Comprehensive Academic Thesis Writing Module for English Major Undergraduates in a Public University in China

Gao Jing[*] 🆔

UCSI University, Education Department, Kuala Lumpur, Malaysia
Zhengzhou Normal University, Foreign Languages School, Zhengzhou, China

Lin Siew Eng 🆔

UCSI University, Education Department, Kuala Lumpur, Malaysia

Abstract. In response to the challenges in enhancing English major undergraduates' academic thesis writing and research capabilities, particularly in writing empirical research-based theses, this study addresses the current deficiencies in English academic thesis writing instruction. The current course in Chinese universities cannot offer sufficient information for Chinese graduates to participate in international graduate programs and publication. This study aimed to develop the English Academic Thesis Writing Module (EATWM) for English major undergraduates of a public university in China and to determine the participants' performance after completing it. The theoretical foundation of this study was based on Dewey's *learning by doing* theory and Kolb's Experiential Learning Cycle. The study employed a mixed-methods design involving three stages: module development, validity and reliability assessment, and performance analysis. The prototype EATWM was designed and developed using the ADDIE model. Through the pilot study, the content validity and reliability of the EATWM were verified, and 20 participants' theses were marked by 3 inter-raters to calculate the inter-rater reliability. In the main study, 70 participants' academic thesis writing performance and interview responses were analyzed. The analysis of the participants' feedback highlights benefits gained by using the module, challenges faced in academic thesis writing, solutions to address challenges using the module, and suggestions for module improvement. These results indicate that the module succeeds in facilitating students to write an English academic thesis. The EATWM benefits teachers by including sections that are not in the current syllabus and helps students better adapt to the international education system and publication context.

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[*]Corresponding author: *Gao Jing; jessiegaofls@126.com*

1. Background of the Study

In recent years, there has been a push of teaching reform of English major undergraduate students in China. Under this push, one important subject that English teaching in Chinese universities is facing is how to define explicit teaching objectives, enrich teaching contents, improve teaching approaches, and update teaching methods, so as to improve the English majors' language literacy as well as academic ability. In addition, the *Syllabus for English Majors* (hereafter called the Syllabus) (National Administry Committee, 2000) stipulates that a graduation thesis is an important method of testing undergraduates' comprehensive ability and evaluating their academic performance. The current requirements for awarding the bachelor of arts degree in English majors in all Chinese universities include completing a graduation thesis in English independently under the guidance of teachers before graduation. At present, for undergraduates in English major, most of the Chinese public universities have offered them an English academic writing course in which the teaching objective is to help them master the necessary skills to complete the graduation thesis. However, after years of teaching and after completing the course, it has been found that a considerable number of undergraduates still lack comprehensive academic competence to conduct scientific research and write academic papers (Liu, 2021; Sun & Jin, 2021; Zhao, 2019).

Some educators and scholars have indicated that current undergraduate graduation theses are generally poor in quality and lack academic, professional, and original features (Jiang & Wu, 2021; Zhu, 2019). To overcome this situation, it is necessary to carry out relevant research on the deficiency of current undergraduate education in developing undergraduates' academic writing skills. We analyzed 202 bachelor's degree theses of English majors who graduated in 2020 from a Chinese university and found that the theses did not include research problems and had unspecific research objectives, unclear research questions, and unscientific research designs, as these are not required in the syllabus. However, no relevant teaching contents or practices were found in the syllabus of the English Academic Writing course in this university. The textbook of this course does not encourage English major undergraduates to write an empirical research-based thesis, as they lack research foundation and require time for research and writing (Mu, 2012).

When English major undergraduates from Chinese universities participate in master's programs abroad, some of them encounter cognitive differences in research methodology and process (Xue, 2021; Yang, 2017; Zhang, 2018). When teaching a research methods course to Chinese international graduate students studying in Canada, Beres and Woloshyn (2017) found that the Chinese graduates' understanding of conducting research was far from the empirical notion. This indicates that the existing English Academic Writing courses in Chinese public universities cannot provide sufficient information that can help

undergraduates, especially those who plan to participate in international programs after graduation, to adapt to the requirements and criteria of academic research overseas. Xu (2014) reviewed literature of international publications and found that Chinese scholars' journal articles lacked knowledge in research design and scientific methodology. When discussing the difficulties that Chinese foreign language teachers face in publishing theses in high-level international journals, Zhang and Chen (2018) believed that the main reason is that the teaching of research methodology is lacking in the process of teacher training.

Therefore, this study intended to develop the English Academic Thesis Writing Module (EATWM) for English major undergraduates to improve the empirical research-based thesis writing performance of English major undergraduates of a public university in China.

2. Objectives of the Study
The study aimed to develop the EATWM for English major undergraduate students in a public university in China and to determine their performance and feedback after completing the module. More specifically, the study intended to answer the following research questions:
1. RQ1: What are the key components of the EATWM?
2. RQ2: What is the validity and reliability of the prototype EATWM?
3. RQ3: How do the participants perform doing the EATWM?

