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Scaffolding Postgraduate Thesis-Writing in a Virtual Learning Environment: Postgraduate Student Perceptions from a Non-English-Speaking Context



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Abstract

Thesis-writing is widely recognized as one of the most challenging aspects of postgraduate study, as it requires not only academic but also linguistic and psychological support. For Postgraduate Research students (PGRs) studying in non-English-speaking contexts, these challenges may be further complicated by the need to produce linguistically accurate and rhetorically appropriate academic texts in English. Although previous research has explored academic writing practices in various contexts, relatively little attention has been paid to how technology-enhanced environments can support thesis-writing. To address this gap, this study developed and evaluated a corpus-informed virtual learning environment (VLE) to support thesis-writing. The VLE was informed by two corpora: a learner corpus of thesis abstracts written by PGRs in the research context, a non-English-speaking country and a target corpus of abstracts written by PGRs from English-speaking countries. Corpus analyses informed the development of corpus-informed resources and tasks, which were integrated into a Moodle-based VLE. The study adopted an action research-informed descriptive case study design and involved seventy postgraduate students enrolled in a thesis-writing course. Participants' engagement with and perceptions of the VLE were examined through questionnaires, discussion forum posts, and Moodle learning analytics. The results indicate that the VLE, mediating between the individualized nature of thesis work and collective learning, promoted exploratory learning and provided sustained academic and psychological support throughout participants' entire thesis-writing journey. Taken together, the

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study findings suggest that corpus-informed VLEs can complement thesis supervision by integrating corpus consultation, instructional scaffolding, and collaborative learning into a single technology-enhanced environment that supports thesis-writing.

Keywords: Postgraduate research students; thesis-writing in non-English contexts; virtual learning environments; academic and psychological support

Introduction

Although the difficulties, experiences, and needs of Postgraduate Research students (PGRs) have evolved over the years, the dominant use of English in academia, often referred to as ‘Anglophonicity’, has become the defining characteristic of the academic world (Gimenez et al., 2024; Strauss, 2012). Within this linguistic landscape, becoming a member of the academic community requires the skillful use of English for reporting research, an expectation which puts PGRs from non-English speaking countries under enormous pressure (Lei & Hu, 2019; Nori & Vanttaja, 2023). Producing a coherent piece of academic writing is challenging even for PGRs who are native English speakers (Komba, 2015; Sadeghi & Khajepasha, 2015) as they must simultaneously manage genre conventions, meaning and rhetorical structure in their academic discourse (Richards, 1990). The challenge is even greater for PGRs who pursue their studies in non-English-speaking environments (Lillis & Curry, 2010).

Since academic writing is a complex skill which requires teaching and purposeful practice (Gimenez et al., 2024), English for Academic Purposes (EAP) courses have been designed to provide academic language support to university students (Curry & Lillis, 2004). Yet, these courses mainly address the general academic language needs of undergraduate students who are not expected to carry out or publish research. PGRs, on the other hand, have to conduct and disseminate original research, which requires advanced writing skills and specialised academic language support. For PGRs, producing cohesive and coherent academic texts related to their field is a major task (Charles, 2014). While engaged in academic writing, PGRs from non-English backgrounds generally need guidance not to experience “inadequacy and uncertainty” in the English-dominant academic community (Nori & Vanttaja, 2023, p. 675). When this support is not provided, they may get lost in ‘the mental labyrinth’ of the research processes and thesis-writing can turn into a journey along which they struggle with feelings such as isolation, anxiety and stress (White et al., 2024, p. 1224).

As the undergraduate-oriented EAP provision is often insufficient for the advanced and research-driven demands of postgraduate writing, PGRs from non-English-speaking countries need specialized support with thesis-writing. While previous research has examined the writing challenges of PGRs from different contexts (Charles, 2014; Lillis & Curry, 2010), relatively little attention has been paid to how Virtual Learning Environments (VLEs) can be used as pedagogical platforms to provide structured ongoing support throughout the thesis-writing process. This research gap is more evident in non-English-speaking contexts, where PGRs need continuous academic writing guidance. To address this gap, the present study investigates how a tailor-made VLE may provide structured and sustained academic writing support for PGRs from a non-English-speaking country during their thesis-writing journey. Specifically, the study explores how PGRs engage with corpus-informed resources and tasks within the VLE, and how they perceive the pedagogical value of this support in addressing their thesis-writing related challenges.

Grounded in sociocultural theory and informed by socio-constructivist perspectives and principles of instructional scaffolding, this study conceptualises thesis-writing as a socially mediated process

supported through interaction, guidance, and collaborative learning opportunities. This theoretical perspective provides the foundation for examining how engagement with a purposefully designed VLE may support PGRs in addressing the linguistic, rhetorical, and affective demands of thesis-writing.

Literature Review

Postgraduate research students from non-English-speaking contexts face both academic and linguistic challenges while writing their theses. Thus, they require support not only with disciplinary conventions and research processes but also producing accurate and coherent academic English discourse. In this regard, a set of recommendations has been proposed in the literature. For instance, the use of model theses was recommended as a means for PGRs to better understand academic writing genres in a relevant study (Sadeghi & Khajepasha, 2015). Likewise, years ago Paltridge (2002) suggested presenting PGRs with a range of thesis options to help them realize the kind of variation that occurs in actual texts and the rationale behind these variations. Although these studies highlight how scaffolding can support PGRs' development as academic writers, there is limited information about how such scaffolding practices can be systematically operationalised within VLEs to help PGRs in non-English-speaking contexts to deal with thesis-writing challenges.

Recently, several researchers have proposed supporting thesis-writing through a 'community of practice' (CoP) (Gimenez et al., 2024). From this perspective, thesis-writing develops through mutual engagement, joint negotiation of meaning, and participation in shared disciplinary practices (Wenger, 1998). Accordingly, this study adopts a CoP perspective to examine how collaborative engagement within a virtual learning environment (VLE) may support postgraduate students' academic writing development.

A VLE can expose PGRs to the target language (Kern, 2013), which is significant in non-English speaking environments where students are not surrounded by English. In a VLE, PGRs can be immersed "into the authentic social discourse situations and discourse communities" (Nguyen, 2010, p. 203). In these communities, students can individually or collectively analyze the organization, discourse structure, grammar and lexis of different chapters of authentic theses while receiving guidance on how academic texts are made cohesive and coherent. Consequently, they can not only understand "how writing is learnt and performed through social interaction" (Aitchison, 2009, p. 907) but also develop their academic writing. These practices align with sociocultural principles of learning, which consider learning as a socially mediated phenomenon that is developed through interaction with others. Within VLEs, discussion forums in particular serve as key spaces for collaborative inquiry, peer feedback, and shared meaning-making (Alqahtani & Altalhab, 2020; Strobl et al., 2024). According to Barnes (2023), learners' task engagement and willingness to revisit their work play a significant role in the effectiveness of online written corrective feedback. It is also reported that supportive feedback can increase student motivation and confidence in their writing skills (Li & Vandermensbrugghe, 2011) and promote autonomous learning (Strobl et al., 2024).

