Literature Review

The Mechanics of ESL/EFL Writing Performance at the Tertiary Level

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Abstract: After exploring different theories of teaching and learning ESL/EFL writing, along with successful models of writing courses and instructional methods, this study investigates the internal complexity of ESL/EFL writing at the tertiary level, as well as the contributing factors in students' writing performance. The characteristics of different types of language learners are identified in conjunction with the plasticity and lateralization of the bilingual brain and the critical period hypothesis. The study also delves into certain biases and heuristics while it analyzes Kahneman's System 1 and 2 of thinking and various personality theories in order to determine students' innate abilities to excel in ESL/EFL writing tasks. Furthermore, the paper elucidates the importance of psychological equivalence in the writing process with the help of Pym's translation theories, and explains students' interconnectedness through Berne's transactional analysis and the ego states of each personality. By integrating neuropsychological perspectives with established pedagogical approaches, such as the scaffolding, product, process, genre and grammar-translation techniques, the article offers a holistic framework for educators and policymakers to enhance ESL/EFL writing instruction, and ultimately proposes future research directions for a better understanding of ESL/EFL students' needs.

Keywords: ESL/EFL writing; neuropsychology; blended teaching

1. Introduction

Recent statistics show that approximately 1.5 billion people worldwide speak English, either natively or as a second language, compared to 1.1 billion people who speak Mandarin Chinese, while Hindi and Spanish were ranked as the third and fourth most spoken languages in 2023 (Dyvik, 2023). If in the 20th century the English language gained widespread use in international diplomacy, commerce, education, science and technology, this changing trend continues to grow and influence decisions about the medium of instruction in the 21st century. Studies indicate a critical distinction between English as a second language and English as a foreign language in the context of learning. The former thus involves acquiring the language within an English-speaking environment while the latter primarily centers on its study for communication, education, social mobility, employment, and business beyond the learner's immediate surroundings (Peng, 2019). As higher education becomes more international, English medium instruction plays a crucial role in content and language integrated learning, particularly in countries aiming to participate in the global economy (Lin & Lei, 2021; Galloway et al., 2020). Some specialists critique the education system's traditional approach to teaching English at tertiary level, pointing to a continued over-reliance on textbook-oriented linear methods that prioritize memorization over genuine language understanding (Scott & Husain, 2021). Similarly, debates exist regarding the use of L1 in the English classroom, with some studies advocating its benefits and others cautioning against it (Angell, 1995; Lightbown & Spada, 2013; 2019; 2020; Rivers, 2011; Rawan, 2016). The prevalent view holds that a one-size-fits-all approach lacks universal applicability, emphasizing the crucial role of flexibility. Understanding different aspects of language learning involves knowing various theories, principles and hypotheses of ESL/EFL, and while these insights may not have all the answers, they form the foundation for modern teaching methods and strategies in the awareness that no one can fully understand the scientific process of language acquisition (Aprianto & Zaini, 2019; Krashen, 1982).

Consequently, both educators and students should be using these theoretical perspectives in order to ensure a consistent blend of knowledge and practice. Once they have gained a robust theoretical experience, their intuition can also become an essential component of the teaching and learning processes. Thus, whenever learning English becomes a burden, despite students expressing themselves effortlessly in different social contexts, educators could better tap into students' prior knowledge, linking academic subjects to real-life scenarios for increased relevance. The time constraints make it even more challenging to cater to the proficiency differences of all students in a class while covering the curriculum. Educators should therefore possess the skill to determine when to introduce more advanced content and when to maintain a general level of English. This intuitive approach serves to enhance students' confidence while nurturing their critical and inferential thinking abilities, alongside skills in memorization, repetition and automatization. Additionally, a continuous interdisciplinary approach to this broad phenomenon can assist educators, psychologists, linguists, and various other researchers in forging a productive platform for realistic advances in English learning across all age groups (Butler & Van Dyk, 2004; Jusun & Yunus, 2017, p.470). While not all research directly applies to the classroom, a teacher or a lecturer knowledgeable about research findings can make better decisions about materials and pedagogic judgments.

ESL/EFL writing spans a broad spectrum of activities, from basic word jotting, based on sentence-level mechanics like spelling and grammar, to crafting intricate essays, which involve higher-level skills like content organization and audience consideration (Nunan, 2004). Exploring well-known theories of language acquisition can also provide insights into the process of successful writing at higher education level. Macro skills traditionally follow the sequence of listening, speaking, reading, writing and watching in English. Extensive reading, for instance, can greatly improve writing skills. By diving into a variety of texts, students can absorb language nuances, diverse sentence forms, vocabulary and rhetorical techniques, so this immersion could often provide a subconscious writing guide. While students often use writing to reinforce other language skills, activities that center on the act of writing itself could thus foster self-expression and purposeful communication. Also, despite some educators doubting that non-native students can achieve English writing proficiency, integrating writing themes in English courses, such as genre, cohesion, varied writing approaches, audience considerations and correction techniques, can enhance overall language skills. However, when focusing on the basics, educators sometimes neglect the importance of refining drafts and tailoring content for specific audiences, so effective instruction in writing should foster analytical thinking and clear communication.

Thus, in a globalized world that will become more and more artificially intelligent, successful English writing could still be personal and original, clear, context-appropriate, and idea-driven, shifting the cognitive focus from grammar and vocabulary to meaning and expression. Yet this paradigm shift hinges on how both native and non-native English-speaking teachers view effective communication in terms of individuality and the intricate nature of the learning journey. Despite hurdles posed by inadequate infrastructure and training in certain regions, the clarity of the writing scenario holds promise for yielding positive outcomes in universities and colleges worldwide. Even in institutions where English is not the primary language of education, clarity of thought and expression in English writing should remain essential for effective communication (Ahmed, 2015). While universities in each country have their own norms, they often face similar challenges in teaching writing, especially in the countries that recognize the significance of English as an international language. A balanced or eclectic approach to teaching, blending the well-known process and product techniques with others, can potentially elevate English writing proficiency while constant immersion in speaking, reading, listening and watching can provide a virtuous learning circle. Furthermore, by striving to enhance their own writing practices and techniques, educators can implicitly refine their teaching methods, easing the writing journey for their students. Encouraging positive perceptions of writing competence through constructive feedback can help boost student confidence and reduce anxiety. Students' active participation in writing classes can foster critical thinking and reduce rote learning, especially when teachers facilitate information assimilation through interactive methods. However, studies highlight the mismatch between ESL/EFL requirements at the tertiary level and prior educational systems as a potential cause for students' struggles in writing courses (Van Dyk et al., 2009). While differences exist between native English and ESL/EFL students' academic writing performances, studies indicate that writing literacy alone proves insufficient for academic success or later-life achievements (Alek et al., 2023; Oliver et al., 2012).

A robust writing course should therefore encompass a holistic approach tailored to ESL/EFL students, providing practical tools, diverse perspectives, strategies for formal writing challenges, digital resources as supplementary aids, and alignment with modern writing trends in order to enhance writing excellence in tertiary education. Moreover, effective writing skills should be complemented by proficient reading, speaking and comprehension abilities. Nonetheless, willing to hone the writing skills at the tertiary level does not always lead to the expected results due to a multitude of internal and external influences (Moses & Mohamad, 2019; Budjalemba & Listyani, 2020). Traits like being sociable or reserved, extroverted or introverted include a mix of genetic factors, hormonal balance, nervous system type, and maturation stages, hence the ability of personality theories to explain innate writing abilities as well as temperaments and behavioural patterns (Potmesilova & Potmesil, 2021). Similarly, learning cycles underscore the importance of adaptability, especially for ESL/EFL students negotiating the intricacies of the English language. Thus, the collaboration among various research fields can aid ESL/EFL teacher trainers, trainee teachers, practicing educators, researchers, textbook authors, program designers, and policymakers in attaining a comprehensive understanding of the many factors that influence the learning and teaching processes (Srinivas Rao, 2017; 2019).

2. Models and theories

The three-circle model of world Englishes, encompassing the Inner, Outer, and Expanding Circles, represents an alternative to the traditional labels of native, ESL, and EFL speakers (Kachru, 1985, p. 12; Park & Wee, 2009; Al-Mutairi, 2020). These concentric areas represent the spread of English, acquisition patterns and the functional domains where English gets used across various cultures and languages. The Inner Circle thus refers to traditional English bases like the USA, UK, Canada, Australia and New Zealand. The Outer Circle includes countries with English as a significant second language, mostly former colonies of the UK or USA: India, Nigeria, the Philippines, Bangladesh, Kenya, Jamaica and Papua New Guinea, and Singapore. The Expanding Circle encompasses countries where people learn English as a foreign language, such as China, Japan, Russia, Brazil, Greece and Poland. However, several scholars have identified limitations and variations in this model, and criticisms of the model include its oversimplification, unclear boundaries between circles and its inability to reflect the dynamic nature of English use globally. Also, the model cannot account for the rapid growth of English as a lingua franca in international settings, so some researchers suggest a more dynamic model that considers English proficiency in international and regional varieties rather than basing classifications on national identity (UKEssays, 2018).

Some researchers argue that acquisition and learning should not be used interchangeably as they denote different processes of language assimilation, whether through guided instruction or spontaneous self-study (Krashen, 1982; De Matos, 1978). Yet others highlight the ambiguity in distinguishing between learning strategies and processes tied to conscious and subconscious cognition (Schmidt, 1990; McLaughlin, 1990; Shi, 2011). In this context, the current study uses the terms interchangeably while it refers to ESL/EFL students' intuitive and deliberate efforts to excel in academic writing and beyond. Because many education systems still prioritize rote learning before higher education, university students often struggle to cultivate advanced writing skills and express ideas beyond what instructors provide. Writing demands a keen focus on numerous elements, from word choice to reader engagement, a task that could challenge even the sharpest minds (Chuy et al., 2012). Among the obstacles encountered in writing, L1 interference involves the influence of a student's primary language on their second language writing, leading to issues like incorrect spelling, punctuation confusion and unnatural ways of expression. Addressing this requires understanding linguistic differences and promoting language comparisons (Kazazoğlu, 2020). Another challenge is students' reluctance towards writing, influenced by cultural norms or past negative experiences (Al-Shboul & Huwari, 2015; Jabali, 2018). Overcoming this issue involves recognizing cultural nuances, easing students into writing tasks, and providing supportive feedback, so it is mostly educators that hold the key to helping students navigate and surmount such challenges. Second/foreign language acquisition's effect on writing competence thus prompts an exploration of psychological, linguistic, neurofunctional, functional, and social viewpoints, which have potential to enhance tertiary level instructional practices. As language acquisition aims for both internal and external communication through words and thoughts, these theories, while not exhaustive, can interrelate and provide a

comprehensive view of language acquisition, considering both content and learning mechanisms.

For instance, Piagetian and Vygotskian approaches to language acquisition emphasize the developmental stages of learning and how children construct knowledge. These theories of cognitive development thus suggest that students apply their formal deductive reasoning to assimilate and accommodate new writing experiences, drawing from both their native language and their second language experiences. Ergo, based on their bilingual type, ESL/EFL students might often frame their thoughts using their home language, thereby retaining much of its unique linguistic character when they deliberately structure their ideas for specific writing prompts (Tomasello, 1996). Similarly, the interlanguage theory suggests that students' brains form an intermediary tongue, which combines elements from both their native and target languages, so penalizing errors during this phase could actually hinder progress (Al-Khresheh, 2015). Both practice and studies show that humans can indeed learn a second language more easily when exposed early since young minds can readily adapt to bilingual settings, achieving better pronunciation and fluency than older learners. Thus, given that immersive experiences often yield the best bilingual results, engaging children in interactive linguistic settings optimizes their language acquisition. However, the input hypothesis or comprehensible input theory suggests that learners of any age can effectively acquire a language by extensively listening to content slightly above their own proficiency. Instead of explicit grammar instruction or forced speaking, the focus lies on understanding the language. By consistently exposing oneself to the target language in comprehensible contexts, learners can thus intuitively grasp grammar and vocabulary. Activities like watching movies, listening to podcasts, or overhearing native conversations can enhance this type of learning and over time, after significant passive exposure, learners can naturally and accurately speak the language. Additionally, Bruner identifies three stages of development, respectively action, image, and abstract. He thus advocates for a constructivist approach, where students primarily learn through self-discovery, supported by structured guidance from their teachers (Mcleod, 2023b). In a similar vein, Rogers believes in teaching students the art of learning rather than merely imparting fixed information. He so argues for creating a nurturing environment that fosters trust and appreciation, and allows students to learn at their pace, even though consistently maintaining such an environment in institutionalized education proves challenging (Mcleod, 2023c).

Unlike Pavlov's classical conditioning, neo-behaviorists highlight the role of rewards in habit formation and language development through repetitive behaviour. They thus view a child's speech as an imperfect version of adult speech, attributing errors to incomplete, age-appropriate learning. Skinner, in particular, posits that language learning arises from habitual skills and environmental stimuli as it aims to communicate thoughts and ideas. Therefore, achieving proficiency in writing involves consistent practice until a student attains peak behavioural performance (Eelen, 2018; Nevin, 1992). On the other hand, cognitive psychologists emphasize the importance of understanding the mental processes involved in written communication. Ausubel and Asher thus stress the significance of meaningful learning, which relies on logical concepts that aid long-term memory and the creation of new communication structures. They too highlight the influence of a student's first language on learning a second one, besides the interdependence of written and spoken language (Asher, 1969; Bryce & Blown, 2023). The cognitive process theory of writing underscores the mental processes involved in writing, emphasizing prior thinking, structuring, and goal-setting (Flower & Hayes, 1981). Drawing from Bloomfield and Fries' structural-descriptive approach, writing accuracy should stem from a holistic understanding of context-based language and the dynamic process of linguistic self-regulation (Duan, 2017; Fries, 1957). Additionally, Chomsky introduces the idea of Universal Grammar, suggesting that students possess an innate ability to process language categories and overall language for communication purposes. His generative-transformational perspective on writing skills thus centers on an inherent language acquisition device (LAD) for organizing written language (Hoque, 2021). Furthermore, post-Chomskian models combine behavioural and psychological elements, emphasizing a learner's cognitive and emotional individuality, motivation and freedom of learning (Pléh, 2019). Krashen's monitor model, Carroll's conscious reinforcement model, the neurofunctional perspective, the Schumann acculturation model and Gardner's theory of multiple intelligences can also offer unique insights into language acquisition (Abdulaal, 2021; Mahdikhani, 2016; Lamendella, 1979; Ma, 2021; Morgan, 2021).

