Self-Efficacy of Postgraduate Students in Scientific Writing: The Case of Selected Public Universities in Ethiopia

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Abstract: In the realm of the academic world, scientific writing is crucial for academics and postgraduate students to communicate scientific findings, advance knowledge in their fields, and make contributions to their countries' development. Given this, building the scientific writing capacity of postgraduate students and identifying potential factors that affect their writing is imperative. This study aimed to investigate the self-efficacy of TEFL MA students' scientific writing, particularly in employing linguistic knowledge, self-regulated writing strategies, and their comprehensive research efficacy at sampled Ethiopian public universities. A concurrent triangulation mixed-method design was employed for the purpose. Multi-stage sampling was used starting from random to comprehensive sampling techniques to reach the grassroots (individual participants). Universities in Eastern and South-eastern Ethiopia were sampled randomly. One hundred sixty students and fifteen supervisors were selected by employing a comprehensive sampling. Data were generated via interviews and questionnaires. Descriptive statistics, using SPSS version 20, were utilized to analyse the quantitative data, whereas thematic analysis was used for the qualitative data. The finding showed that the self-efficacy of TEFL MA students' scientific writing self-efficacy, on average, was low, especially in their ability to utilize linguistic knowledge, self-regulated writing strategies, and comprehensive research, such as writing introductions, discussing and writing research results, and making recommendations. Furthermore, the interviews evidenced that the students were low in their abilities to carry out a review of related literature and method sections, though quantitative data revealed that the students have shown a moderate efficacy in these sections. Pedagogically, it is recommended that students' scientific writing skills should be reconsidered, and the universities should give generic instruction, and integrate conducting mini-research, seminars, and reviewing empirical studies before actual research.

Keywords: Comprehensive research, Self-efficacy, Postgraduate students, Scientific writing

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1. Introduction

Scientific writing skills are imperative for postgraduate students. Scientific writing is a form of scholarly writing that researchers or students utilize to communicate their scientific research findings. It is essential for empowering postgraduate students to become experts in their fields of specialization and join the academic discourse community (Gabar and Ali, 2022). In the realm of the academic world, scientific writing is essential for academics to conduct scientific studies, advance their careers, enhance knowledge in their fields, and make significant contributions to various aspects of their countries' development (Tesfaye and Tefera, 2012; Rini et al., 2023). Scholars (Kavanoz and Yuksel, 2016:71) contend that “the most common form of communication scholars are involved in to make their voices heard as global partners in the scientific world is scholarly writing.”

In the context of scientific writing, self-efficacy encompasses various skills, including the ability to organize ideas, follow specific formatting guidelines, and communicate complex concepts clearly and concisely. Research indicates that higher levels of scientific writing self-efficacy can lead to increased engagement in writing activities, improved writing quality, and greater persistence in overcoming challenges associated with the writing process (McCarthy et al., 2019). Consequently, fostering self-efficacy in scientific writing is critical in academic training and professional development, as it can enhance overall writing performance and contribute to successful scientific communication (Pajares, 2002). Besides, Bandura (1994:2) states that a strong sense of efficacy enhances human accomplishment, reduces stress, and lowers vulnerability to depression. He also states that self–efficacy is specific and contextual. The ability to convey one’s thoughts successfully in writing depends on one’s sense of efficacy towards the skill that everyone needs in his/her lifelong learning journey (Fatemi and Vahidnia, 2013).

Considering the crucial importance of scientific writing for postgraduate students, higher institutions in both developed and developing

countries have turned their attention towards scholarly writing to minimize the challenges that students face while practicing it. Ethiopia, too, has made scientific writing one of its national agendas. As a result, the Ethiopian Education Development Road Map (2017-2030) emphasizes the importance of research activities as a key element of its new strategies for internationalization. Likewise, according to the Ethiopian Higher Education Proclamation No. 650/2009, higher institutions are responsible for undertaking and encouraging relevant studies. To this end, Ethiopian higher institutions aim to provide three major services: teaching, research, and community service. Thirty percent of lecturers' duties are related to research engagement. Most of the postgraduate programs in the Ethiopian higher institutions have also emphasized writing a thesis (which requires scientific writing skills) by giving it significant credit and making it part of the requirements for securing a second degree, thereby creating independent researchers in their careers.

Despite the importance of scientific research writing in higher institutions in Ethiopia, significant skill gaps remain, particularly for TEFL MA students in the Ethiopian public universities. Getnet and Wondwosen (2021) identified factors delaying doctoral programs at Addis Ababa University. However, they overlooked crucial aspects of students' scientific writing self-efficacy, which is vital for academic success. Their focus on PhD candidates limits the applicability of the findings to TEFL MA students, necessitating broader research to enhance understanding of their writing efficacy. Furthermore, empirical studies highlight deficiencies in the quality of MA theses and challenges in program effectiveness (Belay and Yekoyealem, 2016; Yirgu, 2019). While Belay and Yekoyealem pinpoint a general lack of research competencies, a more detailed examination of scientific writing efficacy specific to TEFL is needed. Additionally, Beshir (2022) noted that students at Arsi University face challenges, including inadequate academic backgrounds and research knowledge. Addressing these gaps could provide valuable insights to improve academic standards and practices in scientific writing. Furthermore,

existing literature indicates that many postgraduate students face significant barriers in developing their scientific writing skills, including inadequate training, limited access to resources, and a lack of mentorship (Tadesse and Gashaw, 2021). Yet, the study failed to examine levels of students' self-efficacy in scientific writing.

