

A Review of Empirical Research on English Writing Instruction Based on Cognitive Linguistic Approach

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Abstract: The complexities of writing pose various difficulties for those learning a second language, making it a principal area of academic research in linguistics. Lately, breakthroughs in the field of cognitive linguistics have spurred the development of innovative techniques and approaches to studying English composition instruction. Studies that integrate a cognitive linguistic approach (CLA), particularly the principles of schema theory, have demonstrated a considerable uplift in the proficiency, productivity, and overall competence of learners when it comes to writing. The objective of this paper is to methodically compile and integrate these research insights, with the goal of providing a foundation for further exploration in the sphere of cognitive linguistics and educational strategies.

Keywords: Schema Theory; Writing Instruction; Content Schemata; Linguistic Schemata; Formal Schemata.

1. Introduction

Within the framework of second language acquisition, individuals classified as ESL learners frequently encounter difficulties influenced by their first language. These impediments extend beyond mere linguistic structures and cognitive frameworks; they also encompass cultural disparities. Empirical studies indicate that these learners often grapple with issues related to grammatical precision, lexical choices, and compliance with rhetorical conventions (Silva, 1993). Such challenges are frequently exacerbated by the impact of the first language. The task of translating abstract notions into coherent written discourse is often perceived as arduous and counterintuitive for those concentrating on L2 composition (De Larios et al., 1999). Within the sphere of language acquisition, writing necessitates a significantly elevated level of cognitive proficiency compared to speaking or listening, demanding organized thought processes, manuscript revisions, and the formulation of credible arguments, thereby presenting distinctive challenges for students acquiring a second language (Juffs & Harrington, 2011). Therefore, the investigation into effective instructional strategies to bolster second language writing and to improve the writing abilities of ESL learners has surfaced as a key area of exploration among various researchers and educators.

The in-depth investigation of writing pedagogy across the previous fifty years can be categorized into three essential groups: Genre Approach, Product Approach, and Process Approach. The Genre Approach for writing emphasizes the significance of instructing students in particular linguistic and structural conventions pertinent to various forms of texts, acknowledging that the act of writing is shaped by its social context (Hyland, 2003; Jernudd, 1993). Traditionally, Product Approach has concentrated on the final written artifact, prioritizing evaluations of grammatical accuracy, vocabulary selection, and structural organization, while offering minimal consideration to the cognitive processes that support writing (Chitavelu, Sithamparam, & Teh, 2005; Jalaluddin, 2019). This perspective predominantly appraises the ultimate output and typically prioritizes linguistic precision, with scant attention to creative or critical thought processes (Sarala,

Fauziah, & Abdul Rahim, 2018). Furthermore, Process Approach highlights the entire continuum of writing — encompassing stages such as planning, drafting, revising, and editing—as a recursive enhancement activity characterized by reflection and ongoing development (Flower & Hayes, 1981; Tribble, 1996). Accordingly, the analysis of instructions to teach writing has shifted from unchanging rigidity to vibrant innovation.

In light of cognitive linguistics, numerous scholars have highlighted the critical contributions of cognitive linguistics to the domain of process-oriented writing pedagogy research. Proponents of cognitive linguistics contend that schema theory, informed by cognitive principles, can facilitate the integration of novel information with pre-existing knowledge among students. This robust conceptual framework offers considerable support for the cognitive processes implicated in writing. It directly engages with the mental constructs that underpin language comprehension and production, thereby serving as an effective conduit between cognitive theory and practical writing instruction (Carrell, 1983). In an effort to investigate the practical implications of CLA and facilitate the enhancement of writing competencies among ESL learners, scholars have engaged in pertinent research. In the course of evaluating the aforementioned studies, this paper seeks to foster the convergence of cognitive linguistic theory with educational approaches in writing instruction, thereby enhancing the development of forward-thinking, more integrative, and methodologically stringent research. To enhance comprehension of these scholarly works, it is imperative to first explicate the schema theory inherent in CLA, highlighting its advantages and its pragmatic applicability within the domain of writing instruction.

