



Using ChatPDF to interrogate academic readings: A qualitative study of international students' seminar preparation

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Abstract

International postgraduate students frequently encounter difficulties interpreting conceptually and linguistically dense academic texts when preparing for English-medium seminars in a Master of Education program at a large university in Australia. This case study explored how ChatPDF, an AI-powered text analysis tool, supported international students' comprehension, confidence, and participation in postgraduate seminars. It offers a qualitative account of how postgraduate international students use ChatPDF as a mediating resource to support academic reading and active participation in seminar discussions. Eighteen students across two TESOL courses in the Master of Education program employed ChatPDF over an eight-week period and responded to an open-ended survey regarding its perceived benefits and limitations. Thematic analysis of survey responses, supplemented by lecturer observations, identified key areas of ChatPDF impact: simplification of complex content, efficient summarisation, increased seminar confidence, and enhanced comprehension of culturally informed theoretical concepts. However, students also acknowledged potential limitations, including overreliance and diminished critical reading effort when the tool was used passively. Findings are interpreted through Cognitive Load Theory (Sweller, 1988), Sociocultural Theory (Vygotsky, 1978), and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), illustrating ChatPDF's role as a mediational scaffold that can enhance comprehension and participation when used reflectively.

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Introduction

Educators of English as an Additional Language or Dialect (EAL/D) from diverse global contexts often enrol in Master of Education (TESOL) programs to develop professionally while extending their understandings beyond immediate teaching contexts (Azmat *et al.*, 2013; Crandall & Christison, 2016; Cirocki *et al.*, 2024). Through undertaking such programs in Australian universities, these educators are immersed in predominantly English-speaking environments, where they are able to further develop communicative competence and intercultural communicative competence through active participation in culturally diverse seminars (Liu, 2021; Jin & Cortazzi, 2022). Within these learning environments, however, preparation for postgraduate academic seminars in TESOL Teacher Education appears to be challenging as this requires engagement with texts that are often lexically dense, conceptually complex, and culturally informed (Anderson, 2015; Delgadová, 2015; Jin & Cortazzi, 2022; Orellana & Iglesias, 2024).

At the university in this current study, the Master of Education (TESOL) program requires full-time on-campus study for international students, consistent with visa regulations, and involves a substantial reading load – typically two academic readings per course per week across four concurrent courses. Classes of 20–30 students engage in scaffolded small-group discussions before whole-class engagement, a strategy supported by research on cooperative learning benefits in higher education (Erbil, 2020; Johnson *et al.*, 2014). Despite prior experience as English language teachers, many students hold undergraduate degrees in linguistics or literature rather than education, and therefore must complete foundational studies in educational theory before progressing to advanced specialist and research courses. This demands high levels of English proficiency for comprehending complex texts and producing extended academic writing (Orellana & Iglesias, 2024).

To support learning, universities, including the university in this study, employ strategies such as peer mentoring and online discussion forums, both of which have demonstrated positive effects on engagement and retention (Gehreke *et al.*, 2024). More recently, generative AI tools like ChatPDF have emerged as supplementary aids, helping students manage complex readings and interrogate concepts beyond the text (McGrath *et al.*, 2024; Pinzolit, 2023). Given that strong reading comprehension is crucial for seminar success among TESOL learners, tools such as ChatPDF have the potential to support this process by helping students unpack complex texts and contribute more meaningfully in academic discussions. However, while generative AI tools are increasingly used in higher education, there is limited research examining how students integrate these tools into academic reading and classroom participation practices. Much of the existing literature prioritises outcomes or tool evaluation, leaving a gap in understanding AI's role as a mediating resource in disciplinary learning contexts (Fu & Hiniker, 2025; McGrath *et al.*, 2024). This current research emphasises the need for critical and guided use to avoid over-reliance on these tools.

Study aims

This study investigated the extent to which ChatPDF was perceived as a learning support tool by international students enrolled in the Master of Education (TESOL) program at an Australian university, particularly for seminar preparation and participation. It was guided by the following research questions:

1. How do students perceive ChatPDF's effectiveness in supporting comprehension of lexically dense, conceptually complex, and culturally informed academic texts?
2. In what ways does ChatPDF influence students' confidence and participation in seminar discussions?
3. What do students identify as the key benefits and limitations of using ChatPDF in their academic preparation?

Literature review

This review examines the challenges international postgraduate TESOL students encounter in academic readings and seminar participation in English-medium programs. It outlines key linguistic, cognitive, and intercultural academic literacy barriers, explores pedagogical and technological supports – including AI tools such as ChatPDF – and positions these within relevant theoretical frameworks. The section concludes by identifying the research gap this study addresses.

