or depth. Notably, PS6 achieved a perfect score, indicating strong methodological rigor across all criteria. Overall, the table demonstrates that the majority of included studies meet acceptable to high quality standards, supporting their suitability for inclusion in the review.

Themes

Table 4- Analysis for Themes

Theme Code	Theme Name
T1	Academic Writing Obstacles, Anxiety, and Student Identity
T2	Pedagogical Interventions to Enhance Academic Writing Skills
T3	AI and Digital Tools in Academic Writing Development
T4	Assessment Literacy, Integrity, and Academic Practices

Table 4 above shows the emerging themes from the 24 articles finalized for this review. The first theme is "academic writing obstacles, anxiety, and student identity". This theme **focuses on the** cognitive, affective, sociocultural, and identity-related challenges students face in academic writing.

The 5 studies chosen to represent this theme conceptualize academic writing as **a multidimensional struggle**, influenced by anxiety, self-efficacy, identity formation, linguistic constraints, and institutional expectations. The second theme is "pedagogical interventions to enhance academic writing skills". This theme **centres around** instructional approaches, curriculum design, and classroom strategies supporting writing development. This theme is represented by 5 studies that capture evidence-**based pedagogical models** emphasizing grammar instruction, collaboration, blended learning, disciplinary expectations, and critical thinking integration. The third theme is " AI and digital tools in academic writing development". **T**he focal point of this theme is the adoption, perceptions, impacts, benefits, risks, and ethical considerations of AI-assisted writing tools. This largest theme has 12 studies that reflect the **rapid expansion of AI-mediated academic writing**, spanning adoption models, learning outcomes, instructional integration, literacy, ethics, and human-AI collaboration. The last theme is "assessment literacy, integrity, and academic practices. This **theme pivots on the** understanding of assessment, feedback, plagiarism, ethics, and academic norms.
The two studies chosen to represent this theme foreground **assessment literacy and academic integrity** as foundational to ethical, confident, and effective academic writing practices. The following sections summarize the articles based on their themes.

Theme 1 (T1): Academic Writing Obstacles, Anxiety, and Student Identity

PS ID	Authors	Article Title
PS2	Khozaei,et.al. (2023)	Factors that hinder the thesis writing process of non-native MA students in ELT
PS9	Benton & Marwah (2024)	The Challenges of Writing: The 'Long and Winding Road' of Belonging to Academia
PS17	Khatami,et.al. (2025)	Navigating Writing Anxiety: Sources and Coping Strategies of University Students in Bangladesh
PS18	Anaktototy, et.al. (2023)	Beyond Linguistics: Exploring the Cognitive and Motivational Barriers to Essay Writing
PS19	Hadizadeh & Kanık (2025)	Undergraduate Students' Conceptions of Academic Writing at the Intersection of EMI and the Digital Age

The table synthesises five key studies that collectively highlight academic writing as a site of intersecting obstacles, anxiety, and student identity formation. Research on non-native MA students shows that thesis writing is hindered by linguistic limitations, supervisory relationships, and institutional expectations, which often undermine students' confidence and sense of agency in academic spaces (Khozaei et al., 2023). This struggle is echoed in broader accounts of academic belonging, where writing is portrayed as a prolonged and uncertain journey that shapes how students perceive themselves as legitimate members of academia (Benton & Marwah, 2024). Writing anxiety further intensifies these challenges, as students report fear of evaluation, limited self-efficacy, and pressure to meet normative standards, while relying on coping strategies that only partially alleviate these tensions (Khatami et al., 2025). Beyond language proficiency, cognitive and motivational barriers such as low persistence and unclear purpose restrict students' engagement with writing tasks (Anaktototy et al., 2023). Finally, students' conceptions of academic writing are reshaped by English-medium instruction and digital contexts, influencing how they negotiate identity, authority, and authorship in academic discourse (Hadizadeh & Kanık, 2025).

