An Investigation of Components and the Development of an Instrument for Measuring Academic Writing Skills: A Case Study of Undergraduate Students in a Private University

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Abstract

This study aimed to develop and validate a reliable instrument for assessing academic writing skills among undergraduate students, with a focus on learners in Thailand. The research involved a two-phase approach. Initially, a comprehensive questionnaire was designed by synthesizing key insights from relevant literature and conducting in-depth interviews with five purposively selected key informants, including academic experts in English language education and assessment (IOC index process). The second phase involved the administration of the instrument to a sample of 586 undergraduate students selected through simple random sampling from a private university. The validity and reliability of the instrument were thoroughly evaluated using multiple statistical techniques. Content validity was ensured by expert review, resulting in an acceptable content validity index. The reliability analysis showed a strong overall Cronbach's alpha coefficient of 0.86, indicating high internal consistency. Construct validity was examined through confirmatory factor analysis, which revealed an excellent model fit with empirical data (Chi-square=5, p=0.172, CFI=0.99, RMSEA=0.034). Factor loadings of the components ranged from 0.63 to 0.84, demonstrating the robustness of the instrument in capturing the essential dimensions of academic writing skills. These findings highlight the utility of the developed instrument as a tool for educators and researchers to evaluate and improve academic writing competencies effectively. The study also emphasizes the importance of precise measurement tools in enhancing pedagogical practices and fostering academic excellence in English as a Foreign Language (EFL) setting. Future research should explore the application of this instrument across diverse cultural and educational contexts to further refine its generalizability and impact.

Keywords :*EFL learners, Academic writing skills, Undergraduate students*

1. Introduction

English is a crucial tool in higher education, offering opportunities to expand academic and professional horizons. Among its various aspects, academic writing skills stand out as essential for student success, providing the foundation for precise and effective communication. For non-native English speakers, mastering academic writing requires familiarity with key strategies and components, such as conventions, objectivity, and accuracy, to use the language proficiently.

Academic writing involves more than connecting words and phrases; it requires the logical expression of ideas and information. As noted by Madjid, Emzir, and Akhadiah (2017), effective writing is a critical skill for students, enabling them to communicate complex ideas. Similarly, Al Mubarak (2017) highlighted the role of academic writing in helping students organize their thoughts into well-structured content. According to Sata and Karakaya (2021), the primary objective of academic writing is to convey intricate thoughts, abstract concepts, and complex mental processes. Moreover, Argondizzo, Marcella, and Sasso (2020) emphasized that academic writing enables students to explain key points with precision, evaluate situations, provide relevant details, and express opinions related to their fields, using appropriate vocabulary. McNaught and Benson (2015) further argued that academic writing provides students with the knowledge and skills necessary to produce effective academic texts. Additionally, understanding the importance of academic integrity and subskills—such as paraphrasing, using direct quotations, and referencing peer-reviewed publications—is vital for developing strong academic writing skills.

Despite its importance, academic writing remains one of the most challenging skills for students, particularly those learning English as a second language. Negari (2011) noted that second-language learners often struggle with academic writing due to numerous challenges. According to Oraif (2016); Babalola (2012); Muraina et al. (2014); and Alabere and Shapii (2019), students frequently underperform in this area due to inadequate preparation and proficiency. Chokwe (2011) described students' academic writing performance as substandard, urging educators and stakeholders to address these issues. Elton (2010) attributed the problem to students' educational backgrounds and insufficient English skills. Supporting this, Zinkevich and Ledeneva (2021) identified recurring issues in academic writing, including punctuation errors, redundancy, and misuse of personal pronouns, based on an analysis of graduate-level papers.

The root causes of these challenges often stem from gaps in students' foundational skills. Many lack comprehensive research abilities, critical thinking, and academic reading skills. Additionally, students often struggle with language-specific issues, such as poor understanding of grammar, punctuation, and appropriate language use. Chokwe (2013) further highlighted difficulties in formatting, including referencing styles and bibliographic conventions, which compound the challenges of academic writing.

Given the significance of academic writing and the challenges faced by students, it is imperative to develop effective tools to assess and enhance their skills. Therefore, this study investigates the development of a research instrument to measure academic writing skills.

2. Objectives

The objectives of the study are as follows:

2.1 To analyze the components of academic writing skills among undergraduate students.

2.2 To develop an instrument for measuring academic writing skills.

2.3 To examine the quality of the developed instrument in terms of content validity, reliability, and construct validity.

3. Review of the Literature

This section covers four aspects which include definition, importance, components, and related research regarding academic writing skills. The details are as follows:

3.1 Definitions of Academic Writing Skills

In this perspective, Foster et al. (2022) noted that academic writing may be challenging as it requires forming ideas and translating them into text while adhering to the style and conventions of the student's subject area. According to Rosdiana (2019), writing has become the most challenging aspect of second language acquisition. It involves the strategic and appropriate use of language with structural precision and effective communication.

