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Enhancing Peer Assessment and Engagement in Online IELTS Writing Courses through a Teacher’s Multifaceted Approach and AI Integration

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Abstract

This study explores the integration of a teacher’s multifaceted approach to enhance peer assessment and engagement in online IELTS writing courses framed within the TEC-VARIETY framework. The objective is to assess how structured writing instruction, peer review, and personalized feedback via the Perplexity AI application can transform the peer review process and promote collaborative learning among upper-intermediate ESL learners. In a 12-session online workshop, participants engaged in a structured peer review protocol focused on argumentative essays. The teacher provided comprehensive instruction on essential essay components, enabling students to deliver meaningful feedback. Following peer reviews, Perplexity AI facilitated personalized feedback, fostering deeper reflection and inquiry-based learning. Qualitative analyses of participant experiences and writing performance revealed significant improvements in peer assessment and engagement. The findings offer insights for educators on leveraging technology and innovative pedagogical strategies to enhance writing instruction in online environments. This research contributes to the literature on peer assessment and collaborative engagement, highlighting the importance of a multifaceted teaching approach within the TEC-VARIETY framework to improve student outcomes in digital education contexts.

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Introduction

Argumentative writing skills are essential for academic and professional success, underpinning critical thinking, problem-solving, and effective communication. These skills enable individuals to construct coherent arguments, analyze evidence, and present ideas persuasively, crucial in academic settings and the modern workforce (Yasuda, 2023). While these skills are vital for all students, they are particularly critical for second language (L2) learners, who often encounter additional obstacles in constructing well-founded arguments. Argumentative writing is a fundamental component of academic discourse, especially for L2 learners who frequently struggle with this genre of writing.

Despite the importance of these skills, existing studies indicate that many EFL students need help developing effective argumentative writing abilities. These challenges stem from cognitive, linguistic, and motivational factors, as well as the complexities of mastering a new genre of writing (Mallahi, 2024; Pitukwong & Saraiwang, 2024). Current literature often focuses on lower-level feedback mechanisms, such as spelling and grammar corrections, which have been shown to have minimal impact on improving argumentative writing (Allen et al., 2019). This highlights a critical gap in the literature regarding the need for more sophisticated feedback mechanisms and instructional strategies tailored to the unique needs of EFL learners.

To address these challenges, Yasuda (2023) proposes a comprehensive framework that bridges general and discipline-specific argumentation, empowering educators to better support students in navigating the demands of higher education. Tools like the Situated Academic Writing Self-Efficacy Scale can also help measure and enhance students' confidence in their writing abilities, improving their performance and psychological well-being (Doeniyas et al., 2023). Integrating computer-supported tools like digital annotations, conversational agents, and collaborative concept maps can significantly improve students' argumentative writing by enhancing their understanding of argumentative elements and promoting critical thinking (Sandra et al., 2024). Moreover, Alzubi and Nazim (2024) indicated that intrinsic motivation is crucial in improving writing skills. Allowing students to self-assign writing topics can increase their interest and engagement, leading to better performance in idea generation and vocabulary use.

While these strategies can address EFL students' specific challenges, it is also essential to consider the broader educational context. Teachers must comprehensively understand argumentative writing frameworks to scaffold students' learning effectively. This includes moving beyond a structure-oriented approach and adapting teaching methods to meet the diverse needs of learners in different academic disciplines (Yasuda, 2023).

The TEC-VARIETY framework, developed by Dr. Curtis Bonk and Dr. Elaine Khoo, is a comprehensive strategy for enhancing engagement and motivation in online education (Bonk & Khoo, 2014). The framework consists of ten principles: Tone/Climate, Encouragement, Curiosity, Variety, Autonomy, Relevance, Interaction, Engagement, Tension, and Yielding Products. Given EFL learners' challenges, exploring innovative approaches that enhance argumentative writing instruction and peer assessment within this framework is imperative. These approaches aim to address the challenges of engagement, feedback, and skill development in digital settings. According to Wambsganß et al. (2024), integrating dynamic technologies,

student-centered activities, and structured frameworks can significantly improve the quality of argumentative writing and peer interactions. Implementing machine learning-based systems can provide dynamic, personalized feedback to students, enhancing their argumentation skills. Such systems adapt to individual learner needs and offer real-time feedback, outperforming traditional static models. This approach supports learners across various expertise levels and task complexities, fostering essential skills and reducing educational disparities.

Hamadi et al. (2023) stated that shifting from traditional prompts to student-generated videos and higher-order discussion questions can increase engagement and critical thinking. This method encourages students to think more deeply about content and enhances their perception of peer feedback, making online discussion boards more interactive and practical. The AaL approach involves setting writing goals collaboratively, using instructional scaffolding, and incorporating self and peer assessments. This method, implemented in online EFL writing courses, has been shown to improve learning by providing timely feedback and creating personalized learning experiences. It encourages active learner engagement and reflection, which are crucial for developing argumentative writing skills (He & Wang, 2024).

The primary aim of this study is to investigate the innovative integration of a teacher's multifaceted approach within the TEC-VARIETY framework to enhance peer assessment and engagement in online IELTS writing workshops for upper-intermediate learners. By combining structured writing instruction, facilitative peer review, and personalized feedback through the Perplexity AI application, this study seeks to fill the identified gaps in the literature regarding effective peer assessment practices in online writing courses.

The following research questions guided the study:

- How does the teacher's multifaceted approach and peer assessment enhance students' writing skills in an online learning environment?
- How do students perceive the effectiveness of the teacher's multifaceted approach and peer assessment in improving their writing abilities and fostering collaborative learning experiences in an online context?