Theme 2 (T2): Pedagogical Interventions to Enhance Academic Writing Skills

PS ID	Authors	Article Title
PS4	Mishu & Jaashan (2025)	Effects of Transformational Generative Grammar (TGG) on Writing Skills of EFL Students
PS7	Memon, et.al (2025)	Collaborative Writing in Omani ESL Classrooms: A Sociocultural Perspective

PS14	Ismayilli Karakoc, Ruegg, & Gu (2025)	First-year Writing in the Humanities and Social Sciences
PS20	Alsalihi (2025)	The Effect of a Blended Approach in Enhancing Paraphrasing and Summarization Skills
PS21	Al Herz (2025)	Developing Critical Thinking Skills Through English Writing Assignments

The table presents five empirical studies that collectively illustrate how targeted pedagogical interventions can enhance academic writing skills across diverse higher education contexts. A grammar-focused instructional strategy is evident in the use of Transformational Generative Grammar, which demonstrates improvement in EFL students' writing accuracy and structural control by making underlying grammatical rules explicit (Mishu & Jaashan, 2025). From a sociocultural perspective, collaborative writing is shown to scaffold learning through peer interaction, enabling students to co-construct meaning and develop writing competence within supportive classroom communities (Memon et al., 2025). Attention to disciplinary expectations is highlighted in first-year writing courses in the humanities and social sciences, where aligning instruction with academic conventions helps students transition into academic discourse practices (Ismayilli Karakoc, Ruegg, & Gu, 2025). A blended learning approach further supports writing development by combining traditional instruction with guided practice to strengthen paraphrasing and summarization skills, which are essential for academic integrity and source-based writing (Alsalihi, 2025). Finally, integrating critical thinking into English writing assignments expands writing instruction beyond language accuracy, fostering higher-order reasoning and analytical expression (Al Herz, 2025). Together, these studies underscore the value of diverse, pedagogically grounded interventions in systematically enhancing academic writing skills.

Theme 3 (T3): AI and Digital Tools in Academic Writing Development

PS ID	Authors	Article Title
PS5	Pum(2026)	Impact of AI-Assisted Writing Tools on Writing Autonomy, Confidence, and Creativity
PS6	Ndruru, et.al. (2025)	Writing Task Complexity, Digital Tools, and Engagement Strategies
PS8	Shimray & Subaveerapandiyan (2025)	Artificial Intelligence in Academic Writing and Research
PS10	Ha (2026)	EFL Students' Attitudes Towards the Use of ChatGPT
PS11	Namatovu & Kyambade (2025)	Leveraging AI in Academia Through the Lens of UTAUT2
PS12	Anthony, et.al (2025)	Is ChatGPT the Future of Academic Writing?
PS13	Thi, et.al. (2025)	Enhancing Writing Skills through AI-Powered Tools
PS15	Mohd Sham, et.al. (2025)	Exploring Students' Perception Towards the Use of Grammarly
PS16	Stanko, et.al. (2026)	Developing Critical AI Literacy in Academic Writing Classrooms
PS22	Nguyen, et.al. (2024)	Human-AI Collaboration Patterns in AI-Assisted Academic Writing
PS23	Aaron, et.al. (2025)	Applications of Human–AI Interaction to Optimize Teaching Workload
PS24	Wikanengsih, et.al. (2025)	AI-Driven Project-Based Learning Using ChatGPT and QuillBot

The table brings together twelve studies that examine how AI and digital tools are reshaping academic writing development through changes in student autonomy, engagement, and instructional practice. Research highlights that AI-assisted writing tools can enhance learners' confidence, creativity, and sense of control over writing tasks, positioning technology as a supportive scaffold rather than a replacement for student effort (Pum, 2026). The interaction between writing task complexity, digital tools, and engagement strategies further illustrates how technology mediates learning by aligning task demands with appropriate support mechanisms (Ndruru et al., 2025). Broader discussions of artificial intelligence in academic writing emphasise both its effectiveness and the need for responsible integration (Shimray & Subaveerapandiyan, 2025), a concern echoed in studies on students' attitudes toward ChatGPT and its perceived usefulness for idea generation and language support (Ha, 2026; Anthony et al., 2025). Adoption-oriented analyses show that students' acceptance of AI tools is influenced by perceived usefulness and ease of use (Namatovu & Kyambade, 2025). Tools such as Grammarly and AI-powered platforms are reported to support accuracy and skill development (Mohd Sham et al., 2025; Thi et al., 2025),

while emerging work stresses the importance of critical AI literacy, human–AI collaboration, and AI-driven project-based learning to ensure meaningful and ethical writing development (Stanko et al., 2026; Nguyen et al., 2024; Aaron et al., 2025; Wikanengsih et al., 2025).