Furthermore, Leysan, Liliya, Roza, and Zhanargul (2020) argued that academic writing is particularly difficult for second language learners, as it demands exceptional accomplishments and a high level of writing proficiency. Academic writing skills can be defined as follows: they are a component of a student's academic literacy (Lea & Street, 1998; Kellogg, 2008; Shimazaki et al., 2018). Similarly, Zokaeieh, Marzban, and Ahmadian (2020) stated that academic writing is one of the most significant skills in higher education and, as a social phenomenon, is susceptible to ideological influences.

Writing, particularly academic writing, is a complex process. According to Wischgoll (2016), it demands diverse linguistic competencies, goal orientation, and the ability to transfer concepts appropriately to different contexts. Junio and Bandala (2019) emphasized that writing is both an essential aspect of academic performance and a critical linguistic skill. Daffern, Mackenzie, and Hemmings (2017) noted that writing requires a broad spectrum of language proficiency, conceptual understanding, and contextual adaptability.

Academic writing, as a subfield of academic literacy, extends beyond the basic ability to read and write proficiently. Svardemo-Berg, Ståhle, Engdahl, and Knutsen-Nyqvist (2016) highlighted that it includes the ability to adapt to the cultural, linguistic, and social environment of academic institutions (Gijbels, Donche, Richardson, & Vermunt, 2014; Lee, 2013). McNaught and Benson (2015) emphasized that academic writing equips students with the knowledge, ideas, and skills necessary for effective academic

communication. Moreover, students must understand the importance of academic integrity and related subskills, such as paraphrasing, using direct quotations, and referencing credible sources, including peer-reviewed publications.

Madjid, Emzir, and Akhadiah (2017) observed that academic writing is a crucial requirement for students, enabling them to link words and phrases while effectively conveying information and ideas. Similarly, Al Mubarak (2017) stated that academic writing skills are essential for communication, as they help students clearly organize their thoughts and convey meaningful content.

Oshima and Ann Hague (2007) argued that academic writing differs from creative writing in its emphasis on precise language and the structured organization of ideas. O'Brien (2013) described academic writing as a continuous growth process, with increasing demands as students progress in their studies. The development of academic writing skills relies on accessible support systems, effective guidance, and consistent evaluation and feedback.

Schulze and Lemmer (2017) asserted that writing according to the norms and conventions of discipline-specific academic styles is vital for university success. Academic writing plays a key role in the development and dissemination of knowledge across various disciplines in higher education. According to Rosdiana (2019), writing remains the most challenging aspect of second language acquisition, as it demands structural precision and the strategic use of language

In summary, academic writing is a critical skill that emphasizes precision, structural organization, and the effective communication of ideas. It requires students to adhere to discipline-specific conventions, utilize language strategically, and develop competencies in areas such as paraphrasing, referencing, and critical analysis. As a subfield of academic literacy, academic writing plays a pivotal role in fostering knowledge creation and dissemination across diverse academic disciplines, making it an indispensable aspect of higher education.

3.1.1. Theoretical Definition of Academic Writing Skills

Academic writing skills refer to the ability that requires not only the organization of thoughts, as students must invent ideas to create facts in accordance with specific academic conventions, but also discussion and reflection on various topics, such as the knowledge of specific writing rules.

3.1.2. Operational Definition of Academic Writing Skills

Academic writing skills refer to the ability to convey one's thoughts, feelings, information, ideas, or any message through a well-constructed text in an academic level or style.

3.2. Importance of Academic Writing Skills

To start with the challenges and issues regarding academic writing skills, Al Mubarak (2017) observed that academic writing seems to be one of the most important yet challenging academic skills for college students to develop, particularly true for second language learners (Negari, 2011). Olena (2019) stated that the laborious effort to teach academic writing skills to EFL/L2 students is valuable when learners recognize the need to strengthen their English language skills and achieve the mastery of key academic genres essential to their academic and professional life. According to Marcin (2020), academic writing is a vital part and has a substantial influence on the careers.

According to Arlina and Melor (2015), one of the greatest issues facing college students is academic writing. Students must expound on their views within a certain discourse in this kind of writing, which generally has a serious tone. Students in higher education are required to take a course in academic writing in order to obtain the essential academic writing skills and to better prepare for their dissertation work. It is also used for course grading and scientific paper publication (Lai, 2010).

Goelay and Ungan (2022) argued that academic writing skills are significant tools that play a crucial role in the dissemination of research findings. According to Hakim, Rasyid, and Rafli (2018), students are expected to produce high-quality writing assignments, including articles, observations, research papers, theses, and dissertations, particularly during their final semester. Furthermore, Muhammad, Adnan, and Ayyaz (2020) stated that among the four key language skills, writing is the most critical for both academic and non-academic purposes.