Through a socio-functional lens, language primarily acts as a communication tool based on linguistic structuring and coding. Writing accuracy can therefore be achieved when certain

language components are taken into consideration, such as emphasizing the purpose of writing (Halliday, 1993), socio-psychological communication (Schumann, 1986), interpersonal use of writing (Yavari, 2012), and the impact of writing on self-identity (Boonchum, 2009). Vygotsky's sociocultural theory of writing (Selvaraj & Aziz, 2019, p. 454) emphasizes collaboration and scaffolding in the learning process. Additionally, the ecological theory emphasizes that the traits of a writer or a specific piece of writing both influence and get influenced by the attributes of other writers and their works within the system (Cooper, 1986). A key feature of these ecological systems therefore lies in their inherent adaptability as well as their dynamic nature, which might account for the variations observed in writing outcomes when comparing at-home or virtual class environments to traditional in-person classroom settings (Selvaraj & Aziz, 2019, p. 454). Last but not least, Bandura's Social Learning and Social Cognitive Theories (Figure 1) emphasize the interplay between environment and personal characteristics in behavior change. The concept of self-efficacy and its correlation with environmental efficacy can therefore offer a comprehensive view of the behavioural process, accounting for both internal and external factors that influence the acquisition and development of writing skills (Zimmerman & Schunk, 2003).
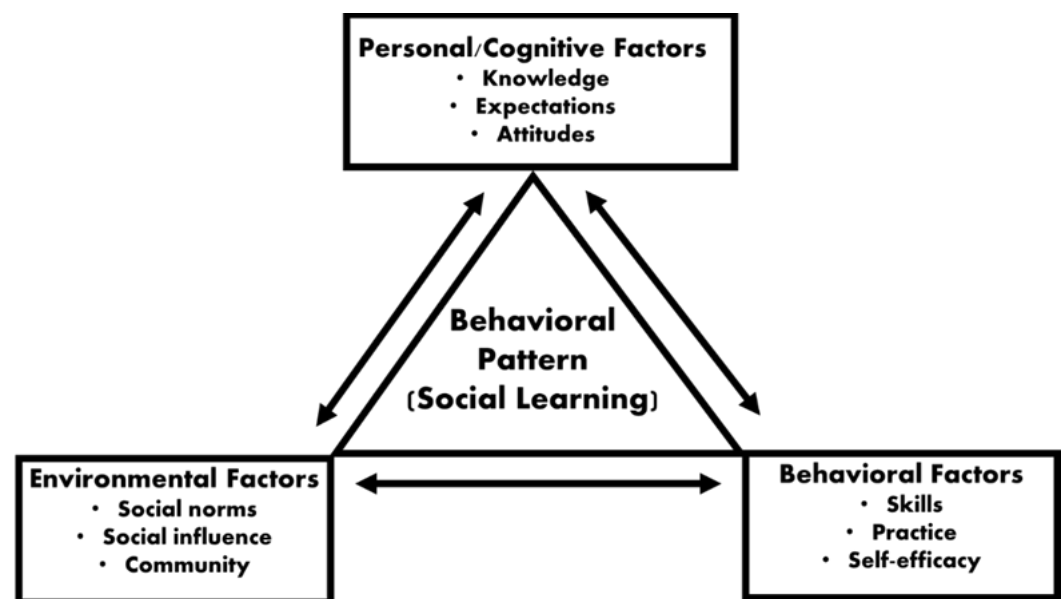

Figure 1. Bandura's Social Learning Theory and Social Cognitive Theory[1]

3. Writing courses

Proficient writing in English undeniably serves as a cornerstone for academic achievement, so automating basic skills can free up time for mastering advanced ones. While much of academic study relies on understanding specialized communication, the significance of proficient English writing extends beyond academic boundaries. Common tasks like drafting a formal email, crafting a cover letter, or designing a CV necessitate competent English writing. University ESL/EFL educators should therefore equip their students for real-world challenges by ensuring that the learners attain a commendable level of writing proficiency in

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[1] Bandura's Social Learning Theory, which later became Social Cognitive Theory, proposes an intricate interplay between personal factors, environmental factors and behavioral patterns. In Social Learning Theory, individuals acquire behavioral patterns through observing and imitating others, with personal factors like knowledge, expectations and attitudes shaping this process. Environmental factors, including social norms, social influence, and community dynamics, further contribute to the development of behavioral patterns. Social Cognitive Theory expands on this by emphasizing the bidirectional relationship among cognitive, environmental and behavioral factors. Cognitive processes, such as attention and motivation, mediate the impact of observational learning on behavior. Individuals actively engage with their environment, using cognitive abilities to interpret information, ultimately influencing the development of behavioral skills, practice and self-efficacy—the belief in one's ability to successfully perform a specific behavior. Both theories underscore the interconnected nature of personal, environmental and behavioral factors in shaping human behavior (Mcleod, 2023a).

the world's most widely spoken language. With written communication hurdles cleared, graduates can then confidently pursue roles in global corporations or delve into emerging business sectors, irrespective of location or time frame.

According to Fleming and Mills (1992), there are four learning styles that English writing educators should consider: visual, auditory, reading/writing and kinaesthetic (VARK). Visual learners often understand English writing rules best when presented graphically, using charts and diagrams that condense the information. Auditory learners, on the other hand, tend to grasp English writing details more effectively by listening rather than jotting down notes, which might divert their focus. Engaging in explanatory discussions with teachers and peers or participating in read-aloud activities can further bolster their comprehension. Those leaning towards the reading/writing style prefer taking notes and appreciate receiving written explanations from their instructors as they naturally immerse themselves in individual research and engage in silent reading. Given their focus on the written word, they might feel more at ease with English writing tasks, regardless of their proficiency level. Kinaesthetic learners, being hands-on, often immerse all their senses in the learning experience. However, in tertiary settings, writing classes infrequently incorporate tactile tools like flashcards or lab activities. Consequently, kinaesthetic learners might find themselves at a slight disadvantage unless educators develop more physically engaging instructional methods (Seyal & Rahman, 2015). Since classroom environments seldom cater exclusively to one learning style, especially in tertiary education, students must often adapt to become multimodal learners, which might not actually prove detrimental, especially when educators remain attuned to their students' unique learning preferences.

Writing basically combines four vital components to create clear, coherent and engaging content. The mechanical aspect involves the act of writing or typing, along with foundational rules like legibility, spelling, punctuation and capitalization. Proper grammar, including syntax, tense usage, subject-verb agreement and modifiers, ensures coherent and accurate conveyance of ideas. The discourse aspect focuses on logically organizing ideas, maintaining cohesion with transitional phrases, ensuring coherence and using effective paragraph structures. On the other hand, the stylistic element brings a unique voice through tone, word choice, varied sentence structures and figurative language, making content relatable and reflective of the writer's voice. Thus, while mechanical and grammatical facets ensure clarity and accuracy, the discourse and stylistic elements give writing its structure and expressive flair, and together, they craft communication that conveys messages to readers (Ahmed, 2019). As such, there are four writing styles that instructors should teach to students at the tertiary level: expository, descriptive, persuasive and narrative. Expository writing comprises explaining concepts and disseminating information in a formal manner, as it relies on statistics and scientific evidence rather than personal opinions. This type of writing finds its place in textbooks, specialized writings and how-to guides. While the conventional five-paragraph essay, encompassing introduction, exposition, and conclusion, is commonly employed for presenting and explaining topics and ideas, students should be allowed to explore greater creativity and extend the expository writing beyond the confines of the five-paragraph structure if necessary (Nafees, 2018). Both fictional and non-fictional descriptive writing entails crafting verbal depictions from the author's sensory perspective, utilizing specific literary devices. This style of writing manifests in both poetry and prose, as well as in memoirs and travel guides (Girard, 2015). The fundamental objective of persuasive writing is to establish a compelling viewpoint concerning a particular belief or stance. Academic writing especially falls within the realm of persuasive writing, as it may call for well-founded personal opinions from students, alongside an argumentative stance backed by scientific research from experts and individual study (Hyland, 2008). Fictional and non-fictional narrative writing involves conveying information through stories, featuring interconnected characters within distinct settings, often found in poems, novels, and anecdotes. Assignments related to narrative writing can span from personal stories to individual novellas, provided that educators offer valuable insights regarding the prerequisites of effective narrative writing (Hollis, 2023).

With English as the primary language for all major sectors of human communication – socialization, education, transaction and documentation – effective writing instruction hinges on a deep understanding of the conventions that set written text apart from spoken language. For instance, while English spelling's complexities can confuse due to inconsistent sound-letter relationships, understanding various English dialects and spelling rules can mitigate these challenges. The layout and genre-specific conventions also play pivotal roles in ensuring readability. Teaching methodologies vary, with some educators emphasizing the writing process, others delving into genre-specific techniques, and some promoting creative

expression. Process-focused instruction, which involves stages like drafting and editing, equips students with skills for crafting impactful texts. On the other hand, genre and creative writing approaches tap into analyzing existing works and personal experiences, respectively, to guide and motivate students. Cooperative writing and computer-assisted writing further enhance the learning experience by fostering collaboration and leveraging technology's benefits. Regardless of times, teachers remain instrumental in the learning journey. By fostering engagement, supplying essential tools and offering constructive feedback tailored to student needs, they ensure holistic writing development while their roles extend beyond instruction to include motivation, resource provision and feedback. Thus, a multifaceted approach, encompassing conventions, diverse teaching strategies and active teacher involvement, forms the cornerstone of effective writing instruction (Matsuda et al., 2006).

Engaging in a variety of writing activities, such as remembering events, crafting profiles, explaining concepts and analyzing stories, can enhance students' skills and creativity. Critical thinking, pivotal to effective writing, can be fostered through techniques like mapping, clustering, listing, cubing and questioning. These methods encourage writers to explore different perspectives and deepen their understanding of a topic. Reading strategies, including annotating, paraphrasing and summarizing, can improve comprehension while techniques like synthesizing and contextualizing provide a broader understanding. Assessment writing, such as essay examinations and portfolios, evaluates students' proficiency. Evaluating an argument's logic, recognizing emotional manipulation and judging a writer's credibility contribute to a more informed reading experience (Ferris, 2010).

Effective writing employs diverse strategies like invention, revision, narration, description, classification, argumentation, definition and contrast to bring stories to life and provide clarity. Research, the backbone of informed writing, can be conducted through field studies, library resources and internet searches. Source evaluation and proper citation practices are invaluable skills that facilitate seamless integration of credible information. Using sources ethically and creating annotated bibliographies help in organizing and understanding the material. Since communication extends beyond writing, oral presentations allow for direct audience engagement, and collaborating with others can lead to richer content. Also, writing within one's community can have a broader impact, addressing local concerns and reaching a wider audience (Axelrod & Cooper, 1988).

A robust writing course will thus embody a deep understanding of the writing process, systematically steering students through prewriting, drafting, revising, and editing stages. According to Borg and Gall, the procedural model represents "a descriptive model that describes the flow or the procedural steps to be followed to produce teaching materials. The stages in the procedural model include: (1) research and gathering initial information, (2) planning, (3) development of initial product format, (4) the initial trial, (5) revision of the product, (6) field trials, (7) revision of the product, (8) field test, (9) the revision of the final product, and (10) the dissemination and implementation" (Rahmat, 2015, p. 807). This structured approach proves particularly beneficial for ESL/EFL students in tertiary education, offering a clear roadmap for honing writing skills alongside grappling with the complexities of a new language. Through breaking down the writing process, students can more effectively manage tasks and progressively enhance their overall writing proficiency. Furthermore, the course's emphasis on rhetorical strategies should underscore audience analysis, persuasive techniques, and tone adaptation. In ESL/EFL contexts, mastering these elements empowers non-native English speakers to communicate more persuasively and confidently in their writing endeavours. With tangible models like sample essays, ESL/EFL students can readily grasp and apply these concepts to their academic writing endeavours. Visual aids and multimedia elements integrated within the course could also cater to diverse learning preferences of ESL/EFL learners. An inclusive approach should therefore be embedded in any good writing coursework, presenting examples and viewpoints from varied cultures and linguistic backgrounds. This exposure will enrich ESL/EFL students' writing and encourage them to embrace their unique linguistic identities. If the course also encompasses digital resources, it will supplement learning with exercises, quizzes and interactive content for additional writing practice. Empirical validation elevates the course's practicality, with feedback from educators and students who have utilized the course before in ESL/EFL writing practice, providing tangible evidence of its impact on enhancing writing performance in tertiary education.

A handbook should also accompany a good writing course in order to tackle diverse challenges faced by students. A section on sentence boundaries will engage with errors that disrupt writing flow and clarity. Topics should include comma splices, fused sentences and

sentence fragments. These errors often cause reader confusion, underscoring the importance of rectifying them for coherence. Delving into grammar, the handbook should address complexities like pronoun reference and agreement, relative pronoun usage and pronoun case, and should also discuss verb forms, subject-verb agreement and distinctions between adjectives and adverbs. Mastery of these aspects ensures grammatical accuracy and clear expression. Effective sentences form the bedrock of compelling writing. Guidance should therefore be provided on crafting unambiguous sentences, addressing potential pitfalls such as missing words, tense or perspective shifts and noun agreement. Modifiers' placement and use, avoiding mixed constructions, integrating quotations, questions and thoughts should be thoroughly explored. The concepts of parallelism, coordination and subordination can equip students with tools to diversify sentence structure and rhythm. Word choice's significance cannot be overstated as it can shape or undermine writing quality. The handbook should thus underscore concise sentences, precise word selection, and the avoidance of verbosity. By choosing the right words, students can effectively convey their thoughts and engage readers deeply. Punctuation, an unsung hero, should also receive comprehensive coverage as proper punctuation ensures intended meaning is conveyed without ambiguity. A good writing companion should therefore offer a guide on commas, semicolons, colons and other punctuation marks, addressing common errors like unnecessary commas. Additionally, mechanics' role in clarity and professionalism should be explored. Hyphen usage, capitalization rules, spacing between words and sentences, representing numbers, using italics, abbreviating words and spelling should thus be properly discussed. Last but not least, a tailored section should address the challenges bilingual and multilingual students usually face, covering issues such as articles, verb forms, prepositions, omitted or repeated words, adjective order and participles. A review of sentence structure could revisit foundational concepts, catering to both experienced and novice writers. Furthermore, a glossary of frequently misused words and errors will aid students in selecting appropriate words for context, enhancing clarity and precision. ESL/EFL students can utilize this glossary to focus on specific areas for improvement, aligning their work with corresponding sections. By keeping a record of their own errors, students can resort to self-monitoring and thus start learning from mistakes (Axelrod & Cooper, 1988).