By analyzing participants' qualitative experiences and assessing the impact on their writing scores, this research aspires to provide valuable insights for educators seeking to leverage technology and innovative pedagogical approaches to improve writing instruction and assessment in online learning environments. The findings will contribute to the growing body of research at the intersection of peer assessment, creativity, and engagement in online language learning, highlighting the significance of a teacher's multifaceted approach within the TEC-VARIETY framework to enhance student outcomes and collaborative engagement. Additionally, this study underscores the importance of fostering meaningful interactions among students in an increasingly AI-driven educational landscape, ultimately preparing learners for future collaborative endeavors.

Literature review

Argumentative Writing Skills in EFL Contexts

Argumentative writing skills are crucial for English as a Foreign Language (EFL) learners to express and defend their viewpoints effectively. These skills involve complex cognitive processes and require strategic instructional approaches to develop. EFL students often need help understanding an argument's components, such as claims, evidence, and counterarguments, which is compounded by inadequate linguistic and discourse competence (Mallahi, 2024). Zhang (2023) indicated that the complexity of summarizing and presenting information in a structured argumentative format is another significant hurdle, as students need help to analyze topics thoroughly and provide balanced arguments.

Research shows that EFL students frequently need help with text structure and coherence. They often omit crucial parts of an essay, such as conclusions, and fail to maintain a consistent main idea throughout their writing. This lack of structure and coherence significantly impacts the overall quality of their texts (Siekmann et al., 2022). Sandra et al. (2024) highlighted that unclear and illogical ideas and less structured arguments are common issues that EFL students encounter, further complicating their ability to produce compelling argumentative essays.

A notable barrier is the lack of emphasis on critical thinking skills in EFL curricula. Ullah et al. (2022) stated that teachers often lack the training and resources to effectively promote critical thinking, which is essential for developing argumentative, solid writing skills. Sandra et al. (2024) also emphasized that innovative tools such as digital annotations, conversational agents, and collaborative concept maps have shown promise in enhancing students' argumentative writing by supporting critical thinking and structured argument development.

Peer Assessment in Writing Instruction

Peer assessment in writing instruction is a multifaceted approach that enhances learning by involving students in the evaluation process, thereby improving their writing skills and assessment literacy. This method is particularly beneficial in diverse educational contexts, from health professions to language learning. Holster et al. (2013) indicated that peer assessment encourages active learning and engagement, with studies showing significant gains when using instructional rubrics for peer assessment in EFL contexts.

However, the ability to provide formative feedback is often limited, as students tend to focus on holistic ratings rather than detailed feedback, which can affect the depth of learning achieved through peer assessment (Holster et al., 2013). Asadi et al. (2017) emphasized that formative assessment and timely feedback are critical predictors of student engagement. Their findings suggest that students become more actively involved when they receive constructive feedback during the learning process. Laila (2015) stated that students' lack of proficiency in identifying errors and providing constructive feedback can hinder the effectiveness of peer assessment, especially when students are not adequately trained in assessment criteria.

Yoshizawa et al. (2012) noted that the workload associated with managing peer reviews can deter teachers from adopting this method. However, there is hope in innovative approaches, such as using normalized compression distance (NCD) to analyze peer review effects. These

methods can help reduce the burden by objectively measuring changes in student writing. While peer assessment offers substantial benefits in writing instruction, its success largely depends on the student's ability to assess effectively and the support provided by educators.

The Role of the Teacher in Online Writing Instruction

The role of the teacher in online writing instruction is multifaceted, involving guidance, feedback, and adaptation to digital platforms to enhance student engagement and writing skills. Teachers are crucial in facilitating online writing environments by providing structured support and fostering interactive learning experiences. Albeshier (2024) asserted that teachers are pivotal in guiding students through the writing process in online collaborative environments. They provide clear instructions, help brainstorm ideas, and assist in organizing material, significantly improving students' writing fluency and organization.

In online settings, teachers also play a crucial role in providing feedback and facilitating peer interactions, including reviewing assignments, offering constructive comments, and encouraging students through praise and motivational notes (Albeshier, 2024). According to Mafulah et al. (2023), effective teacher-student interactions are vital for engaging students in writing tasks. Teachers often give feedback, guide students through writing steps, and promote individual contributions, which helps students understand instructions and revise their drafts effectively. The interaction patterns between teachers and students can vary, but they are essential for fostering a supportive learning environment where students feel encouraged to participate and improve their writing skills (Mafulah et al., 2023).

Teachers play a crucial role in facilitating online writing instruction using tools like Skype. The study by Asadi and Khan (2022) explored the use of Skype for teaching the English language, particularly for smaller classes and tutoring sessions. They found that Skype allows flexible, on-demand learning without needing scheduled meetings. While the study focused on teaching English, the principles can also be applied to online writing instruction. Teachers can leverage Skype's real-time communication and screen-sharing capabilities to guide students through the writing process, provide feedback, and facilitate peer interactions.

Razi (2023) stated that teachers must adapt their instructional strategies to fit online platforms, ensuring students receive the necessary support and feedback. This includes using various digital tools and methods to maintain academic integrity and promote effective learning. Structured frameworks like the Response to Intervention (RTI) model can be effective in online settings, helping teachers provide tiered student support based on their needs and engagement levels (Klein et al., 2022).

Integration of AI in Writing Instruction and Peer Assessment

Integrating AI in writing instruction and peer assessment transforms educational practices by enhancing feedback mechanisms, supporting personalized learning, and improving writing skills. AI technologies, such as Writerly, Google Docs, and Peerceptiv, are being utilized to provide timely and effective feedback, facilitate peer assessment, and support students' writing development across various disciplines. This integration not only improves the quality of writing but also fosters a more engaging and supportive learning environment.

Wale and Kassahun (2024) indicated that AI tools like Writerly and Google Docs have been shown to improve EFL writing instruction significantly. In a study, students using these tools demonstrated better writing performance in task achievement, coherence, cohesion, lexical resource, and grammatical accuracy than traditional methods. AI technologies offer personalized feedback and support, which helps students engage more deeply with the writing process and develop their skills more effectively (Wale & Kassahun, 2024). Asadi and Ebadi (2024) highlight that integrating multimedia tools can significantly enhance engagement and support understanding among EFL learners. Technology can create a more interactive and stimulating learning environment by addressing common challenges such as unfamiliar vocabulary, rote memorization, and lack of motivation.