Hysaj & Hamam (2020) stated academic writing is vitally critical to a successful university education. All written tasks generated in a university setting, whether big or little, need a grasp of academic writing procedures. According to Zokaeieh, Marzban, and Ahmadian (2020), academic writing is one of the most important skills in higher education, and it may be researched for ideological manipulation as a social phenomenon. Among the several manifestations of this ability, academic writing is of the biggest importance and may be considered as one of the most important instructional tools. Wischgoll (2016) noted that the development of academic writing skills is vital for early-career scientists. Consideration of the reader's perspective is a unique difficulty intrinsic to academic writing (Kellogg, 2008). Déri, Tremblay-Wragg, and Mathieu (2022) also stated that this socialization to academic writing is required to produce a dissertation and, more generally,

of all written documents punctuating doctoral programs, such as scientific articles, book chapters, communication proposals and proceedings, scholarship applications, and other research reports or teaching material. AlMarwani (2020) remarked, in conclusion, that academic writing skills are often crucial indications of success in postgraduate TESOL programs. According to Hysaj & Hamam (2020), academic writing is critically important for a good university learning experience.

3.3. Components of Academic Writing Skills

In a vast number of aspects across the disciplines from teaching English as foreign language (TEFL) to teaching academic writing as a part of the curriculum in the English native speaking countries (NS), the components of academic writing skills are as follows:

Şata & Karakay (2021) claimed that academic writing requires the simultaneous use of cerebral, physical, and emotional abilities in addition to numerous linguistic skills (Çekici, 2018).

Carmen, Vanessa & Maria (2020) explained writing skills with a particular emphasis on academic writing and the development of a research proposal; speaking skills (i.e. oral production and interaction) with a particular emphasis on delivering a well-developed oral presentation, conveying the key ideas with an acceptable degree of clarity, offering details, analyzing circumstances, and expressing views that are especially connected to their subject of study while using terminology that is suitable for the context.

Zinkevich & Ledeneva (2021) added the formality, objectivity, and prescriptiveness of academic writing set it apart from other registers of writing; as a result, it needs a different kind of attention. Students are required to have an understanding of the value of academic integrity. The accompanying subskills, according to McNaught and Benson (2015). (e.g., paraphrasing, use of direct quotations, referencing from a range of sources, using peer-reviewed publications).

Al Mubarak (2017) agreed with Musa (2010), who stated that writing is considered to be a difficult skill to acquire because it requires multiple components, such as knowledge of spelling and punctuation, a complete mastery of grammar, the use of appropriate vocabulary, a style that meets the anticipated readers' expectations, and the ability to organize one's thoughts.

Schulze and Lemmer (2017) stated that the language conventions in dissertation texts require advanced acquisition of fundamental disciplinary norms governing the conceptualization, production, and reporting of knowledge in a variety of fields.

Fatimah (2018) acknowledged when drafting academic writing, the following considerations must be taken into account. Academic writing is structured, objective, and formal, and its language is often abstract and complex.

Krokoscz & Ferreira (2019) suggested that according to Foltnek et al. (2014), when seeking to aid students in avoiding plagiarism, the perception of plagiarism and the educational needs of the student are among the most important considerations.

Shimazaki, Adachi & Nakayama (2018) stated the production and use of handouts is an essential ability for enhancing the transmission of information, and this skill is often learned as part of the development of academic writing skills, for writing reports, taking notes, etc.

Schriver (2012) identified the application of genre knowledge, the arrangement of unrelated text parts into a coherent whole, and the balancing of the appropriate amount of information between content and target audience in a community-specific manner as essential skills in professional communication, such as academic writing, according to Wischgoll (2016). This idea is consistent with Spivey's (1990) definition of the skills required for academic writing: information selection, organization, and connection.

This, according to Wardhana (2022), is founded on the assumption that by using thinking abilities, a person may develop critical and analytical thoughts in writing tasks (Singh et al., 2018). In addition, through writing exercises, students are encouraged to be creative, which might enable them to apply, analyze, synthesize, and evaluate at a higher taxonomic level of thinking (Singh et al., 2020). Moreover, via writing exercises, students can articulate their thoughts and arrange the material they generate (Helaluddin et al., 2020).

Ivanova (2020) claimed that these principles characterize the process of learning to write as social, needs-based, needing defined objectives and expectations, and, most crucially, requiring the acquisition of language proficiency. The latter implies explicit consideration of how grammatical and lexical choices in texts generate distinct meanings in various contexts of usage.