3. Literature Review
3.1 English Academic Writing
Academic writing refers to the formal writing style utilized for the purpose of documenting academic works (Samuels & Garbati, 2018). It is the common writing style used by undergraduates to complete course assignments, term papers, and graduation theses. Since Mandarin is the official teaching language in Chinese universities, English academic writing courses are only available for English major undergraduates in mainland China. At the undergraduate level, thesis writing is the most difficult academic writing task that undergraduates need to learn. From teachers' viewpoint, thesis writing is a very effective way to help undergraduates review and apply the knowledge and capabilities acquired in their university life to solve practical problems. However, most undergraduates probably have a different view. Chandrasekhar (2008) explained that thesis writing is an obligatory task for undergraduates who wish to obtain a degree. For them, it seems to be the most common reason for writing a thesis. Therefore, they sometimes view thesis writing as an unpleasant, even painful journey, ignoring the benefits it brings to their knowledge and capabilities. Oliver (2014) claimed that thesis writing gives undergraduates an experience of expressing their understanding of the world in a novel and original way, in addition to serving as a means for obtaining a degree. Thesis writing provides opportunities for undergraduates to reflect on their own intellectual worldview in describing their research. Oliver (2014) thought it was a pity that thesis writing was seen as simply a means to obtain an academic degree.

3.2 Learning by Doing Theory

The ultimate aim of developing the module is to help undergraduates complete their thesis writing tasks for graduation. Considering its strong practical attributes, Dewey's *learning by doing* theory (Dewey, 1915) can well direct the design, development, and implementation of this module. It emphasizes the integration of knowledge and action as well as the combination of learning and doing, and believes that direct experience is the basis of all teaching approaches (Sikandar, 2015). Based on the learning by doing theory, Dewey formed the *five-step model of inquiry*. According to this model (see Figure 1), teachers place students in a situation where their existing experience cannot help them to directly solve the problem, discover the nature of the problem, propose a possible plan of taking action, predict the outcomes of this plan, and put it into action to solve the problem.
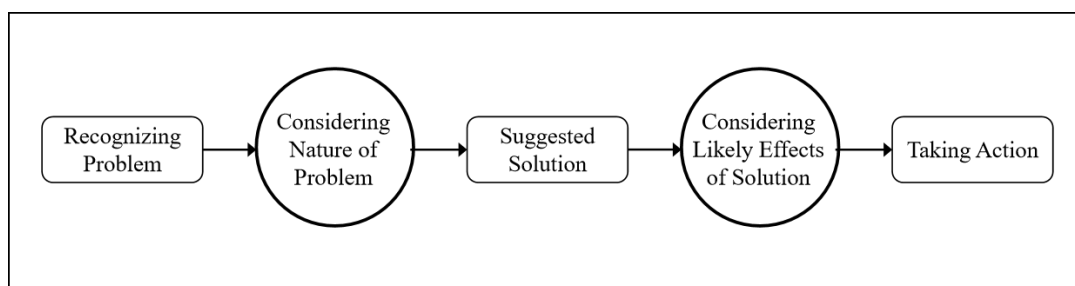

Figure 1: Dewey's five-step model of inquiry (Morgan, 2014)

3.3 Experiential Learning Cycle

Experiential Learning Theory (ELT) emphasizes the acquisition of knowledge by transforming experience (Kolb et al., 2014; Morris, 2020; Yusof et al., 2020). On this basis, Kolb et al. (2014) developed the Experiential Learning Cycle, which has become one of the most significant theoretical frameworks for experiential instruction. Morris (2020) revised Kolb's model by proposing a more specific description to the four stages (see Figure 2).
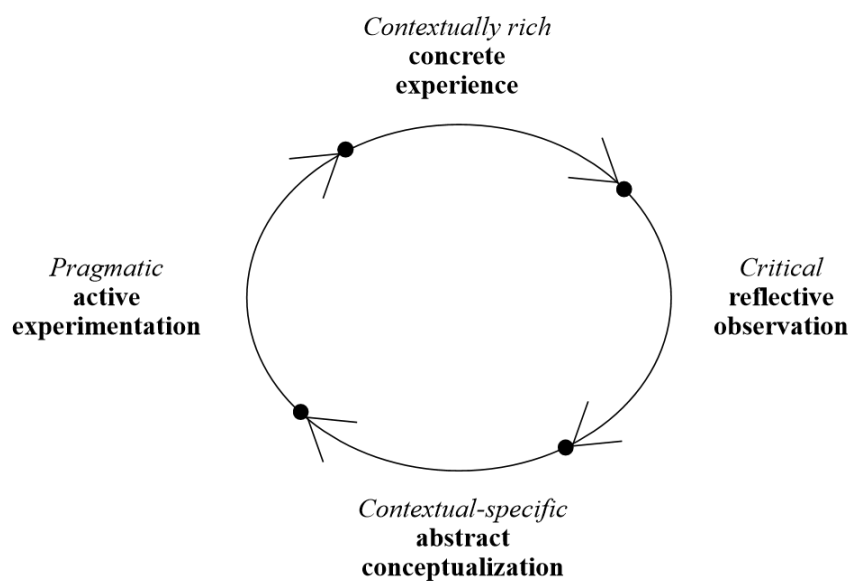

Figure 2: The revised Kolb Experiential Learning Cycle (Morris, 2020)

The development of teaching materials is one of the important devices for improving teaching quality. Materials that do not align with students' expected outcomes cannot effectively support their learning process. Among various forms of teaching materials, modules have gained favor from instructional designers in recent years due to their incorporation of various components to achieve teaching objectives (Abdurrahman et al., 2018). Taking English language education as an example, many teaching and learning modules were developed in recent years, involving contents of English reading, writing, speaking, and so on (Andika et al., 2023; Novitri, 2021; Parcon, 2016; Zhang, 2020). Therefore, the module was chosen as the appropriate form of material developed in the study to enhance the quality of teaching of English academic thesis writing.