ESL/EFL students should therefore be prompted to document frequently encountered errors, identifying recurring patterns to target weaknesses and track progress over time. This practice aligns with reflective academic growth, empowering ESL/EFL students to take charge of their learning journey. By cultivating awareness of linguistic pitfalls, students undertake targeted improvement strategies, celebrating progress and refining writing skills.

4. Blended teaching

Writing in ESL/EFL ultimately involves handling multiple tasks to produce a coherent and organized composition suitable for various academic and social contexts. Yet achieving fluency in a second or foreign language still poses many challenges as the human mind often prefers imitation and memorization over original creation. In the global practice of ESL/EFL teaching, writing competence has been mainly approached from four perspectives: the grammar-translation, product-centric, process and genre methods. A detailed examination of ESL writing for Bangladeshi students determined that no single method stands out as the ideal choice as all four approaches come with their strengths and weaknesses. Instead, the study advocates a balanced combination that can transform students into creators and critical thinkers rather than mere replicators (Hasan & Akhand, 2010). Other studies indicate that the grammar-translation and product methods, which emphasize grammar and vocabulary correction while adhering to or memorizing predefined models, still hold more prevalence in ESL classrooms compared to a meaning-centered approach, which involves an active integration of product, process and genre methods (Swarnananda Gamage, 2020; Burhansyah & Masrizal, 2021). Ultimately, all writing strategies applicable to both fictional (prose, poetry) and non-fictional writing (academic, business, technical) should center around organizing coherent and succinct arguments in accordance with the task requirements while constructing appropriate vocabulary, sentences, paragraphs and formats. Hence, the acquisition of writing skills across all levels of English primarily hinges on the collaborative and complementary effects of the main approaches to writing, alongside others, on students' performance. As effective writing practice extends beyond adhering to grammatical, lexical and semantic rules, it should also regularly integrate the other macro skills: reading, speaking, listening and watching. For instance, the more regularly students read, the more they can develop a

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foundational understanding and knowledge of writing as they can naturally grasp grammar, adopt expressions and understand effective prose rhythms. Observing established authors could additionally help them develop their unique writing voice and style. Thus, encouraging students to read both freely and guided by "engaging and motivating materials" can certainly enhance their writing efficacy (Lee, 2005, p. 339; Nusrat, 2015). Moreover, consistent exposure to English, whether in natural or constructed settings, will ultimately pave the way for proficient macro skills, including writing in diverse situations and interactions. Yet regardless of the multitude of teaching novelties, no interdisciplinary approach to planning, execution and evaluation of writing experiences could entirely eliminate the established approaches based on grammar-translation, product, process and genre, still consistently employed at all learning levels, including the tertiary one.

The grammar-translation approach to ESL/EFL writing emphasizes the mastery of grammatical rules and the translation of texts between the target language and the native language. Thus, students typically focus on dissecting sentence structures, memorizing vocabulary and translating sentences or passages from one language to another. While it can be effective in building a strong foundation in grammar and vocabulary, it often falls short in developing practical communication skills, and critics argue that it may hinder students' ability to think and express themselves fluently in the target language (Fang, 2021). However, the traditional method still finds a place in many tertiary language programs, particularly when a deep understanding of grammar and written translation skills prove essential, such as in literary or specialized academic contexts.

In the product approach, students direct their attention towards adhering to and duplicating models, especially focusing on correct language, studying model texts, and engaging in various exercises that highlight relevant features of a text. Thus, while mostly prompting students to imitate, copy and transform models provided by teachers and/or textbooks, the product approach involves the following stages: Firstly, students study the sample text, focusing on aspects such as genre, the type of language employed, paragraphing style and narrative techniques. Secondly, they engage in systematic practice of the main features of the sample text. Thirdly, they organize their personal ideas in relation to the sample text. Lastly, they create a new text based on the provided sample. In short, the product approach underscores the importance of the final written outcome as the central objective of writing instruction. Within this framework, students work diligently to produce well-structured, grammatically precise compositions while striving for error-free written expression. While this approach cultivates the mastery of grammatical rules and vocabulary usage, it has faced criticism for occasionally neglecting the creative and communicative facets of writing. Nonetheless, it proves invaluable in academic and professional contexts where precision and clarity hold paramount significance, enabling tertiary-level students to refine their writing skills and craft polished, proficient documents tailored to their intended audience (Palpanadan et al., 2015). On the other hand, the process approach focuses on the journey of writing rather than just the end result. Students thus engage in a dynamic, iterative process of brainstorming, drafting, revising and editing their compositions as this approach encourages creativity, critical thinking and effective communication. While it may not prioritize grammatical perfection from the outset, the method fosters a deeper understanding of the writing process, allowing students to refine their ideas and express them with increasing clarity and precision over time. So the ultimate distinction between the two methods lies in the fact that the latter does not start with a predetermined product, but rather arrives at a product after extensive drafting and rewriting. In other words, the process approach represents a cyclical, recursive or even chaotic method rather than a linear one-off one, where students undergo stages of drafting and receiving feedback on their drafts, either from peers or the teacher, which leads to several revisions of their evolving texts (Kroll, 2001, pp. 220-221). Consequently, a process approach often centers more on diverse classroom activities that foster language use development, such as brainstorming, group discussions and rewriting. There are eight stages in the process approach model: brainstorming and discussion; planning and structuring; mind mapping; initial draft writing, typically done in class through paired or group work; peer feedback; editing; final draft writing; feedback and evaluation from the teacher. Additionally, the process-driven approach shares similarities with task-based learning since students receive considerable freedom within a task and do not feel constrained by pre-emptive teaching of lexical or grammatical items. The process approach ultimately acknowledges that the writing skill can evolve through practice and embraces the idea that the final product emerges from a series of thoughtful, deliberate steps (Kim & Kim, 2005; Steele, 2004).

Last but not least, the genre approach centers on studying and understanding various writing genres and their associated conventions and discourse features (Paltridge, 2007). Genre instruction has its roots in linguistic theory, with current genre theories stemming from three research areas: English for specific purposes (ESP), North American new rhetoric studies and Australian systematic functional linguistics (Hyon, 1996). Students will usually explore a wide range of text types, such as essays, reports and research papers, with a focus on recognizing the unique characteristics and purposes of each genre. By immersing themselves in diverse writing styles, students will acquire the ability to adapt their writing to different contexts and audiences effectively. The contexts or conventions associated with genre-based writing thus demonstrate the subjective nature of well-written academic and domain-specific works within tertiary systems worldwide. However, in order for students to attain academic literacy in ESL/EFL, they should initially receive instruction in the foundational aspects of well-structured general writing, which encompasses morphological, syntactical, lexical and stylistic elements (if they have not already been acquainted with it in secondary school). Only through this approach can students actively absorb the specific vocabularies and terminologies relevant to each academic discipline while transferring valuable planning and writing skills and techniques from their native language to the target language. Ultimately, the genre-based approach views writing as a societal and cultural practice as it involves the context in which it occurs alongside the norms of the target discourse community.

The integration of technology, especially word-processing programs and AI support, can significantly aid the drafting and revising stages. Text-based writing, also known as the controlled-to-free method, offers a spectrum of activities from structured to free writing. Controlled activities will emphasize accuracy while tasks like sentence combining can help students refine their writing style. As students of all levels are progressing, paragraph writing becomes crucial, with cohesion posing a challenge. Activities to enhance cohesion include sentence combining and reordering. Before writing a specific text type, students might therefore undergo stages like guided writing and analyzing sample texts to identify typical features. On the other hand, free writing offers students an avenue to express themselves creatively and reflectively. For intermediate to advanced students, tasks might include crafting narratives from pictures, describing personal experiences, or responding to letters of complaint. Advanced students can delve into more complex tasks like interpreting flowcharts, writing book reviews or crafting essays. When writing essays, a structured approach involves an introduction that sets the context, a body with detailed discussions, and a conclusion summarizing the main points. The text-based writing method can thus share a symbiotic relationship with any teaching strategy used at any level of English learning. In the grammar-translation approach, for instance, authentic texts serve as valuable examples for understanding and applying grammatical rules within real-world contexts. In the product approach, these texts can act as benchmarks for crafting polished compositions, instilling the importance of correctness and clarity. While using the process method, authentic texts will inspire critical analysis, providing students with models for brainstorming, drafting, and revision. Lastly, within the genre perspective, text-based writing can help students dissect and emulate specific genre conventions (Perin & Lauterbach 2018; Brown, 2004). Ultimately, text-based writing will always prove a versatile tool that enriches and complements any pedagogical approach, thereby facilitating a well-rounded and effective ESL/EFL writing education, especially at the tertiary level.

The various aids utilized in writing instruction establish a scaffold akin to the manner in which poles and boards construct a framework for workers to stand upon while laboring on the exterior of a building (Longman). This cooperative strategy, primarily founded on direct teacher guidance and student feedback, equips students with beneficial resources, samples, and models that serve as distinct elucidations and reference points for the actual writing materials. Several instances of scaffolding for specialized writing encompass (1) furnishing students with a compilation of crucial terminologies presented in appropriate contexts prior to requiring them to devise a subject-specific essay while incorporating those key terms; (2) linguistically dissecting a model with a group of students to facilitate the identification of its fundamental structure; (3) assisting students through intermittent queries to tap into their prior knowledge before embarking on paragraph or composition writing; (4) collectively reading and deliberating upon the genres and subjects of the exemplar texts to help students transition from rote memorization of rigid forms to engaging in critical thinking. For lower learning levels, instructors can furnish simplified materials and instructions to support students in crafting accurate sentences, well-organized paragraphs on diverse subjects, guided

essays involving graphs and processes, and ultimately, open-ended essays addressing cause and effect or comparison and contrast (Kuiper et al., 2017). Scaffolding thus proves particularly effective in building students' confidence and competence as it allows them to tackle increasingly complex writing tasks over time. By breaking down the writing process into manageable steps and gradually removing the scaffolds as students gain proficiency, this approach empowers learners, even at the tertiary level, to develop strong writing skills and communicate effectively in English. Within the grammar-translation approach, scaffolding specifically involves providing students with structured exercises that gradually increase in complexity in order to help them master intricate grammatical rules and vocabulary while translating texts. In the product-centric approach, scaffolding often entails step-by-step guidance through the writing process, offering support in brainstorming, drafting, revising, and editing, which leads to the creation of polished compositions. In the process approach, scaffolding emphasizes ongoing feedback and peer review, and so assists students in refining their ideas and improving their writing skills over time (Hasan & Karim, 2019). Lastly, as part of the genre method, scaffolding will mainly help students deconstruct various genres and break down their distinctive features and conventions while they practice writing within those specific frameworks.

Writing should not only serve as a mechanical exercise but also as a motivating and purposeful activity. For students to write effectively, they need to understand their audience and the intent behind their writing. The communicative approach to writing thus emphasizes fluency, motivation, self-expression, and interaction while it incorporates task-oriented activities, often using factual listening and reading materials. Popular activities under this approach range from relaying instructions and cooperative writing to more interactive tasks like dialogue journals, which involve written conversations between the teacher and student. Other activities, such as projects, portfolios, and learning logs, provide students with opportunities to collect, showcase and reflect on their work, promoting a holistic learning experience in the writing class. Incorporating real communication elements, such as publishing their work, can further boost students' motivation while integrating other classroom activities, like debates or role-playing, together with visual aids, can stimulate their ideas. Peer collaboration can also enrich the preparation of written tasks. In providing feedback, teachers should prioritize content, organization and presentation while they avoid an excessive focus on error elimination. In this way, they can adopt multiple roles during oral and written feedback, such as being an audience, evaluator, examiner or assistant, differentiating between activities that teach writing and those that use writing as a learning tool (Jabeen, 2014; Chuquimarca Once, 2020; Coffin & Hewings, 2005). In essence, the motivation and purpose in writing, coupled with constructive feedback, form the cornerstone of effective communication in the communicative approach.

As yet another teaching approach, a balanced mix of self-correction, peer review and constructive teacher feedback can enhance both the clarity and grammatical accuracy of student writing. Thus, promoting self-correction in writing helps foster learner independence. Most used techniques consist of reading aloud and analyzing texts backwards. Peer review, facilitated by specific checklists, adds a collaborative nuance to this approach while refining content. Teacher feedback, especially through one-on-one conferencing, should be constructive, guiding students with correction symbols for specific errors. In the end, rewriting can significantly reduce language mistakes.

5. Factorial diversity

Scholarly investigations have identified a multitude of factors capable of influencing students' writing proficiency across various educational tiers, tertiary level included. Li et al., for instance, sort these influential elements into three categories: developmental, cognitive and affective (2012). According to other studies, students' academic language proficiency, which also encompasses their ability to handle challenging writing tasks in both their primary language and English, hinges on variables like age, educational history, cognitive experiences and intellectual capabilities. Additionally, long-term exposure to conversational English can align students with native speaker norms while individual personality traits, personal strategies to navigate writing anxieties, current life situations, financial and technological circumstances, and fears of criticism further affect their readiness. Moreover, the mental and social dynamics of learning a second language alongside different types of intelligence, such as spatial, kinaesthetic, verbal, mathematical-logical, musical, inter- and intrapersonal, play crucial roles in shaping students' writing proficiency (Cumming, 2001; Altınmakas & Bayyurt, 2019;

Vacalares et al., 2023; Fraser & Killen, 2003; Cameron et al., 2009). Furthermore, the robustness of educational policies, evidence-based programs, and inclusive curricula, which encompass diverse writing genres and tackle language-related obstacles, assumes a crucial significance. Equally essential is the pedagogical emphasis on instructing students in the judicious utilization of online dictionaries, translators, and artificial intelligence tools without any associated stigma. Additionally, educators should foster the application of cross-language strategies rooted in students' native language structures whenever they encounter difficulties in articulating ideas in English (Friedlander, 1990, p.123).