Additionally, Abebe (2019) explored general writing skills among university students in Ethiopia; however, the unique challenges faced by postgraduate students in their attempt to produce high-quality research outputs have been overlooked. Thus, the present study focused on self-efficacy of postgraduate students in scientific writing at selected public universities in Ethiopia, providing a clearer understanding of postgraduate students' self-efficacy in scientific writing by investigating different aspects such as linguistic knowledge, self-regulated writing strategies, and the comprehensive thesis writing journey in Ethiopian higher education. Furthermore, postgraduate students' academic writing has also been overlooked in international empirical studies. While Teng and Zhan (2023) investigated the influence of task complexity and learner variables on English academic writing, their study primarily focused on a specific context (a medium-sized university in China), which may limit the generalizability of the findings to other settings, such as Ethiopia. There is a need for more insights into the specific barriers that students face in their academic writing. Similarly, Housseine and Oifaa (2020) explored the perceptions and challenges of Moroccan EFL PhD students towards scientific writing, highlighting issues such as low English proficiency leading to ambiguous manuscripts and serious problems with vocabulary and grammar. However, they have not delved into the specific factors. Their study lacked a comprehensive examination of the psychological barriers, such as students' scientific writing efficacy. Additionally, it is difficult to generalize the findings from research conducted on engineering PhD programs at Euromed University to TEFL MA programs in Ethiopian universities due to contextual differences.

Moreover, challenges faced by postgraduate students, such as those in Pakistan documented by Yasmin et al. (2018), include institutional, situational, and dispositional obstacles. However, this reveals significant gaps in understanding the specific variables required for academic success, particularly in scientific writing. While the study on the challenges of research and thesis writing at the University of Calabar, Nigeria, provides valuable insights into postgraduate students' experiences (Ekpoh, 2016), it presents several gaps that warrant further exploration. Firstly, the research is limited to a specific geographical context, which raises questions about the generalizability of the findings to other universities in Ethiopia or different cultural settings. Additionally, the study primarily focuses on institutional factors while neglecting student-related factors (such as efficacy) that may also impact research writing challenges.

Generally, though a considerable amount of research has been conducted on different aspects of postgraduate students' scientific writing, the efficacy of Ethiopian postgraduate students in areas such as linguistic knowledge, self-regulated writing strategies, and comprehensive research appears to have been overlooked. Additionally, little is known about these variables in the existing literature and practices within the Ethiopian context. Postgraduate students have faced significant challenges in scientific writing, leading to poor-quality theses, as noted by Mulu and Mekasha (2018). Empirical studies have also emphasized that the problem for TEFL postgraduate students, particularly in conducting theses, has become critical and that further research is needed.

Practically, the researchers' lived experiences of teaching, chairing, reviewing, and examining TEFL MA students' theses at public universities in the country for many years have also shown that the majority of the students have produced poor research. Examiners and supervisors have expressed disappointment with the theses produced by the students due to issues such as plagiarism and a poor command of academic writing. Therefore, evidence from empirical studies and

personal experiences has highlighted the seriousness of this problem. This is why the researchers aimed to investigate these cognitive psychological factors. A lack of scientific writing knowledge and skills has led to a lack of confidence among postgraduate students when addressing research writing (Wortman-Wunder and Wefes, 2020).

Therefore, the present study aims to answer the following research questions:

1. What is the status of scientific writing self-efficacy among TEFL MA students in selected public universities of Ethiopia with regard to their linguistic knowledge, self-regulated writing strategies, academic writing concepts, and the reporting of statistical data?
2. What is the level of scientific writing self-efficacy among TEFL MA students in conducting comprehensive research in public universities in Ethiopia?

Operational Definitions

- *Comprehensive Research Self-efficacy*: This refers to the TEFL MA students' belief in their ability to carry out and complete tasks associated with MA research (Bishop and Bieschke, 1998). In other words, it is an individual's belief in their ability to successfully conduct research across various stages of the research process, including developing the introduction section, identifying research questions, designing studies, collecting and analysing data, and disseminating findings.
- *Scientific Writing Self-efficacy*: It refers to individuals' beliefs in their ability to effectively write scientific texts, such as research papers, grant proposals, or theses. It is a specific type of self-efficacy that pertains to the skills and confidence needed to engage in scientific writing, which includes various components such as understanding the structure of scientific documents, using appropriate language and terminology, conducting

literature reviews, and adhering to specific formatting and citation styles.

2. Theoretical Framework

This study is grounded in Bandura's Social Cognitive Theory, specifically examining constructs of scientific writing self-efficacy: efficacy related to linguistic knowledge, self-regulated writing strategies, academic writing concepts, and reporting statistical data. This theoretical framework facilitates an exploration of the factors influencing postgraduate students' self-efficacy in scientific writing, highlighting cognitive dimensions that impact their academic research performance.

Self-efficacy, a core component of social cognitive theory, posits that individuals possess agency and can manage their actions to effect change (Bailey, 2018). As Bandura (1999) asserts, beliefs in personal efficacy are foundational to human agency, influencing behaviour in the face of challenges. Strong self-efficacy encourages goal-setting and fosters resilience, while low self-efficacy leads to avoidance of challenges and can result in depressive behaviours (Bandura, 1994; Pasupathy, 2010). Students with low research self-efficacy may adopt defeatist attitudes and ineffective coping strategies when confronted with research challenges.

Moreover, self-efficacy beliefs enable individuals to analyse their failures, attributing them to a lack of effort or ineffective strategies, thereby promoting adaptive responses rather than learned helplessness (Bandura, 1994). High self-efficacy mitigates anxiety and stress, enhancing performance, while low self-efficacy exacerbates tension and leads to avoidance behaviours (Bandura, 1999).

Unlike traditional behaviourist approaches, which focus solely on observable actions, Bandura's self-efficacy theory emphasizes the

significance of students' beliefs in their capabilities as critical determinants of their academic success (Pajares, 2003). Specifically, perceived self-efficacy influences students' choice of activities, effort levels, and persistence in overcoming obstacles (Bandura and Adam, 1977).

Empirical evidence strongly supports the importance of self-efficacy across educational levels, linking it directly to academic achievement (Bandura, 1994). This study specifically investigates TEFL MA students' beliefs regarding their abilities in various scientific writing tasks. Numerous studies have highlighted the impact of self-efficacy on educational outcomes, including research productivity among faculty (Pasupathy, 2010), graduate students' academic writing (Wijaya and Mbato, 2020), and the relationship between self-efficacy and language learning strategies (Gahungu, 2007).