A corpus-based approach gives PGRs the opportunity to engage with 'expert corpora', which are specialised collections of texts produced by expert writers in a particular disciplinary community, to examine lexico-grammatical and discourse patterns, and to compare their own performance with the provided models (Lee & Swales, 2006). Accordingly, the integration of authentic corpus-informed resources into postgraduate writing practices is recommended since they provide evidence-based means of supporting the development of disciplinary writing practices. (Charles, 2014; Sadeghi & Khajepasha, 2015). With technological developments, more and more instructional programs have been employing corpora to provide better descriptions of languages and to offer more effective ways for language learning (Charles, 2014). However, most of these studies "have focused on teaching a

corpus approach per se rather than incorporating it into the writing process” (Yoon, 2008, p. 31). As PGRs studying outside of English-speaking contexts require specialized language guidance in thesis-writing, a corpus-informed approach, which draws on authentic language data to support writing development, can be integrated into a VLE to “mediate the corpus, design it from the very outset” and enable its use “as a guide or tool” (McCarthy, 2001, p. 129). In this way, PGRs may develop greater awareness of the moves that make up the generic thesis structure in accordance with genre-based approaches, which emphasize the relationship between communicative purposes and textual organization, as well as the lexico-grammatical patterns required to realise these moves. Recent research also indicates that collaborative corpus-informed practices in VLEs have the potential to enhance learners’ genre awareness, writing confidence, and engagement with academic discourse (Barnes, 2023; Chen, 2025; Hirschel, 2025).

Furthermore, VLEs can provide important socio-emotional support by enabling PGRs to connect with peers and develop a sense of belonging, thereby reducing feelings of uncertainty, isolation, loneliness, and potential intentions to discontinue their postgraduate studies (White et al., 2024). Such supportive online environments may also alleviate thesis-writing-related anxiety and stress as they provide ongoing instructional scaffolding (Barnes, 2023; Gimenez et al., 2024; Wang & Vasquez, 2012). Beyond these affective benefits, VLEs can facilitate active knowledge construction and learner engagement, enabling PGRs to achieve intended learning outcomes while developing competencies associated with lifelong learning (Alqahtani & Altalhab, 2020; Caena, 2019; Chen, 2025; Mei et al., 2025; Nguyen & Kember, 2023). Recent research suggests that well-designed VLEs can foster the ‘Personal, Social and Learning to Learn’ key competence (LifeComp) (Mei et al., 2025), which encompasses abilities of reflection, effective time and information management, collaboration, resilience and management of one’s own learning (European Commission, 2018). Despite this potential, VLEs in some higher education contexts are still used as delivery platforms of materials with insufficient emphasis on student motivation and engagement (Winstone et al., 2021). These practices contrast with contemporary views of higher education, which advocate learner-centred exploratory learning within interactive environments that promote agency, collaborative learning and sustained academic engagement.

Although significant findings on PGRs’ thesis-writing trajectories have been reported and several pedagogical interventions have been proposed in recent research (Gimenez et al., 2024; Nori & Vanttaja, 2023; White et al., 2024), there remains a gap in the literature regarding the thesis-writing-related experiences, challenges, and support needs of PGRs from non-English-speaking countries. Previous research has highlighted that PGRs require support not only in language development but also in academic and psychosocial skills (Ekpoh, 2016; Komba, 2015; Lei & Hu, 2019; Li & Vandermensbrugghe, 2011; Sadeghi & Khajepasha, 2015; Strauss, 2012). This need can be addressed by developing an intervention that combines content with pedagogical approaches (Komba, 2015) while carefully considering student-related factors such as agency and motivation, as well as institution-related factors including “organizational climate” and “academic culture,” in order to align the intervention with learners’ needs and institutional realities (Nori & Vanttaja, 2023, p. 687).

In response to these challenges, current thesis-writing practices need to be restructured, as they often confine thesis-writing to a one-to-one student-supervisor relationship (Ekpoh, 2016; Gimenez et al., 2024; Lillis & Curry, 2010; Strauss, 2012; White et al., 2024). To address this need, the present study developed and integrated a VLE into a postgraduate thesis-writing course considering PGRs’ challenges in the present research context. Unlike traditional VLEs, the VLE designed in this study integrated interactive tasks to scaffold corpus-informed exploration and provide opportunities for collaborative negotiation of meaning. Adopting sociocultural theory (Vygotsky, 1978) as its primary theoretical framework, this study conceptualised scaffolding as the socially mediated, jointly negotiated support which enabled PGRs to gain access to expert models and shared knowledge. To investigate

PGRs' activities and interactions in this VLE and to elicit their perceptions of its use, the present study sought answers to the following research questions:

1. How do PGRs use VLE tasks and resources in their academic writing practices?
2. In what ways do PGRs participate in VLE activities and discussion forums during the thesis-writing process?
3. How do PGRs perceive the effectiveness of the support provided in the VLE for thesis-writing?

Method

Research Design

This study adopted an action research-informed descriptive case study design, drawing on Burns' (2010) conceptualisation of action research as a systematic, reflective inquiry into one's own teaching context and Kemmis and McTaggart's (1998) Plan–Act–Observe–Reflect cycle. Figure 1 illustrates how action research cycles of planning, implementation, observation and reflection guided the research processes over consecutive semesters in the present study. More specifically, it employed qualitatively driven, multi-source methodology. Qualitative data provided the primary interpretive basis of the study, while quantitative data were incorporated solely for descriptive purposes to document patterns of participation, task engagement, and general trends in students' responses. No inferential statistical analyses were conducted, as the quantitative findings served only to complement the qualitative interpretation of participants' experiences. This design was considered appropriate because the study aimed to examine the participants' experiences and engagement in a VLE-supported thesis-writing course. As the study involved the implementation and refinement of an instructional intervention across consecutive semesters, an action research-oriented case study design was used for an in-depth investigation of the phenomenon.

Convenience sampling method was employed in the present study (Golzar et al., 2022). This sampling technique was considered appropriate because the researchers had direct access to participants enrolled in the thesis-writing course. Accordingly, the study relied on qualitative and quantitative data sources collected across repeated action research cycles, including Moodle participation records, DDL task

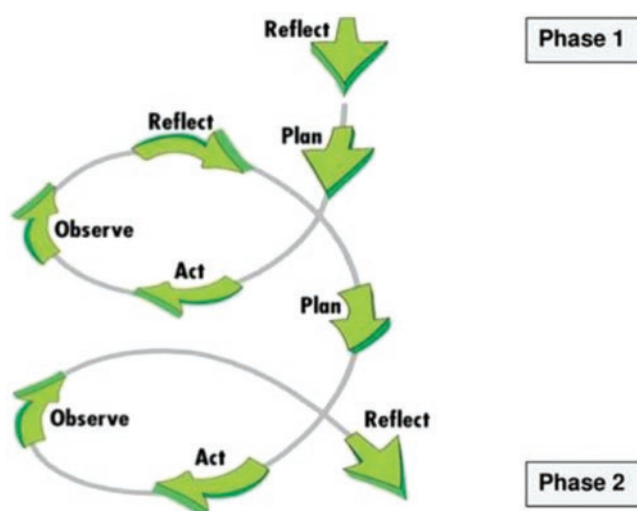


Figure 1 *Plan–Act–Observe–Reflect Cycle (Kemmis & McTaggart, 1988)*

analytics, discussion forum interactions, and an end-of semester questionnaire containing both structured and open-ended items. Qualitative and quantitative data were therefore collected and analysed in a complementary manner: quantitative data were used to describe patterns of engagement and general trends in participants' responses, while qualitative data were used to interpret PGRs' experiences, perceptions, and meaning-making related to their VLE-supported thesis-writing experiences.