Academic reading challenges and seminar participation in TESOL education

Research on postgraduate international students' academic reading in TESOL and related fields has identified a cluster of interrelated challenges that can be broadly grouped into three areas: linguistic demands, cognitive demands (Alghail & Mahfoodh, 2016; Anderson, 2014; Delgadová, 2015; Orellana & Iglesias, 2024; Singh, 2014; 2016), and intercultural academic literacy (Moore, Faltin & Wright, 2003). Linguistic challenges include managing discipline-specific vocabulary and complex syntactic structures; cognitive demands relate to processing dense theoretical concepts and integrating ideas across texts; and intercultural academic literacy involves navigating unfamiliar academic conventions, expectations, and modes of participation. These overlapping challenges provide important context for understanding students' engagement with academic reading in TESOL teacher education.

Postgraduate seminar participation constitutes a central element of academic literacy development in Master of Education (TESOL) programs, where students are expected to interpret complex theoretical readings and engage in disciplinary discussion. Aguilar (2016) conceptualises the postgraduate seminar as an interactive instructional genre that integrates teaching, learning, and research in a dialogic space, where students transition from novices to

disciplinary participants. Within this space, reading serves not only to convey content but also to enable students to co-construct meaning, employ academic discourse effectively, and develop the confidence to contribute to discussions. However, international students entering English-medium programs frequently encounter linguistic, intercultural, and cognitive barriers that constrain full participation in these exchanges (Anderson, 2015; Singh, 2014; Vicary & Treffers-Daller, 2024; Wang et al., 2018; Zhang et al., 2021).

A substantial body of research has explored the linguistic, cognitive, and intercultural dimensions of international and EAL/D students' engagement with academic readings and seminar discussions. Anderson (2014, 2015) and Grabe (2008) highlight the dual linguistic and cognitive demands of academic reading, which requires strategic comprehension, inferencing, and metacognitive awareness. Without explicit instruction and support, these demands can overwhelm learners and hinder their ability to interact meaningfully with complex texts. Anderson's (2015) large-scale study across U.S. universities identified that international students frequently struggle with discipline-specific genres, strategic reading, and vocabulary comprehension, which affect seminar preparation. Similar studies report that reading in English is often experienced as lexically dense and conceptually complex, limiting students' ability to engage critically with texts (Alghail & Mahfoodh, 2016; Anderson, 2014; Delgadová, 2015; Orellana & Iglesias, 2024; Singh, 2014). At the level of spoken participation, limited confidence, anxiety, and different cultural interaction norms can reduce verbal contributions among international graduate students, sometimes leading to strategic silence in seminars (Coward & Miller, 2010; Wang *et al.*, 2018).

Within TESOL education, these challenges are compounded by the cultural and contextual complexity of educational theory itself. Hyland (2009) frames academic discourse as a socially situated practice reflecting disciplinary norms and power relations. For international postgraduate students, this entails learning to navigate new epistemologies while adjusting to Western academic conventions of argumentation and critique. Moore, Faltn, and Wright (2003) similarly note that linguistic and cultural constraints can inhibit critical thinking and discussion, even among proficient L2 users. The intersection of linguistic difficulty and unfamiliar academic culture underscores the necessity for scaffolding tools that not only simplify but also support students' participation in knowledge construction (Nguyen, 2021; Vyotsky, 1978).

AI and ChatPDF in supporting academic reading and participation

In response to these interconnected linguistic, cognitive, and intercultural challenges, researchers have explored a range of pedagogical and technological supports to scaffold academic reading and seminar participation. Pedagogical interventions have traditionally sought to address these challenges through structured support such as peer mentoring, collaborative discussion, and scaffolded reading tasks (Aguilar, 2016; Anderson, 2015; Nguyen, 2021; Zhang, 2021). While these strategies build confidence over time, they may not provide immediate solutions for students encountering highly technical readings in unfamiliar domains. The increasing availability of artificial intelligence AI-based reading tools such as ChatPDF

introduces new opportunities for supporting comprehension and engagement. Pinzolit (2023) describes ChatPDF as an AI-driven text analysis platform that allows users to interrogate academic texts conversationally, summarising complex material and clarifying conceptual meaning. The tool's efficiency in generating concise overviews and identifying key ideas has been recognised for its capacity to save time and reduce the cognitive burden of reading dense academic papers. Similarly, Panda (2023) identifies ChatPDF as an interactive platform that enhances engagement with digital texts, though he cautions that it should complement rather than replace analytical reading.

Emerging research on AI in academic reading suggests that these tools are most effective when integrated with self-regulated learning and critical literacy strategies (Fu & Hiniker, 2025; McGrath et al., 2024). Vicary and Treffers-Daller (2024) found that international students employ adaptive strategies – such as selective reading and collaborative discussion – to manage heavy reading loads. AI applications can extend these strategies by facilitating rapid comprehension and synthesis of ideas across texts. However, they also raise concerns about potential overreliance, superficial engagement, and reduced motivation for deep reading (Panda, 2023; Pinzolit, 2023). These tensions highlight the need for pedagogically informed approaches that balance efficiency with critical thought.