Given the critical nature of these in postgraduate education, the present research aims to contribute valuable insights into the dynamics of research self-efficacy and its implications for academic practices among postgraduate students.

3. Method

A concurrent triangulation mixed-method design was employed in the present study. The justification to use this design was based on the nature of the topic-scientific writing self-efficacy, which was a very complex phenomenon that may require different methods of data collection, analysis, and needs integrated interpretation or discussions. The researchers used this method to look into the issues by employing a pragmatic paradigm, which helped them to triangulate instruments of data collection, methods of data analysis, and interpretation (Croswell et al., 2003; Kivunja and Kuyini, 2017). Moreover, the design helped the researchers to address the weakness of one method so that it plays the role of confirmation, cross-validation, and support in the present study (Creswell et al., 2003).

3.1 The Population of the Study

TEFL postgraduate students from five sampled public universities in Ethiopia and their MA theses made up the population of the present study. Briefly, TEFL MA students (regular, weekend, and summer students) who were writing their MA theses in 2023 G.C. were the participants of the study. In addition, their thesis supervisors were part of the study population. The list of universities and their types is depicted in Table 1 below.

Table 1: List and type of universities involved in the study

No.	Names of Universities	Types of Universities
1	Haramaya University	Research university
2	Hawasa University	Research university
3	Arsi University	University of Applied Science
4	Madda Walabu University	Comprehensive university
5	Bule Hora University	Comprehensive university

3.2 Sampling Technique

The researchers used multi-stage sampling techniques. First, the researchers classified the universities based on their geographical locations (North, South, West, East, South East, Centre, North East, and North West of Ethiopia) to systematically narrow down the 50 public universities in Ethiopia (MOE, 2023) to a manageable sample size and to ensure that the sample is not biased towards any particular region. Then, two locations—the East and South East of Ethiopia—were randomly selected as discussed that, initially, a researcher can sample areas, "…especially if the population of interest is large or geographically scattered" (Gay et al., 2012:130).Nine public universities located in these regions were listed, excluding Adama, Jigjiga,Dilla and Dire Dawa Universities. The exclusion was on purpose, as the first two lacked TEFL master's programs and the others randomly selected for the pilot study. This means that five public

universities that offered a master's degree in Teaching English as a Foreign Language were involved in the study (See Table 1 above.) Furthermore, stratified sampling was used to include regular, weekend, and summer TEFL MA students who were writing their theses. Accordingly, 160 students —41, 32, 35, 39, and 12 from Madda Walabu, Hawassa, Haramaya, Arsi, and Bule Hora universities, respectively—were involved in the study. For qualitative data collection, four students were randomly selected from each university, resulting in a total of 20 students. Fifteen supervisors were also selected for interview.

3.3 Instruments of Data Collection

Based on the theoretical framework, the nature of the research, and the design of the present study, two instruments were deployed: a survey questionnaire and an interview.

3.3.1 Questionnaire

The Academic Writing Self-Efficacy Questionnaire was adapted from Teng and Wang (2022) and Kavanoz and Yüksel (2016). Furthermore, a comprehensive research self-efficacy scale questionnaire was adapted from Tas et al. (2023), Abd and Al-Atabi (2023), Reyes-Cruz et al. (2018), Pasupathy (2010), Gahungu (2007), Wijaya and Mbato (2020), and Swale (1990). The researchers conducted a pilot study with a small sample from the target population to test the adapted questionnaire and gathered feedback on item clarity, relevance, and overall flow. Experts also reviewed the instruments. To ensure that the questions measured what they were intended to assess, all aspects of validity (content, concurrent, and predictive) were checked before executing the instruments. The reliability and validity of these tools were assessed, and some changes were made, including clarity of wording, rearrangement of items, modification of the content of questions, and changes to the rating scales.

The reliability statistics for various aspects of a questionnaire measuring scientific writing efficacy, with Cronbach's Alpha values indicated internal consistency: Linguistic Knowledge Aspects (13 items, .886), Self-regulated Writing Strategies (6 items, .879), Academic Writing Concepts and Reporting Statistical Data (4 items, .754), Introduction Section Research Self-efficacy (8 items, .899), Review Related Literature Research Self-Efficacy (8 items, .843), Methodology Section Research Self-Efficacy (5 items, .850), Result and Summary Research Self-Efficacy (5 items, .895), and Discussion and Recommendation Research Self-efficacy (7 items, .805). The reliability of the instruments, as indicated by Cronbach's Alpha values, demonstrated a generally high level of internal consistency across the various constructs measured. Overall, all instruments demonstrated acceptable reliability, supporting their effectiveness in measuring the intended constructs.

The revised questionnaire was administered both offline and online to students who were off-campus and unavailable to write their theses at the university. Considering this, the researchers used Google Forms for the questionnaires and sent them to students via email. Furthermore, a five-point Likert scale was used for measuring the different levels (Gahungu, 2007; Wijaya and Mbato, 2020).

3.3.2 Interview

Interviews were held with TEFL MA students and their supervisors to generate data related to their lived experiences of self-efficacy in scientific writing, particularly their theses. Creswell (2008:525) argues that “qualitative researchers carry out in-depth interviews on individual experience, beliefs, behaviours, and meanings to discover and explore the range of variation among individuals and to find patterns of similarity and difference.” Therefore, it is justifiable to use interviews to explore the participants’ experiences and views towards scientific writing efficacy. Video and audio tapes were used to reduce missing information and to get all the touching points.

3.4 Methods of Data Analysis

Based on the research questions and specific objectives, the researchers organized the collected data and treated them according to statistical analyses required to answer the research questions. Descriptive statistical analysis (mean) was utilized to analyse the data. Five-point Likert scales (1= I cannot do it at all; 2= I can slightly do it; 3= I can moderately do it;4= I can do it well; 5= I can do it very well) were employed. For the interpretation of the results, three main segments_ low competence (M=1-2.99), moderate competence (M=3–3.99), and high competence (4-5) _ were used. The existing literatures have supported using these rating scales for ordinal data. For instance, scholars in areas of educational and psychological research have commonly employed these segments to interpret mean scores on a 5-point Likert scale for making it easier to interpret the findings and arrive at conclusions (Genet et al., 2025).

