Addressing Challenges in ESP Writing Assessment: A Conceptual Framework for Hybrid Assessment.

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Abstract:

Addressing challenges in English for Specific Purposes (ESP) writing assessment has become increasingly important with the integration of AI tools in higher education. In response to the various challenges, this paper proposes a conceptual framework for hybrid assessment in ESP writing. It develops a theoretical model grounded in writing assessment theory, genre-based ESP pedagogy, and AI-supported assessment practices. The framework conceptualizes assessment as a hybrid process shaped by disciplinary genre expectations, AI tools, and human critical reflection on automated assessment decisions. The model argues that assessment cannot

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be purely generic and highlights the need to balance automation with contextual human judgment in ESP writing assessment.

Keywords: ESP writing assessment; hybrid assessment; AI tools; genre-based pedagogy; disciplinary writing

Introduction :

The increasing use of English in higher education has transformed teaching, learning, and assessment practices across the world. Universities are increasingly adopting English as part of their internationalization efforts and in response to the growing demands of the global academic and professional market (Macaro et al., 2017). In Algeria, this will is reflected in the educational reforms that encourage the use of English, particularly in scientific and technical disciplines. The objective was to consolidate our graduates' competitiveness and facilitate their access to international scientific knowledge and research communities (Khenioui & Boulkroun, 2023). While these developments create new opportunities for students and institutions, they also raise important questions regarding the teaching and assessment of academic writing in ESP contexts.

Writing represents a central skill in ESP education because students are expected not only to use English accurately, but also to communicate disciplinary knowledge through writing. It is not just a tool to express knowledge, but rather an important strategy for learning, critical thinking, and developing disciplinary understanding (Breeze & Sancho Guinda, 2017). Consequently, assessing ESP writing is not merely for evaluating grammar and vocabulary. It is crucial to assess content, organization, disciplinary terminology, and communicative effectiveness. Moreover, it has to ensure thatthe assessment remains valid, fair, and meaningful. This task becomes

more complex when writing is linked to the discourse conventions and expectations of specific disciplines.

Recently, the emergence of Artificial Intelligence (AI) tools has introduced a new dimension to writing assessment. These tools can provide immediate feedback on grammar, spelling, punctuation, sentence clarity, and other surface-level aspects of writing. As a result, they offer promising opportunities to support students throughout the writing process and reduce some of the assessment burden placed on instructors. However, their use raised a considerable debate. In fact, AI can identify linguistic errors;however, its ability to evaluate disciplinary writing, genre conventions, rhetorical effectiveness, and communicative intent remains limited. This has created a dilemma for ESP educators who seek to benefit from technological advances without compromising the quality and validity of assessment.

Despite the growing interest in AI-supported writing assessment, most recent studies examine AI tools as isolated feedback mechanisms rather than as components of a broader pedagogical framework. As a result, the discussion often focuses on what AI can do rather than how it can be integrated into assessment practices in a meaningful and responsible way. At the same time, concerns related to assessment validity, reliability, academic integrity, and the ethical use of AI continue to attract increasing attention in contemporary academic discussions (Cotton, Cotton, & Shipway, 2023). In response to this, the present paper proposes a conceptual framework for hybrid assessment in ESP writing. Instead of treating AI as a standalone assessment solution, the framework adopts a pedagogically grounded approach that positions AI-based feedback as one component within a multi-source assessment system. Drawing on writing assessment theory, genre-based ESP pedagogy, formative assessment principles, and recent

developments in AI-supported feedback, the framework combines disciplinary genre expectations, AI-assisted feedback, and human critical reflection. In doing so, it seeks to provide a balanced and theoretically grounded approach that can inform future research and pedagogical practices in ESP writing assessment.

1- ESP Writing: Genre-Based Theory

Before embarking on addressing issues in this context, it is crucial to decipher key concepts related to the specificity of ESP writing, its teaching, and assessment.

1-1-The Specificity of Writing in ESP

ESP writing is distinguished by its close association with particular disciplines and professional fields. Unlike general writing, it requires learners to use language in ways that reflect the conventions, expectations, and communicative purposes of a specific discourse community. Consequently, students are expected to convey disciplinary knowledge effectively. In this respect, writing serves as a means through which learners participate in academic and professional communities and communicate specialized information to a target audience. One of the key concepts underlying ESP writing is genre. According to Swales (1990), a genre refers to a class of communicative events that share common communicative purposes recognized by members of a particular discourse community. These purposes influence the organization of texts as well as the linguistic choices adopted by writers. Likewise, Bhatia (1993) argues that academic and professional genres are characterized by established conventions. From this perspective, ESP writing is a social practice situated within specific disciplinary contexts (Hyland, 2004). Different disciplines require different

forms of written communication, each characterized by its own rhetorical, structural, and linguistic features. Therefore, learners need to become familiar with the expectations of their disciplines and develop the ability to adapt their writing accordingly. Such characteristics make ESP writing a complex process that requires the integration of linguistic, rhetorical, and disciplinary knowledge.

1-2- Teaching ESP Writing

Writing is viewed as the most demanding of the four linguistic skills. For this reason, its instruction represents one of the greatest challenges in foreign language teaching. In line with developments in language education, approaches to teaching academic writing have evolved (Paltridge, Harbon, Hirsh, Shen, Stevenson, Phakiti, & Woodrow, 2009). From the 1940s until the mid-1960s, the controlled composition approach dominated writing instruction under the influence of behaviourist theory. Within this approach, emphasis was placed on accuracy in writing. Teachers typically provided learners with model structures that they were expected to reproduce. Learning was achieved through imitation, repetition, and memorization in order to develop correct writing habits. Despite its contribution to grammatical accuracy, this approach offered limited opportunities for learners to perform a broader range of communicative functions. As a reaction to these limitations, the rhetorical function approach gained prominence, focusing on organizational patterns such as description, comparison, and contrast. However, Silva (1990) argues that learners require more than mastery of rhetorical functions; they also need opportunities to communicate their ideas in meaningful contexts (Hyon, 1996). Later, the genre approach emerged to bring together the linguistic and contextual dimensions of language use. Within this perspective, ESP developed as a

response to the increasing need for language instruction that addresses specific academic and professional contexts.