The Research Context

The study was conducted at Eastern Mediterranean University, North Cyprus, which offers a wide range of postgraduate programmes to a diverse international postgraduate student population. Postgraduate students take the thesis-writing course after they complete departmental postgraduate coursework and begin thesis preparation. The course comprises 4 hours of weekly in-class instruction over 13 weeks (approximately 52 contact hours), focusing on academic conventions, ethics, moves, sub-moves, and language used in each chapter of a classical thesis. All students enrolled in the thesis-writing course within a period of nine consecutive semesters were invited to participate in the study. Although the study spans multiple action research cycles across nine semesters, only minor revisions were made to task sequencing, prompts, and scaffolding procedures across semesters based on reflective evaluation of student engagement and feedback.

Participants

A total of 70 postgraduate students volunteered to participate in the study. These students were enrolled in Master's or PhD programmes across a range of disciplines, most commonly Architecture and Engineering, and represented a linguistically and culturally diverse population from non-English-speaking countries including Iran, Iraq, Libya, Jordan, Lebanon, Türkiye, North Cyprus, Kazakhstan, Turkmenistan, Palestine, Eritrea, Cameroon, Nigeria, Mongolia, and Pakistan. Their diversity in disciplinary backgrounds and thesis-writing stages reflected the heterogeneity of the postgraduate population for whom the VLE was designed in this study. Nevertheless, participants shared broadly comparable academic writing needs because the intervention focused on general academic English and cross-disciplinary thesis-writing conventions rather than discipline-specific language practices. Overall, approximately 40% of the participants were of Turkish background, while the remaining 60% came from a variety of different countries. The participants were between the ages of 22 and 27 and consisted of almost equal numbers of male and female students. They were at different stages of postgraduate study, including master's and PhD levels.

On average, the participants were generally positioned at an intermediate level of English proficiency as indicated by their placement in the departmental postgraduate programme. Although no additional standardised proficiency tests were administered for the purposes of this study, PGRs generally displayed functional but still developing academic English, particularly in relation to thesis-level writing demands. Similarly, information about PGRs' prior English learning was derived from their self-reports and informal background information during the course. Therefore, participants were treated as having broadly comparable educational histories rather than equivalent English proficiency levels. Although participants came from different disciplinary and academic backgrounds and included both master's and PhD students, they reported comparable academic writing challenges, particularly with respect to lexico-structural aspects of English, rhetorical organisation, and confidence in expressing disciplinary content in academic English. As the study was conducted across multiple action research cycles, cohort sizes varied from semester to semester. Despite variations in cohort size across semesters, recurring needs-analysis patterns and consistent instructor observations suggested comparable academic writing challenges across groups.

Research Procedures

As demonstrated in Figure 2, the action research cycle involved four main stages. A detailed description of each stage is presented below.

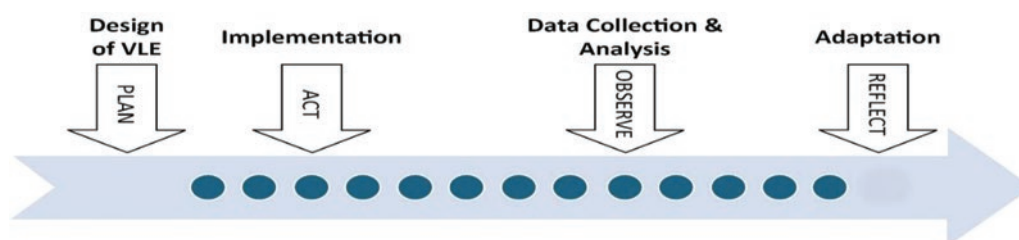


Figure 2 *Research Procedures*

Design and Development of the VLE

The first stage involved the design and set up of the VLE. At this stage, resources, tools and tasks were uploaded using Moodle as a software management system due to its rich variety of tools which enabled management of online learning, student tracking, assessment, and resource delivery. Following the upload of the resources, tools, and tasks, two specialised corpora compiled by the second author were incorporated into the VLE. One of the corpora included expert-model abstracts written by PGRs from English-speaking countries and the other involved the abstracts written by PGRs in the research context. Abstracts were selected for corpus compilation because they provide condensed representations of the communicative purposes, rhetorical organisation, and linguistic features of academic research writing, making them particularly suitable for corpus-informed genre analysis (Jordan, 1997; Paltridge, 2002; Swales, 1990). The expert-model target corpus was compiled electronically from publicly available thesis and dissertation abstracts accessed via the World Wide Web and comprised approximately 174,000 words. To qualify for inclusion, abstracts had to be written at Master's or PhD level and originate from universities in countries where English is the native language. In line with key principles of corpus design, namely size, content, and representativeness (Hunston, 2002), the corpus included four main disciplinary sub-corpora: Arts and Humanities, Social Sciences, Sciences, and Architecture/Urban and Regional Planning.

Each sub-corpus contained 150 representative abstracts. The Arts and Humanities sub-corpus included abstracts from Anthropology, Archaeology, Art History, History, Language/Literature/Linguistics, Philosophy/Religion/Theology, Psychology, Music, and Sociology. The Social Sciences sub-corpus covered disciplines such as Business Administration, Communications, Demography, Economics, Education, Geography, Information Technology, Accounting, and Political Science. The Sciences sub-corpus consisted of abstracts from Algebra, Biological Sciences, Chemistry, Computer Science, Engineering, Mathematics, and Physics, while the Architecture sub-corpus included abstracts from Architecture, Interior Architecture, Landscape Architecture, and Urban and Regional Planning. In compiling the corpus, the researchers prioritised topical diversity rather than thematic uniformity in order to represent a wide range of research topics while maintaining genre consistency.

The first stage also included the upload of a 165-item keyword list, concordances and a Bank of Moves. In this study, the term 'move' is used to refer to a functional rhetorical unit for achieving a communicative purpose in a genre, while sub-moves are used to refer to the rhetorical steps for

realising each move (Swales, 1990). The 165-item keyword list consisted of word families identified as playing a key role in the realisation of rhetorical moves and sub-moves in thesis abstracts. The list was developed based on frequency and functional relevance in the target corpus and included a combination of high-frequency academic words and discipline-sensitive lexical items frequently occurring across thesis abstracts from different disciplinary areas. As the study adopted an EAP rather than a discipline-specific ESP orientation, the focus was on cross-disciplinary academic language patterns and rhetorical conventions commonly occurring in thesis abstracts rather than highly specialised disciplinary terminology. The word families in the list primarily function to signal purpose, methodology, results, and significance, and cover multiple parts of speech, including nouns, verbs, adjectives, and adverbs relevant to academic discourse. Although the corpora were initially compiled from thesis abstracts, the corpus-informed principles underpinning the VLE were subsequently extended to support broader thesis-writing components through scaffolded tasks addressing rhetorical organisation, academic language, and genre conventions across different sections of the thesis.

Consequently, specialised tasks were designed to guide PGRs' engagement with all the uploaded resources. In total, seventeen online tasks were developed, comprising eight data-driven learning (DDL) tasks and nine discussion forums. The table provided in Appendix A summarises each task, including topic, task type, target move or linguistic feature, required corpus interaction, and intended learning outcome. The DDL and discovery tasks were designed to scaffold students' engagement with corpus-informed academic writing practices, while the discussion forums were designed to extend classroom interaction into the VLE and support collaborative reflection on key thesis chapters. As can be seen from Appendix A, teacher-directed data-driven tasks introduced students to corpus tools, with instructors modelling concordance searches, demonstrating analytic procedures, and providing scaffolded prompts to support interpretation of patterns. Student-led discovery tasks, on the other hand, involved PGRs in autonomous exploration of corpus data, including identifying moves and sub-moves, analysing linguistic patterns, and comparing their findings with model texts. Finally, discussion forums facilitated collaborative meaning-making, peer feedback, and community-building amongst PGRs who took the thesis-writing course.