4. Methodology
4.1 Research Design
A mixed-methods design was adopted in this study. Owing to the exploratory nature of teaching module development study, both qualitative exploration and quantitative verification were required. Therefore, the exploratory sequential mixed-methods design was regarded as the suitable option for the study, for it is frequently applied in instructional design by first collecting qualitative data to design and then quantitative data to test (Creswell & Guetterman, 2019).

4.2 Participants of the Study
Purposive sampling was used in the study in favor of the in-depth investigation (Creswell & Guetterman, 2019). Based on the target students of the EATWM, 70 English major undergraduates (registered in 2020 and graduating in 2024) with academic thesis writing needs from a public university in China were selected as participants of the study.

4.3 Research Instruments
Four instruments were designed and developed for the study, including the questionnaire for students' needs, the EATWM, the Graduation Thesis Grading Criteria (GTGC), and the interview schedule with questions.

The questionnaire for students' needs aimed to determine the weaknesses and gaps in students' knowledge reserve. Ten questions were developed. The first four questions intended to investigate students' past experiences in relation to conducting research and writing theses, and the remaining six questions focused on what extent they knew about the basic concepts in empirical research.

According to Dewey's five-step model of inquiry, the module guided students to i) recognize the problem by informing the learning objectives of each unit; ii) consider the nature of the problem by explaining the knowledge related to thesis writing; iii) suggest the solution by providing authentic examples as reference; iv) consider likely effects of the solution by introducing thesis grading criteria before they start writing; and v) take action by assigning continuous exercises and providing timely feedback. Inspired by the revised Kolb Experiential Learning Cycle, the module provided students i) contextually rich concrete

experience by adapting examples from realistic research activities; ii) critical reflective observation by instructing them to read examples, literature, and their own thesis critically; iii) contextual-specific abstract conceptualization by setting exercises to construct a specific empirical research environment; and iv) pragmatic active experimentation by requiring them to conduct a real research activity and write an original thesis.

The EATWM is different from the existing syllabus, in which chapters were set following the general thesis writing steps. The units in the EATWM were organized based on the five-chapter structure commonly found in empirical research. Apart from the first unit, "Introduction to Research and Thesis Writing", units Two to Six corresponded to the five chapters of an empirical research-based thesis, comprising "Introduction (Chapter One)", "Literature Review (Chapter Two)", "Research Methodology (Chapter Three)", "Results (Chapter Four)", and "Conclusion (Chapter Five)". The sub-objectives of each unit also place a stronger emphasis than the existing syllabus on guiding students in mastering the specific process and methods of conducting empirical research. In addition to the textual contents, we designed figures, charts, tables, and examples in this module to enhance academic thesis writing as well as the ability to apply empirical approaches and methods to analyze and address problems.

The GTGC were developed as a complementary component to the EATWM to address the shortcomings of the existing thesis grading criteria. The newly developed GTGC consist of 25 grading items, encompassing the dimensions of research plan and design, research process and results, thesis structure and format, and English language expression. These items aim to provide a more comprehensive evaluation framework for empirical research-based theses.

The interview questions were developed to collect feedback from participants after completing the EATWM. Eight formal questions were developed to investigate their perception of using the module, how they performed in writing an empirical research-based thesis, and the challenges they faced and their countermeasures. When conducting the interview, two more optional questions for those performing well (A and B ratings) and two for those performing not so well (C, D, and F ratings) were asked separately to obtain more comprehensive feedback.

4.4. Research Procedure
The study was conducted using the ADDIE model (see Figure 3), which is a widely accepted model that contains a set of effective standards and continuous revisions for the implementation of teaching activities (Gustafson & Branch, 2002; Kurt, 2017). The five stages (analysis, design, development, implementation, and evaluation) of the ADDIE model (Kurt, 2017) were conducted to answer the research questions of the study. Stage 1 involved the analysis of students' needs. In Stage 2, the prototype EATWM was designed based on the findings in Stage 1. Stage 3 comprised the development of the

prototype EATWM and the examination of its content validity and reliability through a pilot study (20 participants). In Stage 4, the EATWM was implemented (70 participants). Finally, in Stage 5, the EATWM was evaluated through analyzing participants' performance and feedback.
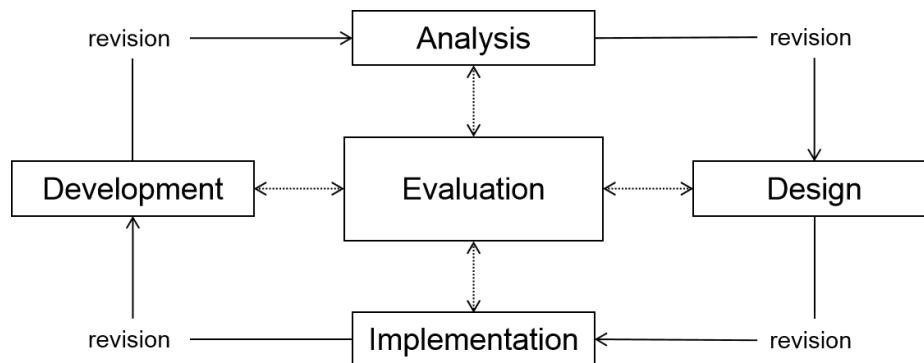