Teaching ESP writing involves a wide spectrum of teaching methods. To start with, traditional teaching methods remain relevant when instruction relies on a teacher-centred approach that provides learners with substantial guidance and input (Alston & English, 2007). Such methods can help students acquire the linguistic foundations and conventions associated with specialized writing. The move toward student-centred learning equips learners with skills that are increasingly required in the twenty-first century. According to Kolb's (2012) experiential learning theory, project-based learning (Smith & Rayfield, 2016), and social development theory (Vygotsky, 1978), student-centred practices encourage the development of higher-order thinking skills, including critical thinking, collaboration, and problem solving. In such contexts, learners are encouraged to engage actively with authentic writing tasks that mirror real academic and professional situations. Moreover, McKim et al. (2017) highlight the significance of technology integration in fostering personalized learning. In the current digital era, addressing individual learning preferences and adapting instruction to diverse learner needs has become an important component of effective pedagogy. Technology also offers access to authentic resources and additional opportunities for writing practice and development. As a case in point, the study conducted by Tummons et al. (2020) emphasizes the value of drawing on a variety of instructional approaches to support learners in meeting the writing demands of their respective disciplines. The complexity and specificity of ESP writing consequently call for further consideration of how learners' writing performance can be examined in ways that reflect these distinctive characteristics.

1-3- Assessing ESP Writing

Writing assessment has witnessed several changes over the years. The traditional view of assessment was concerned with measuring students' achievement at the end of the learning process. However, recent research has shifted its attention toward assessment practices that support learning and help students improve their writing performance throughout the writing process (Gebremariam & Gedamu, 2023; Medina et al., 2019). As a result, assessment is no longer viewed merely as a tool for assigning grades, but also as a means of providing learners with opportunities to develop their writing skills.

In this respect, alternative assessment practices have gained considerable attention in writing education. Studies on peer assessment, self-assessment, and portfolio assessment report positive effects on students' writing proficiency, critical thinking, self-regulation, and engagement in learning (Gc & Baral, 2024; Judijanto et al., 2024; Olsen & Hunnes, 2023; Rad & Alipour, 2023). The latter encourages students to become active participants in the assessment process and helps them reflect on their strengths and weaknesses as writers. Nevertheless, their effectiveness depends on several factors, including the quality of feedback, task design, and teacher support (Aknouch, 2023; Wang & Xie, 2022).

In the context of ESP, writing assessment needs to take into account the specific requirements of the discipline in which the language is used. According to Douglas (2000), assessment in specific-purpose contexts should consider both language proficiency and the background knowledge related to the field of study. Therefore, assessment tasks should resemble authentic situations that learners are likely to encounter in their academic or

professional environments. The criteria used to evaluate students' writing should reflect the conventions and expectations of the target discourse community. Writing assessment in ESP can serve both formative and summative purposes. On the one hand, formative assessment provides learners with continuous feedback that helps them improve their writing and become familiar with disciplinary conventions. On the other hand, summative assessment focuses on evaluating the final written product according to predetermined criteria and disciplinary expectations. However, assessing ESP writing remains a challenging task. Teachers are often expected to possess not only linguistic expertise but also sufficient knowledge of disciplinary conventions in order to provide valid and reliable feedback (Douglas, 2000).

Furthermore, the increasing integration of technology has introduced new possibilities for writing assessment. Digital tools can support students' reflection on their writing and assist teachers in monitoring learners' progress (Lu, 2024; Zhang et al., 2024). At the same time, research continues to emphasize the importance of human feedback in evaluating aspects of writing that require interpretation and disciplinary knowledge. Therefore, recent discussions in writing assessment have started to explore ways of combining technological tools with human expertise in order to improve the quality and effectiveness of assessment practices.

1-4-Critical Issues in ESP Writing Assessment

Assessing writing in an ESP context is a complex process. There arevarious factors that need to be considered in order to ensure the effectiveness of assessment practices. Educators, course designers, and ESP

teachers should balance several assessment principles, including validity, reliability, fairness and equity, practicality, authenticity, and transparency.

One of the major concerns in ESP writing assessment is **validity.** Assessment tasks should measure the knowledge and skills that learners are expected to acquire throughout the course. They should not introduce unfamiliar elements that have not been addressed during teaching. ESP writing assessment should reflect the communicative requirements of the target discipline instead of focusing on general language proficiency. Another challenge related to validity concerns the sufficiency of assessment opportunities. According to Ollin and Tucker (2008), relying on a single assessment method may not provide a complete picture of students' abilities. Learners should be allowed multiple opportunities to demonstrate their competencies through different assessment formats and at different stages of the learning process. The latter contributes to enhancing the reliability of assessment outcomes (Gould & Roffey-Barentsen, 2014).

Reliability represents another challenge in ESP writing assessment. Since writing assessment often involves subjective judgment, different assessors may interpret students' performance differently. According to Rust (2001), reliability occurs when different assessors using the same assessment criteria reach similar conclusions regarding a learner's performance. However, maintaining such consistency can be difficult, particularly in ESP contexts where assessors may have different levels of familiarity with disciplinary conventions and writing expectations.