Implementation of the Thesis-Writing Course

The 'Act' stage in Figure 2 involved the implementation of the thesis-writing course. In the first lesson of the semester, the VLE was introduced, its rationale explained, and the first task on Moodle was completed collaboratively to familiarise PGRs with the VLE. In this lesson, all PGRs enrolled in the course were informed about the aims of the study and invited to participate voluntarily; only those who provided consent were included in the research data set. Across the nine semesters, 70 volunteer postgraduate students participated in the study. Once volunteer participants were determined, they were assured that their responses would be anonymised. Each week throughout the semester, discussion forums were opened and introduced simultaneously with class discussions on particular topics and each discussion forum was kept open for at least 7-10 days. Thus, in addition to in-class instruction and discussions, PGRs had the opportunity to do online corpus-based exploration, participate in discussions and complete online tasks in collaboration with their peers in the VLE. As a compulsory part of the course, the VLE tasks made up 30% of the passing grade, with 60% in-class component, and 10% for participation in class discussions. Out of all tasks, PGRs had a choice to do 80% of them in a semester.

Data Collection

During the 'Observe' stage, data were collected using both quantitative and qualitative methods. The quantitative data were collected to document participation patterns and tendencies in students'

engagement with the VLE, whereas qualitative data were elicited to understand how PGRs experienced, interpreted, and evaluated the support provided through the VLE. Quantitative data collection involved the use of Moodle tools to track PGRs' participation and interactions in the VLE. These quantitative data included participation frequencies, number of task attempts, performance averages in DDL tasks, and observable patterns of activity in discussion forums. Quantitative data were used descriptively to identify patterns of participants' engagement with the VLE. Qualitative data were collected through the end-of-semester questionnaires, which included structured and open-ended questions (Please see Appendix B). In addition, qualitative evidence was drawn from PGRs' written contributions in the discussion forums and representative comments recorded in the questionnaire responses, which enabled deeper examination of participants' perceptions, interactional patterns and their reported support needs. The end-of-semester questionnaire was developed by the researchers specifically for the purposes of this study (Please see Appendix B). As the study is founded on socio-cultural theory, which conceptualises learning as socially mediated and contextually situated, the questionnaire items were designed to capture PGRs' experiences of support, collaborative interaction, mediated learning in the VLE within their real-life postgraduate academic setting.

The 20-item questionnaire included both open-ended and structured items to capture detailed responses alongside complementary descriptive data. The first three items explored PGRs' views on academic English requirements in postgraduate education. Items 4 -12 and 19 -20 focused on the perceived usefulness of the thesis-writing course and the support it provided for thesis-writing. Items 13–18 specifically addressed students' experiences with and perceptions of the VLE integrated into the course (Please see Appendix B). Hence, while the structured questionnaire items provided comparable descriptive evidence, open-ended questions enabled the collection of in-depth information regarding PGRs' perceived needs, frequency of VLE use, and their views on the usefulness of the course and VLE activities. Consequently, qualitative findings reported in the Results section were derived from two complementary sources: open-ended questionnaire responses collected from all participants and discussion forum interactions illustrating collaborative meaning-making within the VLE.

Ethical approval for the study was obtained from the institutional review board prior to the initiation of the study and confidentiality was maintained throughout the research process. Validity of the questionnaire was ensured through careful alignment between the questionnaire items, research questions of the present study and the learning outcomes of the thesis-writing course. In addition, credibility of the findings was strengthened through data triangulation by combining Moodle participation records, structured questionnaire items, open-ended responses, and discussion forum contributions. Reliability and consistency were supported through the use of standardized structured items and the cyclical nature of the action research design, in which each implementation cycle informed subsequent refinements of the VLE and data collection procedures.

Data Analysis

Data analysis proceeded in two complementary phases. First, quantitative data derived from structured questionnaire items and Moodle analytics were analysed descriptively in order to summarise general patterns of engagement, participation and self-reported perceptions. These analyses included frequencies, percentages, task-attempt counts, and performance averages, which were used to describe how often students engaged with particular tasks, and how they evaluated the usefulness of the course and VLE components. Alongside descriptive analysis of quantitative data, content analysis was employed to analyse qualitative data obtained from the open-ended questions (Cohen, 2000).

Students' written contributions in the discussion forums were also analysed using inductive content analysis. The main aim of this analysis was to identify recurring perceptions, salient interactional

patterns, and reported experiences of academic, social, and emotional support. This process involved recursive reading of the qualitative data to identify recurring patterns, shared meanings, and striking participant experiences, followed by grouping similar responses under key concepts and themes and identifying the “core consistencies and meanings” emerging from the data (Patton, 2002, p. 453). Thus, the analysis focused on identifying thematic patterns across participants’ responses through repeated comparison within and across data sources. Emerging themes were compared across data sets derived from questionnaire comments, forum interactions, and Moodle participation patterns in order to strengthen interpretation of findings and identify convergences or divergences in PGRs’ perceptions. The qualitative analysis followed an interpretive and exploratory approach based on recursive thematic analysis and researcher triangulation. Trustworthiness was strengthened through triangulation, recursive analysis, and ongoing discussion of emerging themes between the researchers. The involvement of two researchers contributed to analytic consistency through collaborative reflection and cross-checking of emerging themes.

The inductive qualitative analysis generated recurring thematic categories such as perceptions of advanced academic English support, frequency and purpose of VLE use, perceived usefulness of specific VLE components, academic and socio-emotional support provided by VLE, and patterns of interaction and collaborative meaning-making in the discussion forums. These themes were refined through repeated comparison within and across questionnaire comments, PGRs’ forum contributions, and descriptive data. In addition to questionnaire data, PGRs’ engagement with data-driven learning (DDL) tasks and discussion forums on Moodle was analysed by reducing the data to a manageable size and identifying salient themes and interaction patterns. For the DDL tasks, Moodle-generated records were examined quantitatively in terms of number of attempts and average performance scores to capture the level and distribution of PGRs’ engagement across tasks.

The data collected from the discussion forums were analysed considering both quantitative and qualitative dimensions. Initially, the number of posts and general response patterns were recorded descriptively and afterwards the content of selected exchanges was examined qualitatively to identify evidence of peer support, collaborative meaning-making, and shifts from teacher-led to more student-led interaction. Finally, representative participant contributions were selected and highlighted to support the reporting of research findings (Patton, 2002). Reliability was enhanced through consistent administration procedures across research cycles and systematic analytic procedures applied to the collected data. Furthermore, the involvement of two researchers in reviewing the analytic procedures and interpretations contributed to reliability by allowing cross-checking of emerging patterns and ensuring consistency in the identification of themes. The inclusion of both quantitative and qualitative data collected through questionnaire questions and Moodle tools which provided detailed information regarding PGRs’ VLE participation and interactions enabled triangulation of findings, thereby strengthening the trustworthiness of the overall study results.

Results

To address the three research questions asked at the outset of the study, PGRs’ engagement with data-driven language (DDL) tasks, participation in discussion forums, and their responses to the questionnaire questions were analysed.