Despite the benefits, identifying AI-generated writing remains a challenge. Studies show that instructors and students struggle to distinguish between human and AI-generated texts, highlighting the need for improved AI literacy and awareness in educational settings (Waltzer et al., 2024). Ou et al. (2024) emphasized that ethical concerns and the lack of clear guidelines on using AI in academic assessments pose challenges. Students express diverse views on the ethical implications of AI tools, emphasizing the need for universities to develop policies that address these concerns. While AI integration in writing instruction and peer assessment offers numerous benefits, it also presents challenges that must be addressed. The difficulty in identifying AI-generated content and ethical considerations are significant issues that educators and policymakers must navigate to ensure the effective and responsible use of AI in education.

Despite the growing body of research on argumentative writing skills in English as a Foreign Language (EFL) contexts, there remains limited exploration of integrating a teacher's multifaceted approach, peer assessment, and artificial intelligence (AI) in online writing instruction. Current studies highlight the importance of innovative strategies to enhance students' argumentative writing skills and collaborative learning experiences; however, they often fail to address how these elements can be effectively combined in an online setting. As EFL learners face unique challenges in developing writing proficiency, it is essential to investigate how a comprehensive approach incorporating teacher guidance, peer feedback, and AI tools can improve writing skills and collaborative learning outcomes. This study aims to fill these gaps by exploring the potential of these integrated strategies to support EFL students in overcoming obstacles to effective argumentative writing.

Theoretical Framework

This study leveraged the TEC-VARIETY framework throughout the workshop to enhance creativity and engagement in the online learning environment. The methodology aimed to create a dynamic and supportive atmosphere conducive to effective learning and assessment by integrating structured writing instruction, facilitative peer review, and personalized AI feedback. A vital aspect of this framework was the provision of various writing prompts related to argumentative essays, which encouraged critical thinking among students. By asking students to utilize the peer review protocol to assess their peers' essays, the instructor fostered an environment of collaborative learning and constructive feedback. The integration of AI further enriched this process by combining teacher feedback with peer assessments, resulting in tailored guidance that addressed individual needs across different parts of the essays. This approach

provided detailed insights into each student's writing and facilitated inquiry-based learning by prompting students to engage more deeply with the material. As students received personalized feedback, they were encouraged to reflect on their writing and apply the insights gained to subsequent assignments, enhancing their learning experience through active engagement and peer collaboration. The TEC-VARIETY framework, therefore, proved essential in creating a comprehensive educational experience that not only improved students' argumentative writing skills but also empowered them to take ownership of their learning through meaningful interaction and feedback. By emphasizing motivation, engagement, flexibility, and collaboration, this framework significantly contributed to the overall effectiveness of the workshop, ultimately leading to a richer and more impactful learning journey for the participants.

Method

Research Design

This study employed a qualitative research design to investigate integrating a teacher's multifaceted approach within the TEC-VARIETY framework, aiming to enhance peer assessment and engagement in online IELTS writing workshops for 24 upper-intermediate EFL learners. The primary data collection method was semi-structured interviews, which allowed for an in-depth exploration of participants' subjective interpretations and experiences. Thematic analysis was utilized to systematically code the interview data, identifying key themes and recurring patterns regarding the instructional approach's impact on writing performance. The coding process involved several stages, beginning with researchers reading and re-reading the interview transcripts to become deeply familiar with the content. Using NVivo software, initial codes were generated based on significant phrases and concepts from the data. This software facilitated the organization and retrieval of data, making identifying patterns across the interviews easier. The initial codes were then grouped into broader themes that reflected the participants' experiences and perceptions regarding the workshop. These identified themes were reviewed and refined to ensure they accurately represented the data and were distinct. Finally, each theme was clearly defined and named, providing a comprehensive view of the participants' insights.

Participants

The study involved 24 upper-intermediate students, 17 females and seven males, aged between 21 and 37 years, who voluntarily participated in a 12-session writing workshop. All participants were native Persian speakers selected from a cohort of learners enrolled in an IELTS preparation course. To ensure a baseline level of English language proficiency suitable for the course, participants completed the Oxford Quick Placement Test (OQPT). This standardized assessment was used to determine their proficiency level, focusing on identifying those who fell within the B2 range on the Common European Framework of Reference for Languages (CEFR) scale, corresponding to scores between 61 and 80 on the OQPT.

The selection criteria for upper-intermediate students were explicitly defined as achieving a minimum score of 61 on the OQPT, ensuring that all participants possessed adequate linguistic competence to engage effectively with the writing materials. Initially, 29 participants registered

for the workshop; however, those who scored below the B2 level on the CEFR placement test were excluded from the study. The final cohort consisted of 24 EFL learners who demonstrated adequate English proficiency, ensuring they were well-prepared to benefit from the workshop's content. The workshop aimed to enhance participants' argumentative writing skills through structured instruction, peer assessment, and personalized feedback, ultimately fostering a collaborative learning environment.

Ethical considerations were integral to the study's design. Data privacy agreements were signed by all parties involved to protect sensitive information, and written consent was obtained from the participants before their involvement in the study. Informed consent ensured that participants understood the purpose of the research and their right to withdraw at any time. All data collected were treated with strict confidentiality, ensuring participant anonymity throughout the research process. All collected information was stored securely in password-protected files to safeguard participant data, accessible only to the research team. Identifiable information was removed from the data set to ensure participant anonymity, and all data were coded to prevent any association with individual participants. The research adhered to ethical guidelines established by the relevant institutional review board, including data handling, storage, and sharing protocols. Additionally, participants were informed about the measures in place to protect their data, including using anonymized data in any publications resulting from the study. This commitment to ethical standards not only upheld the rights of the participants but also reinforced the credibility and integrity of the research findings.