The researchers used SPSS version 20. Figures and tables were used to visualize the findings, especially related to descriptive statistics. Moreover, data collected through interviews were transcribed, coded (ST= students and SP = supervisor); then categorized thematically and analysed. Besides, critical and crucial data were quoted to consolidate the findings (Strauss, 1987).

3.5 Integration of Qualitative and Quantitative Data

The researchers integrated qualitative and quantitative data in their analysis and interpretation of the results. Creswell et al. (2003) suggest that the integration of the results from the two methods—qualitative and quantitative—should occur in the interpretation phase. Therefore, the researchers combined the findings of this study with a discussion and interpretation of those findings. Generally, the procedure is diagrammed as follows: this diagram has been taken from Creswell et al. (2003:181).

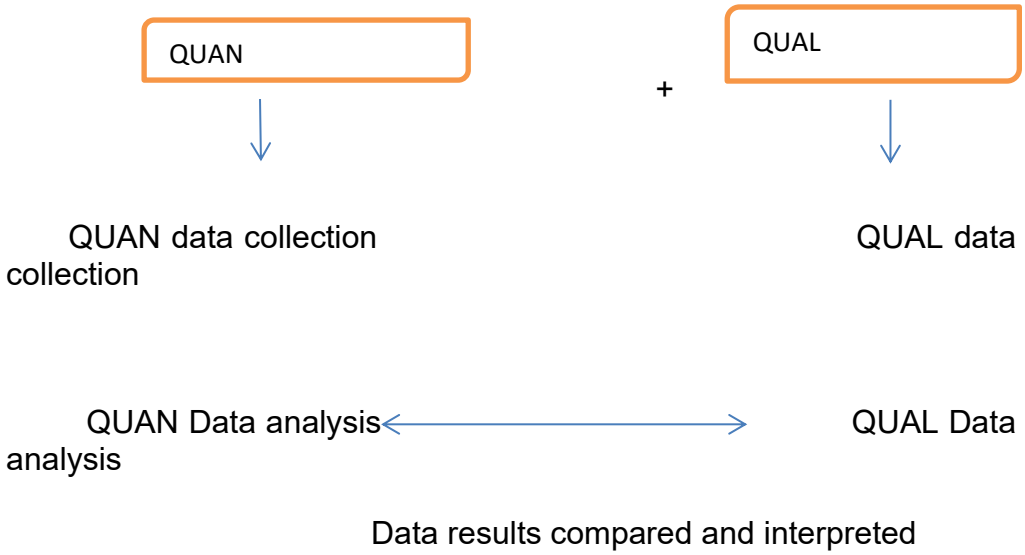

Figure 1: Integration of Qualitative and Quantitative Data

4 Results and Discussion

The present study aimed to answer the following research questions about TEFL MA students in public universities in Ethiopia: What is the scientific writing self-efficacy status of TEFL MA students regarding linguistic knowledge, self-regulated writing strategies, academic writing concepts, and reporting statistical data? Furthermore, what is the scientific writing self-efficacy level of TEFL MA students in comprehensive research efficacy? The findings and discussions are presented in a schematic format according to the research questions.

4.2 TEFL Students' Modality Distribution and Response Analysis

A total of 160 TEFL MA students participated in the study through a questionnaire. Specifically, there were 20 (12.5%) regular students, 26 (16.25%) weekend students, and 114 (71.25%) summer students. Among them, the responses of 31 students were excluded from the

analysis because they skipped some of the questions. The completion rate was 80.6%, indicating that the responses of 129 students were analysed.

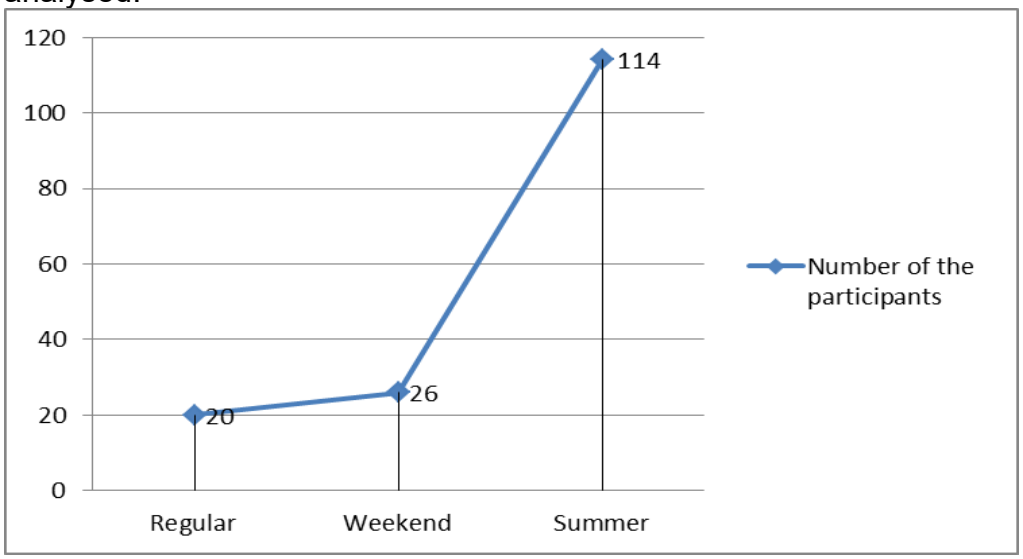

Figure 2: Programs attended by the students

Analysis of Self-Efficacy of TEFL MA Students in Scientific Writing

The analysis of self-efficacy of TEFL MA students in scientific writing, as presented in Table 2, provides insights into three specific dimensions of self-efficacy in academic writing: linguistic knowledge self-regulated writing strategies, and academic writing concept and reporting statistical data efficacy. Here, the findings for each variable have been broken down into details, utilizing both the mean scores and standard deviations to assess the level of competence among the participants. This assessment uses descriptive categories: 1-2.99 for low competence, 3-3.99 for moderate competence, and 4-5 for high competence.