AlMarwani (2020) emphasized that academic writing skills are often essential indications of success in postgraduate TESOL programs. In a discipline-specific course developed for postgraduate TESOL students, however, students are expected to demonstrate advanced construction abilities by combining diverse ideas, synthesizing views, and writing with a major care for truth, voice, and audience.

Alabere & Shapii (2019) state that in academic writing, language usage, text structure, organization, grammar, and punctuation are recognised. Topic, discourse, knowledge, and general capacity to reason and critique are discussed in academic writing.

According to Rosdiana (2019), students must develop their knowledge of vocabulary, grammar, language styles, and organizational patterns in order to generate a well-written paper.

Academic writing skills require not only the organization of thoughts (Rafik-Galea, Arumugam, & de Mello, 2012), as students must invent ideas to create facts in accordance with specific academic conventions, but also discussion and reflection on various topics, such as the knowledge of specific writing rules (Arumugam, 2011).

Students must establish their standing in the academic community by reviewing prior research and studying literature in academic writing, according to Jomaa and Bidin (2017); (Paltridge & Starfield, 2007).

The strategies of academic writing, according to Hysaj and Hamam (2020), are a combination of a sophisticated and discipline-related vocabulary, complicated and compound grammar, and a formal and academic register (Babcock & Thonus, 2018). For university students, academic writing entails acknowledgment of their own writing skills and acceptance of topic, grammatical, and format limits.

Arlina and Melor (2015) noted that students must understand grammar, syntax, vocabulary, and structure to deliver the intended message. Additionally, according to Bachani (2011), students are instructed to pay attention to organization while working on essential grammar and syntax. In addition, Hussain (2019) reported that L2 learners admitted they need to improve their grammar, vocabulary, and punctuation, as well as their usage of academic writing procedures.

Most of these components, according to Meza, Rodrguez, and Caviedes (2021), are part of structural and lexical abilities, which give the text a feeling of "correctness" or the capacity to use syntax, punctuation, spelling, and reference to build suitable writings (Bailey, 2015; Elander et al., 2006). Composing any kind of material is precision (Ivani, 2004). In addition, Dorji (2021) concurred with Wangchuk and Gyeltshen (2020) that poor grasp of grammar or language norms has negatively impacted the quality of students' academic writing

Junio & Bandala (2019) noted that this ability is difficult for these students because they must write in a language that is not their native tongue, and because they have not yet established a full knowledge of syntax, spelling, and punctuation (Khalil, 2010). Aside from that, Dita and Choirun (2018) believed academic writing focuses on abstract writing. The quizzes, however, assess grammar, paraphrase, and abstract organization.

According to Aunurrahman, Hamied, and Emilia (2017), all university students must master academic writing. The students are required to master a certain set of information and abilities. In addition to the specific set of knowledge and abilities, critical thinking is an essential factor that is evaluated in this study (Emilia, 2005; Widodo, 2012).

Critical thinking transcends mere abilities. It also has characteristics that serve as guidelines for building an academic work (Ennis, 1996; Siegel, 2010).

Therefore, academic writing skills are composed of the following: (1) grammar and vocabulary (GV), (2) evaluation of the source of data (ED), (3) summarizing, paraphrasing, and citations (SPC), and (4) Synthesis (SOS). Each of the aspects can be defined as follows:

1. Grammar and vocabulary refer to the ability to use grammar and appropriate vocabulary.

2. Evaluation of the source of data refers to the ability to assess the source of data effectively.

3. Summarizing, paraphrasing, and citations refer to the ability to summarize, paraphrase, and do citations from the source of the data correctly.

4. Synthesis refers to the ability to select, organize, and synthesize information.

3.4. Related Research

Şata & Karakaya (2021) stated that one of the major difficulties with performance-based evaluation is the lack of objectivity in analyzing individual performance and identifying the situation, since it is much more difficult to analyze objectively with performance-based assessment techniques than with conventional ones. It was noticed that DRF was commonly included in measures for measuring academic writing abilities and other performances. DRF, which is a systematic mistake with a considerable influence on validity, must also be determined. (1) The research used a quasi-experimental pre-test and post-test control group design (Büyükoztürk, 2011). (2) Data Collection Instruments; The research-related student essays were collected utilizing the International English Language Testing System's example of an opinion-based writing activity (IELTS). (3) Experimental Procedure; the writings of the students were given to raters, and their ratings were used as a pre-test. Cases of statistical differentiation were analyzed using the independent samples t-test and the Many Facet Rasch Model. (4) The data analysis procedure included Exploratory Factor Analysis (EFA) and the Lawshe procedures to provide evidence for the validity of the measurements derived from the initially designed instrument. A citation should be included to clarify the source and methodology of the Lawshe procedures. Additionally, Argondizzo, Marcella, and Sasso (2020) stated that students benefit from more precise descriptors to identify the appropriate objectives for both general and academic competencies related to their language skills and professional experiences.