In this study, the instructor employed a novel, multifaceted approach that combined traditional teaching methods with advanced technology to enhance peer assessment and improve writing skills through collaborative learning. This approach integrated artificial intelligence (AI) to provide personalized and detailed feedback to students, effectively complementing peer review assessments and comments within the framework of the TEC-VARIETY model.

The instructor's expertise in writing instruction was pivotal in guiding students through the complexities of argumentative essay writing. The instructor created an engaging learning environment that encouraged active student participation and collaboration by utilizing structured lesson plans emphasizing critical thinking and effective communication. This multifaceted approach facilitated the development of essential writing skills and fostered a sense of community within the online workshop.

The integration of AI further enriched the learning experience by offering tailored feedback that addressed individual student needs. AI tools analyzed student submissions, identifying specific areas for improvement and providing actionable suggestions. This personalized feedback mechanism allowed students to receive immediate insights into their writing, enabling them to refine their arguments and enhance their overall writing quality.

Through the instructor's pedagogical expertise and AI integration, students engaged in a collaborative learning process emphasizing peer assessment. This dynamic interaction encouraged learners to evaluate each other's work critically, fostering a deeper understanding of effective argumentative strategies. The result was a comprehensive educational experience that improved writing skills and empowered students to take ownership of their learning through meaningful feedback and collaboration.

The research was conducted through a 12-session online workshop on writing argumentative essays, each lasting 90 minutes. The workshop aimed to enhance participants'

understanding of essay structure while providing practical writing experience through a multifaceted instructional approach. Each session commenced with a structured instructional segment where the teacher introduced critical concepts related to argumentative essay writing, including detailed discussions on essay structure, paragraph organization based on the prompt, and the importance of constructing a practical introduction, developing topic sentences, supporting arguments with relevant evidence, using transitions to connect ideas, adding supporting sentences, and writing a compelling conclusion that summarizes the main points and reinforces the thesis. Following the instructional component, students were given a specific argumentative prompt to write an essay, with dedicated time to draft their essays based on the teacher's guidance, which they then emailed to the instructor for review. The teacher then anonymized the submissions and distributed them among peers for review, implementing a facilitative protocol that provided students with structured guidelines for offering constructive feedback aligned with the argumentative prompts. Students were trained to analyze their peers' essays critically, focusing on the established standards of essay structure taught during the instructional sessions, assessing the clarity of the thesis, the coherence of arguments, the effectiveness of supporting evidence, and the overall organization of the essay. Following the peer review process, the teacher utilized the Perplexity AI application to generate personalized and reflective feedback for each student, designed to encourage deeper reflection through inquiry-based learning. Students were then instructed to apply the feedback from their peers and the teacher to revise their essays, fostering a cycle of continuous improvement.

Instrumentation

Oxford Quick Placement Test (OQPT)

The Oxford Quick Placement Test (OQPT) was utilized as a standardized instrument to assess the English language proficiency of participants before their enrollment in the workshop. The OQPT is widely recognized for its ability to efficiently evaluate learners' language skills across various domains, including reading, writing, and listening. This test ensured all participants had a baseline proficiency level appropriate for engaging in advanced writing tasks. The OQPT placed all participants within the B2 range on the Common European Framework of Reference for Languages (CEFR) scale, corresponding to scores between 61 and 80. This categorization confirmed the participants' readiness to engage with the workshop's curriculum focused on argumentative essay writing.

Workshop Curriculum and Instructional Materials

The workshop curriculum was designed to provide a comprehensive framework for teaching argumentative essay writing. Instructional materials included presentation slides that were visual aids to facilitate the structured instructional segments, covering key concepts such as essay structure, paragraph organization, and effective argumentation strategies. Argumentative prompts were also developed so students could practice their writing skills throughout the 12 sessions. These prompts were carefully selected to challenge students and encourage critical thinking. Detailed handouts outlining the components of an argumentative essay were also provided,

including guidance on writing an introduction, developing topic sentences, incorporating supporting sentences, using transitions, and crafting a solid conclusion.

Facilitative Peer Review Protocol

A facilitative protocol was developed to guide students in providing constructive feedback during the peer review. This protocol included structured feedback guidelines to help students analyze their peers' essays critically, emphasizing the importance of specific, actionable comments aligned with the argumentative prompts. The guidelines covered aspects such as thesis clarity, coherence of arguments, and overall organization. Additionally, a rubric was created to standardize the peer assessment process, ensuring that feedback was focused on key elements of argumentative writing and as a reference for students when reviewing their peers' essays.

Perplexity AI Application

After the peer review, the Perplexity AI application generated personalized and reflective feedback for each student. This AI tool analyzed students' essays and produced insights encouraging deeper reflection through inquiry-based learning. The feedback focused on areas for improvement and strengths in the students' writing. Furthermore, the AI-generated insights were integrated with peer feedback, creating a comprehensive view of each student's writing performance and fostering a more holistic learning experience.

Teacher's Protocol for Peer Review Assessment of Argumentative Essays

Students are instructed to assess the clarity and strength of their peers' thesis statements, which should clearly articulate the essay's main argument. They are asked to provide feedback on whether the thesis is well-positioned within the introductory paragraph and whether it presents a debatable claim. Suggestions for improvement are encouraged, such as making the thesis more specific or ensuring it aligns closely with the essay prompt.

Interview

A semi-structured interview was employed to gain deeper insights into participants' experiences and perceptions of the online IELTS writing workshop. This method allowed for flexibility in exploring participants' thoughts while ensuring that key topics related to peer assessment, engagement, creativity, and the effectiveness of the teacher's multifaceted approach within the TEC-VARIETY framework were systematically addressed. The interview included open-ended questions designed to explore participants' views on the effectiveness of the peer review process, the impact of AI feedback, and their overall engagement with the workshop—the questions aimed to elicit detailed responses that would provide insights into the students' learning experiences. Interviews were recorded and subsequently transcribed for thematic analysis, ensuring that participants' voices were accurately represented in the data analysis process.