Fairness and equity also remain important concerns. Students should be provided with equal opportunities to demonstrate their writing abilities (Machin, Hindmarch, Murray, & Richardson, 2016). In this respect,

assessment procedures should minimize factors affecting learners. Gould and Roffey-Barentsen (2014) emphasize the importance of providing appropriate accommodations whenever necessary, including additional time, adapted assessment formats, or other forms of support. Failure to address these issues may result in assessment outcomes that do not accurately reflect learners' actual abilities.

Furthermore, **practicality** continues to present a challenge for teachers and institutions. Although authentic assessment tasks are often recommended because of their relevance to real-world communication, their implementation may require considerable time, effort, and resources (Gould & Roffey-Barentsen, 2014). Consequently, teachers are frequently required to balance between designing meaningful assessment tasks and maintaining feasible assessment procedures within existing institutional constraints.

Another issue concerns **authenticity**. On the one hand, assessment tasks should resemble the types of writing situations that learners are likely to encounter in their academic or professional environments. On the other hand, teachers must ensure that the submitted work genuinely reflects students' own efforts. In recent years, concerns regarding plagiarism and the increasing use of digital writing tools have made the verification of authorship more challenging. Therefore, maintaining authenticity has become an increasingly important aspect of ESP writing assessment (Gould & Roffey-Barentsen, 2014).

Finally, **transparency** remains essential for establishing trust in the assessment process. Students need to be previously informed about the criteria, standards, and procedures used to evaluate their work. According to Gould and Roffey-Barentsen (2014), making assessment expectations

explicit helps learners understand how their performance will be judged and reduces potential misunderstandings regarding grades and feedback. In the absence of transparency, students may perceive assessment practices as inconsistent or unfair.

2- Challenges in ESP Writing Assessment

Despite the growing interest in ESP writing assessment, several challenges continue to affect its implementation and effectiveness. Since ESP writing involves both language proficiency and disciplinary knowledge, assessing students' written production is often more complex than assessing general English writing. On that account, difficulties related to assessment criteria, human assessment practices, artificial intelligence tools, and institutional support continue to be reported in the literature.

2-1- Lack of Clear Disciplinary Criteria and Rubrics

One of the major challenges in ESP writing assessment is the absence of clear disciplinary assessment criteria. Unlike general English writing, ESP writing is closely associated with specific discourse communitiesand genre conventions. Therefore, assessment should not focus only on grammatical accuracy and vocabulary use. It is dedicated to learners' ability to communicate disciplinary knowledge according to the expectations of a particular field.

Practically speaking, developing appropriate assessment criteria is not always straightforward. Many teachers rely on holistic judgments or assessment tools that were originally designed for general English contexts. In some educational contexts, assessment may place disproportionate emphasis on either linguistic accuracy or disciplinary content. As a result, writing proficiency may be overlooked in favor of content knowledge, or vice

versa, which can compromise the comprehensive evaluation of students' writing abilities (Dearden & Macaro, 2016), which makes the assessment fail to capture the multidimensional nature of ESP writing.

Furthermore, designing effective rubrics depends on: learning objectives, genre expectations, students' language proficiency, and the balance between disciplinary content and linguistic performance. According to Dimova (2020), assessment criteria should be clearly defined and shared with students in order to ensure transparency and consistency. However, the lack of expertise in rubric development and implementation continues to represent a challenge for many teachers.

2-2- Human Assessment Limitations and Workload

Human assessment remains an essential component of ESP writing evaluation. However, it is associated with several limitations. ESP Assessors most of the time evaluate language use and disciplinary content, paying attention to rhetorical organization and genre conventions. This task can be challenging when teachers possess expertise in language assessment but have limited preparation in the subject matter.

According to Aguilar (2015), writing difficulties may originate from different sources, such as linguistic transfer, grammaticalmisunderstandings, or difficulties related to the organization and communication of ideas. Identifying the source of a writing problem requires specialized knowledge and assessment expertise. ESP teachers need to be trained in providing effective feedback. As a case in point, research on L2 writing focuses more on prioritizing errors that prevent communication rather than focusing on minor linguistic inaccuracies (Ferris & Roberts, 2001). Teachers may differ

in the way they interpret students' errors and provide feedback, which may affect the consistency and formative value of assessment practices.

It is noticeable that most ESP teachers face a workload regarding assessing students' works which represents another challenge. The assessment ofESP writing requires time and effort, particularly when teachers need to provide detailed feedback on multiple assignments and drafts. In large class sizes, teachers often find themselves under considerable time pressure. According to Khenioui and Boulkroun (2023), such constraints may limit opportunities for formative assessment, such as multiple drafting and individual consultations. Consequently, assessment may become more focused on final grades than on supporting students' writing development.

2-3- AI Limitations and Lack of Contextual Judgment

As artificial intelligence develops, new opportunities for ESP writing assessment emerge. Automated writing evaluation (AWE) tools can identify grammatical errors and provide immediate feedback. Interestingly, they can assist teachers in managing large volumes of written work. On that account, AI has become attractive as a means of supporting assessment practices. It has been shown that such tools can identify surface-level linguistic issues and facilitate the feedback process (Link et al., 2022).

AWE proves its efficiency in grammatical error correction and feedback, but it is considered limited in a certain way. It still faces difficulties in assessing more complex aspects of ESP writing. Automated evaluation cannot handle elements related to disciplinary conventions, rhetorical effectiveness, audience awareness, and communicative success. These

aspectsrequire contextual interpretation and disciplinary understanding (Bearman et al.,2020).