Table 2: Self-efficacy of TEFL MA students in scientific writing

Variables	Number of items	Number of participants	M	SD
1. Linguistic knowledge of scientific writing efficacy	13	129	2.75	1.04
2. Self-regulated writing strategies: efficacy of academic writing)	6	129	2.8	0.919
3. Academic writing concept and reporting statistical data efficacy	4	129	2.79	1.28
Average Mean			**2.78**	**1.08**

Note: A five-point Likert scale (1= I cannot do it at all; 2= I can slightly do it; 3= I can moderately do it; 4=I can do it well; 5= I can do it very well), Criteria Mean=3

- *Self-Efficacy in Linguistic Knowledge of Scientific Writing:* With a mean score of 2.75 and a standard deviation of 1.04, this dimension indicates that TEFL MA students possess a low competence in linguistic knowledge as it pertains to scientific writing. The mean of 2.75, falling low, highlights a general sense of limited confidence in the linguistic capabilities needed for effective scientific communication. The standard deviation of 1.04 suggests notable variability among participants' scores, indicating that while some may feel relatively competent, others struggle significantly with the linguistic demands of scientific writing.
- *Efficacy in Self-regulated Writing Strategies of Academic Writing:* The mean score of 2.8 and a standard deviation of 0.919 for this variable also places self-efficacy in this connection at a level classified as low competence. The slightly higher mean compared to linguistic knowledge implies that students may feel slightly more capable when it comes to self-regulating

their writing processes. The standard deviation of 0.919 indicates less variability in the responses for this dimension than in linguistic knowledge, suggesting that the consensus on self-regulation in writing strategies is more uniform among students, albeit within a low range.

- *Self-Efficacy in Academic Writing Concept and Reporting Statistical Data:* This variable shows a mean of 2.79 and a standard deviation of 1.28, which categorizes it as low competence as well. The mean score is quite close to that of linguistic knowledge, indicating a similar level of confidence in understanding academic writing concepts and statistical reporting. However, the higher standard deviation of 1.28 reveals greater variability among participants, suggesting that while some students feel relatively comfortable with academic concepts and data reporting, a significant number experience difficulties, which could be attributed to varying academic backgrounds or experiences in statistical analysis.
- In summary, the average mean across these three dimensions is 2.78, with a standard deviation of 1.08, further underscoring a collective trend among participants towards low competence in scientific writing self-efficacy. The variability witnessed in the standard deviations across dimensions suggests that while some TEFL MA students may exhibit confidence and competence in certain areas of academic writing, there is a notable percentage that requires further development and support. This analysis underlines the necessity for targeted interventions to enhance linguistic knowledge, self-regulatory strategies, and understanding of academic concepts in scientific writing among TEFL MA participants.
- On the other hand, in line with the quantitative data, the data collected via interviews also evidenced that the majority of postgraduates who participated in the study held negative beliefs about their scientific writing abilities, including linguistic knowledge, self-regulated writing strategies, academic writing concepts, and reporting statistical data. Most importantly, the

students claimed that they lacked confidence in utilizing linguistic knowledge in academic writing, particularly in research writing. Regarding self-regulated writing strategies, the majority of the interviewees asserted that they usually started writing their papers without brainstorming, mind mapping, or outlining (ST5, ST1, ST8, and ST17). ST11 also reported that he has no confidence in his ability to edit and revise his paper. The students felt unclear about the contents to be included in each part of the research. ST9 stressed, "I have no knowledge of the contents to be explained in the background of the study and the statement of the problem; I am in a dilemma on how to organize and report the results and discussion." The students also expressed that:

- Generating and organizing ideas thematically was scary (ST20).
- Logically organizing content under each section of research, particularly under the background and statement of the problem, was so hard since they look similar (ST5).
- My advisor usually told me that I should differentiate between academic and non-academic paragraph writing (ST16).
- One of my headaches was my English language proficiency, for instance, using accurate tenses in each chapter of my study, reporting verbs, and active and passive voice (ST6).
- My thesis was rejected by the board of examiners because I committed academic dishonesty due to a lack of knowledge and skills in properly citing scholars' ideas (ST17).
- I have faced the problem of framing a statement of the problem or identifying gaps (ST13).
- Most of my classmates were assessed very good in their theses because their papers were bought from "thesis sellers," but my research was rejected because I attempted to do it myself (ST19).
- Lack of English language proficiency is one of the root causes of my anxiety in research writing (ST10).
- I do not know which statistical tests and computer software I can use (ST4).

- The students also believed they were incapable of structuring and organizing the contents of their studies according to their thematic areas (ST1, ST3, and ST18). Moreover, the students expressed their opinions about practicing various types of academic writing, e.g., expository, descriptive, argumentative, and critical writing. Most of them replied that they were confused by all of them. Furthermore, most of the interviewees mentioned psychological factors that potentially caused them to feel impotent in scientific writing. The majority of the students believed that they tended to conduct research relying on their abilities (ST4, ST10, ST7, ST12, ST8, ST19, ST5, ST20, ST2, ST13, ST17, ST1, and ST15). ST14 said, “I have achieved good grades (3.6); however, I believed I could not do research in my capacity.”
- Supervisors also noted that the majority of TEFL MA students lacked knowledge and confidence in scientific writing, with studies riddled with problems of academic vocabulary and fragmented organization (SP5, SP3, and SP13). SP11 remarked that many theses were below standard in scientific writing quality, echoing concerns about students' inadequate skills (SP10). SP5 observed unhealthy writing practices, including overly verbose language and choppy sentences, while students struggled with theoretical backgrounds and literature reviews (ST12, ST7, and ST10). As students found presenting results visually challenging, supervisors also highlighted their difficulties in expressing themselves clearly (ST1, ST4, ST17, ST18; SP4, SP15, SP11, SP12). Qualitative data confirmed students' lack of understanding of academic writing concepts, with many unable to analyze data or grasp statistical methods (ST3, ST19, ST6, and ST2). Supervisors echoed these concerns, emphasizing the widespread deficiency in students' grasp of academic writing (SP6, SP16).
- In general, based on both quantitative results (Weighted average mean: Linguistic Knowledge Aspects of Academic Writing=2.75; Self-regulated Writing Strategy Aspects of

Academic Writing Efficacy=2.8; Academic Writing Concept and Reporting Statistical Data Efficacy=2.79) and qualitative data, it can be interpreted that the students had low efficacy in their overall academic writing skills and needed an intervention to foster their confidence and capabilities in scientific writing.