In alignment with academic inquiries, the most prevalent impediments to ESL/EFL writing proficiency at the tertiary level can be categorized into the following thematic groups (Alfadda, 2012; Ferris & Hedgcock, 2023; Harley & Wedekind, 2004; Broom, 2004, p. 522; Wang & Bakken, 2004, p. 184; Torrance et al., 1999; Van Dyk et al., 2009; Lloyd, 2007; Lavelle, 2003; Greenbaum & Mbali, 2002; Elton, 2010; Dickson et al., 2000; Cummins, 1980; Archer, 2010; Lietz, 1996):

Challenges in writing skills development

- difficulties in distinguishing between varied writing activities and strategies;
- limited self-awareness among students to address psychological barriers;
- inadequate preparation by educators beyond basic English teaching, which affects their choice of teaching tools in challenging scenarios;
- the intricate nature of the writing process, demanding a deeper understanding of diverse written formats and consistent engagement with other macro skills for ongoing refinement;
- the need to bypass certain learning stages in order to employ advanced academic language in writing;

Instruction and evaluation

- disparities in tertiary education teaching methods;
- potential instructional gaps from English educators who themselves learned ESL/EFL;
- insufficient evaluation of students' writing capabilities;
- suboptimal leveraging of students' writing abilities in relation to other macro skills;
- diminished expectations from educators, leading to lower student standards;
- a lack of active writing experience among educators, which affects their assessment approach;
- challenges in managing diverse student personalities and performance levels, which can complicate evaluation and grading;
- a focus on passing exams rather than mastering writing skills;

Language and comprehension challenges

- limited understanding of academic tasks in English, which causes students to invest extra time in interpretation;
- discrepancies in writing standards across university disciplines, which may cause confusion among students;
- the perplexing array of writing styles for academic documents, which makes students focus more on formatting than content creation;
- weak foundational knowledge from prior education;
- varied writing capabilities within the same class;
- inefficiencies in skill transfer;

Environmental variables

- time constraints in achieving proficiency;

- limited English exposure outside of school;
- socio-political obstacles to broad education.

To overcome such obstacles, it is imperative to implement effective pedagogical strategies and educational reforms that address the multifaceted nature of ESL/EFL writing proficiency at the tertiary level. Proper teacher qualification should therefore be grounded in a deep understanding of academic writing, and students should have access to courses and workshops that cover most writing forms throughout their university education. Recognizing that innate writing skills result from continuous development and practice, rather than mere talent, also remains essential. During professional development sessions, writing instructors should collaborate to ensure smooth student transitions between writing levels. Special training sessions can bolster students' grammar and vocabulary, preparing them for specialized demands in their major programs. Additionally, cross-content collaboration among ESL/EFL educators and university psychologists could better bridge the gap between theoretical knowledge and practical application. Also, viewing ESL/EFL writing skills through the lens of students' native language and culture can lay a stronger foundation for English literacy. A combination of communicative tasks and cognitive challenges can bolster student confidence, so reinforcing students' self-belief in their writing abilities can empower them as lifelong learners (Bandura, 2012). Comprehensive evaluations at different teaching stages can assess student competencies and guide curriculum adjustments. Motivating students through fair evaluations can reinforce their writing strengths. Periodic assessments, combined with logical thinking and written learning, can enhance grammar application in compositions. Acknowledging the trial-and-error nature of building writing competence can prove highly beneficial as this learning approach is commonly applied in real-life scenarios. Encouraging active participation in advanced writing courses, rather than remedial ones, can shift the focus from students' limitations to their potential. Allowing prewriting and planning strategies can cater to individual student needs. Offering diverse writing activities, reflective of real-life situations, adhering to academic standards for both native and non-native English speakers, and paying attention to learning barriers, are also important. Implementing varied writing approaches and blending controlled, rule-based and creative content-based English usages can lead to better outcomes. Moreover, encouraging free writing without constant evaluation can emphasize content quality (Zamel, 1983; Reid, 1993; Rose, 1985; Leki et al., 2008; Kim & Kim, 2005, pp.7-8; Silva & Matsuda, 2000; Beck, 2004).

In essence, a positive learning environment can help students overcome cognitive and emotional barriers. Although the success of high-level academic coursework in ESL/EFL writing hinges on so many factors, the main key to performance reduces to the depth of teachers' knowledge and their active engagement in imparting it to students while considering their learning capacities. Additionally, educators should remain open to acquiring new specialized knowledge and collaborating with peers to identify effective writing methodologies.

6. Neuropsychology

6.1 Cognitive and affective influences

Since it demands higher precision than speech, the complexity of ESL/EFL writing arises from the need to integrate various cognitive skills, from understanding language systems to recognizing genres and achieving cohesion and coherence. Thus, due to its inherent nonlinearity, the English writing process demands a deep understanding of the internal determinants of both students' and teachers' writing abilities and performance at the tertiary level. As working memory can hold and manipulate information, ESL/EFL students with a strong ability to memorize will typically find it easier to juggle the multiple demands of writing fluency and accuracy, such as grammar, vocabulary choice and content organization. Effective writing also requires sustained attention, especially during the process of planning, drafting and revising. Hence, ESL/EFL students who can focus their attention for extended periods tend to produce better-structured and more coherent texts. Distraction, on the other hand, can interrupt the flow of thoughts and ideas, leading to fragmented writing. Additionally, metacognitive awareness, the ability to think about one's own thinking and learning, significantly affects writing performance. Students who can evaluate their writing processes, set goals and deploy strategies in response to their self-assessment often produce higher quality texts (Flower & Hayes, 1980; Anaktototy et al., 2023; Andriani et al., 2022; Mohseni et al., 2020). This self-regulation and monitoring capacity can therefore assist learners in

navigating the complexities of writing in a second or foreign language, ensuring they remain on track and adjust their approach as needed.

Affective factors have their roots in students' personal and societal history. The affective filter hypothesis highlights the roles motivation, self-confidence and anxiety play in second language acquisition, suggesting that those with suboptimal attitudes will not only limit their exposure to the language but will also maintain a strong affective filter, which acts as a mental barrier, interfering with the intricacy, precision and fluidity of students' writing (Liu, 2023). Conversely, those with favourable attitudes towards learning will actively seek more input and will maintain a permeable or weak filter. In other words, students who feel anxious about their writing abilities, often due to past experiences, might avoid the task, rush through it, or even develop writer's block (Lee, 2013; Chan & Abdullah, 2004). Barwick classified anxious writers into non-starters, non-completers and non-exhibitors, each with distinct behaviours and underlying fears (1995). With time and practice, writing anxiety can diminish, yet its intensity can still get influenced by both internal and external factors, such as students' socio-economic background, family influences, educational environment, and inherent personality. Still, some studies suggest that a mild level of anxiety might actually enhance writing performance (Negari & Rezaabadi, 2012). Conversely, those with high self-efficacy – a deep belief in their writing capabilities – might show more persistence and resilience when faced with challenges. Fostered within a supportive educational setting, the feeling of self-efficacy can therefore mitigate students' anxiety, making them approach writing with confidence, irrespective of their actual skills. Stable self-efficacy can thus usher in fluency and competence, nullifying feelings of tension or fear that can otherwise hinder the writing process. Furthermore, intrinsic and extrinsic motivation encapsulates the mental, emotional and environmental forces that can drive students to put in the necessary effort and time to hone their writing skills (Shehzadi & Krishnasamy, 2018). On the other hand, determination acts as the push that allows students to persist during challenging writing scenarios, promoting resilience even when they are tempted to abandon a difficult task. Those with high motivation and string determination can thus stay focused and goal-driven even when lured by easier tasks, maintaining a long-term vision for improving their writing skills.

6.2 Bilingualism, critical period hypothesis neuroplasticity, lateralization

Recent studies in neuroscience show differences in the structure and function of the brains of bilingual and multilingual individuals, depending on their proficiency in speaking, writing, listening, watching and reading. Thus, balanced bilinguals, who started learning English simultaneously with their native language, can develop their writing abilities more easily throughout their education, based on their inherent capacity to write in any language, without facing any language barriers. Yet all English students can reach writing proficiency in different ESL/EFL acquisition contexts despite their type of bilingualism. These include compound English students, who understand concepts in a way that merges two language codes, quite similar to balanced bilinguals; coordinate bilinguals, who can switch between two sets of concepts and language codes, using English for academic purposes and their primary language at home; and subordinate bilinguals, who learn English primarily by relating it to their native language context (Bialystok, 2017; Midrigan-Ciochina et al., 2023; Barnard & McLellan, 2013; Voinarovska & Angus, 2020).

In line with the critical period hypothesis for second language acquisition, the optimal window for achieving fluency in ESL/EFL lies in early childhood. At this age, aspects like pronunciation, grammar and spoken interaction occur subconsciously. Young learners absorb the language primarily through repetition, automation and mimicking the native speakers they interact with, so many scientists believe that learning ESL/EFL at an early age can lead to native-like proficiency (Han & Bao, 2023). However, there are researchers who emphasize the importance of proficiency in one's home language for successful second/foreign language acquisition (Madriñan, 2014; Snow, 1992; Ringbom, 1987). Neuroscientific studies indicate that the brain's left hemisphere primarily functions in logic, reason and analysis whereas the right hemisphere fosters imagination, creativity, and intuition. As brain lateralization evolves over time, children might utilize both hemispheres in second language acquisition due to neuroplasticity or the brain's ability to adapt methods and reorganize itself. In contrast, English-learning adults predominantly engage their left hemisphere, which leads to a more analytical approach to language learning (Abo Steif & Alishah, 2021). Yet no matter their bilingualism type, tertiary students undeniably stimulate their brains further when striving for writing accuracy in ESL/EFL, particularly the dorsolateral prefrontal cortex, known for its role in cognitive processes, planning, organization and abstract thinking.

6.3 Natural, directional and psychological equivalence

For students to write fluidly in English, they need to attain a level of proficiency that facilitates both natural and directional equivalence between their native and target languages (Pym, 2007). When language transfer appears flawed or unattainable, students grapple with the challenges of bilingualism and biculturalism on top of the foreign language writing rules they must assimilate. Over time, many specialists have suggested that a skilled writer thinks in English without the constant urge to translate both the newly acquired and familiar words and concepts as an outcome of cultural adaptation (Duncan, 1966; Lado, 1979; De Gennaro & Schalow, 2010; Nawal, 2018). However, college students, like all bicultural English speakers, will always use psychological equivalence, as they create written texts while subconsciously translating and mixing the two language codes (Călinescu, 2023). Thus, in a bilingual or multilingual mind, psychological equivalence emerges as an independent phenomenon, during which the written form aligns with English (the target language) while the messages primarily resonate with the mother tongue's psycho-cultural context.

6.4 System 1 and System 2

According to Kahneman, System 1 thinking encompasses fast, intuitive, and automatic thinking, often operating beneath the conscious awareness, while System 2 represents slow, deliberative, and analytical thought processes that require more cognitive effort (Kannengiesser & Gero, 2019). When exploring the ESL/EFL writing process at the tertiary level, this dichotomy offers a compelling framework to understand the cognitive dimensions of language learning and writing proficiency. Thus, in the early stages of language acquisition, most ESL/EFL learners rely heavily on System 2 thinking as the act of writing in a new language demands conscious effort, meticulous translation and analytical processing. As such, students often find themselves carefully constructing sentences, ensuring grammatical accuracy and cross-referencing vocabulary. While this deliberate processing helps learners to internalize new linguistic structures and rules, it can also slow down the writing process and occasionally lead to overthinking, which may result in stilted or unnatural prose. As learners progress and gain more proficiency, the dynamics shift so that advanced learners will start to tap into System 1 thinking more frequently, especially when writing on familiar topics or in familiar formats. This intuitive and automatic process allows for more fluent and spontaneous writing, akin to how native speakers produce text. So, when a student reaches a point where they can write a paragraph without constantly second-guessing each word choice or sentence structure, they will have achieved a more System 1-dominated proficiency. However, challenges still arise when students overly rely on one system. Overdependence on System 1, for instance, might lead to overlooking intricate grammatical nuances or adopting colloquialisms that might not fit an academic context. On the other hand, an excessive leaning on System 2 can result in verbose compositions that lack fluidity.

In the realm of ESL/EFL instruction at the tertiary level, educators can utilize the insights from Kahneman's theory to tailor their own teaching strategies. Accordingly, by recognizing when students need to engage more with System 2 (for deeper understanding and analytical practice) and when they should be encouraged to embrace System 1 (for fluency and intuitive grasp), instructors can create a harmonious learning environment. Furthermore, this balance optimizes both the depth of understanding and the ease of expression, which represent essential components for effective communication in a second language.

By understanding and harnessing the strengths of Kahneman's System 1 and System 2 of thinking, educators and students can thus navigate the complexities of language acquisition with greater clarity and confidence while both systems can provide valuable lenses through which to view the ESL/EFL writing journey.

6.5 Personality

Personality encompasses the mental, emotional, and behavioural characteristics that distinguish one individual from another, and factors like self-esteem, risk-taking, extroversion, introversion, empathy and inhibition play important roles in defining one's personality (Li et al., 2012, p. 50). As regards learning a foreign language, personality types can therefore shape students' approach, motivation and outcomes significantly, which can aid educators in crafting teaching methodologies that resonate with diverse learners and that foster a more inclusive and effective learning environment.