AI-generated feedback risks being inconsistent with the objectives of a particular ESP context. Students may receive suggestions that are linguistically acceptable but not necessarily appropriate for the target discipline. On that account, reliance on automated assessment may affect the validity of the assessment. It is crucial to know that AI can support the assessment process and reduce the workload associated with writing evaluation, but it cannot replace the role of human judgment in assessing complex disciplinary writing.

3- A Conceptual Framework for Hybrid Assessment

3-1-Addressing the Challenges of ESP Writing Assessment

To address the limitations associated with both human and automated assessment, this paper proposes a Conceptual Framework for Hybrid Assessment in ESP writing. The framework is based on the assumption that neither human assessment nor artificial intelligence can independently provide a comprehensive evaluation of ESP writing. It is apparent that human assessors possess the disciplinary and contextual knowledge necessary to evaluate communicative effectiveness, while AI tools offer immediate feedback that can facilitate the assessment process. Henceforth, an effective ESP writing assessment should rely on a complementary relationship between disciplinary genre expectations, AI-supported feedback, and human critical judgment.

A. Determining Genre Expectations and Rubrics

The absence of clear disciplinary criteria and assessment

rubricsrepresents one of the challenges identified in ESP writing assessment. Since ESP writing is situated within specific discourse communities, assessment criteria should be derived from the communicative requirements of the target discipline rather than from general English standards. On that account, the first component of the framework focuses on the explicit identification of disciplinary genre expectations.According to Swales (1990), genres are characterized by shared communicative purposes that determine their rhetorical structure and linguistic features. Consequently, before any assessment process can take place, the target genre should be clearly defined in terms of its communicative purpose, rhetorical organization, and grammatical characteristics. These genre expectations constitute the foundation upon which assessment criteria are established.

B. The Use of AI Tools as Formative Assessment Support

The second challenge identified in the literature was the workload associated with writing assessment. It is almost impossible for ESP teachers to provide detailed feedback on multiple drafts, especially in large class sizes and with limited resources. AI tools can be used to provide valuable support in the first phase of draft writing. The current proposed framework does not view AI as a replacement for human assessment but rather as a formative assessment tool that assists both teachers and students. Students should write their first drafts in class without any assistance from AI. Later on, Automated systems can identify grammatical inaccuracies, spelling mistakes, punctuation problems, lexical issues, and other surface-level features of their writing (Link et al., 2022). Bitchener and Ferris (2012) argue that corrective feedback is particularly effective in improving linguistic accuracy, especially when it targets specific language-related issues. AI tools can provide immediate feedback during the drafting process, allowing students to revise

their texts and reflect on the AI feedback under the teacher's supervision before submitting them for final evaluation. This iterative feedback process encourages learner autonomy and reduces part of the assessment burden placed on teachers.

C. Integration of Human Critical Reflection and Contextual Judgment

As mentioned above, AI can identify surface-level features of writing, but it is limited in evaluating the contextual and disciplinary dimensions that characterize ESP writing. On that account, human judgment remains a central component of the proposed framework. Automated systems are limited in evaluating meaning, argumentation, creativity, and communicative effectiveness. Warschauer and Ware (2006) note that automated writing evaluation systems are effective in identifying mechanical and linguistic features but are less capable of assessing the quality of ideas and arguments. Similarly, Perelman (2014) criticizes automated scoring systems for relying heavily on measurable textual features while overlooking meaning and rhetorical effectiveness. These concerns remain relevant with the emergence of recent AI technologies, as studies continue to show differences between automated and human evaluations of writing.Therefore, the role of the human evaluator extends beyond verifying grammatical correctness. ESP teachers are responsible for evaluating rhetorical effectiveness, disciplinary appropriateness, coherence of argumentation, audience awareness, and the overall communicative success of the text. According to Bearman et al. (2020), such dimensions require contextual interpretation that cannot be fully captured through automated assessment. Furthermore, AI-generated feedback must be critically examined by teachers and students as well. They should identify suggestions that may be

inaccurate, generic, or inconsistent with disciplinary conventions. Through this process of critical reflection, the assessment remains aligned with the construct of ESP writing rather than with general language proficiency alone.

As a result of the challenges discussed previously, it has been indicated that there is no single assessment approach capable of addressing the complexities of ESP writing. AI tools offer immediate feedback, but remain limited in interpreting disciplinary conventions and communicative intentions. Conversely, human assessment provides disciplinary expertise and critical reflections on AI's feedback, but is limited by workload, time, and assessment consistency. These limitations indicate the need for an assessment model that combines the strengths of both approaches while minimizing their weaknesses.

3-2-Theoretical Foundations of the Framework

Before establishing the pillars of the framework, the proposed hybrid assessment is based onmultiple complementary theoretical perspectives. Firstly,the cognitive perspective views writing as a recursive process involving planning, drafting, and revision rather than a linear sequence of activities (Hayes & Flower, 1980; Hayes, 1996). Accordingly, the framework incorporates multiple revision opportunities supported by different feedback sources, including AI-generated feedback. Secondly, from a socio-discursive perspective, writing is considered a disciplinarypractice shaped by genre conventions, communicative purposes, and discourse community expectations (Swales, 1990; Bhatia, 1993; Hyland, 2003). This perspective is particularly relevant in ESP contexts, where successful writing depends on the ability to communicate according to disciplinary norms.

The framework was alsobasedon formative assessment theory, which emphasizes the role of continuous feedback in supporting learning and improving performance (Black & Wiliam, 1998). In parallel, self-regulated learning theory highlights the importance of learner involvement in and evaluating progress, which justifies the inclusion of self-assessment and reflective activities within the framework (Nicol & Macfarlane-Dick, 2007).Finally, research conducted on written corrective feedback emphasizes the importance of revision in writing development (Ferris, 2003). Building on this principle, the framework incorporates AI-assisted feedback as an additional source of formative support capable of providing immediate feedback while preserving the role of human judgment throughout the assessment process.