PGRs’ Engagement with VLE Tasks and Corpus-Informed Resources (RQ1)

Table 1 presents PGRs’ overall engagement with the eight DDL tasks. In this study, an attempt refers to each instance in which a student completed or submitted a response to a given task on Moodle. The average performance represents the mean percentage score attained by all students across all

attempts for that specific task. These two indicators demonstrate the extent of student engagement and the degree to which each DDL task was successfully completed.

As displayed in Table 1, PGRs demonstrated substantial engagement, with attempts ranging from 123 to 873 across tasks. The first task, which required matching thesis-aim collocations, generated 873 attempts with an average performance of 55.72%. The second task, focusing on identifying and avoiding phrasal verbs in academic writing, resulted in 561 attempts and an average performance of 63.5%. The third task, which highlighted the rhetorical structure of thesis aim statements, had a high-performance average of 84.34% across 398 attempts. The fourth and fifth tasks, on distinguishing methodological terms and consulting the corpus for academic collocations, were completed with strong performance averages of 88.88% (460 attempts) and 77.76% (544 attempts), respectively.

Table 1. *Analysis of PGRs' Engagement with Data-Driven Learning (DDL) Tasks*

Task	Focus	Attempts	Average performance (%)
DDL 1	Collocations for thesis aims	873	55.72
DDL 2	Avoidance of phrasal verbs in academic texts	561	63.50
DDL 3	Statement of the aim	398	84.34
DDL 4	Qualitative and quantitative approaches	460	88.88
DDL 5	Academic collocations	544	77.76
DDL 6	Methodology subheadings	312	56.58
DDL 7	Different uses of 'study' in theses	415	55.54
DDL 8	Ordering an abstract	123	—

Note. DDL = data-driven learning. Em dash indicates task not graded.

The sixth task, which required students to order sub-headings in a methodology chapter, drew 312 attempts and an average performance of 56.58%. Although this task did not draw directly on abstract-writing conventions, it targeted organisational skills relevant to thesis-level writing. The seventh task, a student-led discovery activity exploring multiple uses of word *study* in the corpora, was attempted 415 times, with a relatively lower performance average of 55.54%, indicating its conceptual difficulty. The final DDL task required students to order the moves of a thesis abstract; this task generated 123 attempts but was not graded as the intention was to raise PGRs' awareness of thesis abstract organisation through this task.

Collectively, the DDL task results suggest that PGRs engaged actively with corpus-based exploration and demonstrated reasonable success in applying the linguistic and rhetorical patterns highlighted in the course. While not all tasks directly targeted abstract writing, PGRs were asked to complete abstract-focused tasks (e.g., DDL 8) in addition to tasks on thesis-writing competencies such as rhetorical moves or methodology organisation in line with the objectives of the thesis-writing course and the research questions.

PGRs' Participation and Interaction in VLE Discussion Forums (RQ2)

To examine interactional patterns among PGRs, data from one representative semester were analysed. As can be seen from Table 2, PGRs contributed actively to the nine discussion forums, initiating posts, responding to peers, and expanding discussions over time. As displayed in Table 2, early in the semester, the forums reflected a teacher-led pattern dominated by question-answer exchanges; however,

Table 2. *Patterns of Response and Interaction in Discussion Forums*

Forum	Number of posts (student-initiated)	Patterns of response	Interaction patterns
DF1 (PI)	15	Q-A (11); C-C (3); Q (1)	S-T (14); S (1)
DF2 (Prop)	11	Q-A (4); C-C (3); C (1); Q (3)	S-T (7); S (4)
DF3 (Intro)	11	Q-A (4); C-C (2); Q (4); C (1)	S-T (6); S (5)
DF4 (Lit Rev)	17	Q-A (12); C-C (2); Q (3)	S-T (10); S (3); S-S (4)
DF5 (Meth)	10	Q-A (2); C-C (7); Q (1)	S-T (4); S (1); S-S (5)
DF6 (Anlys)	11	Q-A (5); C-C (2); Q (3); C (1)	S-T (3); S (4); S-S (4)
DF7 (Conc)	13	Q-A (7); C-C (1); C (1); Q (4)	S-T (1); S (5); S-S (7)
DF8 (Abs)	11	QA (4); CC (1); Q (2); C (4)	S-T (3); S (6); S-S (2)
DF9 (Overall)	14	C (13); C-C (1)	S (13); S-S (1)

Note. Patterns of response: Q-A = question–answer; C-C = comment–comment; Q = question (no response); C = comment (no response). Interaction patterns: S-T = student–teacher interaction; S-S = student–student interaction; S = no interaction.

as the course progressed, student-to-student exchanges increased, suggesting emerging collaborative knowledge-building.

Data in Table 2 also demonstrate that there was considerable collaboration between PGRs in terms of ideas and sharing of outside resources and links. Overall, the forum analysis suggests that the VLE facilitated sustained dialogue and peer-supported learning, complementing the scaffolding provided in class. As for the interaction patterns, the data disclosed that as the semester progressed, PGRs' autonomy increased since early forums contained many student-teacher interaction (S-T) but subsequent forums in the rest of the semester showed a noticeable increase in student–student interactions (S-S). In addition to reduced instructor dependence, these findings signify greater peer support. Qualitative data confirmed that PGRs' satisfaction with VLE tasks increased towards the end of the semester as can be seen from the following expressions of two participants.

This(sic) tasks have become more interesting at the end of semester.

I guess everyone understood, how fun it is to help each other.

Interestingly, however, at one instance data analysis revealed that after asking a question and not receiving a response from group members, one of the participating students got quite upset and complained about the situation in the following way:

I thought there will(sic) be more helpful ideas and suggestion (sic) from master students. However no one even bothered (sic) to answer my questions. You are very “helpful” my friends.

Furthermore, PGRs' contributions below revealed that there was knowledge construction and genuine collaboration among PGRs in the discussion forums.

Student A: should we mention about future work at the end of conclusion?

Student B: Hello XXX, how are you (ne yapiyon)))? Actually, answer to your question was mentioned in class by our instructor (sic). As I remember she said that the main

sign of a good study is giving opportunity (sic) to other researchers to carry out future work in this field. This information should be provided exactly in conclusion part.

Teacher: 😊...Good question, good answer.... Thanks to both of you....

Student C: One of the important thing that each researches (sic) should know is that science is vast, and you can not believe that your research is the end of that topic (sic). Therefore, I(sic) should be humble and for sure express the further work at the end of this chapter.

As can be seen in the interaction above, Student A initiated the discussion through questioning and clarification seeking while Student B contributed by recalling and sharing previously learned disciplinary knowledge. Subsequently, Student C extended the discussion through reflection and elaboration on broader research practices. Together, these discussion-forum interactions seem to reflect different phases of collaborative knowledge-construction, peer scaffolding, and socially constructed learning.

PGRs' Perceptions of the Effectiveness of VLE-Based Thesis-Writing Support (RQ3)

The major themes that emerged from the analysis of structured and open-ended questions in the questionnaire are noteworthy in that they reflect participating students' voices. Significant results and key themes that emerged from the analysis of PGRs' responses to the questionnaire questions are reported below.

Significance of Advanced Academic English Support

A large majority of participants (98%) believed that a satisfactory or high level of English is necessary for succeeding in an English-medium postgraduate programme. Related to this, most of the participants (61%) stated that they found expressing ideas in English more challenging than handling disciplinary content. Accordingly, a great majority (93%) stated that language support during the process of thesis-writing is essential. The data also indicated that a great majority of PGRs had positive perceptions about the thesis-writing course, as they reported perceived improvement in their writing skills after completing the course.