Jung's types of personality, as outlined in his theory of psychological types, categorize individuals into extroverts, who are generally outgoing and social; introverts, who prefer solitude and introspection; and ambiverts, who exhibit a balance between extroverted and

introverted traits, adapting to various social situations with ease (1971). In the process of tertiary-level ESL/EFL writing, introverted learners might find the brainstorming and peer-review processes in classes more challenging than their extroverted counterparts. As they prefer solitary reflection and drafting, they will thrive in environments where they can ponder their ideas deeply before putting them to paper. On the other hand, extroverted students could benefit immensely from collaborative writing exercises, discussions and group feedback sessions. Blending traits of both extraversion and introversion, ambiverts could fluidly transition between group activities and solitary tasks, actively engaging in discussions while also valuing introspective reflection (Noprianto, 2017; Kusumarasdyati, 2022). As they draw motivation from both internal and external sources, their writing balances introspective analysis with dynamic content, which makes them adaptable participants in various instructional methodologies. Recognizing this unique adaptability of ambiverts could thus enrich the ESL/EFL educational environment, ensuring tailored approaches that cater to their strengths.

The dichotomy between sensing and intuitive types, as proposed by Jung and later expanded in the Myers-Briggs Type Indicator (MBTI), can also influence ESL/EFL writing approaches (Randall et al., 2017). Sensing individuals, who tend to focus on concrete details and present realities, might excel at descriptive and narrative writing tasks. In contrast, intuitive individuals, often abstract thinkers who look at possibilities, could show strengths in argumentative or speculative essays. Thinking types, who base decisions more on objective logic, might approach the writing process systematically, paying keen attention to structure, coherence, and logical flow. On the other hand, feeling types, driven by personal values and emotions, might infuse their writing with more personal reflections, anecdotes and emotive language. As to judging individuals, who prefer structure and closure, they might adhere more strictly to outlines and writing schedules. Last but not least, the more adaptable and spontaneous perceiving types could enjoy free writing and might adapt their ideas and structures as they go along, often revising significantly in later drafts.

Another well-known classification of personality types, dating back to ancient Greece, divides individuals into four main temperaments: sanguine, choleric, phlegmatic, and melancholic (Doody & Immerwahr, 1983). Each of these temperaments, derived from the ancient belief in the balance of bodily humours, possesses distinct characteristics that might influence the ESL/EFL writing process at the tertiary level. Sanguine individuals, characterized by their enthusiastic, active and social nature, might find interactive parts of the writing process more engaging and could therefore thrive in collaborative writing projects or peer review sessions, where interaction and feedback occur instantaneously. As such, their writing might reflect their optimism and vivacity, often being engaging and filled with vivid anecdotes. However, they might sometimes struggle with focus, potentially digressing from the main topic or missing out on deeper analysis. Choleric personalities, known for their independence, decisiveness, and goal-oriented nature, might approach the writing process with clearer objectives in mind. They likely possess strong opinions and can argue their point with clarity and conviction, which makes them well-suited for persuasive or argumentative essays. Their potential challenge could lie in being overly assertive or not taking into account different perspectives due to their strong-willed nature. Phlegmatic individuals, calm and harmonious, might show a more balanced approach to writing, with a well-thought-out structure and argument, given their tendency to avoid conflict and seek middle ground. Group projects might see them playing the role of mediators, ensuring everyone's voice gets heard. They could, however, struggle with indecisiveness or passive voice in their writing due to their laid-back nature. Lastly, melancholic individuals, analytical, detail-oriented and deep thinkers, might produce intricate and profound pieces of writing, so their introspective nature can lead to rich, descriptive essays filled with insight. While they might excel in tasks requiring depth, analysis and reflection, their tendency towards perfectionism might make the drafting and revision process lengthy, as they might spend considerable time refining and reworking their pieces.

The Five Factor Model, often referred to as the Big Five, stands out as one of the most researched and validated personality frameworks in contemporary psychology (McCrae & Costa, 2008). The traits agreeableness, conscientiousness, extraversion, neuroticism and openness can thus provide a comprehensive picture of individual differences, which can help educators tailor their instruction to meet the unique needs and strengths of each personality type, fostering an environment where every student can excel. For instance, students with high agreeableness, due to their cooperative and compassionate nature, might excel in collaborative writing tasks or peer-review sessions, and they would likely give and receive

feedback in a constructive, non-confrontational manner. Their essays might therefore often reflect a deep understanding of different perspectives, emphasizing harmony and consensus. Conscientiousness, characterized by self-discipline, orderliness and a penchant for planned rather than spontaneous behaviour, can also greatly influence a student's approach to writing. Consequently, highly conscientious learners would likely follow a structured writing process, starting with a detailed outline and proceeding in a systematic manner, and they might also show a strong commitment to meeting deadlines and adhering to guidelines. Extraversion relates to one's external orientation and energy derived from external stimuli; ergo, extraverted students might find motivation in discussion-based writing tasks or derive inspiration from external sources, such as group brainstorming sessions. While they could infuse their writing with dynamic and engaging content, they might sometimes require guidance to delve deeper into introspective analysis. On the flip side, neuroticism denotes emotional instability and a higher tendency to experience negative emotions. While this trait can sometimes make the writing process more anxiety-inducing for some, it can also lead to deeply emotive and personal pieces. Students high in neuroticism might particularly benefit from structured guidance, regular feedback, and positive reinforcement to navigate potential self-doubt or apprehension. Lastly, openness encompasses an individual's willingness to embrace new experiences, ideas and values. Highly open students might therefore showcase creativity and innovation in their writing, often exploring unconventional ideas or employing a varied vocabulary. As a result, they could excel in assignments that demand critical thinking, creativity or exploration of novel topics.

Regardless of their labeling, personality traits offer a multifaceted understanding of how students might approach the ESL/EFL writing process, and by recognizing them and understanding their implications, educators can tailor their teaching strategies to cater to the diverse personalities in their classrooms, ensuring a more holistic and inclusive learning experience.

6.6 Biases and heuristics

Biases and heuristics often dictate the manner in which individuals process information, make decisions, and even learn new skills. In essence, biases refer to systematic patterns of deviation from objective standards while heuristics signify mental shortcuts that help in simplifying complex decision-making processes (Tversky & Kahneman, 1974; Gigerenzer, 1991). When examining the ESL/EFL writing process at the tertiary level, these biases and heuristics can indeed significantly influence learners' approaches, practices and perceptions.

Thus, one prominent bias in ESL/EFL writing involves the over-reliance on the structures and rules of one's native language, also known as interference or negative transfer (Luo & Gao, 2011). As a consequence, this bias can lead to grammatical errors, unusual sentence structures or misuse of vocabulary when students unconsciously apply the rules of their first language to English writing. Confirmation bias, another cognitive pitfall, might surface when ESL/EFL students receive feedback (Nair, 2022). They could therefore favour feedback that aligns with their pre-existing beliefs about their writing capabilities while disregarding constructive criticism that might challenge those beliefs. As such, this bias can impede their growth as writers since they might not fully recognize or address areas needing improvement.

In terms of heuristics, the representativeness heuristic can play a role in ESL/EFL writing. Students might thus categorize English phrases or structures based on superficial similarities to structures in their native language. For instance, if a phrase in their native language follows a particular pattern, they might assume a similarly constructed phrase in English carries the same meaning, even if it does not. The availability heuristic might also influence the writing process as ESL/EFL learners tend to use words, phrases or structures that come most easily to mind, often because of recent exposure or repetition. While this heuristic can speed up the writing process, it might limit the diversity of language used or lead to overused expressions. If given a particular piece of information or an example at the start of a writing task, learners that use the anchoring heuristic might link their subsequent responses to that initial piece of information, even if it does not best serve the task at hand (Tversky & Kahneman, 1974).

Although biases and heuristics often operate subconsciously, both educators and learners can benefit from recognizing how these tendencies can shape the ESL/EFL writing process in order for them to develop more nuanced teaching and learning strategies.

6.7 Ego states

The concept of interconnectedness posits that all things share ties and relationships, often transcending apparent boundaries. When applied to the ESL/EFL writing process at the tertiary level, interconnectedness becomes especially relevant when examining the intricate dynamics between students, their peers, instructors and the content. As such, transactional analysis provides a profound tool to probe these dynamics further, particularly in understanding the motivations, interactions and behaviors of students as they engage in the writing process. According to Berne, individuals operate from one of three ego states: the Child, the Adult or the Parent, yet these states do not correspond literally to ages but represent different ways of interacting with the world and processing information (Eskedal, 1971; Heathcote, 2010).

When students write or engage in the writing process, their ego state plays a pivotal role. For instance, students operating predominantly from the Child ego state might exhibit spontaneity in their writing as they explore ideas freely and without inhibition. This state might therefore foster creativity, but it might also lead to a lack of structure or coherence in the final piece. Conversely, students in the Adult ego state approach writing with logic and objectivity as they tend to value research, evidence-based arguments, and clear structure; ergo, their interactions with peers and instructors during the writing process typically revolve around seeking feedback, clarifications and refining their work methodically. Lastly, students in the Parent ego state might exhibit behaviours rooted in their early teachings and influences, and for this reason their writing might reflect deeply ingrained beliefs, values or even biases. Furthermore, when engaging in peer reviews or discussions, they might either be overly critical or overly nurturing, echoing authoritative or protective parental figures. Overall, the interconnectedness among students, influenced by their dominant ego states, can result in a complex web of interactions during the writing process. For example, feedback sessions between a student operating from the Child state and another from the Parent state can lead to either conflict or growth, depending on the direction of their interactions. Recognizing these ego states can thus enable educators to facilitate more effective communication, mentorship and collaboration in the classroom.

7. Future research

Despite the comprehensive nature of this study, several intriguing avenues beckon scholars to venture further into the neuropsychological intricacies of ESL/EFL writing at the tertiary level.

Firstly, a deeper dive into the specific neural pathways activated during different stages of the ESL/EFL writing process could prove invaluable. With the advent of advanced neuroimaging techniques, researchers have an unprecedented opportunity to map the bilingual brain's activity in real-time. This could shed light on how different cognitive processes, biases and heuristics interplay during the writing process. Secondly, an examination of the long-term effects of ESL/EFL writing instruction tailored to the neuropsychological characteristics of learners could yield insights into its efficacy. Such studies could measure not only language proficiency outcomes but also cognitive and psychological well-being, providing a more holistic view of the benefits of such an approach. Additionally, given the rapid advancements in cognitive psychology, researchers could investigate how emerging theories and findings might apply to ESL/EFL writing. For instance, further exploring the role of cognitive load, memory retrieval and attention mechanisms could offer fresh perspectives on optimizing instruction for diverse learners (Sisakhti et al., 2021). As the understanding of personality theories and transactional analysis deepens, future research could also delve into more nuanced categorizations of learners. This would allow for more personalized pedagogical strategies, catering to the unique blend of ego states, biases and temperaments present in each individual. As regards the domain of psychological equivalence, studies could further explore the practical applications of Pym's theories in ESL/EFL writing curricula. Comparing the outcomes of instruction that emphasizes natural versus directional equivalence could thus help refine best pedagogical practices.

Furthermore, future research in ESL/EFL writing performance at the tertiary level will inevitably continue to explore the integration of artificial intelligence (AI) for enhanced language learning (Ayala-Pazmiño & Alvarado-Lucas, 2023; Huang et al., 2023; Zou et al., 2023). Researchers will thus investigate in depth personalized and adaptive learning experiences using AI, tailoring instruction based on individual student needs and diverse proficiency levels. The application of natural language processing (NLP) technologies in AI systems, such as automated essay scoring and virtual tutors, offers the potential for real-time

feedback and dynamic interaction in language classrooms. Furthermore, ethical considerations related to data privacy, algorithmic bias and the digital divide must be addressed to ensure equitable benefits from AI in language education. Understanding the interplay between AI and neuropsychological factors influencing ESL/EFL writing performance will therefore be crucial for developing innovative and effective language learning approaches. Last but not least, the future research agenda should also focus on the synergy between AI and traditional instructional methods, exploring how established approaches like cooperative learning, teacher-peer feedback and genre-based instruction can be optimized through AI integration. By addressing these aspects, researchers can contribute to the development of a comprehensive framework for AI-assisted ESL/EFL writing instruction that considers both technological advancements and established pedagogical practices.

Embracing these future research directions will thus promise not only to deepen the understanding but also to enhance the ways humans teach, learn and communicate in an increasingly interconnected world.

8. Comprehensive conclusion

English stands as the main conduit for all forms of information while it fosters human interrelations across fields like business, science, education, culture and leisure. As such, the mastery of English not only opens doors to better career opportunities but also extends the potential for more jobs beyond national boundaries. Despite its prevalence, however, mastering English remains a time-intensive endeavour influenced by a multitude of internal and external factors, uniquely tailored for each learner, regardless of age or background. Achieving fluency therefore necessitates consistent daily practice of both active skills (speaking, writing) and passive skills (listening, watching, reading) over an extended period, usually spanning years.

Global statistics reveal that a significant portion of tertiary-level English learners attend institutions where their chosen subjects are primarily taught in English (OECD, 2023). Thus, as universities increasingly adopt English as the medium of academic research and publication as well as instruction, the need for strong English writing skills remains paramount. Yet, unlike native speakers, who engage in education within their native language, non-native English speakers must comprehend specialized vocabulary in a foreign language while pursuing their academic goals. Coursework writing, which primarily encompasses academic essays, assignments, theses, examination papers and portfolios, therefore underpins university education across disciplines. Often drawing students from diverse academic backgrounds such as Humanities, Languages, Social Sciences, Sciences, Engineering, Business and Economics, writing courses are integrated into various curricula to ensure comprehensive academic development. For both native and non-native speakers, mastering written English thus hinges on the apt and natural application of grammar rules, sentence construction and vocabulary, allowing for the seamless expression of thoughts in ESL/EFL terms. University syllabuses aiming for written communication competence should therefore advocate the use of appropriate educational technology, extended classroom sessions and an immersive teaching and learning atmosphere that extends beyond merely reading and comprehending written content. These goals should therefore anchor writing courses that emphasize paragraph structure, various essay formats, CV crafting, job application letters and research paper composition, as the main purpose of ESL/EFL writing lies in aiding non-native English speakers to communicate their ideas effectively in written form. Through good ESL/EFL writing instruction, learners will ultimately gain the ability to convey thoughts, share information and interact in diverse contexts, which not only enhances academic and professional opportunities but also fosters deeper cultural understanding and global connectedness. Since an effective approach to ESL/EFL education necessitates integrating writing skills into various facets of life, the multidimensional aspect of ESL/EFL writing demands collaborative efforts from diverse approaches, methods, strategies and activities, tailored to students' chosen fields of study. As a result, this integration requires teachers to shift from traditional methods towards more comprehensive instructional and empirical blends that can foster more effective contextualized communication.