3-3- Rationale for the Proposed Framework

A. The Multilayered Feedback System

The decision to adopt a multilayered feedback system involving AI feedback, self-assessment, peer assessment, and teacher feedback is grounded in the growing recognition that writing development benefits from multiple sources of feedback rather than a single evaluator. Alternative assessment emphasizes the importance of active student participation in the assessment process and highlights the role of feedback in improving writing performance (Gebremariam & Gedamu, 2023; Hammad et al., 2022).

Self-assessment encourages students to reflect on their own writing and develop greater awareness of their strengths and weaknesses. Such reflective practices have been associated with improved self-regulation and a more accurate evaluation of writing performance (Judijanto et al., 2024; Rad & Alipour, 2023; Zhang et al., 2024).

Similarly, **peer assessment** promotes collaboration and exposes learners to different writing strategies and perspectives. Although its effectiveness depends largely on implementation, several studies report positive effects on revision practices and writing development when clear criteria are provided (Sahle et al., 2023; Suastra & Menggo, 2020).

Teacher feedback remains an essential component of writing assessment due to its ability to provide contextualized guidance. In addition to evaluating students' performance, teachers help learners understand the conventions and expectations of their discourse communities. Furthermore, teachers can assist learners in making decisions on AI tools' feedback.

AI tools can provide immediate feedback on linguistic aspects of writing, particularly grammar, vocabulary, and mechanics, while reducing part of the workload associated with writing assessment (Escalante et al., 2023; Evmenova et al., 2024). Consequently, the proposed framework combines these four feedback sources to capitalize on their respective strengths while compensating for their individual limitations.

B. The ESP Writing Assessment Components

The assessment dimensions incorporated into the framework were selected based on the multidimensional nature of writing and the specific characteristics of ESP communication. Accordingly, Muhaimi et al (2023) identifies content, organization, vocabulary, grammar, and mechanics as core dimensions of writing performance. However, because ESP writing is situated within particular disciplinary contexts, these dimensions were adapted to reflect the communicative requirements of specialized discourse communities.

Content focuses on the accuracy and relevance of disciplinary

knowledge as well as the extent to which learners achieve the requirements of the task. Organization addresses coherence, logical sequencing of ideas, and paragraph structure. Since ESP writing requires the appropriate use of specialized language, technical terminology is treated as a separate dimension to evaluate students' ability to employ discipline-specific vocabulary accurately and appropriately. Grammar encompasses the use of correct verb forms, tenses, voice, and modal structures, whereas mechanics refers to spelling, punctuation, and formatting conventions. Collectively, these dimensions provide a balanced evaluation of both linguistic competence and disciplinary communication.

C. The Use of a Digital Portfolio

The integration of a digital portfolio was based on diverse research supporting portfolio-based assessment as an effective alternative assessment practice. Contrary to traditional assessments that focus primarily on a final product, portfolios allow teachers and students to document writing development over time. It supports the contemporary views of writing as a process rather than a single performance event. In fact, portfolio assessment contributes positively to writing proficiency, learner engagement, self-efficacy, and reflective learning (Tkatchov & Ervin, 2022; Cuesta et al., 2019; Gebrekidan & Zeru, 2023). It is important to note that process-oriented portfolio approaches have demonstrated promising results in ESP writing contexts by encouraging revision, reflection, and continuous improvement throughout the writing process (Salameh et al., 2023). It is how the digital format facilitates the collection of drafts, feedback records, peer reviews, and self-reflections in a single environment, which makes the assessment process more transparent. Therefore, the digital portfolio serves both as an assessment tool and as a learning space that supports ongoing writing

development.

D. Alignment with Alternative Assessment Principles

The framework was adapted to the fundamental principles of alternative assessment. As Chirimbu and Teferi (2023) put it, alternative assessment practices promote authentic learning, learner engagement, critical thinking, and self-regulated learning while integrating formative and summative assessment functions. Unlike traditional assessment approaches that focus exclusively on final outcomes, alternative assessment encourages continuous interaction between learning and assessment processes (Gebremariam & Gedamu, 2023; Dewi et al., 2024).

It has been noticed that a lot of research was conducted to prove the effectiveness of self-assessment, peer assessment, teacher feedback, and AI-generated feedback as separate assessment practices, rather than as interconnected components of a comprehensive assessment system. Similarly, studies conducted in ESP and EFL higher education contexts remain relatively limited despite the particular assessment demands associated with disciplinary writing. In addition, the emphasis has largely been placed on measuring the effectiveness of individual assessment methods, while less attention has been devoted to developing practical frameworks that instructors can implement in real classroom settings. Consequently, although previous studies provide valuable insights into writing assessment practices, there is still a need for models that integrate multiple sources of feedback, accommodate the specific nature of ESP writing, and offer pedagogically feasible solutions for higher education contexts.

3-4- The Conceptual Hybrid Assessment Framework for ESP Writing

The proposed framework in this paper was drawn on the integrated alternative assessment model developed by Gebremariam et al. (2025), which demonstrated the value of combining multiple assessment practices to support writing development. While the original model was designed to improve essay writing skills in the EFL context, the present framework adapts its underlying principles to the context of ESP paragraph writing. This adaptation is motivated by the specific characteristics of ESP writing, where learners are expected to communicate disciplinary knowledge using appropriate rhetorical structures and specialized terminology.

The framework retains the learner-centered orientation of the original model through the integration of self-assessment, peer assessment, teacher feedback, and portfolio assessment. However, it extends the model by incorporating AI-assisted feedback as an additional formative assessment layer. The implementation of AI seeks to provide immediate feedback on linguistic aspects of writing while allowing teachers to focus on higher-order concerns related to disciplinary conventions, content relevance, and communicative effectiveness.