- The findings of the present study align with previous research regarding postgraduate students' scientific writing self-efficacy, as demonstrated by Ayela (2020) at Arbaminch University, where TEFL students struggled with mechanics, word choice, and sentence structure. Tesfaye and Tefera (2012) emphasized the importance of developing scientific research skills, such as literature review and research planning, while Silashi (2019) highlighted the necessity for institutionally organized academic writing training to enhance students' academic achievement. Similarly, Gessesse (2014) examined challenges faced by TEFL MA students at Addis Ababa University, revealing difficulties in topic selection, content organization, language expression, framing research problems, setting objectives, and constructing structured literature reviews. These findings underscore the need for targeted interventions to support postgraduate students in navigating the complexities of research report writing effectively.
- Similar findings to the present study have been reported internationally. Matoti and Shumba (2011) discovered that post-graduate students at a South African University of Technology lacked an understanding of discipline-related concepts and terminology, and struggled with spelling, grammar, referencing, punctuation, and writing coherently. Similarly, Rini et al. (2023) found in their analysis of scientific writing skills in Indonesia that the introduction/background and discussion sections had the most errors, including issues with coherence and vocabulary. Ho (2016) also observed challenges in using English grammar and paraphrasing others' ideas among research writers. Additionally, Medaille et al. (2020) identified the role of self-efficacy in the thesis writing experiences of undergraduate honors students in

the United States, emphasizing the importance of managing emotions and employing self-regulatory strategies during academic tasks.

Analysis of the scientific writing self-efficacy level of TEFL MA students in comprehensive Research writing

In examining the self-efficacy of TEFL MA students in scientific writing through the data presented in Table 3, we utilized the mean and standard deviation values alongside the descriptive competency categories: Low competence (1–2.99), Moderate competence (3–3.99), and High competence (4–5).

Table 3: Self-efficacy of TEFL MA students in comprehensive research writing

Variable: **Components of comprehensive research writing**		**Number of items**	**No. of participants**	**M**	**SD**
1. Introduction		8	129	2.73	1.10
2. Review of Related Literature	Citation and evaluation of the existing literature	5	129	3.22	1.02
	Theoretical (Conceptual) Framework and Empirical Studies	3	129	2.6	1.09
3. Methodology		5	129	3.39	1.18
4. Results and Summary		5	129	2.54	.9887
5. Discussion and Recommendations		7	129	2.7	1.004
			Average mean	**2.85**	**1.066**

Note: A five point Likert scales (1= I cannot do it at all; 2= I can hardly do it; 3= I can moderately do it;4=I can do it; 5= I can do it very well) (Criteria Mean=3)

1. **Introduction**: With a mean score of 2.73 and a standard deviation of 1.10, respondents' self-efficacy for this item falls within the low competence category. The score indicates that TEFL MA students demonstrate significant uncertainty or lack of confidence regarding their proficiency in drafting the introductory section of research papers. The standard deviation suggests that there is considerable variability in self-efficacy perceptions among the participants, with some feeling much less competent than others in this area.
2. **Review of Related Literature**: This item has been broken down into two dimensions (Table 3):
    - **Citation and Evaluation of Existing Literature**: It received a mean score of 3.22, showing Moderate competence. The standard deviation of 1.02 indicates a moderate spread in responses, suggesting that while many students feel reasonably confident in this area, there remain others who do not, highlighting the mixed self-efficacy among participants.
    - **Theoretical (Conceptual) Framework and Empirical Studies**: This sub-item has a lower mean of 2.6, categorizing it as low competence. The standard deviation of 1.09 also suggests variability, pointing to a substantial range of self-assessments regarding students' abilities to develop a theoretical framework based on existing literature, which appears to be a challenge for many.
3. **Methodology**: Here, the mean score is 3.39, placing it in the Moderate competence category. The higher standard deviation of 1.18 indicates that while some students express reasonable confidence in their methodological approach, others still struggle significantly with this component, suggesting varied instructional needs in this area.
4. **Result and Summary**: With a mean score of 2.54, this item indicates a Low competence level among students. The standard deviation of 0.9887 reflects a relatively consistent

belief among students that they face challenges in this aspect of scientific writing, reinforcing the observed difficulties in articulating research findings effectively.

5. **Discussion and Recommendations**: This component garnered a mean of 2.7, again categorizing it as low competence. The standard deviation of 1.004 suggests that, like the introduction and results sections, students are generally not confident in their ability to engage in discussions and formulate recommendations based on their findings. This lack of confidence might stem from a lack of experience or insufficient guidance during their studies.

Overall, the average mean score of students' self-efficacy in scientific writing across all items was 2.85, which still falls within the range of low competence. The standard deviation of 1.066 further implies considerable diversity in self-efficacy perceptions among TEFL MA students, indicating that some students are significantly less competent than their peers in various aspects of scientific writing. The data collectively highlight areas where intervention and support are essential to enhance students' self-efficacy in scientific writing, particularly in the introduction, results, and discussions, where they feel the least confident.