A semi-structured interview protocol was created exclusively for this study, specifically focusing on students' experiences with the online IELTS writing workshop. The interview guide was developed based on well-established qualitative research standards and tested with an

experienced instructor to ensure the questions were clear and appropriate. The feedback obtained during the pilot phase enhanced the interview guide before conducting participant interviews. Semi-structured interviews were conducted with all 24 participants to gain insights into their perspectives on the various components of the workshop, including peer assessment, AI-generated feedback, and the overall effectiveness of the instructional approach. These interviews aimed to collect rich qualitative data complementing the study's quantitative findings. The interview protocol consisted of open-ended questions designed to elicit students' perceptions regarding the workshop's impact on their writing skills, engagement, and collaborative learning experiences. The interviews were conducted in a comfortable setting, audio-recorded with participants' consent, transcribed verbatim, and analyzed thematically using NVivo software. This allowed for a systematic data analysis, identifying key themes and patterns in the students' experiences. The credibility of the interview results was further validated through member checking, as outlined by Dörnyei (2007), ensuring that the insights gathered accurately reflected the participants' views and experiences with the workshop. The semi-structured interviews provided a platform for participants to share their experiences in detail, offering valuable insights into the effectiveness of the teacher's multifaceted approach and the impact of peer assessment and AI integration on their learning outcomes. The flexibility of the interview format enabled the researchers to probe deeper into specific aspects of the workshop, gaining a comprehensive understanding of the participants' perspectives and the factors that contributed to their success in the online IELTS writing course.

Data Collection

Data were collected through semi-structured interviews with participants at the end of the 12-session workshop. The interviews aimed to gather insights into the learners' experiences with the multifaceted instructional approach and its impact on their writing abilities, engagement, and collaborative learning. Each interview lasted approximately 30 to 45 minutes and was conducted in a comfortable setting to facilitate open and honest responses from the participants. The semi-structured format allowed for flexibility, allowing participants to elaborate on their thoughts and feelings regarding the peer assessment process, the effectiveness of the AI integration, and the workshop's overall structure. Thematic analysis was employed to identify recurring themes and patterns within the interview data, providing insights into the impact of the TEC-VARIETY framework on student engagement, creativity, and collaborative learning dynamics. This approach provided rich qualitative data, which was subsequently analyzed to identify key themes and patterns in the participants' responses. The findings from these interviews were instrumental in understanding how the combination of the teacher's multifaceted approach and AI-generated feedback influenced the participants' writing development and their perceptions of the collaborative learning experience. Ultimately, the data collection process offered valuable insights into the effectiveness of the workshop and the various factors that contributed to enhancing peer assessment and engagement in the online learning environment.

Procedure

The procedure for this study was meticulously designed to ensure a comprehensive exploration of the impact of a teacher's multifaceted approach within the TEC-VARIETY framework on peer

assessment and engagement in an online IELTS writing workshop. The study began with recruiting 24 upper-intermediate students, all native Persian speakers, who were enrolled in an IELTS preparation course. Participants completed the Oxford Quick Placement Test (OQPT) to establish a baseline level of English proficiency. This standardized assessment ensured that all individuals fell within the B2 range on the Common European Framework of Reference for Languages (CEFR) scale, confirming their readiness to engage in advanced writing tasks.

The online workshop was structured over 12 sessions, each lasting 90 minutes, specifically focusing on writing argumentative essays. Each session commenced with a structured instructional segment led by the teacher, who introduced key concepts related to essay writing. This included an in-depth examination of the essential components of argumentative structure, such as crafting a clear and concise thesis statement, developing coherent topic sentences, and providing robust supporting evidence. Students were also instructed on the effective use of transitions to enhance the coherence of their essays and the importance of concluding paragraphs that briefly summarize their arguments.

Following the instructional component, students were presented with a specific argumentative prompt relevant to current issues, allowing them to engage critically with the material. They were given dedicated time to draft their essays, applying the strategies discussed during the instructional segment. Once completed, participants submitted their essays to the teacher via email. The teacher then anonymized these submissions to maintain confidentiality and distributed them among peers for review. A facilitative peer review protocol was implemented to guide students in providing constructive feedback. This protocol emphasized the importance of specific, actionable comments aligned with the teacher's instruction and the established standards for argumentative writing. Students received training on critically analyzing their peers' essays, focusing on clarity, coherence, and the overall effectiveness of arguments.

After the peer review, the teacher utilized the Perplexity AI application to generate personalized feedback for each student. This AI tool analyzed the submitted essays and produced insights encouraging deeper reflection and inquiry-based learning, allowing students to engage more profoundly with their writing. The AI-generated insights complemented the peer feedback, providing a comprehensive view of each student's writing performance. Students were then instructed to apply the feedback from their peers and the teacher to revise their essays, fostering a cycle of continuous improvement and self-directed learning.

After the workshop, participants were interviewed semi-structured to gather qualitative data on their experiences and perceptions of the peer assessment process, engagement levels, and the effectiveness of the multifaceted instructional approach. Each interview lasted approximately 30 to 45 minutes and was conducted in a comfortable setting to facilitate open dialogue. With the participants' consent, interviews were recorded for accurate transcription and subsequent thematic analysis.

Students are trained to evaluate the structure and coherence of their peers' body paragraphs. They should identify the topic sentence of each paragraph and assess whether it effectively introduces the main idea. Feedback should focus on using supporting evidence examples, facts, or expert opinions and students are encouraged to comment on the logical flow of ideas within and between paragraphs. Each paragraph should reinforce the thesis while presenting a coherent argument.

Students are instructed to assess the effectiveness of their peers' argumentative strategies. They should provide feedback on whether counterarguments are acknowledged and effectively

refuted. Suggestions for strengthening the argument, such as incorporating additional evidence or addressing potential objections, are encouraged. This critical evaluation helps ensure that the essay presents a balanced and persuasive argument.