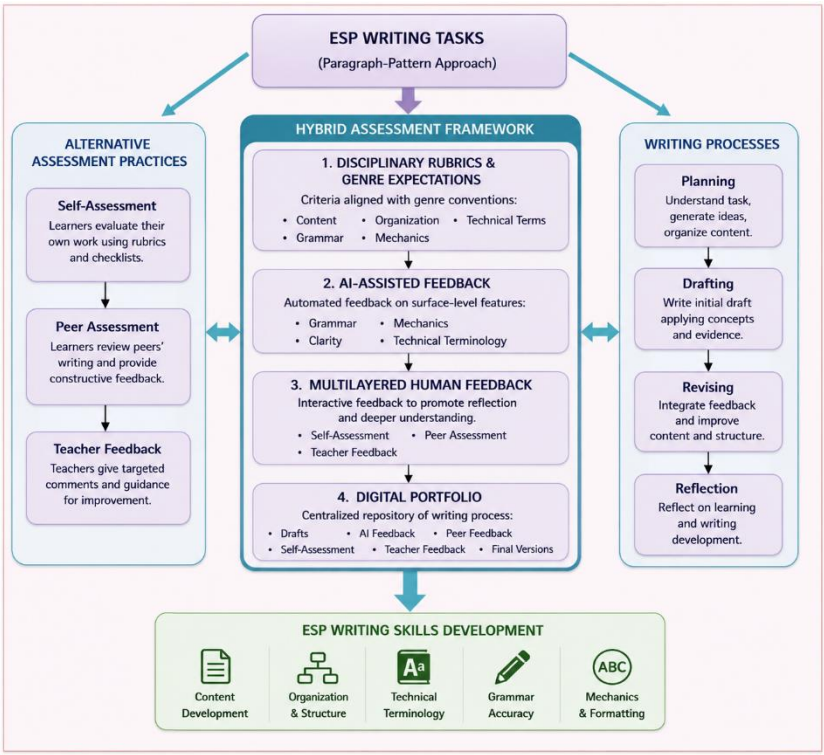
Furthermore, the framework was aligned with the paragraph-pattern approach to writing instruction (Raimes, 1983), which emphasizes the organization of ideas through recognizable rhetorical patterns such as description, definition, explanation, argumentation, and comparison. Since ESP learners frequently produce discipline-related paragraphs before progressing to longer academic texts, assessing paragraph writing provides an appropriate foundation for developing more advanced writing skills. Consequently, the framework was intended to support the assessment of ESP paragraph writing through a combination of alternative assessment practices, digital technologies, and disciplinary expectations.

By combining multiple feedback sources, discipline-specific assessment dimensions, and a digital portfolio, the proposed framework seeks to create an assessment environment that reflects authentic writing practices while supporting learners throughout the writing process.Consequently, the framework aligns with contemporary perspectives that view assessment as an integral component of learning rather than merely a tool for measuring achievement.The framework presented in this paper should therefore be viewed as an extension of the integrated alternative assessment model proposed by Gebremariam et al. (2025). While preserving the learner-centered principles of the original model, it is adapted to the context of ESP writing assessment through the incorporation of AI-assisted feedback, disciplinary assessment criteria, and a digital portfolio environment.

A. The Four Components of the Hybrid Assessment Framework

The proposed hybrid assessment model is operationalized through four interconnected components (Figure 1). Together, these elements create a scaffolded environment that supports the recursive writing process while distributing the assessment load across AI, peers, the self, and the instructor.

Figure 1. A Proposed Pedagogical Framework for a Hybrid Writing Assessment in ESP



Component 1: Disciplinary Genre Expectations and Assessment Rubrics

This component serves as the foundational bedrock of the framework. Before any writing or assessment occurs, the communicative purpose, genre conventions, and language expectations of the target ESP writing task must be explicitly defined. Because ESP writing is highly contextualized, assessment criteria cannot be generic; they must reflect the specific technical vocabulary, structural norms, and rhetorical strategies of the target discipline. To ensure alignment across all feedback providers, three distinct but complementary rubrics/checklists are utilized.

- **ESP Writing Proficiency Rubric for Teacher Feedback**

This rubric is utilized by the instructor for deep, formative evaluation and final summative grading. It balances linguistic accuracy with disciplinary mastery.

Table 1. ESP Overall Analytic Rubric for Teacher Assessment

Criteria	Description of Expectations
Content	Ideas are highly relevant to the discipline-specific prompt. Arguments are well-developed, logically sound, and supported by appropriate technical evidence or literature.
Organization	Strict adherence to the target genre's structural conventions (e.g., in scientific English, students should follow IMRaD format for research reports). Paragraphs have clear topic sentences and logical transitions.
Technical Terms	Precise, accurate, and appropriate use of discipline-specific vocabulary and nomenclature. Avoidance of colloquialisms in favor of professional academic register.
Grammar	High degree of syntactic control. Complex sentences are used accurately to express complex disciplinary concepts. Errors do not impede meaning.
Mechanics	Flawless application of punctuation, capitalization, spelling, and discipline-specific formatting/citation styles.

- **ESP Peer Assessment Rubric for Students**

Designed for student use, this rubric simplifies the criteria to focus on reader comprehension and peer-to-peer knowledge sharing.