Figure 3: ADDIE model (Kurt, 2017)

4.4.1 Stage 1: Analysis of students' needs
The bachelor's degree theses of graduated English major students, the current English Academic Writing Syllabus, and the needs of students were analyzed to clarify the objectives of this study. First, analysis of 202 bachelor's degree theses of English majors who graduated in 2020 from the university under study showed that only 26 (12.87%) of them could be considered as empirical research-based theses. No obvious problem statement, research objectives, research questions, specific research design (sampling, data collection and analysis) could be found in the 26 theses. Moreover, weaknesses such as illogical and uncritical literature review, outdated references, disordered and dreary research results, and poor organized conclusions were evident. However, the necessary guidelines for how to improve these weaknesses are not included in the current English Academic Writing Syllabus and textbooks. In addition, a questionnaire (verified by content experts before use) was administered to all 91 participants via WJX (an online questionnaire platform) to survey the students' needs. Table 1 presents the frequency of participants' questionnaire responses.

The first four questions are related to participants' past experiences regarding conducting research and writing theses. In this regard, 65.93% of participants knew how to download academic literature, 53.85% have read academic literature, 28.57% had research experience, and 45.05% had academic writing experience. More than half of the participants had a preliminary understanding of academic literature. Interestingly, there were more participants with academic writing experience (n = 41) than with research experience (n = 26), indicating to the "research-absent academic writing" phenomenon.

The remaining six questions surveyed to what extent participants knew about the basic concepts in empirical research. Concerning this, only 8.79% knew the meaning of empirical research, 20.88% knew the meaning of research problem,

30.77% knew the meaning of research objective, 24.18% knew the meaning of research question, 8.79% knew the meaning of research design, and 24.18% knew some research methods. Participants' responses indicate that although some students have some preliminary understanding of research and thesis writing, the vast majority still need to learn systematically and scientifically.

Table 1: Frequency of participants' questionnaire responses (N = 91)

No.	Item	Categories	n	Percent (%)	Cumulative percent (%)
1	Do you know some ways to download journal articles and graduation theses?	Yes	60	65.93	65.93
		No	31	34.07	100.00
2	Have you ever read any academic journal articles or graduation theses?	Yes	49	53.85	53.85
		No	42	46.15	100.00
3	Have you ever conducted any research activities?	Yes	26	28.57	28.57
		No	65	71.43	100.00
4	Have you ever written any academic articles or theses?	Yes	41	45.05	45.05
		No	50	54.95	100.00
5	Do you know what empirical research is?	Yes	8	8.79	8.79
		No	83	91.21	100.00
6	Do you know what a research problem is?	Yes	19	20.88	20.88
		No	72	79.12	100.00
7	Do you know what a research objective is?	Yes	28	30.77	30.77
		No	63	69.23	100.00
8	Do you know what a research question is?	Yes	22	24.18	24.18
		No	69	75.82	100.00
9	Do you know what a research design is?	Yes	8	8.79	8.79
		No	83	91.21	100.00
10	Do you know some specific research methods?	Yes	22	24.18	24.18
		No	69	75.82	100.00
	Total		91	100.0	100.0

4.4.2 Stage 2: Design of the prototype EATWM
Based on the results of the analysis, the overall objectives and sub-objectives of each unit of the module were first designed to identify the ultimate goal to help students complete a five-chapter empirical research-based thesis in English. Compared to the existing syllabus, which focuses solely on the general procedures of academic thesis writing, the newly developed EATWM places greater emphasis on instructing students to complete an English academic thesis following the scientific and normative empirical research approaches and procedures.

The prototype module was designed based on the existing English Academic Thesis Writing Syllabus at a public university in China. Furthermore, appropriate concepts and ideas of other modules or teaching materials were

adapted to complement the shortages of the existing syllabus, including guidelines on writing research problems, research objectives, and research questions and selecting a research design. These modules and materials included the Research Methods Module (Kebede et al., 2015), the Research and Thesis Writing Module (University of Wollongong, 2001), the Graduation Thesis Writing and Defense Module (Wu et al., 2022), and a number of monographs on the topic of conducting research and thesis writing (APA, 2020; Creswell & Creswell, 2017; Creswell & Poth, 2017; Creswell & Guetterman, 2019; Kothari, 2019; Kumar, 2019; Swales & Feak, 2012). Similarly, content analysis of books, theses, journal articles, reports, and related modules was used as basis and guide in developing the module, for these materials can provide sufficient data for the research of module development (Zahrin et al., 2022).