Students are trained to provide feedback on their peers' language use and writing style. They should identify strengths in vocabulary, sentence variety, and tone while offering constructive comments on areas for improvement. This includes eliminating wordiness, enhancing clarity, and ensuring appropriate language for an argumentative essay. The goal is to help peers communicate their ideas more effectively.

Students are instructed to assess the overall effectiveness of their peers' essays in addressing the argumentative prompt. They should provide feedback on the essay's coherence, organization, and persuasiveness. Suggestions for improving the essay's impact, such as emphasizing the argument's significance or providing a more compelling conclusion, are encouraged. This holistic evaluation ensures that the essay resonates with the reader and effectively conveys the author's position.

When providing feedback, students are instructed to:

- Be specific and provide examples to support their comments.
- Focus on both the strengths of the essay and areas for improvement.
- Offer constructive suggestions for enhancing the essay rather than simply criticizing.
- Maintain a supportive and constructive tone throughout the feedback process.

Data Analysis

The interview transcripts were analyzed using thematic analysis, a rigorous and systematic approach to identifying, coding, and interpreting patterns in qualitative data (Braun & Clarke, 2006). The procedure comprised four sequential steps. First, the researchers transcribed the audio recordings of the interviews verbatim, ensuring an accurate representation of the participants' responses. This step was crucial for maintaining the integrity of the data and capturing the nuances of the participants' experiences. Next, the researchers thoroughly read and re-read the transcripts to immerse themselves in the data, allowing for a comprehensive understanding of the participants' perspectives. This iterative process facilitated the identification of initial impressions and recurring themes within the narratives.

During the coding phase, the researchers examined the transcripts line by line, identifying significant characteristics and assigning relevant codes to encapsulate the essence of the data. This coding process was dynamic, with researchers continuously refining and updating the codes as new insights emerged, ensuring that the analysis remained responsive to the data. The researchers used a combination of inductive and deductive coding approaches, allowing for the identification of both anticipated and unanticipated themes. Inductive coding involved deriving codes directly from the data, ensuring the analysis was grounded in the participants' experiences. On the other hand, deductive coding incorporated codes based on the researchers' prior knowledge and the theoretical framework guiding the study, which was the TEC-VARIETY model.

Finally, the researchers classified the codes into broader themes that represented the overarching patterns and meanings within the data. This involved meticulously examining and refining the themes to eliminate duplicate or overlapping categories, ensuring that each theme

was distinct, coherent, and accurately reflected the participants' experiences with the peer assessment process, the teacher's multifaceted approach, and AI integration. The researchers engaged in regular discussions and consensus-building to ensure the credibility and trustworthiness of the themes. This collaborative approach allowed for the consideration of multiple perspectives and the resolution of any discrepancies in the interpretation of the data.

By adhering to this rigorous thematic analysis, the researchers systematically explored the qualitative data, identified key themes, and gained valuable insights into the participants' perspectives on the effectiveness of the online IELTS writing workshop. This thorough approach enhances the credibility of the findings. It contributes to a deeper understanding of how teacher guidance, peer assessment, and AI integration can support learners in developing their argumentative writing skills online.

Findings

Through thematic analysis of semi-structured interviews conducted with 24 EFL students participating in the online IELTS writing workshop, five key themes emerged that address the research questions regarding peer assessment, the teacher's multifaceted approach, and the integration of AI feedback. The qualitative analysis highlights the experiences and perspectives of EFL students within the context of argumentative essay writing, emphasising both the advantages and challenges they encountered during their writing development journey.

Peer Assessment and Feedback

Participants reported that the peer assessment process was instrumental in helping them identify strengths and weaknesses in their writing. For instance, Participant 5 noted, "The peer review process helped me recognize areas where my writing was strong, like having a clear thesis statement, but also parts that needed improvement, such as providing more specific examples to support my arguments." This feedback was valuable for self-reflection and enhancing essay quality. Additionally, Participant 10 remarked, "Reading my peers' essays exposed me to different argumentative strategies that I had not considered before," highlighting the benefits of gaining new perspectives through peer interactions.

Teacher's Multifaceted Approach

The structured instruction provided by the teacher significantly impacted students' understanding of argumentative essay writing. Participant 3 stated, "The teacher's lessons on essay structure, like how to write an effective introduction and conclusion, helped understand the key components of an argumentative essay." This structured approach fostered a deeper comprehension of essay components. Furthermore, Participant 8 emphasized the importance of personalized feedback: "The combination of teacher feedback and AI-generated insights provided a comprehensive view of my writing strengths and weaknesses." This illustrates how the multifaceted approach effectively addressed individual learning needs.

Impact on Writing Skills

Students reported significant advancements in their argumentative writing skills as a direct result of the workshop. Participant 12 articulated, “I now feel significantly more adept at constructing persuasive arguments in my writing.” This progress was credited to the workshop’s focus on acknowledging counterarguments and effectively refuting them, as Participant 6 noted, “I now pay more attention to acknowledging counterarguments and refuting them effectively.” The workshop honed their writing skills and bolstered their confidence, with Participant 15 affirming, “I now have more confidence in my writing abilities.”

Challenges and Recommendations

Despite the workshop’s benefits, students encountered challenges, particularly in providing critical feedback to their peers. Participant 9 shared, “It was sometimes challenging to give critical feedback to my peers, even with the protocol.” This underscores the need for additional support in developing constructive criticism skills. Time management also proved to be a hurdle, with Participant 11 noting, “Juggling the workshop with my other commitments was sometimes difficult.” Students suggested more time for writing assignments and feedback sessions to enhance the overall experience.

Personalized Learning Experience

Participants highly valued the workshop’s personalized nature, which allowed them to tailor their learning experiences to their needs. Participant 4 mentioned, “I appreciated that I could use feedback at my own pace, which helped me learn better.” This highlights the importance of individualized learning paths in enhancing educational outcomes. Additionally, Participant 7 felt that “the way the workshop was set up made me feel like my needs were understood,” reflecting the significance of a supportive learning environment.