Theoretical Frameworks for AI-assisted reading with ChatPDF

The theoretical foundations for AI-assisted reading align with three complementary frameworks. Cognitive Load Theory (Sweller, 1988) posits that learning tools that minimise extraneous load enhance comprehension and retention. By reducing the burden of decoding complex syntax and specialised vocabulary, ChatPDF may liberate cognitive resources for conceptual understanding. Sociocultural Theory (Vygotsky, 1978) emphasises the role of mediating tools in supporting learning within the Zone of Proximal Development (ZPD). In this context, AI applications such as ChatPDF may function as digital scaffolds that help learners operate within their ZPD by transforming inaccessible texts into comprehensible material through guided interaction. Finally, the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) underscores the importance of intentional and context-sensitive integration of technology within teaching and learning.

In this study, the TPACK framework is used to interpret how students' use of ChatPDF reflects the interaction between technological affordances, pedagogical intentions, and disciplinary content knowledge, as recommended by Harris *et al.* (2009). Specifically, students' selective use of ChatPDF to clarify theoretical concepts, generate summaries for seminar preparation, and support discussion reflects context-sensitive integration rather than uncritical reliance on the tool. These practices, illustrated in the findings section below, highlight how AI use is shaped by pedagogical goals and disciplinary demands rather than by technology alone. These three frameworks were selected because, together, they foreground learning as both a cognitive and socially mediated process while accounting for the pedagogical integration of technology.

Cognitive Load Theory and Sociocultural Theory enable analysis of how AI tools support comprehension and participation through scaffolding and mediation, while TPACK provides a lens for understanding context-sensitive technology use within disciplinary learning.

Taken together, existing research on generative AI and academic reading has largely focused on tool affordances, learning outcomes, or students' perceptions of usefulness (Fu & Hiniker, 2025; Pinzolit, 2023). While this body of work provides valuable insights into how AI tools may support comprehension and efficiency, it offers limited understanding of how such tools are integrated into learners' academic practices over time, particularly in relation to participation in disciplinary learning contexts. Less attention in the literature of the field, so far has been paid to how postgraduate international students strategically use AI tools to mediate meaning-making, confidence, and interaction in seminar-based learning environments. This gap points to the need for qualitative, process-oriented research that examines AI use as part of situated academic literacy practices.

Research gap and focus of the present study

Despite the growing attention to AI in education, few empirical studies have examined its pedagogical value in postgraduate TESOL contexts or its influence on intercultural academic literacy. Much of the existing research has therefore paid limited attention to how AI tools reshape reading behaviours, classroom engagement, and confidence in disciplinary communication (Panda, 2023; Pinzolit, 2023). Addressing this gap, the present study investigates how international postgraduate TESOL students perceive and use ChatPDF to comprehend, discuss, and apply complex theoretical ideas during seminar preparation. It explores how such AI-assisted reading practices influence comprehension, efficiency, confidence, and critical engagement – issues central to developing academic literacy and intercultural communicative competence in postgraduate TESOL education.

Methods

Research design

This study adopted a qualitative case study design, which is appropriate for exploring complex educational phenomena within their authentic classroom context (Mackey & Gass, 2022; Yin, 2018). A case study was chosen because it enabled an in-depth examination of how students engaged with ChatPDF as part of their regular seminar preparation, capturing participants' experiences, perceptions, and behaviours in a naturalistic learning environment (Priya, 2021). Given the aims of the study, this design allows to focus on meaning-making rather than measurements (Mackey & Gass, 2022).

The study was conducted over an eight-week period within one semester across two advanced Master of Education (TESOL) courses at the university – one first-year course and one second-year course. All students enrolled in the two on-campus classes were included in the study context. During this period, a self-regulated preparatory reading strategy incorporating ChatPDF was introduced to support students' weekly seminar preparation and participation. At the end of the eight weeks, an open-ended questionnaire containing 10 text-response questions about ChatPDF use, perceived benefits, and limitations was distributed to all students (see Appendix A). In addition to the questionnaire, informal observations were conducted by the two lecturers, who were also the researchers, during the eight-week seminars to document patterns of students' engagement and participation in the classroom.

Participants and context

Eighteen participants were international postgraduate students enrolled in the two aforementioned Master of Education (TESOL) courses. They came from diverse linguistic and cultural backgrounds, including Kenya, Nepal, Bhutan, Timor-Leste, Vietnam, China, and India. Students participated in weekly two-hour seminars where they discussed questions in small groups before reporting outcomes to the class and participating in broader discussions. Preparation for seminars included academic readings and resources in a flipped classroom procedure where collaborative construction and application of knowledge was the focus of the seminar sessions (Erbil, 2020).

All the students in the two classes were invited to complete the survey at the end of the eight-week period. Participation followed a voluntary response sampling approach with no academic incentive or penalty. Of the 44 total students across both courses (18 in Course A, 26 in Course B), 18 participants (12 from Course A, 6 from Course B) completed the survey, representing a 41% response rate. The authors of this paper, who have been experienced instructors and facilitators of learning in the program for many years, served as observers of class participation throughout the eight-week period as part of normal teaching practice while ensuring objectivity in data handling.