4.4.3 Stage 3: Development of the EATWM
The module strictly followed the instructional design to ensure the rationality, consistency, and effectiveness of the developed teaching courseware, classroom activities, after-class tasks (or exercises), and assessment methods. The prototype module was developed based on the theory of learning by doing and Kolb's Experiential Learning Cycle. Development included focusing on the differences of undergraduates' knowledge and ability, controlling the difficulty of understanding and operation reasonably, and combining the improvement of undergraduates' ability with the principles of module design organically. The module was developed using six steps: i) to form the texts of teaching contents in the module by analyzing, selecting, and adapting collected resources; ii) to adapt suitable texts into illustrations, figures, and tables to increase the readability; iii) to develop "lead-in questions" of every section to arouse students' curiosity; iv) to select and adapt examples for the teaching contents; v) to develop step-by-step exercises to guide students to write their thesis simultaneously with doing the module; and vi) to develop other additional components (format, appearance, mind map, reminder, etc.) of the module. Finally, a six-unit module was developed. The structure of the EATWM can be seen in Figure 4.
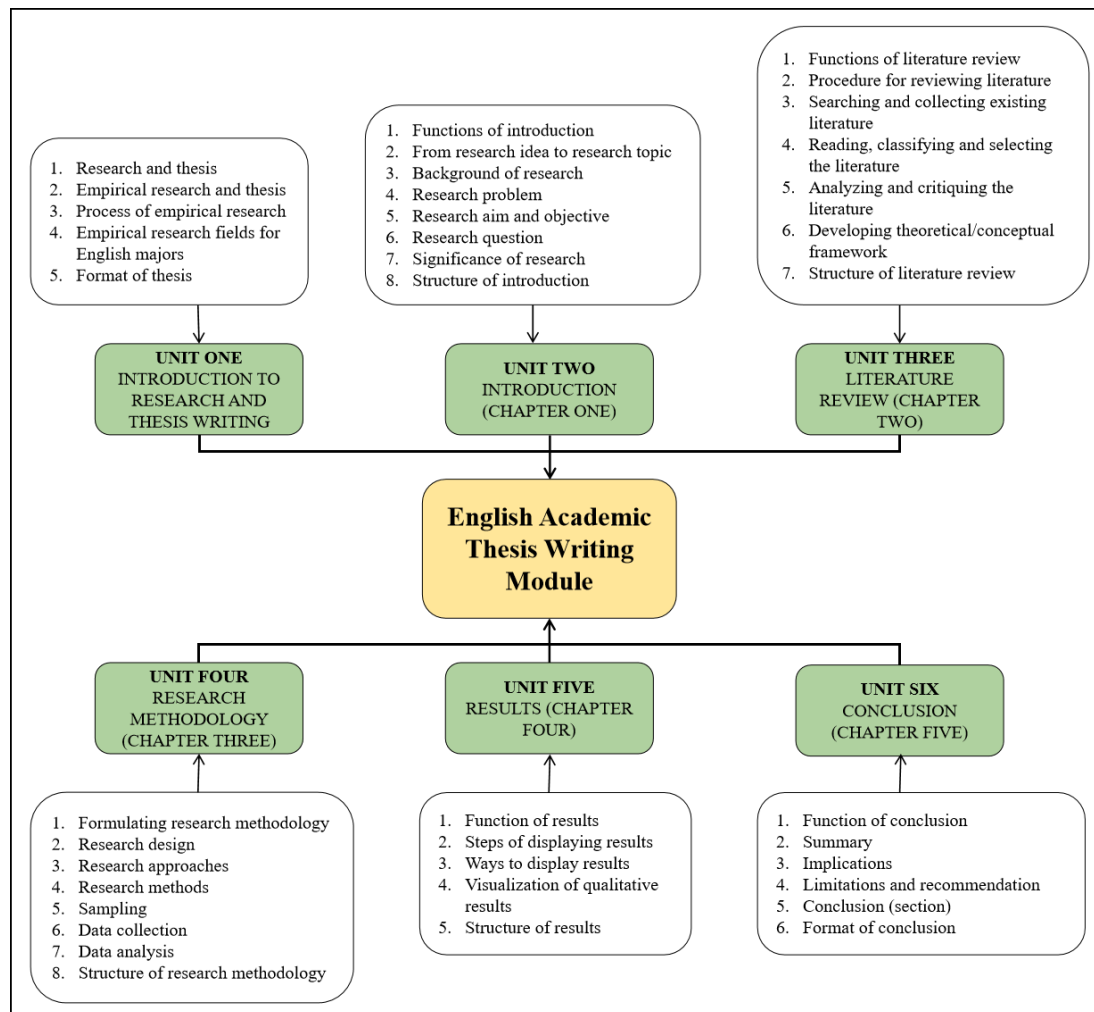
Figure 4: Structure of the EATWM

After the EATWM had been developed, its content validity was verified by five content experts. The module was amended according to the feedback of the content experts. The reliability was measured using Cronbach's alpha coefficient. The result was .894 for the module, indicating that the prototype module is reliable.

The amended module was used in the pilot study. After the 20 participants submitted their theses, three experienced thesis raters assessed their theses based on the grading criteria. The scores of the pilot study were analyzed using the intraclass correlation coefficient (ICC) to assess the inter-rater reliability among the three inter-raters. The ICC value for the average measures was 0.820, which indicates a high level of agreement among raters.

4.4.4 Stage 4: Implementation of the EATWM
A ten-week module on learning and English academic thesis writing course was conducted in the main study weekly. An experienced teacher spent eight weeks (two hours per week) teaching all six units in the module. Participants submitted their writing assignments one week after completing each unit and were given

two extra weeks after completing the last unit to complete and refine their English academic thesis writing.

4.4.5 Stage 5: Evaluation of the EATWM

We assessed the 70 theses in the main study. The scores of the main study and interview responses were analyzed to evaluate the performance of participants in English language academic thesis writing using the module. On the one hand, the scores representing participants' thesis writing performance were analyzed using the quantitative descriptive method, including calculation of the means, percentages, and frequencies of the data, so as to reveal their general performance after completing the module. On the other hand, the participants' feedback collected through interviews was analyzed by using thematic analysis, so as to further understand their performance and perceptions of completing the module.