Theme 4 (T4): Assessment Literacy, Academic Integrity, and Writing Practices

PS ID	Authors	Article Title
PS1	McDowell (2025)	From Anxiety to Agency: Enhancing Student Confidence via the SkillSense Programme
PS3	Ayton, et.al. (2022)	Why Do Students Plagiarise?

The table highlights two complementary studies that address assessment literacy, academic integrity, and writing practices by focusing on students' responses to evaluation and ethical expectations in academic writing. McDowell (2025) examines how the SkillSense Programme supports students in moving from anxiety to agency by improving assessment literacy, enabling learners to better understand assessment criteria, feedback, and performance standards. This enhanced understanding strengthens writing practices by fostering confidence, strategic engagement with tasks, and ownership of learning, which are crucial for producing authentic academic work. In contrast, Ayton et al. (2022) focus on academic integrity by exploring why students plagiarise, revealing links between unclear assessment expectations, fear of failure, and limited skills in academic writing and source use. Their findings suggest that plagiarism is often a consequence of inadequate assessment literacy rather than intentional misconduct. When viewed together, these studies suggest that transparent assessment design and explicit instruction in academic writing conventions can reduce integrity breaches and encourage ethical writing practices. By empowering students with clearer assessment knowledge and supportive feedback mechanisms, institutions can simultaneously address writing anxiety, promote responsible authorship, and reinforce academic integrity within higher education contexts (McDowell, 2025; Ayton et al., 2022).

CONCLUSION

Summary of Findings

This systematic literature review synthesised 24 high- to moderate-quality studies published between 2022 and 2026 to examine academic writing in the digital age across four interrelated themes: writing challenges and student identity, pedagogical interventions, AI-enhanced writing practices, and assessment literacy. The findings confirm that academic writing difficulties are multidimensional, encompassing cognitive, linguistic, affective, and sociocultural factors that often manifest as anxiety and weakened academic identity, particularly among EFL and novice writers (Khozaei et al., 2023; Benton & Marwah, 2024; Khatami et al., 2025; Anaktototy et al., 2023; Hadizadeh & Kanık, 2025). At the same time, evidence demonstrates that structured pedagogical interventions—such as grammar-focused instruction, collaborative writing, blended learning, and critical thinking–oriented tasks—can effectively scaffold writing development and support students' transition into academic discourse communities (Mishu & Jaashan, 2025; Memon et al., 2025; Ismayilli Karakoc et al., 2025; Alsalihi, 2025; Al Herz, 2025).

Implications and Suggestions for Future Research

The review further highlights the growing role of AI and digital tools in academic writing, showing that platforms such as ChatGPT, Grammarly, and AI-supported project-based learning can enhance autonomy, engagement, and writing quality when integrated pedagogically and ethically (Pum, 2026; Ndruru et al., 2025; Ha, 2026; Namatovu & Kyambade, 2025; Stanko et al., 2026; Nguyen et al., 2024). However, these benefits are closely tied to students' assessment literacy and understanding of academic integrity, as unclear expectations and limited writing skills remain key drivers of unethical practices such as plagiarism (McDowell, 2025; Ayton et al., 2022). Future research should move beyond perception-based studies toward longitudinal and experimental designs that examine how pedagogical scaffolding, AI literacy instruction, and transparent assessment practices interact to support sustainable, ethical academic writing development across disciplines and educational contexts.

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Conflicts of Interest

The authors declare that they have no conflicts of interest to report regarding the present study

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