Data collection

Two qualitative data sources were used: an open-ended survey questionnaire and informal classroom observations. At the commencement of the course, ChatPDF was introduced to students as a tool to support seminar preparation and as an optional resource during seminars to interrogate assigned readings more deeply. Students used the tool over an eight-week period to prepare weekly readings and participate in seminar discussions. At the end of the eight weeks, students were invited to complete an open-ended survey consisting of ten questions about their experiences using ChatPDF, including its perceived benefits and limitations (see Appendix A). The survey was hard copied and distributed to students after the seminar and was completed

outside class time. It took approximately 30 minutes to complete. Students were asked to return their completed responses at the following workshop by placing them in a collection box located at the classroom door. This procedure allowed students to submit their responses without identifying information, ensuring anonymity and reducing potential pressure to participate. Participation in the survey was voluntary.

In addition to the student survey, two course lecturers who facilitated seminar discussions observed and documented student activity and performance throughout the eight-week period. These informal observations were conducted during weekly seminars and recorded in reflective field notes immediately after each session to provide supplementary insights into patterns of student engagement and the quality of academic discourse during seminars. The observations focused on students' engagement with the assigned readings, their use of ChatPDF during preparation or discussion, and the nature and quality of their contributions to seminar dialogue.

Data analysis

Written survey responses were imported into QSR NVivo software for coding and thematic analysis following Nowell et al.'s (2017) approach to qualitative inquiry in TESOL and the six-stage process of Denscombe (2014), echoing Anderson and Atsenault (1998). This process involved familiarisation with data, coding, theme generation, review, and synthesis into an interpretive account of findings.

An inductive approach was used so that codes and themes emerged from the data rather than from preset categories. Codes with similar meanings were grouped and refined to form broader themes that captured recurring patterns in students' reflections on ChatPDF use. The emergent themes were then reviewed and synthesised to construct a coherent narrative aligned with the study's aims. Specifically, participant excerpts describing the use of ChatPDF to "break down complicated concepts," "generate summaries of the reading materials," and "extract key points quickly" were initially coded as concept clarification, summarisation, and key idea identification. Through iterative comparison and refinement, these codes were grouped under the theme "Simplification and clarification of complex texts", as reported in the Findings section. This theme captures students' perceptions of how ChatPDF supported their comprehension of dense academic readings and reduced linguistic and cognitive demands during seminar preparation. Observation notes were subsequently cross-referenced with the thematic data to enhance the credibility and depth of interpretation.

Ethical considerations

Ethical approval for this research was obtained from the University Human Research Ethics Committee (HREC) prior to data collection (Protocol No. 204139). Participation was voluntary, and informed consent was obtained from all respondents. Students were assured that their

participation or non-participation would not affect their grades or academic standing. All identifying information was removed from the data prior to analysis, and no participants' names were used in reporting to protect confidentiality. Observation notes were treated as secondary, de-identified reflections to ensure that no individual student was identifiable.

As the researchers were also lecturers in the program, potential power relationships were carefully considered. To mitigate this, consent procedures were managed separately from teaching activities, and participants were informed that they could withdraw at any time without academic consequence. These measures were intended to minimise perceived pressure and support ethical, voluntary participation.

Findings

Thematic analysis of survey responses, supplemented by lecturer observations, identified eight key themes reflecting students' perceptions of ChatPDF in postgraduate academic reading and seminar preparation and participation: simplification and clarification, summarisation and key idea identification, comparative understanding, efficiency and time-saving, seminar participation and confidence, development of critical reading, accuracy checking, and perceived limitations. While the study is qualitative in nature, Table 1 presents the number of participants who mentioned each theme. This descriptive count is included to show which themes were discussed more frequently in the dataset and does not imply any quantitative generalisation.

Table 1. Frequency of themes identified from participant responses.

Theme	No. of Participants (/18)	Percentage ¹
1. Simplification & clarification of complex texts	14	78%
2. Identification & summarisation of key ideas	13	72%
3. Comparative understanding & deeper learning	9	50%
4. Efficiency & time-saving	17	94%
5. Seminar participation & confidence	12	67%
6. Development of critical reading & thinking	8	44%
7. Accuracy checking & verification	10	56%
8. Limitations & drawbacks	11	61%

¹ Note: Percentages rounded to the nearest whole number.

Taken together, the eight themes represent interconnected dimensions of students' engagement with ChatPDF during seminar preparation and participation. Themes related to comprehension support were prominent, with most participants reporting simplification and clarification of complex texts (78%) and identification and summarisation of key ideas (72%), while half (50%) noted for deeper, comparative understanding. Themes associated with learning efficiency and participation were particularly noticeable, with almost all participants highlighting efficiency and time-saving (94%) and a majority reporting increased seminar participation and confidence (67%). The remaining themes – development of critical reading and thinking (44%), accuracy

checking (56%), and perceived limitations and drawbacks (61%) capture students' evaluative and reflective orientations toward the tool, revealing both critical awareness and concerns about overreliance. Collectively, these themes illustrate how ChatPDF functioned as a multifaceted support shaping students' reading, preparation, and participation practices.