5. Results and Discussion
5.1 Participants' English Academic Thesis Writing Performance

After conducting the main study, we attempted to describe the participants' performance using the EATWM by analyzing their thesis scores. Table 2 shows the means and percentages of the chapter scores and the thesis total score.

Table 2: Descriptive analysis of participants' English academic thesis writing scores (N = 70)

	Chapter 1 (20%)	Chapter 2 (20%)	Chapter 3 (20%)	Chapter 4 (20%)	Chapter 5 (20%)	Total (100%)
Mean	15.36	14.57	15.30	15.60	15.73	76.56
Percentage	76.79%	72.86%	76.50%	78.00%	78.64%	76.56%

Note: Participants' performance was divided into five rating categories according to their total scores: A (≥ 90) = excellent, B (80–89) = good, C (70–79) = moderate, D (60–69) = pass, F (< 60) = fail.

The mean of the total scores was 76.56, which reflects that the participants reached a moderate performance as a whole. The interval range of the mean score of chapters was between 14.57 (72.86%) and 15.7 (78.64%), which indicates that although slight differences existed in participants' performance of different chapters, they achieved a moderate performance in writing all the chapters. Furthermore, their performance in writing Chapter One (76.79%), Three (76.50%), Four (78.00%), and Five (78.64%) was relatively good, although their performance in writing Chapter Two (72.86%) was slightly weaker and needed to be further improved.

These findings are not entirely consistent with the weaknesses pointed out by other related studies, including the absence of research questions, improper research methodology, non-standard thesis format, insufficient language ability, etc. (Cao, 2020; Wang & Ming, 2018; Wu et al., 2023). It should be noted that the findings of these related studies are based on the analysis of the thesis writing performance of students who had never participated in any course or program

that taught empirical research-based thesis writing. On the contrary, the current study analyzed the performance of those who had systematically learned empirical research-based thesis writing by using the EATWM. The findings reveal that compared with other chapters with certain research procedures and writing formats, writing the literature review chapter posed a greater challenge to the participants. Future research should provide additional support and guidance to help students overcome difficulties and challenges in writing Chapter Two.

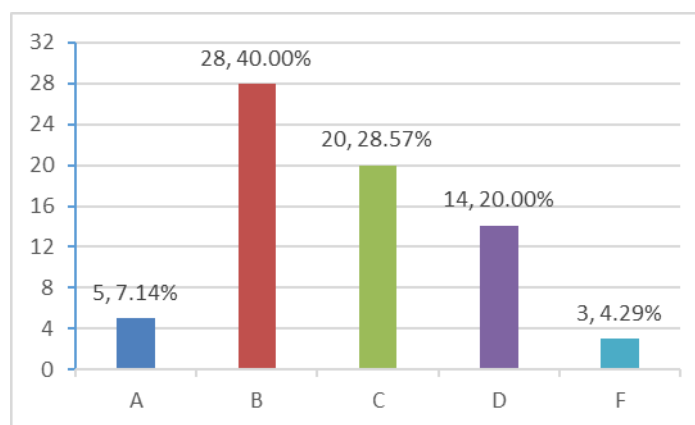Figure 5 presents participants' thesis writing performance graphically.

Figure 5: Participants' English academic thesis writing performance (N = 70)

Comparing the number and proportion of participants who achieved different ratings (A, B, C, D, and F), we found that relatively few of them achieved A (5, 7.14%) and F (3, 4.29%) ratings, while the majority achieved B (28, 40.00%), C (20, 28.57%), and D (14, 20.00%) ratings. This indicates that more participants were closer to the average level of performance in academic thesis writing. This finding is similar to other previous studies (Husin & Nurbayani, 2017; Marulanda Ángel & Martínez García, 2017), although these studies utilized different approaches or teaching materials and their research subjects were varied, including undergraduates and pre-service teachers. This indicates that the newly developed EATWM can have an acceptable teaching effect of academic thesis writing, a finding which is in line with this study's expectations. The descriptors of participants' performance can be seen in Table 3.

Table 3: Descriptors of participants' English academic thesis writing performance

Rating	Descriptor
A (90–100) Excellent	Can complete an excellent quality thesis, presenting reasonable and convincing problem statement, precise and realizable objectives and questions, scientific empirical research design and process, sufficient results and conclusion, accurate structure and format, and proficient academic English language.
B (80–89) Good	Can complete a good quality thesis, presenting reasonable problem statement, realizable objectives and questions, clear empirical research design and process, complete results and conclusion, basically accurate

	structure and format, and skillful academic English language, but with minor errors.
C (70–79) Moderate	Can complete a moderate quality thesis, presenting clear problem statement, objectives and questions; relative suitable empirical research design, process, results and conclusion; decent structure and format; and relative skillful academic English language, but with few noticeable errors or inaccuracies.
D (60–69) Pass	Can complete a pass quality thesis, presenting acceptable problem statement, objectives and questions; plain empirical research design, process, results and conclusion; passable structure and format; and less skillful academic English language, with some significant errors or deficiencies.
F (0–59) Fail	Cannot complete a thesis beyond pass criteria, presenting a not workable problem statement, objectives and questions; plain empirical research design, process, results and conclusion; disorganized structure and format; and very limited academic English language, with many significant errors or deficiencies.