The findings also showed that PGRs perceived writing as the most useful English language competence and they reported that the thesis-writing course was very helpful for improving not only their academic writing and academic study skills but also for improving their knowledge of academic conventions, thesis content and structure.

Frequency, Purpose and Usability of the VLE

Regarding the VLE-integrated thesis-writing course, analysis of the quantitative data demonstrated that most participants used the platform 2–3 times per week, often to check concordances, review example texts, or complete tasks. PGRs also identified Moodle's organised and accessible medium as a major source of motivation for their continued engagement. Analysis of the time spent in the VLE indicated that PGRs used Moodle between 1–2 hours and 24 hours per week with most of students reporting 1–4 hours of weekly use. These findings were further supported by PGRs' feedback, as illustrated in the following participant statements.

I use Moodle at least three times a week when working on my thesis.
Whenever I try to write my thesis, first of all I checked Moodle.

Considering that the time spent for the VLE tasks was an addition to four weekly in-class hours, this can be interpreted as satisfactory. The qualitative data also revealed that students used the VLE frequently because they believed it provided useful materials, tasks and links to other sources. Participating students reported that they liked the VLE because for them it was an organized online environment that could be accessed easily as expressed by one of the PGRs below:

I hope I can save and use this environment always as a precious source.

With the exception of two students who expressed negative views about the VLE, all the participants reported that they enjoyed participating in the VLE because it enabled them to interact with their instructor and friends. Another participant also stated an intention to continue using the VLE in the future because of personal reasons:

This term beside my working I had 5 courses and I was very busy so I can't follow all parts of the Moodle, but I will do it in summer while I am writing my thesis.

Another student reported that s/he liked the VLE because of the following reason.

It is a platform that support learning out of class environments.

However, there were some PGRs who stated that they did not benefit from the VLE. Analysis of the responses provided by these four participants indicated that they mainly referred to technical or user-related problems

I get confused in Moodle because Moodle is a little bit hard to use.
Because it has deadline and forced to do tasks, I facing problem.
Moodle is complicated. It should be improved.

This feedback suggests that some PGRs required additional technical support in using Moodle effectively. Specifically, this finding highlights the importance of providing structured orientation and ongoing technical guidance when integrating VLEs into postgraduate thesis-writing courses. In this regard, more extensive orientation sessions could be organised to familiarise students with the platform's functionalities.

Perceived Support Provided by the VLE

Overall, data analysis indicated that PGRs were positive about the integration of the VLE into the Thesis-writing course because it provided the support they needed. Elaborating on this support, a participant said:

Online tasks and getting feedback about every chapter is the best way to practice and not to forget, it's accessible anytime and anywhere via the internet.

Another participant made a similar remark:

I can get materials or get some answers when my teacher is not available, I can communicate with people in my field as well.

The qualitative data also revealed that PGRs considered the corpus resources, instructional materials, DDL tasks, and writing and vocabulary tools available on Moodle to be among the most useful

components of the Thesis-writing course. They perceived that the VLE helped them improve the structure, organization, and formatting of their academic writing. In addition to language-related support, some PGRs voiced the following opinions:

Getting feedback made me know the points I had to improve on. Also my perception was change (sic).

I understand structure of the thesis.

By this way I can find other science and I be more open-minded.

Hedging techniques, checking concordance of words and the list of important vocabulary for my thesis are tools I use.

Now I am aware of the Corpus, also bank of moves will come in handy too!

When asked about what their writing benefitted most from, PGRs gave instructor feedback and class activities the highest rankings. The rankings of sources, activities, links and discussions was also considerably high, suggesting that PGRs held generally positive perceptions of the support provided through the VLE. Additionally, PGRs stated that they found the VLE useful because it required them to write in English and encouraged them to do independent work. Taken together, in their responses, PGRs openly stated that they started using different tools and resources on Moodle to check and improve their written work and reported feeling more confident about writing, as indicated by the following expression.

Moodle is the best thing that help [sic] me to improve my written skill. when i stuck [sic] i can check the corpus concordancer. i can search the examples which relates [sic] chapter that im [sic] using in [sic] that moment. it is the best thing in my master education that i met [sic] up to now.

Interestingly, the feedback some of them provided showed that in addition to scaffolding in terms of language, they needed psychological support while writing their theses.

My background is not good:) this reason (sic) it is difficult for me.
Because it is not our native language.

Another participant said:

Now I feel much better than before. But I still have some paraphrasing problems.

Similarly, another student made the following comment:

Writing in academic language was difficult for me but now I can write an academic English (sic) I know how to write an academic English (sic).

PGRs in this study felt that they benefited so much from the VLE that they referred to it as a 'guide', 'a resource for learning', an 'instructor', 'a ready or standby teacher' or a 'supervisor'.

i [sic] trust my self now, i believe that i can write and complete my thesis because all my questions has [sic] answered. its not a big deal to complete the thesis, but it was before.
its aid [sic] to me, especially Moodle! its my supervisor:)

Overall, PGRs' expressions revealed that they were satisfied with both the academic and psychological support provided through the VLE. Their positive perceptions were further reflected in their requests to continue accessing it after completing the course.

Discussion

Consistent with sociocultural theory and previous research on technology-supported academic writing, the present findings both corroborate and extend earlier studies by demonstrating how corpus-informed resources, collaborative interaction, and structured scaffolding can be integrated within a single VLE to support postgraduate thesis-writing in a non-English-speaking context.

The results showed that the VLE introduced in this study offered a number of learning opportunities for participating PGRs. First of all, the participants reported that it served as a flexible and readily accessible resource centre which they could access whenever they needed support as discussed in related studies (Gilbert, 2013; Hung & Yuen, 2010; Nguyen & Kember, 2024). When PGRs' constant access to the VLE in this study is evaluated from a sociocultural perspective, it can be seen that its use, extending learning beyond the constraints of time and place, provided opportunities for PGRs to engage with thesis-writing as an ongoing, socially situated activity rather than an isolated activity (Aitchison, 2009; Vygotsky, 1978). As reported in the literature, due to the busy schedule of supervisors, sometimes PGRs face difficulties like loss of trust and they do not know how to proceed with their studies in the absence of feedback (Ekpoh, 2016; Gimenez et al., 2024; Strauss, 2012). Relatedly, the present study findings suggest that VLEs may promote PGRs' reflective engagement with writing tasks by broadening responsibility for learning beyond supervisory guidance to include collaborative learning with peers and engagement with online tools and resources, as suggested in previous research (Alqahtani & Altalhab, 2020; Strobl et al., 2024). Taken together, these findings led to the emergence of the concept of 'co-piloting thesis-writing' in the present study. The concept refers to a sustained and socially mediated form of pedagogical accompaniment in which instructors, peers, corpus-informed resources, and VLE-based scaffolding collaboratively support PGRs throughout the thesis-writing process. Unlike traditional supervisory models centred primarily on one-to-one guidance, this pedagogical framework emphasises distributed and ongoing support within a structured learning environment.