Argondizzo, Marcella & Sasso (2020) stated students and teachers who participated in this study required more precise descriptors to identify the appropriate objectives for both general and academic competences in relation to their individual interests in the various language skills and professional experiences they expected to acquire. Considering this, it was decided to use the ELP developed at the University of Calabria. This ELP was created by a group of linguists interested in Language for Special and Academic Purposes. This exercise provided as an introduction to the three primary phases around which this

study was founded: (1) Students were invited to identify a language-related personal objective to be attained by the conclusion of the course. This assignment helped them become more self-aware and, as a result, analyze their requirements in more detail to achieve their goals. Moreover, it significantly enhanced their motivation. (2) Analyze the learning process of students to detect potential issues and give further help. (3) Self-evaluation that corresponded to the real level of skills they were tested on.

Zinkevich & Ledeneva (2021) suggested it use AI (artificial intelligence) to identify and seek for a suitable substitute for each error it finds. Grammarly's algorithms offer fixes for grammar, spelling, style, and punctuation that the user may have neglected. The errors found by Grammarly are divided into four categories. (1) The majority of errors (48 percent) relate to the accuracy metric. (2) The clarity filter reflects how simple it is for the reader to comprehend the written text's meaning. (3) The Engagement metric indicates paragraphs with repetitious sentence structure, overused words, and overused phrases are uninteresting and monotonous. (4) Grammarly.com provides a variety of options for expressing confidence, courtesy, and regard.

McNaught & Benson (2015) commented academic writing professionals were eager to change their immediate teaching and learning strategies for the workshop considering embedded assessment. However, the highly regimented character of higher education units (Boud & Falchikov, 2007) and the limited structural and organizational flexibility make this challenging. The utilization of this formative information by both students and instructors has the potential to provide substantial benefits (Irons, 2008). Higher education employs andragogy, the concepts of adult learning, as opposed to pedagogy, which is the basis for formal schooling (Merriam, 2001). (1) The efficiency of scaffolded assessment in the unit was evaluated by comparing the outcomes of three cohorts of students. (2) Student input collected via the University's Unit Content Evaluations. (3) A qualitative study of lecturer feedback was done to provide a new dimension to the usage of scaffolded assessment. The justification for including both formative (feedback to enhance future performance) and summative (marks and grades) assessment domains as feedback was outlined in section four.

Madjid, Emzir & Akhadiah (2017) stated the result of academic writing ability through student contextual learning strategy in the final learning activity of the first cycle can be seen as follows: (1) there is still no student who qualified with a very good value; (2) there are still 8 students (26.67% of 30) who received a good score; (3) there are 18 students (60%) who qualified adequately; and (4) there are still 4 students (13.33% of 30) who scored poorly. The percentage of students who passed the standard qualifying increased from 30% to 80% in the subsequent time, and by the end of the school year, all students were able to pass. These investigations demonstrate that contextual teaching and learning effects may be used to assist students in enhancing their academic writing skills.

4. Research Methodology

A research instrument used for data collection is a questionnaire for the purpose of the possible research. The details are as follows:

4.1. Development of the Questionnaire

The methodology section of this research paper outlines the systematic approach employed to investigate the reliability and validity of measures assessing academic writing skills among EFL learners. This study integrates two theories—social cognitive theory and self-regulated learning theory—to guide the development of the Academic Writing Self-Efficacy Beliefs Questionnaire (AWSEBQ). The AWSEBQ was meticulously designed to gauge EFL learners' self-efficacy beliefs across five dimensions: linguistic knowledge (LKE), self-regulatory capacity (SRE), information organization (IOE), writing performance (WPE), and rehearsal and memory (RME). The development process involved an iterative cycle of item generation, refinement, and validation through multi-method techniques, semi-structured interviews, and an extensive literature review. This process culminated in a 13-item scale operationalized on a 7-point Likert scale, ensuring granularity and accuracy in responses.

The validation of the AWSEBQ followed a multi-step process. Feedback was first solicited from an initial pool of participants and experts. Exploratory Factor Analysis (EFA) was then employed to identify and refine the underlying factor structure. This rigorous procedure led to the elimination of items with suboptimal factor loadings, ensuring that the final version of the questionnaire robustly represented the intended dimensions with satisfactory psychometric properties. The AWSEBQ's reliability was further substantiated through Cronbach's alpha reliability analyses, with alpha values ranging from 0.791 to 0.853 across the five dimensions, indicating acceptable levels of internal consistency.