Regardless of the teaching advances, however, the main pedagogical approaches should not be entirely disregarded, neither at the previous learning stages, nor at the tertiary level. The grammar-translation approach, for example, places a heavy emphasis on grammatical accuracy and translation between languages. As it often involves dissecting sentences,

memorizing vocabulary and translating texts, this traditional perspective may limit students' practical communication abilities while building a strong foundation in the writing skill. The product-centric approach, rooted in traditional text-based methods, emphasizes imitating model texts and prioritizes accuracy over fluency. This method often progresses from sentence variations to free compositions, sometimes sidelining creativity and originality. In contrast, the process approach shifts the focus from the end result to the student writers as well as the journey itself as it acknowledges that writing goes beyond grammar to convey meaningful content. This perspective emphasizes stages such as planning, drafting, revising and editing, and underscores both the importance of feedback from teachers and peers, and the need for students to visualize an audience. For teaching business report writing, the product approach often feels more suitable because of the fixed layout, style and organization. Yet for narrative or argumentative essays, educators tend to prefer the process approach. As regards the genre strategy, it promotes both linguistic and rhetorical competence, enabling students to engage in sophisticated written discourse and develop a nuanced understanding of the expectations and norms governing various written genres. As a crucial educational tool used across all teaching approaches, traditional, integrative and beyond, the scaffolding technique involves providing structured assistance to students as they navigate the complexities of ESL/EFL writing. This support can take various forms, such as outlining essay structures, offering vocabulary aids or providing feedback during the drafting process. Irrespective of the pedagogical approach, scaffolding can ultimately foster incremental progress and enhance the development of proficient writing skills in tertiary-level ESL/EFL learners.

As a complex skill typically acquired in structured educational settings, writing ultimately flourishes with systematic techniques. As students navigate the instructional journey, they usually start with basic copying to understand script and sentence structures. They then transition into controlled writing, emphasizing specific language components, and move onto guided writing, which offers a mix of creative freedom and structure. The progression continues to cued writing, blending autonomy with provided cues, and culminates in free writing, which emphasizes uninhibited expression and individual voice. This systematic progression in writing instruction ensures that learners establish foundational skills before embracing open-ended creativity, enabling them to produce clear and precise texts. In the brainstorming phase of academic writing, students usually use tools like mind maps and group discussions to clarify topics and generate preliminary ideas. This foundation then evolves into crafting coherent sentences and paragraphs. The initial draft subsequently undergoes refinement through activities such as peer reviews, proofreading and clarity revisions, with the goal of producing a polished piece.

A foundational course for becoming a successful academic writer should guide students through personal writing activities such as autobiographies, detailed profiles and explanations of complex concepts. It should also cover critical evaluations of opposing arguments, persuasive writing, problem-solving, critiques, cause-and-effect analysis and literary dissections. The strategies that enhance creativity and reading comprehension should offer techniques to foster inventive thinking and improve reading analysis. The writing strategies should emphasize storytelling, defining and comparing subjects, and honing argumentative skills while a comprehensive guide to research should cover the entire research process, from planning to using and citing sources, and introducing most used citation styles in order to help students reference sources appropriately. The course should also prepare students for varied writing scenarios beyond college and university, exploring multimodal texts, essay examination strategies, business writing, community engagement and collaborative writing. Understanding rhetorical knowledge also falls in line with the significance of purpose in writing. Every assignment should therefore explore the specific intent behind each genre, offering guidance on addressing a variety of rhetorical situations, from personal recollections to literary analyses. Adherence to format and structural conventions should remain a consistent theme throughout, highlighting the elements of well-structured writing, source integration and plagiarism avoidance, annotated bibliographies and literature reviews. Voice, tone and formality should also receive attention, encouraging contextualization within students' reality. Discussions on the purpose and audience should naturally touch upon these elements, offering detailed advice on genre-specific writing and constructive peer feedback while highlighting the dynamic link between critical thinking, reading and writing. Text formats like research papers, memos, business letters, emails, résumés, job application letters, lab reports and visual representations such as tables, diagrams and charts should be exemplified throughout. Fundamental genre features, spanning structure, paragraphing, tone,

mechanics, editing and proofreading should also be consistently emphasized.

One example of such a successful writing guide first delves into nine varied writing genres that reflect real-world tasks that students might encounter both in and out of college. These genres range from personal reflections to research-driven pieces and writings on controversial subjects. Each chapter consistently presents illustrated scenarios, genre introductions, collaborative exercises, insights into core attributes, readings with analytical questions, unconventional genre examples, tailored writing guides, proofreading tips, document design insights, deep dives into student writing processes and activities to enhance critical thinking. Next, the guide focuses on critical thinking strategies, with one chapter on inventive techniques and another on reading strategies like annotation and argument evaluation. The guide then explores a variety of writing strategies, from crafting paragraphs to applying logic and presenting information, also introducing a chapter on visual analysis and another on document design. The part that emphasizes research covers both fieldwork and online research methods, providing updated guidelines for documenting sources, including the recent MLA and APA styles. This section also introduces guidance on creating annotated bibliographies and literature reviews. Another part addresses writing for assessment, guiding students on tackling essay exams, analyzing questions, formulating responses, and curating portfolios to showcase their writing. The final section offers insights into oral presentations, group learning, and community service writing, thereby providing valuable tips for enhancing collaborative writing projects and writings centered on community engagement. The handbook acts as a thorough reference tool, covering grammar, vocabulary, punctuation, mechanics, sentence formulation, and more (Axelrod & Cooper, 2010).

All things considered, understanding the principles of quality writing does not guarantee the capability to write effectively on specific topics. The multifaceted structure of students' uniqueness encompasses a mix of internal and external elements that can either promote or hinder writing literacy in tertiary education. This study mainly aimed to give an overview of previous literature related to the writing phenomenon, exploring its importance, methods and factors influencing university and college students' writing proficiency in ESL/EFL. While the ultimate goal of both academic studies and writing courses should involve mastering advanced writing skills, merely introducing students to academic terms does not suffice when students face new vocabulary and concepts in every course. Analyzing the conditions under which writing gets taught and learned, along with perceptions of key participants, can help elevate writing standards in tertiary education. From an interdisciplinary perspective, the study examined writing acquisition and learning, focusing on learners' bilingual or multilingual uniqueness. Many studies indicate that students from English-medium universities face similar challenges to those enrolled in English writing courses or studying selective subjects in English as the framework for academic and specialized writing represents an amalgamation of general knowledge and contextual practice, considering differences and correlations between student and teacher home languages and ESL/EFL.

Among all the internal and external factors that profoundly impact the writing abilities of tertiary-level ESL/EFL learners, the neuro-anatomical and psychological perspectives show that bilingual and multilingual brains handle unique cognitive processes. Differences in English proficiency levels among ESL/EFL learners indicate varying neural and cognitive responses during language tasks. In specialized areas like English for specific purposes (ESP), these neuropsychological influences become more nuanced, requiring students to navigate specific vocabularies and structures. Furthermore, individual neurological attributes, influenced by concepts like brain plasticity, lateralization, the critical period hypothesis, and activity in the dorsolateral prefrontal cortex, dictate the ease of language acquisition and writing.

Personality, a complex interplay of individual characteristics and behaviours, has its roots in early psychological studies, hence the concepts of personality types. Over time, various psychologists and researchers have expanded on these ideas, proposing different models to categorize and understand human behaviour. Old theories classify individuals as sanguine, choleric, phlegmatic and melancholic. Jung posited that individuals fell into categories like extroverts, introverts and ambiverts, based on their sociability and interactions with peers. Other experts point to five major personality traits: agreeableness, conscientiousness, extraversion, neuroticism and openness. Regardless of the terminology, these personality facets can either assist or hinder the growth of ESL/EFL writing abilities at the tertiary level.

Biases and heuristics also influence how individuals process information and make decisions. In the context of tertiary-level ESL/EFL writing, these cognitive shortcuts can deeply affect learners' writing approaches. Interference from one's native language stands out

as a key bias, causing students to apply their first language's rules to English, most often unknowingly. Confirmation bias can also hinder growth, with learners favouring feedback that matches their self-perceptions and overlooking valuable critique. On the heuristic side, the representativeness heuristic may lead students to misinterpret English phrases based on similarities to their native tongue. The availability heuristic might make learners over-rely on recently learnt or frequently used terms, limiting their expressive range. And with the anchoring heuristic, initial information or examples can disproportionately shape a student's entire writing approach. Being aware of these biases and heuristics can enable educators to create more tailored teaching strategies for ESL/EFL students. Enhancing academic vocabulary requires a mix of general education and specialized literacy methodologies. The study's insights into Kahneman's System 1 and System 2 thinking, the multifaceted personality theories, and Berne's transactional analysis have not just enriched the comprehension of the ESL/EFL writer's mind but have also provided a foundation for a more holistic, learner-centric pedagogical approach. By embracing the full spectrum of neuropsychological factors, educators can thus design strategies that resonate more deeply with the diverse cognitive landscapes of their students. This means venturing beyond conventional teaching paradigms to create instructional environments that not only foster language proficiency but also nurture the unique cognitive and psychological attributes of each learner. Furthermore, the article's exploration into psychological equivalence, drawing from Pym's translation theories, further underscores the importance of achieving a balance in the writing process. By striving for both natural and directional equivalence, educators and students can thus bridge the oft-challenging divide between source and target languages, ensuring that the essence of communication remains intact.

Upon reflecting on the profound journey through neuropsychological influences on ESL/EFL writing, one cannot help marvelling at the intricate tapestry woven by the bilingual brain's neuro-anatomical and psychological structures. The exploration in this study aims to have illuminated the deeply intertwined connections between cognitive processes, language proficiency and the art of effective communication. Rather than viewing ESL/EFL writing as a mere skill to acquire, the study has presented it as a confluence of neural pathways, biases, heuristics and individual personalities, each interacting and influencing the other. In essence, this comprehensive examination has underscored the immense potential that lies at the intersection of neuropsychology and ESL/EFL writing pedagogy. While academic institutions move forwards in the research of language education, it becomes imperative to integrate these insights while shaping pedagogical practices that not only equip students with the tools for effective writing but also foster a deeper, more empathetic understanding of the world. In doing so, educators not only cultivate proficient writers but also empower a new generation of global communicators, who can navigate the intricate web of human interconnectedness with clarity, empathy and insight.

In the end, students should learn to harness their linguistic strengths in written communication and benefit from consistent peer review. A culture of ongoing academic dialogue, collaboration and support can foster a positive attitude towards students' critical and creative skills, even when their writing does not prove flawless. By understanding neuropsychological interactions related to proficient writing, educators can provide more effective teaching methodologies for English-learning students.

References

Abdulaal, M. A. A. (2021). Krashen's Monitor Model revisited with some linguistic evidence for the homogeneity hypothesis. *TESOL International Journal, 16*(2), 177-197.

Abo Steif, M., & Alishah, R. A. (2021). The brain lateralization and learning styles. Indian Journal of Scientific Research, 5, 543-549.

Ahmed, S. (2015). Attitudes towards English Language Learning among EFL Learners at UMSKAL. *Journal of Education and Practice, 6*(18), 6-16.

Ahmed, P. H. (2019). Major writing challenges experienced by EFL learners in Soran University. *Journal of University of Human Development, 5*(3), 120-126. https://doi.org/10.21928/juhd.v5n3y2019.pp120-126

Alek, A., Van Nguyen, T., & Dollah, S. (2023). Assessing the Nexus of EFL learners' academic self-concept and their formal English vocabulary knowledge. *International Journal of Language Education, 7*(2), 271-290. https://doi.org/10.26858/ijole.v7i2.36048

Alfadda, H. A. (2012). Difficulties in academic writing: From the perspective of King Saud University postgraduate students. *English Language Teaching, 5*(3), 123-130. https://doi.org/10.5539/elt.v5n3p123

Al-Khresheh, M. H. (2015). A review study of interlanguage theory. *International Journal of Applied Linguistics & English Literature, 4*(3), 123-131. http://dx.doi.org/10.7575/aiac.ijalel.v.4n.3p.123

Al-Mutairi, M. A. (2020). Kachru's three concentric circles model of English language: An overview of criticism & the place of Kuwait in it. *English Language Teaching, 13*(1), 85-88. https://doi.org/10.5539/elt.v13n1p85

Al-Shboul, Y., & Huwari, I. (2015). The causes of writing apprehension through students' perspective. *Journal of Language Teaching and Research, 6*(3), 535-544. https://doi.org/10.17507/jltr.0603.08

Altınmakas, D., & Bayyurt, Y. (2019). An exploratory study on factors influencing undergraduate students' academic writing practices in Turkey. *Journal of English for Academic Purposes, 37*, 88-103. https://doi.org/10.1016/j.jeap.2018.11.006

Anaktototy, K., et al. (2023). Beyond linguistics: Exploring the cognitive and motivational barriers to essay writing for tertiary students. *International Journal of Language Education, 7*(3), 447-468. https://doi.org/10.26858/ijole.v7i3.37070

Andriani, L., et al. (2022). The role of writing process components and cognitive components in improving the quality of narrative. *International Journal of Learning, Teaching and Educational Research, 21*(12), 88-106. https://doi.org/10.26803/ijlter.21.12.5

Angell, J. (1995). Review of How Languages Are Learned, by P. Lightbown & N. Spada. *The Modern Language Journal, 79*(2), 268–269. https://doi.org/10.2307/329630

Aprianto, D., & Zaini, N. (2019). The principles of language learning and teaching in communication skill developments. *VELES: Voices of English Language Education Society, 3*(1), 45-61. http://dx.doi.org/10.29408/veles.v3i1.1281.g746

Archer, A. (2010). Challenges and potentials for writing centers in South African tertiary institutions. *South African Journal of Higher Education, 24*(4), 495-510.