Table2. ESP Overall Peer Assessment Rubric

Criteria	Guiding Questions for the Peer Reviewer
Content	Does the writer clearly address the topic? Is the information factually accurate within our field of study?
Organization	Is the text easy to follow? Does it have a clear introduction, body, and conclusion appropriate for this specific type of document?
Technical Terms	Did the writer use the correct professional/academic terminology? Are any terms used incorrectly or out of context?
Clarity of Expression	Are the sentences clear and easy to understand? Is the tone appropriately professional?
Overall Quality	What is the strongest part of this draft? What is one specific area the writer needs to improve before the final submission?

- **ESP Self-Assessment Checklist for Students**

A metacognitive tool used by the writer prior to submitting drafts, ensuring self-regulation and accountability.

Table 3.ESP Overall Student Self-Assessment Checklist

Criteria	Self-Check Items (Yes / No / Needs Work)
Content	I have fulfilled all requirements of the prompt and provided sufficient discipline-specific details.
Organization	My document follows the expected genre structure and flows logically from one point to the next.

Technical Terms	I have double-checked the spelling and contextual accuracy of all specialized vocabulary.
Grammar	I have reviewed my draft for common grammatical errors (e.g., subject-verb agreement, tense consistency).
Mechanics	I have checked punctuation, capitalization, and ensured my citations follow the required professional format.

Component 2: AI-Assisted Formative Feedback

In this component, Generative AI tools (such as ChatGPT) are integrated as first-pass feedback providers. To prevent over-reliance on AI and to foster genuine language acquisition, students must be explicitly trained on how to interact with the AI. They must also write their drafts without AI assistance. The goal is to use AI for surface-level written corrective feedback (Ferris, 2003), allowing students to clean up their drafts before human review.

- **Training Students to Use Prompts and Get Feedback Reports**

Students are given strict operational rules for AI usage. The primary rule is: "Do NOT ask ChatGPT to rewrite the entire text. Ask for specific feedback and explanations." This ensures the student remains the author and cognitive agent of the text.

Students are trained to use three specific, generalized prompts tailored for ESP writing:

- **Prompt 1: Grammar & Mechanics Check**
  "Act as an expert ESPteacher. Review the following text for grammar, spelling, and punctuation errors. Do not rewrite the text.

Instead, list the errors you found, explain why they are incorrect, and suggest a correction for each."

- **Prompt 2: Sentence Clarity**
  "Review the following paragraph. Identify any sentences that are overly complex, wordy, or unclear. Suggest ways to make the sentence structure clearer and more concise while maintaining a formal, academic tone."
- **Prompt 3: Technical Term Check**
  "Act as an expert in [Insert Specific Discipline]. Review the following text and identify if the discipline-specific technical terminology is used accurately and in the correct context. Point out any terms that seem out of place or are used incorrectly, and explain why."

After receiving AI feedback, students must process the information by completing a Standard Feedback Report Format. This report requires students to document: 1) The Original Sentence, 2) The AI Suggestion, 3) The Error Type/Explanation, and 4) The Student Action/Reflection (e.g., "I accepted this change because my subject and verb did not agree," or "I rejected this change because the AI misunderstood the technical context"). This step is vital for promoting self-regulated learning (Nicol & Macfarlane-Dick, 2007).

Component 3: Multilayered Hybrid Feedback

While AI handles surface-level mechanics, Component 3 leverages the social and cognitive benefits of human interaction. It combines self-assessment, peer assessment, and teacher feedback into a structured, 8-step Hybrid Assessment Cycle.

1. In-Class Drafting: Students begin drafting their ESP assignment in class without the use of AI, focusing on brainstorming ideas and applying genre conventions (Swales, 1990).
2. Digital Formative Feedback (AI Tools): Students apply the trained AI prompts to their initial drafts, generating the Standard Feedback Report and making first-pass revisions.
3. Peer Assessment: Students exchange AI-revised drafts. Using the Peer Assessment Rubric, they evaluate each other's work, focusing on clarity, content, and technical accuracy from a reader's perspective. They also reflect on the Standard Feedback Report of AI to help each other filter useful feedback.
4. Self-Assessment: Armed with AI data and peer insights, the student uses the Self-Assessment Checklist to critically evaluate their own draft, fostering metacognitive awareness.
5. Teacher Feedback: The instructor reviews the draft. Because surface errors have been minimized by AI and peers, the teacher focuses feedback on higher-order skills: complex argumentation, deep genre adherence, and disciplinary discourse.
6. Revision: The student synthesizes all layers of feedback (AI, Peer, Self, Teacher) to produce a highly refined final draft, embodying writing as a recursive process (Hayes, 1996).
7. Portfolio Submission: The final draft, along with all feedback reports and earlier versions, is uploaded to a digital portfolio.
8. Summative Assessment: The instructor evaluates the final portfolio submission for a formal grade.

- **Mapping of Writing Components**

To ensure comprehensive coverage without redundant overlap, the assessment variables are mapped to specific feedback providers as follows:

Table 4. Dimensions of the Hybrid Assessment Framework in ESP Writing

Writing Component	**Primary Assessor(s)**	**Focus / Rationale**
Content	Teacher, Peer, Self	Requires human judgment for disciplinary relevance, factual accuracy, and depth of argumentation.
Organization	Teacher, Self	Requires understanding of macro-level genre structures (Hyland, 2003) and logical flow.
Technical Terms	Teacher, AI, Peer	AI flags potential misuse; Peers check readability; Teachers verify nuanced disciplinary accuracy.
Grammar	AI, Self	AI excels at identifying syntactic errors; Self-correction promotes language acquisition.
Mechanics	AI, Self	Highly rule-based; easily managed by AI tools to reduce teacher workload.

Component 4: Digital Portfolio

The final component is the Digital Portfolio, which serves as a longitudinal repository for the student's entire writing journey. Rather than

viewing writing as isolated assignments, the portfolio documents drafts, AI feedback reports, peer review sheets, self-assessment checklists, teacher comments, and final submissions.