Theme 1: Simplification and clarification of complex texts

Fourteen participants (out of 18) reported that ChatPDF significantly improved their comprehension of dense academic readings. They valued the tool's ability to "simplify the content in a more concise way" (Participant 11) and "break down complicated educational concepts into simple and understandable information" (Participants 12 & 15). Participant 12 elaborated: "many concepts and ideas from the readings are too difficult for me to understand as English is my foreign language. I ask the software to explain the concepts further, and the explanations are always much easier."

Students using English as an additional language particularly appreciated ChatPDF's paraphrasing and reorganising theoretical material, which reduced the linguistic and cognitive demands frequently associated with reading complex academic texts. Several participants also described using the tool to locate definitions or explanations scattered across multiple sections of a text. As Participant 7 noted, it helped to "compile details about the terms or theories that are not located in one place of the reading but in several places." This accessibility enabled greater engagement with texts that would otherwise appear overwhelming.

Lecturer observations provided additional indications of increased willingness to engage in seminar discussions following the introduction of ChatPDF. In weekly seminars, lecturers noted more frequent voluntary contributions from students, including increased turn-taking during group discussions and a greater number of students responding to questions about theoretical concepts from the readings. Students also appeared less hesitant when discussing complex ideas and were more likely to elaborate on their responses or refer directly to concepts from the assigned articles. In contrast to earlier seminars where students often paused for extended periods before responding or relied on brief comments, later sessions showed longer student responses and more sustained interaction between participants. These observational indicators suggested that students felt more confident engaging with theoretical material after using ChatPDF as a preparatory tool. These findings align with Pinzolit's (2023) assertion that AI tools can enhance readability by simplifying complex academic discourse, thereby supporting multilingual learners in engaging with disciplinary texts.

Theme 2: Identification and summarisation of key ideas

While closely related to simplification and clarification, summarisation and key idea identification were treated as a distinct theme because they reflect a different function of ChatPDF use. Whereas simplification and clarification focus on supporting conceptual understanding of difficult language or ideas, summarisation involves condensing texts to extract central arguments and key points, often in response to time constraints. Participants' responses indicated that summarisation was primarily used as a strategic tool for efficiency and orientation, rather than for resolving conceptual difficulty.

Thirteen participants described using ChatPDF as an aid for identifying key ideas and summarizing readings, particularly when managing multiple course demands or preparing notes for seminars under time constraints. Participant 18 explained: "When I'm short on time, ChatPDF can generate summaries of the reading materials to help me quickly grasp the key points or main arguments." Likewise, Participant 11 reported using it to "extract the important information from the course reading materials" and "highlight key points quickly."

Several participants used the tool as a form of academic filter to locate specific sections or details within lengthy readings. As Participant 11 shared: "I have used ChatPDF when looking for relevant literature when I am faced with a long article; I would ask if there are any sentences and paragraphs in the article that are relevant to the content." This strategy allowed students to engage more efficiently with necessary ideas and focus their efforts on interpretation and discussion rather than extensive information searching. These results corroborate Pinzolit's (2023) and Panda's (2023) findings that AI-assisted summarisation tools support strategic reading and comprehension.

Theme 3: Comparative understanding and deeper learning

Half of the participants (9 of 18) reported using ChatPDF to compare and contrast different perspectives across readings, thereby developing more comprehensive understandings of theories and frameworks. Participant 13 explained, "I can compare and contrast readings and weigh their relevance to my topic", while Participant 10 noted, "it helps me look for different perspectives on the same concept very quickly." They also used ChatPDF to pose follow-up questions and generate comparative insights from multiple sources. Participant 7 described, "I can make questions to elicit answers from different readings to understand different views from different authors". This kind of exploratory inquiry appeared to support higher-order learning through critical synthesis and reflection (Nguyen, 2021).

Lecturer reflections also confirmed that those who used ChatPDF for comparative analysis often contributed more nuanced theoretical comparisons in seminar discussions. These findings align with Vicary and Treffers-Daller's (2024) observation that self-regulated learners can integrate AI tools effectively to synthesise multiple sources of information.

Theme 4: Efficiency and time-saving

Efficiency emerged as the most frequently cited benefit, mentioned by 17 participants (94%). ChatPDF was described as “a fast and convenient way to get the main ideas,” enabling students to manage demanding reading schedules across multiple courses. Participant 18 explained: “It can save me significant time by summarising lengthy readings and allow me to allocate more time to other coursework or research.” This supports Sweller’s (1988) Cognitive Load Theory, suggesting that instructional supports which reduce extraneous load can enhance learning efficiency. These findings from the student survey were triangulated with lecturer observations, which confirmed that students appeared better prepared and were able to reference conceptual and theoretical notions from the readings more accurately within limited timeframes.