Asher, J. J. (1969). The total physical response approach to second language learning. *The Modern Language Journal, 53*(1), 3–17. https://doi.org/10.2307/322091

Axelrod, R. B., & Cooper, C. R. (1988). *The St. Martin's Guide to Writing.* New York: St. Martin's Press.

Axelrod, R. B., & Cooper, C. R. (2010). *The St. Martin's Guide to Writing.* New York: Bedford/St. Martin's.

Ayala-Pazmiño, M., & Alvarado-Lucas, K. (2023). Integrating artificial intelligence into English Language education in Ecuador: a pathway to improved learning outcomes. *593 Digital Publisher CEIT, 8*(3-1), 679-687. https://doi.org/10.33386/593dp.2023.3-1.1862

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*, 9-44. https://doi.org/10.1177/0149206311410606

Barnard, R., & McLellan, J. (Eds.). (2013). *Codeswitching in University English-medium classes.* Bristol: Multilingual Matters.

Barwick, N. (1995). Pandora's box: An investigation of essay anxiety in adolescents. *Psychodynamic Counselling, 1*(4), 560-575. https://doi.org/10.1080/13533339508404154

Beck, H. (2004). Teaching creative writing online. *New Writing, 1*(1), 23-36. https://doi.org/10.1080/14790720408668189

Bialystok, E. (2017). The bilingual adaptation: How minds accommodate experience. *Psychological Bulletin, 143*(3), 233-262. https://doi.org/10.1037/bul0000099

Broom, Y. (2004). Reading English in multilingual South African primary schools. *Bilingual Education and Bilingualism, 7*(6), 506-528.

Boonchum, P. (2009). A study of self-identity changes and correlation of influential factors of Thai students studying English. *Educational Research and Review, 4*(11), 535-548.

Brown, C. L. (2004). Content-based ESL curriculum and academic language proficiency. *The Internet TESL Journal, 10*(2). http://iteslj.org/Techniques/Brown-CBEC.html

Bryce, T. G. K., & Blown, E. J. (2023). Ausubel's meaningful learning re-visited. *Current Psychology.* https://doi.org/10.1007/s12144-023-04440-4

Budjalemba, A. S., & Listyani, L. (2020). Factors contributing to students' difficulties in academic writing class: Students' perceptions. *UC Journal: ELT, Linguistics and Literature Journal, 1*(2), 135-149.

Burhansyah, B., & Masrizal, M. (2021). A review of the effectiveness of product-based approach in the teaching of writing. *Proceedings of the 11th Annual International Conference (AIC) on Social Sciences, Universitas Syiah Kuala,* September 29-30, 2021, Banda Aceh, Indonesia, 440-443.

Butler, H. G., & Van Dyk, T. (2004). An academic English language intervention for first year engineering students. *Southern African Journal of Linguistics and Applied Language Studies, 22*(1&2), 1-8.

Cameron, J., Nairn, K., & Higgins, J. (2009). Demystifying academic writing: Reflections on emotions, know-how, and academic identity. *Journal of Geography in Higher Education, 33*(2), 269-284.

Călinescu, A. (2023). The role of translation and psychological equivalence in virtual mobility and migration. *International Journal of Scientific Research in Multidisciplinary Studies, 9*(6), 49-59. https://doi.org/10.26438/ijsrms/v9i6.4959

Chan, S. H., & Abdullah, A. N. (2004). Exploring affect in ESL writing behavior. *The English Teacher, 33*, 1-12.

Chuquimarca Once, D. A. (2020). Communicative language teaching to develop the writing skill in EFL. *Conciencia Digital, 3*(3.1), 275-288. https://doi.org/10.33262/concienciadigital.v3i3.1.1388

Chuy, M., Scardamalia, M., & Bereiter, C. (2012). Development of ideational writing through knowledge building: Theoretical and empirical bases. In Grigorenko, E. L., Mambrino, E., & Preiss, D. D. (Eds.), *Writing: A Mosaic of New Perspectives* (1st ed., pp. 170-186). Psychology Press. https://doi.org/10.4324/9780203808481

Coffin, C., & Hewings, A. (2005). IELTS as preparation for tertiary writing: Distinctive interpersonal and textual strategies. In L. J. Ravelli, & R. A. Ellis (Eds.), *Analysing academic writing* (pp. 153-171). London: Continuum.

Cooper, M. M. (1986). The ecology of writing. *College English, 48*(4), 364-375. https://doi.org/10.2307/377264

Cumming, A. (2001). Learning to write in a second language: Two decades of research. *International Journal of English Studies, 1*(2), 1-23.

Cummins, J. (1980). The cross-lingual dimensions of language proficiency: Implications for bilingual education and the optimal age issue. *TESOL Quarterly, 14*(2), 175-187.

De Gennaro, I., & Schalow, F. (2010). Translation, tradition, and the other onset of thinking. *Heidegger Studies, 26*, 97-124. http://www.jstor.org/stable/45013571

De Matos, F. G. (1978). New orientations in the teaching of English. Peter Strevens. London: Oxford University Press. *Studies in Second Language Acquisition, 4*(2), 232-234. https://doi.org/10.1017/S0272263100004514

Dickson, J., Fleet, A., & Watt, H. M. (2000). Success or failure in a core university unit: What makes the difference? *Higher Education Research and Development, 19*(1), 59-73.

Doody, J. A., & Immerwahr, J. (1983). The persistence of the four temperaments. *Soundings: An Interdisciplinary Journal, 66*(3), 348-359. http://www.jstor.org/stable/41178265

Duan, S. (2017). Bloomfield's concept of meaning. *Journal of Language Teaching and Research, 8*(2), 343-348. http://dx.doi.org/10.17507/jltr.0802.17

Duncan, H. D. (1966). A sociology of language. *Social Forces, 45*(2), 287-288. https://doi.org/10.2307/2574405

Dyvik, E. H. (2023, June 16). The most spoken languages worldwide 2023. Statista. https://www.statista.com/statistics/266808/ the-most-spoken-languages-worldwide/#:~:text=In%202023%2C%20there%20were%20around,at%20the%20time%20of%20survey

Eelen, P. (2018). Classical conditioning: Classical yet modern. *Psychologica Belgica, 58*(1), 196-211. https://doi.org/10.5334/pb.451

Elton, L. (2010). Academic writing and tacit knowledge. *Teaching in Higher Education, 15*(2), 151-160.

Eskedal, G. A. (1971). Transactional analysis. *The Journal of Education, 153*(4), 37-43. http://www.jstor.org/stable/42773005

Fang, X. (2021). Translation as creative writing practice. *New Writing, 18*(2), 162-176. https://doi.org/10.1080/14790726.2020.1762665

Ferris, D. R. (2010). Second language writing research and written corrective feedback in SLA: Intersections and practical applications. *Studies in Second Language Acquisition, 32*(2), 181-201. https://doi.org/10.1017/S0272263109990490

Ferris, D. R., & Hedgcock, J. S. (2023). *Teaching L2 composition: Purpose, process, and practice.* Routledge: Taylor & Francis Group.

Fleming, N. D. & Mills, C. (1992). Helping students understand how they learn. *The Teaching Professor, 7*(4), Madison, Wisconsin: Magma Publications.

Flower, L., & Hayes, J. R. (1980). The dynamics of composing: Making plans and juggling constraints. In *Cognitive processes in writing* (pp. 31-50). Lawrence Erlbaum Associates.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication, 32*(4), 365-387. https://doi.org/10.2307/356600

Fraser, W. J., & Killen, R. (2003). Factors influencing academic success or failure of first-year and senior university students: Do education students and lecturers perceive things differently? *South African Journal of Education, 23*(4), 254-260.

Friedlander, A. (2012). Composing in English: effects of a first language on writing in English as a second language. *Second Language Writing,* 109-125. https://doi.org/10.1017/CBO9781139524551.012

Fries, C. C. (1957). Structural linguistics and language teaching. *The Classical Journal, 52*(6), 265-268. http://www.jstor.org/stable/3294807

Galloway, N., Numajiri, T., & Rees, N. (2020). The 'internationalisation', or 'Englishisation', of higher education in East Asia. *Higher Education, 80*, 395-414. https://doi.org/10.1007/s10734-019-00486-1

Gigerenzer, G. (1991). How to make cognitive illusions disappear: Beyond "heuristics and biases." In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology*, 2, 83-115. Chichester: Wiley.

Girard, R. (2015). The professional writer's many personae: Creative nonfiction, popular writing, speechwriting, and personal narrative. Senior Honors Projects, 2010-current, 109. https://commons.lib.jmu.edu/honors201019/109

Greenbaum, L., & Mbali, C. (2002). An analysis of language problems identified in writing by low-achieving first-year students, with some suggestions for remediation. *South African Linguistics and Applied Language Studies, 20*, 233-244.

Halliday, M. A. K. (1993). Towards a language-based theory of learning. *Linguistics and Education, 5*, 93-116.

Han, Z., & Bao, G. (2023). Critical period in second language acquisition: The age-attainment geometry. *Frontiers in Physics, 11*, 1-11. https://doi.org/10.3389/fphy.2023.1142584

Harley, K., & Wedekind, V. (2004). Political change, curriculum change and social formation, 1990 to 2002. In L. Chisholm (Ed.), *Changing Class: Education and Social Change in Post-Apartheid South Africa*, 195-220, HSRC Press.

Hasan, K., & Akhand, M. (2010). Approaches to writing in EFL/ESL context: Balancing product and process in writing class at tertiary level. *Journal of NELTA, 15*(1-2), 77-87.

Hasan, M., & Karim, M. R. (2019). Scaffolding effects on writing acquisition skills in EFL context. *Arab World English Journal, 10*(4), 288-298. https://dx.doi.org/10.24093/awej/vol10no4.21

Heathcote, A. (2010). Eric Berne's development of ego state theory: Where did it all begin and who influenced him? *Transactional Analysis Journal, 40*(3-4), 254-260. https://doi.org/10.1177/036215371004000310

Hollis, H. (2023). Readers' experiences of fiction and nonfiction influencing critical thinking. *Journal of Librarianship and Information Science, 55*(1), 18-32. https://doi.org/10.1177/09610006211053040

Hoque, E. (2021). The Universal Grammar theory: Noam Chomsky's contribution to second language (SL) education. *The Journal of EFL Education and Research, 6*(2), 57-62.

Huang, X., Zou, D., Cheng, G., Chen, X., & Xie, H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educational Technology & Society, 26*(1), 112-131. https://www.jstor.org/stable/48707971

Hyland, K. (2008). Persuasion, interaction and the construction of knowledge: Representing self and others in research writing. *International Journal of English Studies, 8*(2), 1-23.

Hyon, S. (1996). Genre in three traditions: Implications for ESL. TESOL Quarterly, 30(4), 693-722. https://doi.org/10.2307/3587930

Jabali, O. (2018). Students' attitudes towards EFL university writing: A case study at An-Najah National University, Palestine. *Heliyon, 4(*11). https://doi.org/10.1016/j.heliyon.2018.e00896.

Jabeen, S. S. (2014). Implementation of communicative approach. *English Language Teaching, 7*(8), 68-74. http://dx.doi.org/10.5539/elt.v7n8p68

Jung, C.G. (1971). 'General Description of the Types', in Psychological Types, Collected Works, 6, Ch. X, London: Routledge and Kegan Paul.

Jusun, K. D., & Yunus, M. (2017). The effectiveness of using sentence makers in improving writing performance among pupils in Lubok Antu rural schools. In *International Conference on Education (ICE2) 2018: Education and Innovation in Science in the Digital Era*, 469-475.

Kachru, B. (1985). Standards, codification and sociolinguistic realism: English language in the outer circle. In R. Quirk and H. Widowson (Eds.), *English in the world: Teaching and learning the language and literatures* (pp. 11-36). Cambridge: Cambridge University Press.

Kannengiesser, U., & Gero, J. (2019). Design thinking, fast and slow: A framework for Kahneman's dual-system theory in design. *Design Science, 5*, e10. https://doi.org/10.1017/dsj.2019.9

Kazazoğlu, S. (2020). The impact of L1 interference on foreign language writing: A contrastive analysis. *Journal of Language and Linguistic Studies, 16*(3), 1177-1188. https://doi.org/10.17263/jlls.803621

Kim, Y., & Kim, J. (2005). Teaching Korean University writing class: Balancing the process and genre approach. *Asian EFL Journal, 7*(2), 1-15.

Krashen, S. D. (1982). *Principles and Practice in Second Language Acquisition.* Oxford: Pergamon Press.

Kroll, B. (2001). Considerations for teaching an ESL/EFL writing and going just beyond. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (pp. 219-232). Boston: Heinle, Cengage Learning.

Kuiper, C., Smit, J., De Wachter, L., & Elen, J. (2017). Scaffolding tertiary students' writing in a genre-based writing intervention. *Journal of Writing Research, 9*(1), 27-59. https://doi.org/10.17239/jowr2017.09.01.02

Kusumarasdyati, K. (2022). The effect of extroversion/introversion on English proficiency. In *Innovation on Education and Social Sciences*. Taylor & Francis Group. https://doi.org/10.1201/9781003265061-537

Lado, R. (1979). Language and thought: Effect of translation vs interpretation. *TESOL Quarterly, 13*(4), 565-571. https://doi.org/10.2307/3586450

Lamendella, J. T. (1979). The neurofunctional basis of pattern practice. *TESOL Quarterly, 13*(1), 5-19. https://doi.org/10.2307/3585971

Lavelle, E. (2003). The quality of university writing: A preliminary analysis of undergraduate portfolios. *Quality in Higher Education, 9*(1), 87-93.

Lee, L. F. (2013). Writing transition in postsecondary education: A case study. *Procedia – Social and Behavioral Sciences, 90*, 267-277. https://doi.org/10.1016/j.sbspro.2013.07.091

Lee, S. Y. (2005). Facilitating and inhibiting factors in English as a foreign language writing performance: A model testing with structural equation modeling. *Language learning, 55*(2), 335-374.

Leki, I., Cumming, A., & Silva, T. (2008). *A synthesis of research on second language writing in English.* Routledge.