The present study also revealed that with its learner-centered approach, the incorporation of the VLE into the thesis-writing course enabled PGRs to focus on their goals based on their individual needs (Nori & Vanttaja, 2023). To specify, it encouraged them to engage with tasks they may have found difficult to complete independently by creating an academic community, members of which provided ongoing support to each other, as underlined in recent research (Fan, 2024; Gimenez et al., 2024; Strobl et al., 2024). In relation to this, participants reported that the constructive feedback given by their instructor and peers was extremely beneficial. Consistent with the theoretical framework adopted in this study, such feedback supported learners' gradual development toward greater independence in thesis-writing. These findings further support previous research suggesting that VLEs complement face-to-face postgraduate writing instruction (Hung & Yuen, 2010; Li & Vandermensbrugghe, 2011; Mei et al., 2025).

The study results demonstrated that participants reported a gradual reduction in self-doubt regarding their writing abilities towards the end of the course. Participants associated this change with their use of the VLE, stating that its existence made them feel safer, helped them overcome feelings of isolation, and provided a clear road map for thesis-writing. This finding suggests that participants perceived the VLE as providing emotional reassurance alongside academic support, which is considered as an essential dimension of learning within the sociocultural framework (White et al., 2024). This result aligns with research suggesting that ambiguities and uncertainties encountered during the stressful thesis-writing journey can be reduced when PGRs are supported in mastering the knowledge and skills required for thesis-writing (Gimenez et al., 2024; White et al., 2024). Therefore, by revealing that participants' thesis-related psychological challenges such as feelings of anxiety and isolation were

reduced through their use of the VLE, the present study extends previous research on technology-mediated writing, which prioritised linguistic aspects over affective dimensions in academic support provision (Barnes, 2023; Hirschel, 2025; Strobl et al., 2024).

Study findings also indicated that PGRs were aware of the difficulties they had in academic writing and they related these difficulties to their poor English language level consistent with the findings of previous research (Komba, 2015; Li & Vandermensbrugghe, 2011; Sadeghi & Khajepasha, 2015; Strauss, 2012). Together, these findings suggest that corpus-informed resources contributed to participants' writing development because they enabled guided engagement with authentic disciplinary language and rhetorical patterns. From a sociocultural perspective, these resources functioned as mediational tools that supported learners' gradual movement toward more independent academic writing. Although corpus-based approaches have previously been recommended for postgraduate writing (Charles, 2014; Sadeghi & Khajepasha, 2015), the present study builds on this work by demonstrating how corpus-informed support can be embedded within a VLE designed specifically to support thesis-writing.

Finally, the present study findings revealed that participants perceived the VLE as promoting agency, collaboration, and confidence through sustained interaction with peers, instructors, and corpus-informed resources, consistent with previous research highlighting the role of VLEs in supporting learner agency and engagement (Caena, 2019; Mei et al., 2025; Strauss, 2012; White et al., 2024). From a sociocultural perspective, these outcomes can be interpreted as emerging not from the technology itself but from the structured opportunities the VLE created for mediated participation, collaborative meaning-making, and gradual movement towards greater learner independence. The participants perceived the VLE as a valuable environment for both individual learning and collective knowledge construction, extending earlier work on reflective online writing (Alqahtani & Altalhab, 2020), collaborative drafting (Strobl et al., 2024), corpus-informed genre exploration (Chen, 2025), and feedback engagement (Barnes, 2023) by demonstrating how these pedagogical elements can be integrated within a single VLE designed specifically for thesis-writing. Consequently, the notion of *co-piloting thesis-writing* proposed in the present study offers a conceptual framework for understanding how distributed pedagogical support, combining instructors, peers, corpus-informed resources, and structured online interaction, may complement traditional supervisory practices throughout the thesis-writing process.

Pedagogical and Institutional Implications

The findings of the present study have several pedagogical and institutional implications for postgraduate education, particularly in non-English-speaking contexts where PGRs are expected to carry out and report research in English. First, the study suggests that thesis-writing support should not be limited to one-to-one supervision or isolated classroom instruction as students in non-English-speaking contexts may benefit considerably from VLE-based support that combines corpus-informed resources, scaffolded tasks, opportunities for peer interaction, and ongoing feedback while writing their theses. Second, the findings indicate that such support should address not only linguistic and rhetorical aspects of thesis-writing but also psycho-social and emotional dimensions such as confidence, reassurance, and reduction of isolation. Third, at an institutional level, the study points to the value of designing VLEs as pedagogically active learning environments that can provide sustained support throughout the thesis-writing process rather than functioning only as spaces for content delivery.

The study results further indicated that the interactions in the VLE created opportunities for PGRs to share their challenges, engage in collective reflection, and develop essential knowledge and skills for thesis-writing, echoing recent research in this area (Gimenez et al., 2024; White et al., 2024). In this regard, the findings suggest that structured online scaffolding and corpus-supported exploration

within a purposefully designed VLE may provide sustained pedagogical support during the demanding thesis-writing process. Hence, building on previous research, which showed that digital platforms and corpus-informed tools can improve learners' genre awareness and engagement with academic discourse (Alqahtani & Altalhab, 2020; Chen, 2025), this study demonstrates how VLE-supported pedagogical interventions can support PGRs throughout their thesis-writing journey by providing a structured learning trajectory aligned with their evolving needs. Based on these findings, postgraduate programmes may consider embedding structured VLE-supported thesis-writing into existing research methods or thesis-writing courses. Such environments should incorporate corpus-informed resources, scaffolded writing tasks, peer discussion opportunities, and timely instructor feedback to complement conventional thesis supervision.

For successful implementation of pedagogical interventions that would benefit PGRs from non-English speaking countries, institutional support is crucial. Higher-education institutions should embrace implementations driven by solid policies that require the incorporation of VLEs or other digital tools into postgraduate programmes. In this way, structured support systems can complement traditional one-to-one supervisory relationships, as suggested in recent research (White et al., 2024). Finally, given the increasing number of international and multilingual PGRs in tertiary education, integrating VLE-based scaffolded thesis-writing support into postgraduate programmes may help minimise the linguistic, academic, and socio-emotional challenges commonly faced by this population, thereby promoting their sustained engagement with thesis-writing over time.

Conclusion

The need for systematic guidance and scaffolding to support PGRs in the challenging thesis-writing process has been highlighted in recent research (Gimenez et al., 2024; Nori & Vanttaja, 2023; White et al., 2024). Providing this support is even more significant in non-English environments where PGRs are required to publish in English as the primary medium for academic publication (Lillis & Curry, 2010). This study suggests that this need may be addressed through pedagogic interventions designed based on students' specific needs, in line with previous research findings (Wang et al., 2024). Overall, the study results indicate that a purposefully designed VLE, grounded in sociocultural theory and instructional scaffolding, can provide meaningful support for postgraduate thesis-writing through structured resources, corpus-informed exploration, peer support, and ongoing feedback within a single instructional environment. By providing experience-based evidence and perceptions, the present study has illustrated how PGRs in non-English contexts can be supported through a theoretically informed pedagogical design, highlighting the value of institutionalising structured, needs-responsive academic writing support within postgraduate programmes. Beyond improving academic writing, the study findings revealed that participants valued the VLE as a source of socio-emotional support that reduced feelings of isolation and strengthened their sense of belonging within a postgraduate learning community. This underscores the importance of addressing affective as well as linguistic dimensions of thesis-writing support.