2. Schema Theory and L2 Writing

The act of writing itself embodies the complex coordination between the reader and the writer's mutual dependence on content and textual elements to convey expression and affirm acceptance. Numerous scholars have identified that ESL students encounter challenges pertaining to their ideological organization, linguistic precision, and

appropriate application of discourse structures. For instance, learners frequently struggle with the generation of ideas and their subsequent articulation into coherent sentences in English, all while adhering to grammatical conventions and the principles of language development (Yaseen, 2015). Simultaneously, academics frequently encounter a plethora of responsibilities, including syntax, terminology, and distinctive structural configurations, which present intricate challenges when evaluating knowledge. Moreover, empirical studies unequivocally demonstrate that learners are frequently impeded in their ability to establish logical connections and coherence — elements that are essential for cultivating well-structured academic writing. Findings suggest that scholars typically find it hard to match their essays with the overall organization of the document, leading to vagueness and a deficiency of lucidity in their pieces (Sánchez, 2019). Additionally, cultural variances play a significant role, further complicating the processes of understanding and creativity. Certain students may depend on the rhetorical norms of their mother tongue, resulting in writing that is challenging for native readers to interpret. This inclination sharply diverges from what native speakers anticipate for ESL learners (Li, 2008). In conclusion, assessment outcomes reveal that English language learners continue to confront numerous challenges in constructing their writing genres, and furthermore, the complicated cognitive dimensions inherent in the act of writing are increasingly being emphasized, leading to a more pronounced influence and recognition of cognitive linguistics.

Schema theory is deeply entwined with the cognitive base of writing, forming a crucial part of the diverse cognitive linguistic landscape. According to this theory, the comprehension and creation of written texts hinge on the activation of pre-existing cognitive structures (Rumelhart, 2017). The organization of thoughts, the development of textual blueprints, and the precise conveyance of messages are of paramount importance in the domain of writing pedagogy. This conceptual model underscores the value of nurturing and broadening students' understanding of content, structure, and language, which in turn boosts their ability to craft and communicate ideas effectively in writing (Cook, 1989). Grasping schema theory empowers learners to investigate the core mechanisms of writing, tapping into their existing linguistic, structural, and conceptual schemata right from the start, and expressing thoughts coherently as a result. Indubitably, it directly addresses the inherent complexity of the writing process while facilitating the integration of various cognitive and linguistic competencies. When students are instructed to identify and implement schemata linked to specific genres, they are better positioned to organize their thoughts and produce coherent, structured, and meaningful texts, thereby enhancing writing proficiency and meeting the expectations of their readers (Hamed, Behnam, & Saiedi, 2014). Zhou (2005) also posited a significant correlation between schema theory and the act of writing, elucidating that writing endeavors fundamentally involve the activation of pre-existing patterns, alongside the selection, integration, and composition across various frameworks in accordance with the intended objectives of the writing task. Teachers should prioritize schema theory and embrace a variety of educational approaches to improve student learning outcomes.

Currently, empirical investigations concerning schema theory in writing instruction predominantly center on the enhancement of learners' schemata recognition and the

comprehension of recursive elements in the writing process. Research indicates that the process approach facilitates a deeper understanding of various writing genres and rhetorical features to a certain degree, establishes a foundational knowledge base prior to engaging in formal writing, and clarifies both the writing process and its content.

3. The Empirical Study of English Writing Teaching based on Schema Theory

3.1. An Empirical Study of Writing Instruction based on CLA Abroad

There exists a limited quantity of empirical investigations conducted on an international level regarding English instruction that is influenced by schema theory. Nevertheless, the findings from these studies consistently indicate that employing schema theory in the instruction of the writing process enhances students' background knowledge, decodes writing logic, and consequently leads to improved writing outcomes. Following the activation and reinforcement of the schema pertinent to a specific text, can learners proficiently transfer these schemas to various other text types? Are there any constraints in the formulation and evolution of schema representations within writing instruction? In addressing such inquiries, the outcomes of diverse studies exhibit a lack of consensus.

In the investigation conducted by Küfi (2023), a cohort of 14 upper-intermediate (B2-level) Turkish ESL university students engaged in weekly essay composition tasks, complemented by pre-writing exercises intended to stimulate their content schemata. The instructional materials encompassed reading, listening, speaking, and brainstorming activities aimed at enriching the ideational resources of the students prior to the composition of their second essays. The evidence from the study demonstrated that the stimulation of content schemata substantially augmented the profundity and expansiveness of the students' essays, as indicated by higher evaluation scores in their following written assignments. Utilizing a quasi-experimental-control group design, Alawdi (2023) distributed 40 university-level English learners into separate control and experimental groups. By synthesizing existing knowledge related to schema theory with modern writing tasks, he significantly improved their ability to construct paragraphs. Empirical studies indicate that students have made notable strides in the logic, structure, and coherence of their content, thereby exemplifying that the activation of students' cognitive frameworks can assist in the production of well-organized and coherent written texts. ALYousef (2020) further demonstrated the noteworthy affirmative influence of schema activation on the writing abilities of students through strategies such as brainstorming and semantic mapping and the results highlight the notion that schema theory can significantly enhance students' writing by fostering a structured knowledge base.