Theme 5: Seminar participation and confidence

Twelve participants indicated that ChatPDF had a positive impact on their confidence and participation in seminars. Participant 6 described it as providing “quick access to information,” which helped them “contribute more meaningfully to discussions”. Several participants mentioned feeling “less anxious about saying the wrong thing” (Participant 7) and “more confident to participate” (Participant 13).

Students often linked their increased confidence to feeling better prepared through their use of ChatPDF. Participant 15 shared that “it helps me get certain examples for expressing my ideas in the group, which resulted in a meaningful discussion involving participation from all team members.” Similarly, Participant 6 appreciated how the tool reduced anxiety, stating, “It makes me less worried about saying the wrong thing because I can check information before I speak.”

Lecturers observed a similar improvement, noting that students engaged more actively and referenced theoretical concepts more accurately. This pattern aligns with Aguilar’s (2016) conception of postgraduate seminars as dialogic spaces for disciplinary socialisation and the development of communicative competence through active participation.

Theme 6: Development of critical reading and thinking

Eight participants expressed mixed opinions regarding ChatPDF’s effect on their critical reading and thinking. Four participants perceived it as an aid to critical engagement. Participant 7 remarked: “It strengthens my skill of making questions when reading,” while Participant 12 shared that it helped “compare across readings to deepen understanding.” However, four others noted that the tool sometimes limited deeper analysis. For example, participant 3 commented that “it made me lazier,” and Participant 6 observed that “it did not encourage deeper thinking.”

These divergent views suggest that ChatPDF's contribution to critical reading and thinking depends on the nature of engagement. When used interactively and reflectively, it can promote analytical reasoning; however, passive reliance may inhibit deeper comprehension – a caution consistent with Hyland's (2009) argument that academic literacy encompasses both linguistic and critical dimensions.

Theme 7: Accuracy checking and verification of ChatPDF

Ten participants mentioned verifying ChatPDF's outputs against original texts to ensure accuracy and reliability. Participant 2 shared: 'To increase the accuracy and reliability, I've always cross-checked the information from the page numbers mentioned in answers.' Similarly, Participant 18 explained, "It is not infallible, and errors or omissions may occur. I tend to cross-check when I notice discrepancies between the outputs and my personal understanding." This behaviour demonstrates students' awareness of academic integrity and information reliability.

Others, such as Participants 11 and 13, reported verifying selectively, especially when doubtful about a response. A small minority acknowledged rarely checking outputs, raising potential concerns about overreliance on AI tools for academic understanding. These findings suggest an emerging awareness of academic integrity and accuracy among students navigating AI-assisted learning environments.

Theme 8: Limitations and drawbacks

Eleven participants discussed perceived limitations, including overreliance, reduced motivation, and potential inaccuracies. Participant 5 remarked, "It has made me lazy. When it was not there, I used to read the whole document which developed many of the other soft skills." Participant 6 shared a similar view, commenting that the tool "discouraged me from reading deeply."

A few participants raised concern about creativity and imagination. Participant 11 explained, "If I used it to answer all my extended thoughts, it would have limited my imagination." Technical limitations were also noted, such as restrictions on uploads or the inability to process image-based PDFs. As Participant 13 indicated, the free version only allows three uploads per day, so sometimes they had to wait until the next day to continue.

Despite these concerns, many participants acknowledged that the potential drawbacks affecting the development of their language and academic skills stemmed more from user behaviour than from the tool itself. As participant 11 concluded,

I believe that [ChatPDF] is very effective as a support tool. However, if it is used as a substitute for answering questions and completing assignments, it takes away from one's own thinking. Tools are great and convenient, I suppose it's the really effective use of them that can have a positive effect.

Discussion

The findings of this study demonstrate that ChatPDF served as a valuable mediational scaffold that enabled international postgraduate students to navigate the linguistic, conceptual, and intercultural demands of reading dense academic texts for TESOL seminars. While students' experiences varied, the overall pattern suggests that the tool enhanced comprehension, efficiency, and participation – core competencies identified in prior research as central to successful seminar engagement (Coward & Miller, 2010; Anderson, 2015; Aguilar, 2016). The discussion below interprets these findings in relation to theoretical frameworks and pedagogical implications for higher education.

ChatPDF as a mediational scaffold for comprehension and participation

Students' consistent reports that ChatPDF simplified complex content and clarified key ideas illustrate the tool's value as a cognitive scaffold. By transforming lexically and conceptually dense materials into accessible explanations, ChatPDF appears to have reduced extraneous cognitive load (Sweller, 1988). This enabled students to allocate cognitive resources to comprehension and integration of ideas rather than to surface-level decoding of unfamiliar language. Such processes align with research by Anderson (2015) and Grabe (2008), who emphasise that second-language readers require explicit supports to manage linguistic complexity and conceptual abstraction.