Both quantitative and qualitative data revealed a pervasive lack of confidence among students in their ability to effectively execute research activities for their MA theses. Interviews with participants indicated that many believed to a lesser extent in their capabilities due to perceived difficulties in research (ST5, ST13, and ST2). Some expressed feeling overwhelmed by the daunting task of writing a thesis, particularly novice researchers (ST12, ST16, and ST7). Furthermore, qualitative findings showed varying levels of self-efficacy across different research activities, with many students feeling particularly uncertain about writing the discussion and introduction sections and identifying gaps (ST1, ST5, ST6, ST14, and ST15). Fear of rejection and academic dishonesty further compounded their lack of confidence (ST4, ST7, and ST10). Supervisors corroborated these findings, noting

that many students appeared incapable of completing their theses independently and resorted to plagiarism, contributing to a pervasive sense of fear and inadequacy (SP5, SP1, SP10, SP15, and SP7). One of the supervisors reported that:

> *Two academically proficient students, as demonstrated by their course performances, grades, and presentations, were found guilty of academic dishonesty, specifically plagiarism in their MA theses, resulting in their rejection by the board of examiners. Additionally, a female student lamented the financial loss incurred from hiring a research assistant when her study failed due to falsified data. These incidents underscore the lack of confidence among students in conducting research, both online and offline, as highlighted by SP 6.*

Similarly, supervisors observed that most of their supervisees developed incoherent theses; the statement of the problem, research questions, and the tools they prepared to answer their main research questions were unrelated to each other (SP3, SP9). Others also suggested that what the students set as their research questions, objectives, and research findings lacked consistency and coherence (SP12 and SP15).

Furthermore, the mean scores of the introduction, results, discussion, and recommendation sections revealed that the students were less efficacious in their ability to carry out these sections. They had less confidence in their competence to carry out the introduction section (mean = 2.72); similarly, it seemed that their perceived beliefs in presenting the results, discussion, and recommendation sections were low (M = 2.64, Figure 1). The data collected via document analysis and interviews also included quantitative data. For instance, in relation to his confidence in performing these sections effectively, a student said, “I feel that developing the introduction section, particularly the background of the study and statement of the problem, is difficult” (ST9). Similarly, another student argued that topic selection, the

analysis section, and developing the statement of the problem were difficult for him (ST9). The supervisors also explained that their advisees developed a poor introduction section for their research. One of them mentioned:

> *As far as my observation goes, the only part of the thesis that seems easy to most of my advisees is the acknowledgment. In writing a review of related literature, they have added irrelevant ideas; they do not critically review the existing literature. I have experienced that my advisees seem unclear about the difference between scope and limitation (SP1).*

However, the data collected via interviews were not in agreement with the findings from the quantitative data regarding the students' beliefs in their ability to conduct literature reviews and write methodology sections. The majority of the literature review works developed by the students were not genuine review of related literature; they lacked citations, evaluations, comparisons, arguments, and the researchers' reflections (SP1, SP5, and SP18).

Furthermore, the supervisors commented that the students used outdated and irrelevant literature and empirical studies, which made it difficult for them to identify gaps they could address in their studies. Most of the literature the students used was from abroad and not relevant to the Ethiopian context (SP7, SP8, and SP9). The students also explained that they faced difficulties in practicing literature reviews, particularly regarding the content to include in the sections and how to make comparisons or contrasts, as well as identifying gaps (ST5, ST17, ST6, ST13).

Overall, based on the results of the quantitative data (average mean for research self-efficacy in the introduction section = 2.73, Table 3; research self-efficacy beliefs for results, summary, discussion, and recommendations = 2.62, Tables 3) and qualitative data, we can conclude that the majority of the students believed they were incapable

of performing these sections effectively. Moreover, regarding the literature review components, it can be inferred that the students struggled to perform the theoretical or conceptual framework and empirical studies effectively (2.6, Table 3).

Even though the quantitative data indicated positive beliefs among the students regarding their ability to conduct literature reviews (citation and evaluation of existing literature = 3.22, Table 3) and methodology sections (3.39, Table 3), the qualitative data suggested that most students had low efficacy in executing these sections as well. Therefore, according to the self-reports of the TEFL MA students and the reports from their MA thesis supervisors about their advisees' research self-efficacy, the level of research self-efficacy among students at the sampled public universities in Ethiopia was low.

Similar to the present findings, previous studies have also highlighted the academic writing challenges faced by postgraduate students, particularly in research writing. Beshir (2022) examined the practices and challenges encountered by postgraduate students at Arsi University and revealed hindrances such as lack of academic background and research knowledge and skills, which, according to him, contributed to Ethiopia's low number of researchers compared to other African countries (UKaid, 2019). Feda (2014) investigated instructors' perceptions of graduate students' writing skills at Addis Ababa University and found that 80% of students lacked competence in intermediate and advanced writing skills. Additionally, studies conducted by Ho (2016) in Taiwan and Wijaya and Mbato (2020) in Sanata Dharma University, Yogyakarta also found low research self-efficacy among graduate students, with specific anxieties associated with different sections of research writing. Similarly, Rini et al., (2023) analysed common mistakes and writing styles in scientific research and found varying degrees of errors across different sections of the research report.

The analysis of scientific writing self-efficacy among TEFL MA students reveals a concerning trend in their perceived competence across various research components. The mean scores indicate low self-efficacy levels, particularly in the introduction and results sections, where students scored 2.73 and 2.54, respectively. This finding aligns with previous studies conducted in Ethiopia, such as the work by Mohammed and Abdu (2021), which highlighted that graduate students often struggled with the writing process, that led to diminished self-confidence. Additionally, the low mean score for the discussion and recommendations section (2.7) supports the findings of Abera and Gashaw (2020), who noted that many Ethiopian students exhibited a lack of confidence and proficiency in articulating their research findings and recommendations.

Contrastingly, self-efficacy in the review of related literature, specifically in citation and evaluation, showed a moderate 3.22. This suggests that while students feel relatively confident in this area, significant discrepancies still exist among their self-assessments. This mixed finding resonates with the observations made by Tesfaye (2019), who reported that students often possessed theoretical knowledge about literature reviews but struggled with practical application, resulting in superficial analyses rather than critical evaluations. Such inconsistencies indicate the need for targeted instructional support to bridge the gap between theoretical understanding and practical execution.