Participants' performance demonstrated that a minority of them were capable of using the module very effectively to complete an excellent quality English academic thesis. For instance, in the interview with an A-rating participant, she claimed that,

> *"Through studying the module, I learned about the methods of empirical research and how to write empirical research papers."*

Another A-rating participant articulated that,

> *"I learned how to find the literature and data related to my thesis more effectively, gained a deeper understanding of the methods of empirical research, accurately applied different methods according to my research objectives, and developed my critical thinking ability. Learning this module has really benefited a lot."*

These responses highlight the positive impact of the module on a minority of the participants, leading to their excellent performance in conducting research and writing theses. Besides, a substantial portion of them were able to use the module to write a good or moderate quality English academic writing thesis. For instance, a B-rating participant indicated that,

> *"By using the module, I not only gained professional knowledge and research skills, but also cultivated critical thinking, logical thinking, teamwork, and communication skills."*

Another C-rating participant thought that,

> *"I have understood the basic structure and requirements of English thesis writing and am familiar with the entire writing process."*

These responses indicate that a considerable number of participants felt that they could acquire the necessary knowledge and skills to support their research

and thesis writing from the module. However, a small portion of them barely reached or were below the passing criteria. For instance, a D-rating participant complained that,

> "*I do not know where to find appropriate literature materials, which are relatively scarce.*"

Another F-rating participant also felt frustrated about her thesis writing experience. She said that,

> "*I feel that I have some doubts … some problems are actually not solved.*"

These instances indicate the importance of providing additional resources, targeted attention, and interventions to bridge participants' understanding gap, help them overcome the difficulties they face in using the module, and foster a more positive learning experience.

In general, the majority of participants showed that they can independently write an English academic thesis using the module. However, attention should be given to those who achieved lower ratings, and additional support and interventions should be provided to help them improve their performance.

5.2 Participants' Feedback

Nine participants were selected based on their ratings (2 of A, 2 of B, 2 of C, 2 of D, and 1 of F) to take part in one-to-one interviews. In the interviews, participants reflected on their thesis writing performance. In addition, they reflected on the benefits they gained, the challenges they faced, and the solutions to address challenges, and made suggestions for improving the module after having used the EATWM. In order to gain a deeper understanding of participants' feedback, thematic analysis was conducted by encoding and generating themes from the original words of the participants (Wæraas, 2022).

The first theme to be generated was "Benefits Gained". As shown in Table 4, by encoding participants' responses related to this theme, 14 sub-themes were generated from 30 codes, which cover four dimensions of English academic thesis writing performance. Analysis indicated that the EATWM is beneficial for cultivating participants' comprehensive academic writing abilities. They can gain practical insights ranging from planning, designing, researching, and presenting results, to thesis structure, format, and language expression. However, more sub-themes were generated from "Plan and Design" and "Research and Results" dimensions, and fewer from "Structure and Format" and "Language Expression" dimensions. In Liu's (2015) study, students did not make obvious progress in the "Arrangement" aspect, since it is difficult to improve the language arrangement ability in a short-term training, indicating the need for further strengthening and attention in those areas.

Table 4: Benefits gained using the EATWM

Interview questions:
1. What are the benefits you gained in terms of knowledge and skills of English academic thesis writing by using the English Academic Thesis Writing Module?
2. In your opinion, what were the main factors that contributed to your good performance in English academic thesis writing? Were there any features of the module that you found particularly beneficial in this regard? (Only A and B ratings)

Theme	Dimensions	Sub-themes	Codes
Benefits	Plan and Design	Basic concepts	Learn empirical research methods
			Write empirical research papers
			Understand the concept of thesis
			Learn the steps in conducting empirical research
		Topic selection	Select a topic
		Research objectives	Determine objectives
		Research problem	Clarify one's problem statement
		Critical thinking	Improve logical and critical thinking skills
			Develop critical thinking ability
		Literature review	Cultivate ability of reviewing literature
			Analyze and classify literature
			Collect literature
			Conduct in-depth information search and sorting
	Research and Results	Research design	Learn empirical research approaches and methods
		Research ability	Enhanced research abilities
		Data collection	Support from sufficient research and data
			Ensure accuracy, objectivity, and credibility of data
			Conducting extensive data collection
		Data analysis	Improve data analysis capabilities
		Displaying results	Design and analyze charts
	Structure and Format	Structure of thesis	Improve understanding of thesis structure
			Learn how to write a paper
			Develop a logical structure
			Organize the thesis structure
			Learn the thesis framework
			Understand the thesis structure
			Organize the thesis structure
		Format of citations and references	Learn the format of citations and references
	Language Expression	English academic language	Improve English academic language ability
			Avoid repetitive narratives

A second theme that emerged was "Challenges Faced". As shown in Table 5, by encoding participants' responses related to this theme, 9 sub-themes were generated from 18 codes. The majority of the challenges exist within the "Plan

and Design" dimension, followed by the "Research and Results" and "Structure and Format" dimensions, and a few in the "Language Expression" dimension. This indicates that the primary challenges affecting the participants' performance in thesis writing were in the research process, especially in the initial plan and design phases. Fitria (2022) did a survey about the chapters students felt were difficult to write. The result show that 50% of the participating students chose Chapter One and Chapter Three, 47.5% chose Chapter Two, and 60% chose Chapter Four. This is consistent with our findings, suggesting subsequent improvements to the module should concentrate on these dimensions. The challenges identified provide valuable directions and insights for further optimizing the module in the future. Moreover, the additional influencing factors serve as a basis for enhancing personal ability of English major undergraduates, improving the scheduling of graduation thesis assignment, and refining the methods of thesis supervision.