However, a divergent array of empirical results accentuated the limitations associated with the deployment of schema theory. In particular, when learners confront unfamiliar or complex texts, it is crucial to create and expand new schemas, mandating that educators possess versatile teaching methodologies. While formal schemas (such as text structure) demonstrate efficacy in certain writing undertakings, the transferability of schema theory diminishes significantly

when confronted with a wider array of writing tasks or in scenarios where students exhibit deficient language competencies. Yaseen (2015) conducted a comprehensive examination of the writing deficiencies exhibited by over 600 Iraqi middle school students and concluded that the students' inadequate understanding of vocabulary, grammar, and cultural contextualization substantially constrained the efficacy of schema theory in writing. Empirical findings reveal that although schematic learning methodologies can enhance specific writing weaknesses, the progress of students' performance in sophisticated writing assignments is still constrained owing to gaps in essential language proficiencies. From this analysis, it can be inferred that the detrimental effects of external determinants (such as pedagogical approaches and the practical experiences available to students) render the activation of schema less efficacious in fostering improvements in students' writing achievements. Maftoon and Babamiri (2011) divided a group of eighty Iranian upper-intermediate students majoring in English Language Teaching into two distinct groups: an experimental one and a control one. The experimental group was subjected to a specialized

training regimen that focused on the enhancement of rhetorical organization, whereas the control group continued with conventional teaching methods. The experimental group outperformed the control group on the follow-up assessment, suggesting that the application of the formal schema had a positive impact on their writing skills. However, this enhancement appeared predominantly within genres explicitly taught, sparking queries regarding its extension to untaught text varieties. Hence, educators must aim for students' familiarity with rhetorical frameworks across different genres and text categories to foster appropriate formal schemata development. Hamed et al.'s (2014) research revealed that formal schemata activation notably enhanced students' comprehension and construction of complex written pieces, especially in clearly structured texts (argumentative, expository, etc.). To cater to diverse student needs, educators might adjust their teaching methodologies. Regardless of encountering varied text structures, educators should clear up the underlying formal schema framework and leverage students' existing knowledge to solidify these concepts.

Table 1. Catalogue of Empirical Studies on CLA-based Writing Instruction Abroad

Category	Research	The Main Study Schemata
The positive role of schema theory	Küfi	Content schemata
	Alawdi	(content, formal, linguistic) schemata
	ALYousef	(content, formal, linguistic) schemata
Limitations of schema theory	Yaseen	(content, formal, linguistic) schemata
	Maftoon and Babamiri	Formal schemata
	Hamed et al.	Formal schemata

While there remains some contention within academic discourse about the utility of schema theory in the conveyance of knowledge to novel texts, research supports that the application of schema theory instruction is beneficial for the advancement of students' writing proficiency. Yaseen (2015) suggested that the beneficial effects of schema theory on writing outcomes were influenced by the lack of essential linguistic proficiency among the participants in the experimental group, which was evident in grammatical errors and a limited range of vocabulary. However, it is essential to understand that these investigations reinforce the significance of schema theory within the paradigm of CLA with respect to writing instruction.

3.2. An Empirical Study of Writing Instruction based on CLA in China

In China, empirical studies focusing on writing pedagogy rooted in schema theory as part of cognitive linguistics have only begun in recent years; however, in the last twenty years, the number of such studies has markedly surged. The research findings uniformly assert that the adoption of schema theory affords various advantages over established writing pedagogy, with scholars recognizing its impact on learner development and facilitating its incorporation into present-day English writing classrooms, thereby progressing the evolution of English writing instruction. Furthermore, an increasing number of cognitive linguists are investigating the implications of various cognitive linguistics theories on writing pedagogy, including Conceptual Metaphor theory,

Idealized Cognitive Model (ICM), and Construction perspectives. Currently, there exist six notable deficiencies within the empirical research on schema theory in writing:

- (1) Numerous empirical investigations are hindered by limited participant cohorts, frequently comprising fewer than 100 participants in both experimental and control groups, which constrains the external validity of the findings.
- (2) A predominant focus of the studies is on enhancing lexical richness, syntactic complexity, or semantic coherence, while offering scant exploration of the comprehensive impact on overall writing proficiency.
- (3) The effects attributed to schema theory are frequently assessed within abbreviated time frames, with a dearth of longitudinal studies that examine the sustainability of writing improvements over time.
- (4) A majority of surveys employ pedagogical strategies, including brainstorming, discussion, and outlining, to methodically facilitate the activation of schema among learners, while somewhat neglecting the enhancement of more vigorous engagement and the evolution of these schemas via students' autonomous learning beyond the confines of the classroom.
- (5) Although digital technology and multimedia resources are occasionally utilized in the writing instruction governed by schema theory, there remains an inconsistency in the integration of contemporary digital tools that could potentially augment student learning outcomes.