Furthermore, the methodology section received a moderate score of 3.39, indicating some level of confidence among students. However, the considerable standard deviation (1.18) suggests variability in self-efficacy perceptions, which is echoed in the findings of work by Asfaw & Daba (2020). They found that while some students feel competent in research design and methodology, others report anxiety and confusion regarding methodological concepts, reflecting a broader trend of inconsistency in research training among Ethiopian graduate students.

Interestingly, despite the quantitative data suggesting a moderate level of confidence in the review of related literature and methodology sections, qualitative findings paint a starkly different picture. Students reported difficulties in executing these components effectively, as noted in the comments from supervisors who highlighted issues related to irrelevant literature and a lack of coherence in students' theses. This discrepancy highlights a critical gap in students' self-perception versus their actual capabilities, a phenomenon also observed by Bekele (2020), who argued that students often overestimate their abilities in areas where they have minimal experience.

The interviews revealed that many students felt overwhelmed by the thesis writing process and expressed fears of academic dishonesty, which further contributed to their low self-efficacy levels. This aligns with research by Hailu and Degu (2018), who indicated that the pressure to produce high-quality research often leads to anxiety and a reluctance to engage fully with the writing process. The qualitative insights underscore the importance of providing psychological support and skill-building workshops to enhance students' confidence in their research abilities.

In contrast, other previous studies conducted in other countries found contrasting findings to the present study. It was reported that the self-efficacy of students was at a moderate level (Khatony et al., 2021). Moreover, the findings of research conducted on Postgraduate Students' Perceptions of Research Self-Efficacy and Critical Thinking Disposition and their Impact on Academic Creativity in Mersin University indicated that self-efficacy perceptions of postgraduate students in the study group were moderate (Komsu,2021). It was also reported that the total mean score of self-efficacy of postgraduate students at Kermanshah University of Medical Sciences in 2018 was 3.23 ± 0.61 out of 5.0 (Nazari et al., 2020). This study also reveals that the participants' research self-efficacy in the study was highly efficacious in research sub-skills such as research methodology self-efficacy (mean=3.30, standard deviation=0.65). Bandura (1994:2)

stressed, “Observing others' failure despite high effort lowers observers' judgments of their efficacy and undermines their efforts”. It revealed that the students gained high self-efficacy concerning data analysis, drawing independent conclusions, and evaluating authors’ conclusions from papers within or outside their areas of research (Abdullah et al., 2015).

In conclusion, the findings from the analysis of self-efficacy of TEFL MA students in scientific writing revealed a pervasive lack of confidence across multiple research components. While some areas, such as citation and evaluation of literature, show moderate self-efficacy, significant challenges remain in foundational components like the introduction and discussion sections. The discrepancies between quantitative and qualitative data highlight the complex nature of self-efficacy in academic writing, suggesting that targeted interventions, mentorship, and comprehensive training programs are essential to improve students' confidence and competencies in scientific writing. Future studies should explore these dynamics further, focusing on effective pedagogical strategies to support graduate students in developing robust research skills.

Conclusions and Recommendations

Based on the weighted average mean scores of the respondents, it can be concluded that the self-efficacy of TEFL MA students in scientific writing was low. The majority do not seem to be confident in their ability to produce scientific writing, particularly in their linguistic knowledge (M=2.75, STD=1.04), self-regulated writing strategies (M=2.8, STD=0.919), academic writing concept, and reporting statistical data (M=2.79, STD=1.289). Moreover, the students were also of low confidence in their ability to execute comprehensive research writing, such as producing an introduction (M=2.73), results and summary presentation (2.54), and discussion and recommendation (M=2.7) sections of their MA theses.

However, regarding beliefs in their competence in conducting a review of related literature and methodology section (3.39), the results indicate that they had moderate self-efficacy in carrying out most activities of these sections, though the qualitative data results contrasted with the quantitative data findings. The students were of low efficacy in identifying theoretical or conceptual frameworks and organizing empirical studies, and identifying the theories in the literature related to the research problem they had identified, and organizing empirical studies and other types of literature (reviews, theoretical articles, case studies, etc.). Students also reported specific challenges, such as difficulty in idea generation and organization, inadequate knowledge of academic vocabulary and grammar, and inconsistent and unlinked thesis sections leading to a lack of coherence.

Qualitative data from the present study revealed that TEFL MA students lacked confidence in utilizing scientific writing skills, particularly in reporting their original scientific findings. Interviews showed their incompetence in tasks such as developing relevant ideas, critically reviewing, and differentiating between the scope and limitations of their studies. Their theses exhibited disjointed sections, lacking consistency and coherence between the statement of the problem, research questions, and research findings. Additionally, many students resorted to academic dishonesty due to their inadequate knowledge and skills in properly understanding scholars' ideas and low scientific writing efficacy. Their lack of confidence extended to organizing ideas and content coherently, utilizing appropriate English grammar, avoiding plagiarism through effective paraphrasing and quoting, and analysing texts. This low level of self-efficacy in scientific writing may lead to disengagement in scientific communication, perpetuating existing practices, especially among classroom practitioners. Furthermore, it could impede their intention, forethought, self-reactivity, and self-reflectiveness, as suggested by Bandura (1994), potentially leading to mental health issues such as depression and phobias.

Based on the above findings, the following actionable recommendations have been forwarded:

- Universities should integrate comprehensive scientific writing courses into the postgraduate curriculum. This would equip students with essential skills in academic writing, including understanding the structure of scientific texts, effective literature reviews, and appropriate statistical reporting.
- Address the psychological barriers faced by students through building resilience, managing academic stress, and combating anxiety related to writing. Incorporating these elements can help students develop a more positive mindset towards their scientific writing capabilities.
- Encourage students to engage in mini-research projects throughout their studies. This hands-on experience can enhance their research competencies and provide practical applications for the theoretical knowledge gained in their courses. This may also develop their experiences of scientific writing, including knowledge and skills of both quantitative and qualitative data analysis using different computer programs such as SPSS.
- Further studies should be conducted on a larger scale, involving multiple universities and disciplines, to gain a deeper understanding of the writing self-efficacy landscape among postgraduate students in Ethiopia.

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