Simultaneously, the tool's interactive design enabled students to interrogate content, pose follow-up questions, and locate specific theoretical explanations within lengthy texts. These practices are consistent with Vygotsky's (1978) Sociocultural Theory and social constructivist view that knowledge is co-constructed through mediated interaction and dialogue. From this perspective, learning occurs as individuals engage with others, or with tools, that provide guidance and feedback within their Zone of Proximal Development (ZPD). In this study, ChatPDF functioned as a form of more knowledgeable others by offering immediate, scaffolded explanations that extended learners' cognitive reach and supported independent meaning-making. For many participants, the tool served as a dialogic partner – allowing them to question and explore texts in ways that mirror the seminar's own inquiry-based ethos (Aguilar, 2016). This interactive mediation supported greater comprehension and promoted preparedness for discussion, leading to observable increases in student participation and confidence.

Lecturer observations corroborated these self-reports: students engaged more actively, employed theoretical language more accurately, and demonstrated improved ability to connect readings to their professional experiences. These developments suggest that AI-assisted tools can support both linguistic access and disciplinary enculturation – key outcomes in postgraduate TESOL education (Hyland, 2009). By lowering linguistic barriers, ChatPDF provided equitable access to the forms of disciplinary dialogue necessary for developing academic and intercultural communicative competence.

Balancing efficiency with critical engagement

Despite these benefits, findings also highlight the importance of balancing efficiency with depth of engagement. One of the key findings acknowledged that ChatPDF's summarising function, while time-saving, occasionally led to overreliance or reduced motivation for deeper reading. This tension mirrors concerns raised in the broader literature on AI-assisted learning (Panda, 2023; Pinzolit, 2023), where convenience can compromise critical engagement. Students' varying degrees of cross-checking and verification illustrate divergent approaches to critical literacy – ranging from reflective use, where ChatPDF supports critical questioning, to passive use, where it substitutes for independent analysis.

These patterns reinforce the argument that technological tools alone cannot cultivate critical thinking; rather, criticality must be explicitly taught and modelled (Hyland, 2009; Nguyen, 2021). When used within a guided pedagogical framework, ChatPDF can prompt learners to evaluate, verify, and synthesise information – a process aligned with higher-order reading strategies described by Anderson (2014) and Nguyen (2021). Without such guidance, however, the tool risks reinforcing superficial learning habits. These dual potentials underscore the pedagogical responsibility of educators to frame AI tools as complements to, rather than replacements for, intellectual effort.

These findings also foreground the importance of AI literacy and responsible use in postgraduate education. AI literacy in this context extends beyond technical proficiency to include students' capacity to critically evaluate AI-generated outputs, recognise limitations and potential biases, and make informed decisions about when and how such tools should be used. Participants' practices of cross-checking, verification, and reflective use indicate emerging forms of ethical awareness, while instances of overreliance highlight the need for explicit pedagogical guidance, echoing concerns raised in prior research on AI-supported academic reading (Panda, 2023; Pinzolit, 2023). From a digital ethics perspective, responsible AI use involves positioning tools such as ChatPDF as mediational supports rather than substitutes for academic judgement, critical reading, or original thinking. These findings suggest that ethical AI integration should be taught and modelled as part of academic literacy development, particularly for multilingual students navigating complex disciplinary knowledge.

Integrating AI tools into TESOL pedagogy

From a pedagogical standpoint, the positive outcomes observed with ChatPDF in this study illustrates the value of integrating technology within established teaching frameworks rather than treating it as an independent learning device. The Technological Pedagogical Content Knowledge (TPACK) model (Mishra & Koehler, 2006) provides a useful lens for understanding this integration. Effective use of ChatPDF depended not only on its technological functionality but also on its purposeful embedding within seminar pedagogy. When lecturers encouraged students to use the tool for preparatory reading, reflection, and in-class discussion, it operated as a pedagogically aligned scaffold supporting comprehension, participation, and self-efficacy.

Moreover, ChatPDF's use resonates with collaborative and flipped learning models that position technology as an extension of dialogic and inquiry-based learning. Its integration can thus serve both cognitive and affective functions – reducing anxiety, increasing perceived competence, and promoting autonomy. As Vicary and Treffers-Daller (2024) note, international students employ a range of adaptive strategies to manage intensive reading demands; AI tools can enhance these strategies when accompanied by reflective and collaborative pedagogical structures.

Implications for practice and future research

The findings suggest several implications for teaching and learning in TESOL and similar higher education contexts. First, educators should introduce AI reading tools like ChatPDF explicitly and model effective, ethical use. Instruction should emphasise verification of AI-generated content, cross-referencing with original texts, and reflection on how summaries may shape interpretation. Second, integrating AI tools within existing scaffolds – such as guided reading tasks, small-group discussions, and reflective journals – can help students use them strategically while maintaining critical engagement. Finally, institutions should provide professional learning for educators to develop confidence in designing AI-integrated pedagogies consistent with cognitive, sociocultural, and technological frameworks.