Additionally, the quantitative results of the study were analyzed using the 7-point Likert scale. The questionnaire consisted of two sections: (1) demographics and (2) academic writing skills. The response scale ranged from "strongly disagree" to "strongly agree" as per Vagias and Wade (2006):
    1 is defined as "Strongly Disagree"
    2 is defined as "Disagree"
    3 is defined as "Somewhat Disagree"
    4 is defined as "Neither Agree nor Disagree"
    5 is defined as "Somewhat Agree"
    6 is defined as "Agree"
    7 is defined as "Strongly Agree"

Table 1: A Questionnaire Structure

No.	Variables	Part	Number of Items
1.	Demographics	I	8
2.	Academic Writing Skills (AWS)	II	5
Total			**13**

The proposed structure of the questionnaire of frequency behavior, perceptions, and opinion levels has five observed variables (items) to measure all variables.

Table 2: Observed Variables/Statements

No.	Variables	Observed Variables/Statements	Sources
1.	Academic Writing Skills (AWS)	1. I know that English academic writing requires lexical and grammatical complexity. 2. I know that English academic writing requires paraphrasing, summarizing, and synthesizing information from different sources. 3. I know how to identify each part an English research article. 4. I know the value of feedback in improving English academic writing. 5. I know how to evaluate English academic articles objectively.	Ahmad (2019); Turkan, De Oliveira, Lee, & Phelps (2014); Feak et al. (2011); Foung and Lughmani (2021);Kuteeva and Negretti (2016);Yu (2021); Clarence and McKenna (2017); Hyland (2004); Huang, Shu, Dong, and Zhu (2023); Teng and Wang (2022); and Yue and Teng (2022).

Within the scope of this study, purposive sampling was applied. The data were obtained from the administration of the questionnaire, and those obtained from the distributed questionnaires were used to interpret, categorize, and complete the data as follows:

Part I: The background of the participants consists of gender, age, studying year, English educational background, the level of English writing proficiency, and grade average. The data were analyzed in frequency and percentage.

Part II: This part aimed to identify academic writing skills.

4.2. Validity and Reliability of the Research Instrument

The research instrument will be validated based on the following aspects. Regarding the validity, five experts in the field of educational technology and communications or instructional web designer, computer science, educational research, educational measurement and evaluation, and English teaching or linguistic will check the content validity, using item objective congruence (IOC) index, the acceptable criteria must be

greater than 0.5. The criteria for evaluating content valid are as follows:

+1 is defined as ensure that the questions are measured in accordance with the content, definition and purpose.

-1 is defined as uncertain that the questions are measured in accordance with the content, definition and purpose.

0 is defined as that the questions are measured is not in accordance with the content, definition and purpose.

To assess the validity of the data, the researcher utilized the Index of Item Objective Congruence (IOC), a measure of congruence between the questionnaire items and the research objectives. The questionnaires and research objectives were presented to three experts in the field, who evaluated the alignment between the questionnaire items and the main content. The criteria for question selection involved an IOC consistency index of $\geq$ 0.5, indicating acceptable congruence. The analysis revealed that the consistency index of the questions ranged from 0.67 to 1.00. The experts' suggestions were then incorporated to enhance the completeness of the questionnaire.

Regarding the reliability, the Cronbach's alpha coefficient will be classified by variable from tryout data. Assessing the validity and reliability of questionnaires, the revised questionnaire was administered to a group of students who had similar features to the original sample. This was done to assess the instrument's structural integrity, specifically its construct validity.

After successfully recovering the data, the next step involves calculating the Cronbach's alpha coefficient and doing an analysis of the model and section. The construct reliability (CR), which represents the level of confidence in a variable, should be equal to or more than 0.7. In this study, it was at 0.86. Additionally, the average variance extracted (AVE), which is the average of the extracted variances, should be equal to or greater than 0.5. The subject of interest in this inquiry pertains to the field of Affirmative Component Studies (CFA).

5. Results

This section analyses the data collected according to the method applied in the present research: questionnaire. The questionnaire section analyses the data from the participants' responses.

5.1 General information of respondents

Table 3: Gender

Gender	Number of Students	Percentage
Male	19	31.6%
Female	41	68.4%
Total	**586**	**100%**

Table 3 revealed most respondents were female (68.4%) and the rest were male (31.6%).

Table 4: Age

Age	Number of Students	Percentage
18-19 years old	0	0%
20 -21 years old	52	86.6%
22-25 years old	8	13.3%
More than 25 years old	0	0%
Total	**586**	**100%**

According to Table 4, most of the respondents (86.6%) are at the age of 20 - 21 years old, followed by the age of 22 – 25 years old (13.3%). There were no participants from 18-19 years old to more than 25 years old.

Table 5: Year of study

Year of Study	Number of Students	Percentage
First year	0	0%
Second year	0	0%
Third year	60	60%
Fourth year	0	0%
Total	**586**	**100%**

As shown in Table 5, the results revealed that all respondents were third-year students (73.5%).