Lietz, P. (1996). Learning and writing difficulties at the tertiary level: Their impact on first year results. *Studies in Educational Evaluation, 22*(1), 41-57. https://doi.org/10.1016/0191-491X(96)00003-X

Lightbown, P. M., & Spada, N. (2013). *How Languages Are Learned* (4th ed.). Oxford: Oxford University Press.

Lightbown, P. M., & Spada, N. (2019). Chapter 7: Second language acquisition. In *An Introduction to Applied Linguistics* (pp. 112-129). Routledge.

Lightbown, P. M., & Spada, N. (2020). Teaching and learning L2 in the classroom: It's about time. *Language Teaching, 53*(4), 422-432. https://doi.org/10.1017/S0261444819000454

Lin, T., & Lei, J. (2021). English-medium instruction and content learning in higher education: effects of medium of instruction, English proficiency, and academic ability. *SAGE Open, 11*(4). https://doi.org/10.1177/21582440211061533

Liu, X. K. (2023). The effect of affective filter hypothesis on college students' English writing teaching and its enlightenment. *Open Access Library Journal, 10*, 1-9. https://doi.org/10.4236/oalib.1110671

Li, X., Myles, J., & Robinson, P. (2012). *Teaching ESL in Canada.* Toronto: Oxford University Press.

Lloyd, M. (2007). Developing academic writing skills: The process framework. *Nursing Standard, 21*(40), 50-56.

Longman. (2008). Scaffold. In *Longman Dictionary of Contemporary English*, Pearson Longman.

Luo, X., & Gao, J. (2011). Mechanisms leading to negative transfer. *Theory and Practice in Language Studies, 1*(5), 507-510. https://doi.org/10.4304/tpls.1.5.507-510

Madriñan, M. S. (2014). The use of first language in the second-language classroom: A support for second language acquisition. *Gist Education and Learning Research Journal, 9*, 50-66.

Mahdikhani, Z. (2016). An overview of motivation: The challenges and the importance of motivation for second language. *Journal for the Study of English Linguistics, 4*(1), 53-59. http://dx.doi.org/10.5296/jsel.v4i1.9407

Matsuda, P. K., Cox, M., Jordan, J., & Ortmeier-Hooper, C. (2006). *Second-Language Writing in the Composition Classroom: A Critical Sourcebook.* New York: Bedford/St. Martin's.

Ma, Q. (2021). The role of the Schumann Acculturation Model in Generation Z English acquisition context. *Proceedings of the 2021 International Conference on Social Development and Media Communication (SDMC 2021),* Advances in Social Science, Education and Humanities Research, 631, 1282-1285.

McCrae, R. R., & Costa, P. T., Jr. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 159-181). The Guilford Press.

McLaughlin, B. (1990). "Conscious" versus "unconscious" learning. *TESOL Quarterly, 24*(4), 617-634. https://doi.org/10.2307/3587111

McLeod, S. (2023a). Albert Bandura's Social Learning theory. *Simply Psychology.* https://www.simplypsychology.org/bandura.html

McLeod, S. (2023b). Jerome Bruner's theory of learning and cognitive development. Simply Psychology. https://www.simplypsychology.org/bruner.html

McLeod, S. (2023c). Carl Rogers humanistic theory and contribution to psychology. Simply Psychology. https://www.simplypsychology.org/carl-rogers.html

Midrigan-Ciochina, L., Vodacek, K. P., Balabhadra, S., David, C. P. (2023). A comparison of structural brain differences in monolingual and highly proficient multilingual speakers. *Bilingualism: Language and Cognition, 27*(1), 117-127. https://doi.org/10.1017/S1366728923000445

Mohseni, F., Seifoori, Z., & Ahangari, S. (2020). The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. *Cogent Education, 7*(1). https://doi.org/10.1080/2331186X.2020.1720946

Morgan, H. (2021). Howard Gardner's Multiple Intelligences theory and his ideas on promoting creativity. In F. Reisman (Ed.), *Celebrating Giants and Trailblazers: A-Z of Who's Who in Creativity Research and Related Fields* (pp. 124-141). London, UK: KIE Publications.

Moses, R., & Mohamad, M. (2019). Challenges faced by students and teachers on writing skills in ESL contexts: A literature review. *Creative Education, 10*, 3385-3391. https://doi.org/10.4236/ce.2019.1013260

Nafees, S. N. (2018). The five-paragraph essay: An in-depth exploration of the genre and its limitations in writing pedagogy. *Honors College Theses. 42.* https://digitalcommons.wayne.edu/honorstheses/42

Nair, H. (2022). Repercussions of confirmation bias in teaching and learning processes. *International Journal of Management in Education, 12*(4), 319-321.

Nawal, A. F. (2018). Cognitive load theory in the context of second language academic writing. *Higher Education Pedagogies, 3*(1), 385-402. https://doi.org/10.1080/23752696.2018.1513812

Negari, M. G., & Rezaabadi, T. O. (2012). Too nervous to write? The relationship between anxiety and EFL writing. *Theory and Practice in Language Studies, 2*(12), 2578-2586. https://doi.org/10.4304/tpls.2.12.2578-2586

Nevin, J. A. (1992). Burrhus Frederic Skinner: 1904-1990. *The American Journal of Psychology, 105*(4), 613–619. http://www.jstor.org/stable/1422916

Noprianto, E. (2017). Extrovert versus introvert students: What EFL learning strategy do they use? *Asian TEFL, 2*(2), 119-135.

Nunan, D. (2004). *Task-Based Language Teaching.* Cambridge University Press.

Nusrat, M. A. (2015). Bridging the gap between language and literature: Teaching English in Bangladesh at tertiary level. *ELT Worldwide, 2*(2), 1-32.

OECD. (2023). Education GPS: Student mobility. September 2023. https://gpseducation.oecd.org/revieweducationpolicies/#!node=41771&filter=all

Oliver, R., Vanderford, S., & Grote, E. (2012). Evidence of English language proficiency and academic achievement of non-English-speaking background students. *Higher Education Research & Development, 31*(4), 541-555. https://doi.org/10.1080/07294360.2011.653958

Palpanadan, S. T., Ismail, F., & Hj Salam, A. R. (2015). Role of model essays in developing students writing skills in Malaysian schools: A review of literature. Mediterranean *Journal of Social Sciences, 6*(2), 56-61. https://doi.org/10.5901/mjss.2015.v6n2s1p56

Paltridge, B. (2007). Approaches to genre in ELT. In: Cummins, J., Davison, C. (eds) *International Handbook of English Language Teaching. Springer International Handbooks of Education*, 15. Boston: Springer. https://doi.org/10.1007/978-0-387-46301-8_62

Park, J. S-Y., & Wee, L. (2009). The three circles Redux: A market–theoretic perspective on world Englishes. *Applied Linguistics, 30*(3), 389-406. https://doi.org/10.1093/applin/amp008

Peng, S. (2019). A study of the differences between EFL and ESL for English classroom teaching in China. *IRA International Journal of Education and Multidisciplinary Studies, 15*(1), 32-35. http://dx.doi.org/10.21013/jems.v15.n1.p4

Perin, D., & Lauterbach, M. (2018). Assessing text-based writing of low-skilled college students. *International Journal of Artificial Intelligence in Education, 28*(1), 56-78.

Pléh, C. (2019). The inspirational role of Chomsky in the cognitive turn of psychology. *Acta Linguistica Academica, 66*(3), 397-428. https://www.jstor.org/stable/26789078

Potmesilova, P., & Potmesil, M. (2021). Temperament and school readiness – A literature review. *Frontiers in Psychology, 12*, 599411. https://doi.org/10.3389/fpsyg.2021.599411

Pym, A. (2007). Natural and directional equivalence in theories of translation. *Target International Journal of Translation Studies, 19*(2), 1-19. https://doi.org/10.1075/target.19.2.07pym

Rahmat, A. (2015). Model of teaching writing in Arabic to raise students' environmental awareness attitude. *American Journal of Educational Research, 3*(7), 807-812. https://doi.org/10.12691/education-3-7-3

Randall, K., Isaacson, M., & Ciro, C. (2017). Validity and reliability of the Myers-Briggs personality type indicator: A systematic review and meta-analysis. *Journal of Best Practices in Health Professions Diversity, 10*(1), 1-27. https://www.jstor.org/stable/26554264

Rawan, H. H. (2016). Developing learner autonomy in vocabulary learning in the classroom: How and why can it be fostered? *Procedia - Social and Behavioral Sciences, 232*, 784-791. https://doi.org/10.1016/j.sbspro.2016.10.106

Reid, J. M. (1993). *Teaching ESL writing.* New York: Prentice Hall.

Ringbom, H. (1987). *The Role of the First Language in Foreign Language Learning.* Clevedon: Multilingual Matters.

Rivers, D. J. (2011). Strategies and struggles in the ELT classroom: language policy, learner autonomy and innovative practice. *Language Awareness, 20*, 31-43. https://doi.org/10.1080/09658416.2010.537343

Rose, M. (1985). The language of exclusion: Writing instruction at the university. *College English, 47*(4), 341-359.

Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*(2), 129-158.

Schumann, J. H. (1986). Research on the Acculturation Model for second language acquisition. *Journal of Multilingual & Multicultural Development, 7*(5), 379-392.

Scott, T., & Husain, F. N. (2021). Textbook reliance: Traditional curriculum dependence is symptomatic of a larger educational problem. Journal of Educational Issues, 7(1), Macrothink Institute. https://doi.org/10.5296/jei.v7i1.18447

Selvaraj, M., & Abdul Aziz, A. (2019). Systematic review: approaches in teaching writing skill in ESL classrooms. *International Journal of Academic Research in Progressive Education and Development, 8*(4), 2226-6348. https://doi.org/10.6007/IJARPED/v8-i4/6564

Seyal, A. H., & Rahman, M. N. A. (2015). Understanding learning styles, attitudes and intentions in using e-learning system: Evidence from Brunei. *World Journal of Education, 5*(3), 61-72. http://dx.doi.org/10.5430/wje.v5n3p61

Shehzadi, K., & Krishnasamy, H. N. (2018). ESL writing anxiety, writer's native language, ESL writing self-efficacy and ESL writing performance: Insights into the literature. *Pakistan Journal of Humanities and Social Sciences, 6*(2), 221-247. https://doi.org/10.52131/pjhss.2018.0602.0044

Shi, C. (2011). A Study of the relationship between cognitive styles and learning strategies. *Higher Education Studies, 1*(1), 20-26. https://doi.org/10.5539/hes.v1n1p20

Silva, T., & Matsuda, P.K. (Eds.). (2000). *On Second Language Writing* (1st ed.). Routledge. https://doi.org/10.4324/9781410600899

Sisakhti, M., Sachdev, P. S., & Batouli, S. A. H. (2021). The effect of cognitive load on the retrieval of long-term memory: An fMRI study. *Frontiers in Human Neuroscience, 15.* https://www.frontiersin.org/articles/10.3389/fnhum.2021.700146

Snow, C. E. (1992). Perspectives on second-language development: implications for bilingual education. *Educational Researcher, 21*(2), 16–19. https://doi.org/10.2307/1176575

Srinivas Rao, P. (2017). The characteristics of effective writing skills in English language teaching. *Research Journal of English, 2*(2), 75-86.

Srinivas Rao, P. (2019). The impact of collaborative learning on EFL/ESL Classrooms. *Alford Council of International English & Literature Journal, 2*(4), 37-53.

Steele, V. (2004). Product and process writing. http://www.teachingenglish.english.org.uk/think/write/approaches.html

Swarnananda Gamage, K. G. (2020). The pedagogical application of the grammar translation method as an effective instructional methodology in teaching English as a second language. *Open Access Library Journal, 7*, 1-10. https://doi.org/10.4236/oalib.1106913

Tomasello, M. (1996). Piagetian and Vygotskian approaches to language acquisition. *Human Development, 39*(5), 269-276. http://www.jstor.org/stable/26767799

Torrance, M., Thomas, G. V., & Robinson, E. J. (1999). Individual differences in the writing behavior of undergraduate students. *British Journal of Educational Psychology, 69*, 189-199.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, New Series, 185*(4157), 1124-1131.

UKEssays. (November 2018). The Three Circle Model of World Englishes. https://www.ukessays.com/essays/english-literature/three-circle-model-of-world-englishes-english-literature-essay.php?vref=1

Vacalares, S., Clarin, E., Lapid, R., Malaki, M., Plaza, V., & Barcena, M. (2023). Factors affecting the writing skills of the education students: A descriptive study. *World Journal of Advanced Research and Reviews, 18*(2), 1192-1201. https://doi.org/10.30574/wjarr.2023.18.2.0931

Van Dyk, T., Zybrands, H., Cillie, K., & Coetzee, M. (2009). On being reflective practitioners: The evaluation of a writing module for first-year students in the Health Sciences. *Southern African Linguistics and Applied Language Studies, 27*(3), 333-344.

Voinarovska, N. V., & Angus, A. J. (2020). Bilingualism types and their didactic potential. *Zhytomyr Ivan Franko State University Journal. Pedagogical Sciences, 1*(100), 151-158. https://doi.org/10.35433/pedagogy.1(100).2020.151-158

Wang, M., & Bakken, L. L. (2004). An academic writing needs assessment of English-as-a-second-language clinical investigators. *The Journal of Continuing Education in the Health Professions, 24*, 181-189.

Yavari, M. (2012). *Interpersonality in Academic Writing: Introduction, Method, Results and Discussion/Conclusion Sections*. LAP LAMBERT Academic Publishing.

Zamel, V. (1983). The Composing Process of Advanced ESL Students: Six Case Studies. *TESOL Quarterly, 17*, 165-187. https://doi.org/10.2307/3586647

Zimmerman, B. J., & Schunk, D. H. (2003). Albert Bandura: The scholar and his contributions to educational psychology. In B. J. Zimmerman & D. H. Schunk (Eds.), *Educational psychology: A century of contributions* (pp. 431-457). Lawrence Erlbaum Associates Publishers.

Zou, B., Reinders, H., Thomas, M., & Barr, D. (2023). Editorial: Using artificial intelligence technology for language learning. *Frontiers in Psychology, 14*, 1-2. https://doi.org/10.3389/fpsyg.2023.1287667