Further research should examine the long-term impacts of AI-assisted reading on critical literacy and academic writing, particularly in multilingual postgraduate contexts. Mixed-methods or longitudinal studies could explore whether habitual use of tools like ChatPDF alters reading depth, disciplinary vocabulary development, or self-regulation patterns over time.

In synthesising these insights, ChatPDF emerges as a mediational tool that has the capacity to enhance comprehension, efficiency, and confidence in postgraduate seminar preparation. When integrated thoughtfully into pedagogical design, it supports international students' development

of academic literacy and intercultural communicative competence. However, its educational value ultimately depends on reflective, critically aware use – underscoring the need for ongoing dialogue among educators, students, and institutions regarding responsible AI integration in higher education.

Conclusion

This exploratory case study examined how ChatPDF, an AI-powered text analysis tool, supported international postgraduate students in comprehending and engaging with dense academic readings in a Master of Education (TESOL) program. Drawing on students' reflective survey responses and lecturer observations, the research found that ChatPDF functioned as an effective scaffold that mediated understanding, enhanced seminar participation, and increased student confidence. Participants consistently described how the tool simplified complex readings, identified key concepts, and enabled efficient preparation. These outcomes align with Cognitive Load Theory (Sweller, 1988), which posits that reducing extraneous processing supports comprehension and liberates cognitive capacity for higher-order reasoning.

Concurrently, ChatPDF's conversational features allowed students to query and verify information, fostering interaction with academic material that reflects Vygotsky's (1978) conception of mediated learning within the Zone of Proximal Development. When used reflectively, the tool supported dialogic learning by enabling students to engage with theoretical perspectives, connect them to their teaching contexts, and contribute more actively in seminar discussions. Lecturer observations confirmed that students demonstrated greater readiness and fluency in referencing readings and applying theoretical ideas to practice. This suggests that AI-assisted reading can enhance not only comprehension but also participation and disciplinary communication.

However, findings also revealed a need for balance. It was found that excessive reliance on ChatPDF might limit deep engagement or encourage surface-level understanding. While many participants practised cross-checking and verification, others admitted to depending on summaries without consulting the original texts. These differing patterns of use highlight that the pedagogical value of AI tools depends on students' critical and self-regulated engagement. From a TPACK perspective (Mishra & Koehler, 2006), ChatPDF's effectiveness arises not from its technological capacity alone but from how it is embedded within purposeful pedagogical design that promotes reflective inquiry and academic integrity.

The implications of this study extend to TESOL teacher education and broader higher education contexts. For international students navigating intercultural academic literacies, ChatPDF can function as an equalising scaffold – reducing linguistic barriers and supporting confidence in disciplinary dialogue. Yet to preserve the integrity of academic reading and critical thinking, educators should explicitly guide students in responsible AI use. Strategies might include structured reflection on AI-generated summaries, verification activities comparing AI outputs

with original texts, and seminar discussions that interrogate the limitations of automated interpretations. Such practices ensure that AI tools serve as mediational aids rather than replacements for academic engagement.

ChatPDF demonstrates significant potential to enhance comprehension, efficiency, and confidence among international postgraduate students preparing for academic seminars. When used critically and within a pedagogical framework, it operates as a tool for empowerment – supporting equitable participation and deeper understanding within TESOL education. However, its long-term educational value depends on cultivating reflective literacy practices that balance the efficiencies of artificial intelligence with the rigour of human judgment and inquiry.

Beyond its immediate pedagogical implications, and at a broader conceptual level, this study contributes to ongoing debates on AI-mediated academic literacy by foregrounding how generative AI tools are taken up as part of situated reading and participation practices in postgraduate education. Rather than evaluating AI in terms of performance outcomes alone, the findings illuminate the processes through which international TESOL students negotiate meaning, confidence, and disciplinary participation with AI as a mediational resource. This qualitative, practice-focused perspective extends current discussions of AI literacy by emphasising critical, reflective, and context-sensitive use, particularly in multilingual academic settings. In doing so, the study positions AI not as a replacement for academic literacy practices, but as a tool whose educational value depends on pedagogical framing and learners' ethical and critical engagement.

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Appendix A: Survey questions

1. Have you used ChatPDF to understand the course readings? How often?
2. If so, how have you used ChatPDF to prepare for course seminars and assignments?
3. To what extent have you found it helpful in understanding concepts presented in the course? Could you provide specific examples of how it has helped you?
4. In what ways has it been helpful in understanding educational theory presented in the course?
5. In what ways has it helped you to develop understandings that relate to your own teaching circumstances?
6. To what extent has this given you confidence to participate more actively or more purposefully in the seminar discussions? Provide examples.
7. To what extent has ChatPDF developed your critical reading skills? Could you provide examples of how it has helped to develop your critical reading skills?
8. To what extent do you cross-check the output of ChatPDF against the text of the reading for accuracy?
9. Are there any other benefits you have gained from using ChatPDF? What are they?
10. Are there any drawbacks of the application you have found? What are they?

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