Overall, this study contributes to the literature in three important ways. First, it provides empirical evidence that a purposefully designed corpus-informed VLE may support postgraduate thesis-writing in non-English-speaking contexts by promoting exploratory learning, learner autonomy, sustained support, and self-efficacy, all of which have been identified as important factors for academic writing success (Li & Vandermensbrugghe, 2011; Nori & Vanttaja, 2023; White et al., 2024; Winstone et al., 2021). Second, it extends previous research by demonstrating how pedagogical elements that have typically been investigated separately, such as corpus-informed resources, peer interaction, iterative feedback, and socio-emotional support (Barnes, 2023; Chen, 2025; Strobl et al., 2024), can be integrated within a single pedagogically designed VLE to support the cognitive, social, and affective

dimensions of thesis-writing. Finally, the present study proposes the notion of ‘co-piloting thesis-writing’ as one possible way of understanding how VLEs can function as dynamic pedagogical spaces that mediate thesis-writing through shared cognitive, social, and emotional support. It is hoped that these findings will encourage higher education institutions to reconceptualise VLEs not merely as content-delivery platforms, but as pedagogically active environments capable of providing sustained and responsive support throughout the challenging thesis-writing process.

Limitations

Despite its contributions, the study has several limitations that warrant consideration. These limitations should be considered when interpreting the present study findings and considering their transferability to other postgraduate contexts. Firstly, although the participants were of different nationalities and backgrounds, they were recruited through convenience sampling within a single institutional context. While this diversity contributed to the richness of the data, the sampling approach may limit the generalisability of the findings to wider PGR populations in other higher education settings.

Secondly, as no pre-post writing samples, textual analyses, or independent ratings of writing quality were employed in this study, the results mainly provide insights into engagement patterns, pedagogical processes, and learner perceptions related to VLE-supported thesis-writing. Moreover, the VLE was examined as part of an integrated pedagogical environment that also included classroom instruction and instructor feedback. Also, because the researchers were course instructors, participant responses may have been influenced by social desirability bias. Future research could address this limitation through independent data collection procedures or the involvement of external evaluators.

Finally, the study relied primarily on questionnaire data and learning analytics derived from VLE engagement. Although these data sources provided valuable insights into patterns of participation and perceived support, the absence of in-depth qualitative methods, such as interviews, reflective journals, or longitudinal text analysis, limited opportunities to explore PGRs’ academic writing development in greater depth. Incorporating such methods in future research would enable a more in-depth understanding of how VLE-mediated support can influence thesis-writing processes over time and strengthen the trustworthiness of research findings.

Future research could address these limitations by examining similar VLE-based interventions across multiple institutions and disciplinary contexts, incorporating richer qualitative data sources, and including direct measures of writing development such as pre- and post-intervention writing samples or external evaluations of academic writing quality. Such studies may provide a more comprehensive understanding of how VLE-mediated support influences thesis-writing processes and outcomes over time.

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Appendix A

Table A1. *Overview of the 19 VLE Tasks*

Task no.	Task type	Task topic/focus	Corpus interaction	Learning objective
DDL 1	Data-driven learning	Collocations for thesis aims	Yes	Raise awareness of academic collocations
DDL 2	Data-driven learning	Avoidance of phrasal verbs	Yes	Promote lexical precision
DDL 3	Data-driven learning	Structure of thesis aim statements	Yes	Understand move structure
DDL 4	Data-driven learning	Qualitative vs. quantitative analysis terms	Yes	Develop methodological vocabulary
DDL 5	Data-driven learning	Academic collocations	Yes	Improve formulaic language use
DDL 6	Data-driven learning	Ordering methodology subheadings	Limited	Strengthen organisational logic
DDL 7	Discovery learning	Multiple uses of 'study'	Yes	Encourage self-directed discovery
DDL 8	Data-driven/ discovery	Ordering an abstract by moves	Yes	Identify move structure
Forum 1	Discussion forum	Problem statement	No	Clarify ideas collaboratively
Forum 2	Discussion forum	Proposal components	No	Understand structure
Forum 3	Discussion forum	Introduction chapter	No	Learn rhetorical moves
Forum 4	Discussion forum	Literature review development	No	Encourage synthesis
Forum 5	Discussion forum	Methodology chapter	No	Clarify conventions
Forum 6	Discussion forum	Data analysis	No	Build reporting confidence
Forum 7	Discussion forum	Conclusion chapter	No	Reinforce contribution
Forum 8	Discussion forum	Abstract writing	No	Consolidate move awareness
Forum 9	Discussion forum	Overall thesis- writing	No	Holistic integration

Appendix B

End of Semester Questionnaire

This questionnaire is designed to gather your views on academic English, thesis-writing, and the use of Moodle in this course. Please answer all questions honestly.

1. To pursue a postgraduate degree in an English-medium university, one needs to have:
 - ☐ A high level of English
 - ☐ A satisfactory level of English
 - ☐ A low level of English
2. The more challenging task in a postgraduate program in an English-medium university is:
 - ☐ Dealing with the subject matter (e.g., Architecture, Business, etc.)
 - ☐ Dealing with the expression of ideas in English
3. The most useful English language competences in a postgraduate program:
(Please rank from 5 = highest to 1 = lowest. Do not repeat numbers.)
 - ___ Reading
 - ___ Writing
 - ___ Speaking
 - ___ Listening
 - ___ Vocabulary
 - ___ Grammar
4. Providing academic English language support to postgraduate candidates in thesis-writing is:
 - ☐ Essential
 - ☐ Partly useful
 - ☐ Not useful at all
5. Four hours per week of academic English language support for thesis-writing is:
 - ☐ Too little
 - ☐ Just right
 - ☐ Too much
6. The Thesis-writing course has been most useful in terms of:
(Please rank from 5 = highest to 1 = lowest)
 - ___ Improving academic writing skills and knowledge
 - ___ Developing academic study skills and knowledge of academic conventions
 - ___ Developing knowledge of thesis structure and format
 - ___ Developing academic vocabulary knowledge and skills
 - ___ Developing awareness of the need and benefits of producing multiple drafts
7. After completing this course, I feel that my writing skills are:
 - ☐ Much improved
 - ☐ Somewhat improved
 - ☐ A little improved

8. Besides writing skills, this course helped me improve my English in terms of:
(Please rank from 5 = highest to 1 = lowest)
- ___ Reading
 - ___ Listening
 - ___ Speaking
 - ___ Vocabulary
 - ___ Grammar
 - ___ Other (please specify below)
9. If you selected 'Other' above, please explain:
10. What do you still find most difficult about writing in English? Please give details and reasons:
.....
11. Has the course benefited you in using any tools to check and improve your written work?
If yes, how?
12. My writing has benefited most from:
- ☐ Class discussions
 - ☐ Class materials, tasks, and activities
 - ☐ Instructor feedback on drafts
 - ☐ Moodle discussions
 - ☐ Moodle resources, activities, and links
 - ☐ Feedback from friends
13. How often do you use Moodle?
14. The best thing about Moodle as a learning environment is:
15. The most beneficial component of Moodle is:
16. At postgraduate level, I would like to have:
- ☐ More courses supported by Moodle
 - ☐ No courses supported by Moodle
 - ☐ I do not have an opinion
17. If you selected 'more' or 'no' above, please explain why:
18. I benefited from Moodle most in terms of: (Please rank from 5 = highest to 1 = lowest)
- ___ Seeing what my peers are doing and learning from their ideas
 - ___ Seeing clearly what the instructor asks us to do each week
 - ___ Writing more in English
 - ___ Learning independently
 - ___ Feeling more confident about using computers
19. Do you have any comments about the course?
20. Would you advise a friend to take this course? Why / Why not?