Table 6: English educational background

English Educational Background	Number of Students	Percentage
3-5 years	6	21.5%
5-10 years	10	25.5%
More than 10 years	44	53%
Total	**586**	**100%**

Table 6 revealed that most of the respondents (53%) are those who have been studying English more than 10 years, followed by those who have been studying English for 5 – 10 years (25.5%), and those who have been studying English for 3 - 5 years (21.5%).

5.2 Confirmatory Factor Analysis (CFA)

To validate the measurement components against the proposed model or theory (Byrne, 2016), the researcher conducted Confirmatory Factor Analysis (CFA) using a statistical package. The indicators derived from the results of the confirmatory factor analysis demonstrated the alignment between the study's measures and the intended theoretical constructs. This CFA aimed to verify the model, which was derived from the previous exploratory factor analysis (EFA). The CFA consisted of 5observed variables, as outline in Figure 1.
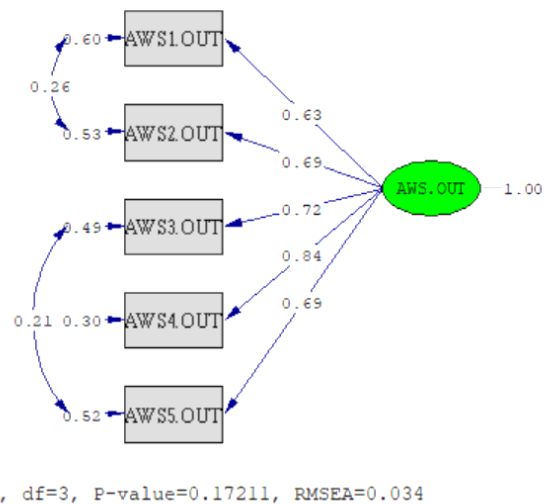

Chi-Square=5.00, df=3, P-value=0.17211, RMSEA=0.034

Fig 1: CFA results

The results of the Confirmatory Factor Analysis (CFA) are presented in Table 5. This analysis involved the examination of 5 observed variables and their respective Pearson correlation coefficients, as well as an assessment of the model's concordance.

Table 7: Pearson correlation coefficients

	AWS1	AWS2	AWS 3	AWS4	AWS5
AWS1	1				
AWS 2	0.692	1			
AWS 3	0.477	0.494	1		
AWS 4	0.525	0.576	0.595	1	
AWS 5	0.414	0.468	0.708	0.590	1

The analysis of Table 7 revealed significant and positive Pearson correlation coefficients among the observed variables. The correlation coefficients ranged from 0.414 to 0.708, and all values achieved statistical significance at the 0.01 level, indicating a strong and consistent relationship between these variables.

Table 8: Consistency index of the confirmatory components

Statistics	Criteria	Calculated value	Results
x^2/df	$x^2/df < 3$	1.67	Accepted
GFI	> 0.90	0.99	Accepted
AGFI	> 0.90	0.98	Accepted
CFI	≥ 0.95	0.99	Accepted
RMSEA	< 0.05	0.03	Accepted
SRMR	< 0.05	0.00	Accepted

Based on the findings presented in Table 8, the confirmatory component consistency index of the variables demonstrated favorable statistical values for evaluation. The chi-square value was non-significant (p-value = 0.17), indicating a good fit between the model and the observed data. Furthermore, the values of $\chi2/df$ =1.67, Comparative Fit Index (CFI) =0.99, Goodness-of-Fit Index (GFI) =0.99, Adjusted Goodness-of-Fit Index (AGFI) =0.98, Root. Mean Square Error of Approximation (RMSEA) =0.03, and Standardized Root Mean Squared Residual (SRMR)=0.00 all met the established criteria. These results indicate that the proposed model is consistent with the empirical data.

Table 9: Factor loading and the confidence value of measurement

Factor	Item	Factor Loading	AVE	CR
AWS	AWS1	0.63	0.51	0.84
	AWS2	0.69		
	AWS3	0.72		
	AWS4	0.84		
	AWS5	0.69		

Based on the results presented in Table 9, the confirmatory components were examined. This component is comprised of 5 observed variables with factor loading values ranging from 0.63 to 0.84. It is worth noting that factor loading values greater than 0.40 were considered appropriate criteria (Hair, Black, Babin, Anderson, & Tatham, 2006). Furthermore, the Average Variance Extracted (AVE) value was calculated to be 0.51, which meets the recommended criterion of AVE ≥ 0.50 (Fornell, & Larcker, 1981; Hair et al., 2006). Moreover, the reliability of the component measurement was evaluated using the Composite Reliability (CR), which yielded a value of 0.84. This value surpasses the recommended threshold of CR ≥ 0.70 (Bagozzi, & Yi, 1988; Hair Jr, Howard, & Nitzl, 2020), indicating satisfactory reliability of the measurement.