As detailed in the "Writing Portfolio: Data Source" concept, this repository is crucial for both the student and the instructor. For the student, it provides a tangible record of progress over time, allowing them to reflect on recurring errors and track their mastery of genre conventions. For the instructor, it offers rich data on the student's developmental trajectory and the efficacy of the hybrid feedback model.

To ensure comprehensive ESP training, the portfolio should encompass a variety of generalized, discipline-specific writing tasks, such as:

- A Process Paragraph: Explaining a technical methodology or operational procedure.
- An Argumentative paragraph: Defending a specific technical or professional stance using disciplinary evidence.
- A Summary: Condensing complex disciplinary literature into digestible formats.
- An Abstract: Crafting a concise overview of a research project or proposal.
- A Professional Email: Navigating the pragmatics of workplace communication.
- A Curriculum Vitae (CV) / Cover Letter: Preparing for professional socialization and job market entry.

4- Limitations of the Conceptual Framework

4-1-Need for Empirical Validation

It is important to note that the proposed framework remains theoretical in nature. Although it is grounded in the literature on writing assessment, genre-based pedagogy, formative assessment, and AI-supported feedback, it has not yet been implemented or tested in real classroom settings. Consequently, it is not possible to determine its effectiveness at this stage. Future studies are needed to examine how the framework operates in practice and whether it contributes to improving students' writing performance in different ESP contexts.

4-2-Dependence on Teacher Expertise

The framework also assumes that teachers possess sufficient knowledge of disciplinary genres and writing assessment practices. However, this may not always be the case. In many educational contexts, teachers have different levels of assessment literacy and varying degrees of familiarity with genre-based instruction. As a result, the implementation of the framework may differ from one institution to another. Its success will largely depend on the ability of teachers to interpret assessment criteria, guide students throughout the writing process, and critically evaluate feedback generated by AI tools (Hyland, 2003; Dimova, 2020).

4-3-The Evolving Nature of AI Tools

Another limitation is related to the rapidly changing nature of AI technologies. The framework has been developed in response to the capabilities of current AI tools, yet these technologies continue to evolve at a remarkable pace. New tools and features are constantly emerging, while

concerns related to accuracy, transparency, bias, and ethical use remain the subject of ongoing discussion (Cotton, Cotton, & Shipway, 2023). Therefore, the framework should not be viewed as a fixed model. Instead, it should be considered flexible and open to revision as technologies and assessment practices continue to develop.

4-4-Balancing AI Support and Human Judgment

Finally, determining the appropriate balance between AI support and human judgment remains a challenge. Although the framework advocates a complementary relationship between the two, there is no single formula that can be applied to all ESP contexts. The extent to which AI can be integrated into assessment practices may depend on institutional policies, available resources, disciplinary requirements, and teachers' beliefs about assessment. For this reason, further research is needed to explore how AI can be used to support writing assessment without reducing the central role of human reflection, disciplinary expertise, and pedagogical decision-making.

5- Conclusion and Recommendations:

The increasing integration of Artificial Intelligence into higher education has created new opportunities as well as new challenges for writing assessment. While AI tools are becoming increasingly capable of providing immediate and accessible feedback, their growing use has also raised important questions about validity, disciplinary specificity, and the role of human judgment in assessment practices. These concerns are particularly significant in ESP contexts, where writing is closely connected to disciplinary knowledge, genre conventions, and communicative purpose.

This paper has argued that neither purely human assessment nor fully automated assessment can adequately address the complexity of ESP

writing. Human assessment remains essential for evaluating disciplinary appropriateness, rhetorical effectiveness, and contextual meaning, yet it is often constrained by time, workload, and the practical realities of large classes. At the same time, AI tools can support assessment by providing rapid feedback on surface-level aspects of writing, but their ability to evaluate disciplinary discourse remains limited. Consequently, the challenge is not whether AI should be used in writing assessment, but how it can be integrated without diminishing the contribution of human evaluators.

In response to this challenge, the paper proposed a conceptual framework for hybrid assessment in ESP writing. The framework brings together three complementary dimensions: disciplinary genre expectations, AI-supported feedback, and human critical reflection. Rather than positioning AI as a replacement for teachers, the framework views it as a supportive tool within a broader assessment process that also includes teacher feedback, peer assessment, and self-assessment. In this way, assessment becomes a shared and iterative process that combines efficiency with contextual understanding and pedagogical guidance.

It is important, however, to acknowledge the theoretical nature of the proposed framework. The model is based on a synthesis of existing literature in writing assessment, ESP pedagogy, formative assessment, and AI-supported feedback. As such, it should be viewed as a starting point for discussion rather than a definitive solution. The realities of ESP classrooms are often more complex and may vary across disciplines, institutions, and learner populations. Therefore, the framework requires empirical validation before any conclusions can be drawn regarding its effectiveness.

Future research should move beyond discussions of whether AI is beneficial or harmful and focus instead on how AI can be integrated into assessment practices in pedagogically meaningful ways. Empirical studies are needed to examine the effectiveness of hybrid assessment models, investigate students' and teachers' perceptions of AI-supported feedback, and explore how different forms of human/AI collaboration influence writing development. Particular attention should also be given to discipline-specific contexts, where assessment criteria and writing expectations may differ considerably.

Ultimately, the future of ESP writing assessment is unlikely to be purely human or purely automated. Rather, it will depend on finding appropriate ways to combine technological innovation with human expertise. By maintaining the central role of disciplinary knowledge, critical reflection, and pedagogical judgment, hybrid assessment may provide a more balanced approach to supporting students' development as writers within their academic and professional communities.

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