Table 5: Challenges faced using the EATWM

Interview question:			
3. What are the challenges you faced in completing English academic thesis writing?			
Theme	**Dimensions**	**Sub-themes**	**Codes**
Challenges	Plan and Design	Topic selection	Topic selection
		Research questions	Formulation of research questions
		Literature review	Information gathering
			Limited knowledge of existing research
			Integrating references into my thesis
			Effective literature review
			Limited literature
		Research design	Research approach and method
			Research method selection
	Research and Results	Data collection	Data collection and organization
			Data collection tools
		Data analysis	Data processing methods
			Data analysis
	Structure and Format	Format of references	References management
		Structure of thesis	Coherent organization of ideas
			Deficiencies in academic writing caused by cultural differences
			Inadequate and incoherent content
	Language Expression	English language ability	Limited English language proficiency

The third theme identified was "Solutions to Challenges". As shown in Table 6, by encoding the participants' responses related to solutions to challenges, 8 sub-themes were generated from 16 codes, which cover the first 3 dimensions. This reflects that effective solutions can be found within the module to address the challenges participants face when writing a thesis. However, the participants

who mentioned facing challenges in the "Language Expression" dimension did not provide corresponding solutions, indicating that relying solely on the module was not enough to address the challenges they faced in this dimension. This is because the improvement of English language proficiency requires long-term training and practice (Cao, 2020). Specialized support and guidance might be needed to enhance students' English language proficiency.

Table 6: Solutions to address challenges using the EATWM

Interview question: 4. Can the module help you address them (the challenges)? How did you address them by using the module?			
Theme	**Dimensions**	**Sub-themes**	**Codes**
Solutions	Plan and Design	Topic selection	Topic selection
		Research questions	Formulation of research questions
		Literature review	Classify, review, and quote literature
			Analyze and critique literature
			Search literature
		Research design	Research approach and method
			Research method selection
	Research and Results	Data collection	Data collection and organization
			Data collection tools
		Data analysis	Data analysis tools
			Data processing methods
	Structure and Format	Format of references	References management
		Structure of thesis	Writing template and detailed explanations
			Coherent organization of ideas
			Adapting to cultural differences in academic writing
			Step-by-step instruction

The last theme related to "Suggestions for Improvement". As shown in Table 7, by encoding participants' responses related to this theme, three sub-themes were generated from four codes, which include interaction and feedback, examples, and creativity, which were also frequently pointed out in previous studies (Jiang & Wu, 2021; Wang & Ming, 2018; Wu et al., 2023). These suggestions provide concrete guidance for instructors to further design the teaching procedures, activities, and learning context when using this module. This will enhance students' learning experience and thesis writing performance, while increasing their engagement and motivation in learning and practicing.

Table 7: Suggestions for improving the EATWM

Interview question: 5. Are there any suggestions for improving the module in addressing these challenges?		
Theme	Sub-themes	Codes
Suggestions	Interaction and feedback	Teacher's interaction and feedback with undergraduates
		More interaction, exercise materials, and peer evaluation
	Examples	More examples and analysis of examples
	Creativity	Creative ideas for discussion

In view of the limitations of the EATWM found in the results, we will focus on improving Unit Three of the module in the future to help students improve their writing performance of the literature review (Chapter Two). Meanwhile, special attention will be paid to find solutions to the factors that lead to the relatively lower thesis writing performance. Furthermore, future studies of students' academic writing performance in graduate programs and English academic publications can be conducted in other universities in China.

6. Conclusion

To improve the empirical research-based thesis writing performance of English major undergraduate students, the study developed the EATWM, tested its validity and reliability, and analyzed the students' performance and feedback using the module through a case study in a Chinese university. All three research questions were solved in this study. For RQ1, the six-unit EATWM was developed, including the necessary information and techniques for conducting empirical research and writing an empirical research-based thesis in English. It provides students with concise explanations, authentic examples, and step-by-step exercises as effective learning scaffolding. For RQ2, results of the content evaluation and the pilot study demonstrate that the developed module displayed satisfactory levels of validity and reliability, indicating that it could be effectively implemented on a larger scale with a broader participant base. For RQ3, the general performance of participants in thesis writing achieved the moderate level. Furthermore, the thematic analysis of participants' feedback was helpful to pinpoint the areas that required further attention and improvement, providing valuable insights for refining the module in the future.

The EATWM developed in this study can contribute to enhance the English academic thesis writing performance of English major undergraduates in China. The study may benefit teachers teaching or supervising undergraduates' thesis writing, and points out the significance for further research on improving students' English academic thesis writing. Meanwhile, the study may also benefit English major undergraduates who have future plans of studying abroad, conducting empirical research, and publishing in international contexts. Finally, we hope that this module can be implemented in more universities in China. If both teachers and students consider this module to be beneficial, it can be

promoted on a larger scale to improve the thesis writing performance of English major undergraduates in China.

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8. References

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