Table 1 summarizes the themes that capture the students’ perceptions and experiences in the online IELTS writing workshop, illustrating the multifaceted benefits and challenges they encountered throughout the process.

Table 1. *The themes of students’ perceptions of the effectiveness of peer assessment and the teacher’s multifaceted approach in the online IELTS writing workshop.*

Theme	Code	Student Examples
Peer Assessment and Feedback	Identifying strengths and weaknesses	“The peer review process helped me recognize areas where my writing was strong, like having a clear thesis statement, but also parts that needed improvement, such as providing more specific examples to support my arguments.”
	Gaining new perspectives	“Reading my peers’ essays exposed me to different argumentative strategies I hadn’t

		considered before. It was really valuable to see how others approached the same prompt.”
	Providing constructive criticism	“At first, giving feedback to my peers was challenging because I didn’t want to be too critical. But the structured protocol helped me focus on providing specific, actionable comments that I hoped would genuinely improve their writing.”
	Overcoming hesitation	“I hesitated to provide critical feedback initially, worried it might hurt my peers’ feelings. But the protocol emphasized being constructive, so I learned to suggest improvement while highlighting their strengths.”
Teacher’s Multifaceted Approach	Structured instruction	“The teacher’s lessons on essay structure, like how to write an effective introduction and conclusion, helped me understand the key components of an argumentative essay. I felt much more confident in my writing after those sessions.”
	Personalized feedback	“The combination of teacher feedback and AI-generated insights provided a comprehensive view of my writing strengths and weaknesses. The teacher’s comments were tailored to my specific needs and helped me set clear goals for improvement.”
	Fostering engagement	“The variety of writing prompts and activities kept me engaged throughout the workshop. I looked forward to each session because I knew I would be challenged differently.”
	Applying learned strategies	“The structured instruction on argumentative strategies, such as acknowledging counterarguments and refuting them effectively, really clicked for me. I started applying these techniques in my other writing assignments as well.”
Impact on Writing Skills	Improved argumentative strategies	“After the workshop, I feel more equipped to construct persuasive arguments in my writing. I pay closer attention to acknowledging counterarguments and refuting them effectively.”

	Enhanced clarity and coherence	“My writing has become clearer and more coherent, thanks to the emphasis on using transitions, writing strong topic sentences, and ensuring each paragraph supports the thesis.”
	Increased confidence	“I’m more confident in my writing abilities now. The workshop provided a supportive environment where I could take risks and experiment with new strategies, knowing I would receive valuable feedback.”
	Applying skills to other contexts	“The skills I learned in the workshop, like structuring arguments and providing evidence, have been incredibly useful in my other classes. I feel more prepared to tackle writing assignments across different subjects.”
Challenges and Recommendations	Providing critical feedback	“It was sometimes difficult to give critical feedback to my peers, even with the protocol. I didn’t want to hurt their feelings or discourage them.”
	Time management	“Balancing the workshop with my other commitments was challenging at times. I wish we had more time to complete the writing assignments and provide thorough feedback to our peers.”
	Expanding AI capabilities	“While the AI feedback was helpful, I think it could be even more valuable if it provided specific suggestions for improvement, like rewriting sentences or restructuring paragraphs.”
	Adapting to online collaboration	“Providing feedback online was a bit different from in-person workshops I’ve done. It took some time, but the structured protocol helped me adapt and engage effectively with my peers in the virtual environment.”

The insights captured in this table emphasize the importance of structured peer assessment and feedback in enhancing students’ argumentative writing skills. By identifying strengths and weaknesses, gaining new perspectives, and providing constructive criticism, students improve their writing and contribute to a collaborative learning environment. The teacher’s multifaceted approach, which includes personalized feedback and engaging instructional strategies, further supports students in developing effective argumentative strategies and boosting their confidence. The challenges faced during the peer review also highlight the need for ongoing support and

resources to optimize the learning experience. These insights underscore the critical role of peer assessment, teacher guidance, and AI integration in fostering a deeper understanding of effective writing practices.

Discussion

The current study aimed to investigate the integration of a teacher's multifaceted approach, peer assessment, and AI in enhancing argumentative writing skills and collaborative learning among EFL students in an online environment. The findings indicate that this integrated approach improves students' writing abilities and fosters a more engaging learning experience.

The thematic analysis of semi-structured interviews with 24 EFL students participating in the online IELTS writing workshop revealed five key themes that encapsulate the students' experiences and perceptions: Peer Assessment and Feedback, Teacher's Multifaceted Approach, Impact on Writing Skills, Challenges and Recommendations, and Personalized Learning Experience. These themes highlight the diverse ways students interacted with the workshop components, emphasizing the advantages and challenges they encountered during their writing development journey.

To address the first research question regarding the impact of the teacher's multifaceted approach and peer assessment on students' writing skills, the findings revealed that structured instruction significantly enhanced students' understanding of argumentative essay writing. Participants reported improvements in their ability to construct persuasive arguments, acknowledge counterarguments, and enhance the clarity and coherence of their writing. For instance, one student noted, "After the workshop, I feel much more equipped to construct persuasive arguments in my writing," indicating a clear link between the instructional approach and skill development. This finding aligns with Mallahi (2024), who emphasized the necessity of effective writing strategies and feedback to improve EFL learners' performance and the critical role of structured instruction in helping students navigate complex writing tasks (Albeshier, 2024).