6. Conclusion, Discussions, and Recommendations

This study sought to develop and validate an instrument for measuring academic writing skills among undergraduate students, emphasizing the utility of a quantitative research approach. The methodology incorporated a synthesis of relevant literature and expert input to create the Academic Writing Self-Efficacy Beliefs Questionnaire (AWSEBQ). It is important to clarify that while expert interviews were conducted during the development process, they served only as a means to synthesize relevant insights, not as a data collection tool. As such, the study is entirely quantitative in nature.

The AWSEBQ demonstrated strong reliability and validity. Cronbach's alpha coefficients ranged from 0.791 to 0.853 across five key dimensions: linguistic knowledge, self-regulatory capacity, information organization, writing performance, and rehearsal and memory. The confirmatory factor analysis further validated the construct, yielding high model fit indices (Chi-square=5, p=0.172, CFI=0.99, RMSEA=0.034), and factor loadings ranged from 0.63 to 0.84. These results confirm that the AWSEBQ is a robust tool for assessing academic writing skills among EFL learners, making it a valuable resource for educators and curriculum developers.

The findings of this study align with prior research emphasizing the importance of validated tools in educational contexts. For instance, McNaught and Benson (2015) highlighted the role of robust instruments in improving the teaching and assessment of academic skills, while Hakim, Rasyid, and Rafli (2018) stressed the necessity of high-quality academic writing outputs, such as theses and dissertations, for university students. The AWSEBQ contributes to these objectives by focusing on foundational academic writing skills at the undergraduate level.

Furthermore, the dimensions assessed in this study—such as linguistic knowledge and self-regulation—align closely with research by Daffern, Mackenzie, and Hemmings (2017), who emphasized the importance of concept transfer and language competency in writing success. Similarly, Muhammad, Adnan, and Ayyaz (2020) noted that writing remains the most critical skill for academic and non-academic purposes, a finding corroborated by this study's emphasis on writing performance and rehearsal skills.

Despite its strengths, this study is limited by its specific context and sample population. Future research should validate the AWSEBQ across diverse cultural and linguistic settings to enhance its applicability. Additionally, the development of sub-instruments targeting specific academic writing sub-skills, such as critical thinking, paraphrasing, and referencing, would provide more granular insights into students' abilities.

The findings of this study open several avenues for future research to enhance the understanding and application of academic writing assessment tools. One critical direction

is the cross-cultural validation of the Academic Writing Self-Efficacy Beliefs Questionnaire (AWSEBQ). While the current study focused on a specific context, validating the instrument across diverse educational and cultural settings would ensure its broader applicability and reliability. Such validation could address variations in academic writing conventions and linguistic norms, making the tool more versatile for use in global EFL learning environments.

Additionally, future research could develop complementary instruments that target specific academic writing sub-skills, such as synthesis, paraphrasing, referencing, and citation practices. These sub-skills are essential components of academic writing, and a deeper understanding of students' competencies in these areas would provide more granular insights into their strengths and weaknesses. By focusing on these distinct aspects, educators and researchers could design more targeted interventions to address specific challenges faced by learners.

Another area for exploration is the integration of the AWSEBQ into instructional practices. Investigating how the questionnaire can inform teaching strategies and curriculum design would enhance its practical value. For instance, the AWSEBQ could be used to identify common areas of difficulty among students, enabling instructors to tailor their teaching methods and materials to address these challenges effectively. Such integration would not only improve academic writing outcomes but also support a more personalized learning experience for students.

Longitudinal studies are also recommended to track the development of academic writing skills over time. By conducting research that spans multiple semesters or academic years, scholars could gain valuable insights into the long-term effectiveness of interventions and the progression of writing competencies among students. This approach would provide a comprehensive understanding of how academic writing skills evolve and how educators can support sustained improvement.

Finally, the incorporation of technology into the AWSEBQ offers exciting possibilities for future research. For example, integrating AI-driven feedback systems could provide immediate, detailed insights into students' performance, making the evaluation process more efficient and effective. Such systems could also identify specific patterns in students' writing, offering personalized suggestions for improvement. By combining the AWSEBQ with technological advancements, researchers could significantly enhance its usability and impact in academic settings.

In conclusion, the recommendations outlined here aim to expand the scope and application of the AWSEBQ, ensuring its relevance and effectiveness in diverse educational contexts. By exploring these areas, future research can continue to build on the foundation established by this study, contributing to the advancement of academic writing education and assessment.

7. Acknowledgements

I would like to express my sincere gratitude to my family for the continuous support, patience, motivation, and immense knowledge.

8. References

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