In response to the second research question, which explored students' perceptions of the effectiveness of these strategies in improving their writing abilities and fostering collaborative learning, the qualitative data highlighted the value of peer assessment in identifying strengths and weaknesses in writing. Students expressed that peer feedback enhanced their self-reflection and understanding of different argumentative strategies. As one participant stated, "Reading my peers' essays exposed me to different argumentative strategies that I had not considered before," showcasing the collaborative learning aspect fostered by the peer assessment process. This finding is consistent with Holster et al. (2013), who noted that peer assessment encourages students to engage deeply with the assessment criteria, leading to improved writing skills. However, as Laila (2015) pointed out, the effectiveness of peer assessment can be limited by students' proficiency in providing constructive feedback, highlighting the need for targeted training in assessment criteria.

The challenges students face during the workshop, particularly in providing critical feedback to their peers, indicate the need for additional support in developing constructive criticism skills. Participants noted that balancing the workshop with other commitments was challenging, suggesting that more time for writing assignments and feedback sessions could enhance the overall experience. These insights underscore the importance of ongoing support and

resources to optimize the learning experience. Asadi et al. (2017) emphasized that formative assessment and timely feedback are critical predictors of student engagement, suggesting that students become more actively involved when they receive constructive feedback during the learning process.

Additionally, the personalized nature of the workshop was highly valued by participants, who appreciated the ability to tailor their learning experiences to their individual needs. This highlights the significance of individualized learning paths in enhancing educational outcomes. The combination of teacher feedback and AI-generated insights provided a comprehensive view of students' writing strengths and weaknesses, further illustrating the effectiveness of the multifaceted approach. Wale and Kassahun (2024) indicated that AI tools significantly improve EFL writing instruction by providing personalized feedback, which helps students engage more deeply with the writing process.

The implications of this study are significant for educators and curriculum designers in EFL contexts. Integrating a teacher's multifaceted approach with peer assessment and AI tools can serve as a model for developing effective online writing instruction. This approach enhances students' writing skills and promotes collaborative learning, which is essential in an increasingly digital education landscape. Educators should adopt similar frameworks to foster a more interactive and supportive learning environment. The TEC-VARIETY framework, as highlighted by Bonk and Khoo (2014), provides a comprehensive strategy for enhancing engagement and motivation in online education, making it a valuable tool for structuring peer feedback and facilitating collaborative learning.

However, the study acknowledges certain constraints, including a relatively small sample size and the reliance on self-reported data, which may limit the generalizability of the findings. To enhance the robustness of future research, it is recommended that larger, more diverse participant groups be included, along with objective measures such as writing assessments and peer evaluations. The difficulty in identifying AI-generated content and ethical considerations are significant issues that educators and policymakers must navigate to ensure the effective and responsible use of AI in education (Waltzer et al., 2024).

Future research should explore the long-term effects of integrating a teacher's multifaceted approach, peer assessment, and AI in writing instruction. Longitudinal studies could provide valuable insights into how these strategies influence students' writing skills and academic performance. Additionally, examining the ethical implications of using AI tools in educational settings, particularly concerning academic integrity and student perceptions, will be essential as technology plays a significant role in education. Razi (2023) stated that teachers must adapt their instructional strategies to fit online platforms, ensuring students receive the necessary support and feedback, using various digital tools and methods to maintain academic integrity and promote effective learning.

Conclusion

This study significantly contributes to the understanding of EFL writing instruction by demonstrating the effectiveness of an integrated approach that combines a teacher's multifaceted strategies, peer assessment, and AI tools in enhancing argumentative writing skills and collaborative learning among students. The findings reveal that this integrated approach not only improves students' writing abilities but also fosters a more engaging and supportive learning environment, addressing the unique challenges EFL learners face.

Key insights from the research indicate that structured instruction and personalized feedback are crucial for helping students develop their argumentative writing skills. Participants reported notable improvements in their ability to construct persuasive arguments, acknowledge counterarguments, and enhance the clarity and coherence of their writing. This progression underscores the importance of effective pedagogical strategies in online education, where traditional methods may fall short.

The implications of these findings extend beyond EFL contexts, suggesting that similar integrated approaches could be beneficial in various educational settings. Educators can create more interactive and responsive learning environments that cater to diverse student needs by adopting a multifaceted instructional framework that incorporates peer assessment and AI tools. This approach enhances writing skills and promotes collaborative learning, which is increasingly vital in today's digital education landscape.

However, the study acknowledges certain limitations, including a relatively small sample size and reliance on self-reported data, which may affect the generalizability of the findings. To enhance the robustness of future research, it is recommended that larger, more diverse participant groups be included, along with objective measures such as writing assessments and peer evaluations.

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Appendix 1

Interview Questions

1. How did you perceive the peer assessment process in the workshop, and what specific aspects did you find most beneficial?
2. What challenges did you encounter while providing constructive feedback to your peers, and how did you address them?
3. In what ways did the peer feedback you received influence your writing and help you identify areas for improvement?
4. How did the structured peer assessment protocol and the teacher's guidance enhance your ability to provide effective and critical comments on your peers' essays?
5. How did the structured writing instruction by the teacher impact your understanding of argumentative essay structure and your overall writing skills?
6. What elements of the teacher's feedback, including personalized feedback through the Perplexity AI application, were most helpful in meeting your specific learning needs and improving your writing?

7. How did the combination of teacher instruction, peer feedback, and AI-generated insights create a comprehensive feedback loop that supported your writing development?
 8. What factors motivated you to participate actively in the workshop, and how did the variety of writing prompts contribute to your engagement?
 9. Can you describe any specific activities or strategies that enhanced your learning experience and encouraged you to engage more deeply in the peer assessment process?
 10. How do you believe the workshop, particularly the peer assessment approach, has affected your argumentative writing skills?
 11. What specific skills or strategies did you find most valuable in improving your writing, and how did the peer assessment process help you learn and apply these skills?
 12. In what ways did reviewing your peers' essays against the teacher's protocols help you avoid making similar mistakes in your own writing?
 13. What challenges did you face during the workshop, and how could these be addressed in future iterations of the course?
 14. Are there any additional resources or support mechanisms that you believe would further enhance the learning experience and the effectiveness of the peer assessment process?
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