(6) The formats and content of traditional instructional classrooms serving as control groups lack accurate descriptions.

In contemporary academic discourse, scholars have likewise achieved significant advancements in methodological experimentation, the utilization of innovative materials, and the refinement of experimental protocols. In terms of the research process, Sun (2016) and Li (2024) examined the process approach, incorporating schema theory into the pre-writing, while-writing, and post-writing phases, whereby students activated their linguistic and content schemata through brainstorming and discussion, thereby consolidating new knowledge through continuous revision and refinement. From the perspective of experimental materials, Bai (2024), Wang and Chen (2022) focused on the impact of schema theory on students undertaking post-reading continuation tasks. As a quintessential writing task transitioning from reading to writing, post-reading continuation aligns with Squire's (1988) assertion that reading and writing share a common cognitive foundation, wherein reading, as an input-based activity, directly influences students' writing ideation and linguistic material processing. Undoubtedly, reading serves as the fundamental basis for acquiring information and establishing schemas. Similarly, Bai (2024) also acknowledged this specific benefit and selected continuation tasks grounded in real-world materials or themes, thereby enhancing the relevance of writing instruction and rendering the learning process more engaging and efficacious. Furthermore, the experiment prioritized the activation and reconstruction of students' linguistic, content, and formal schemata. In the same way, Wang and Chen (2022) amalgamate schema theory with task-based learning approaches—specifically, continuation tasks—facilitating students' utilization of their schemas to complete incomplete texts. The application of schema theory to activate students' linguistic, content, and formal schemata significantly influences their overall writing competency by facilitating the construction of new knowledge structures. In terms of experimental design, Sun (2014) introduced computer and internet technologies to enable students to engage in self-directed learning beyond traditional classroom settings, exploring the integration of the three schemas in addressing the complex cognitive task of writing. In addition, it was acknowledged that activities driven by students in the writing process, supported by digital tools and the internet, such as researching materials, brainstorming sessions, peer evaluations, and vocabulary and grammar development, can enhance students' comprehension of the cognitive aspects related to writing.

4. Conclusion

In conclusion, empirical investigations pertaining to the pedagogy of English composition, informed by the principles of schema theory within cognitive linguistic approach, have achieved significant advancements in both research paradigms and methodologies in recent years; nevertheless, there exists an urgent necessity to enhance both the scope and profundity of such research. More precisely, innovative approaches may be pursued in the subsequent domains:

(1) An expanded range of experimental subjects and variations in cognitive styles: The subjects of this research may involve less proficient English learners alongside individuals demonstrating greater proficiency, such as doctoral candidates engaged in the practice of academic

writing. Furthermore, by integrating empirical research methodologies such as reaction times, eye movements, electroencephalography (EEG/ERPs), and offline measures (written corpora and questionnaires), one can observe specific cognitive processes and cognitive disparities. Additionally, this incites an inquiry regarding the feasibility of incorporating the schema construction and cognitive methodologies practiced by advanced learners into primary and secondary writing education to bolster the activation and construction of schemas in students.

(2) Modifications in Experimental Materials: This represents the expansion of a more comprehensive selection of article genres, such as narrative writing indicative of creative writing, due to the observation that current research mainly concentrates on summarization, expository, and argumentative writing—varieties that exhibit pronounced logical structures and are suitable for a focus on formal schemata. It is imperative to seek opportunities to engage with a wider range of linguistic schemata and content schemata.

(3) Chronological investigations: At present, these studies predominantly consist of short-term examinations involving a limited cohort of participants, with extensive long-term follow-up research being infrequently conducted. Following a designated training period, is it possible for students to autonomously identify schemas, actively enhance their understanding, and apply previously acquired knowledge to subsequent writing tasks? What implications does this have for their writing proficiency and overall performance over an extended timeframe?

(4) Enhanced research findings of a universal nature: Is it achievable to investigate whether a more extensive and homogeneous schema may align with a greater variety of textual forms, thereby enabling learners to effectively assimilate the underlying framework and facilitate swift transfer of knowledge?

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References

- [1] Alawdi, A. M. (2023). The impact of schema theory on improving university students' writing performance. *Journal of Social Sciences (JSS)*, 29(2), 158–173.
- [2] ALYousef, S. S. (2020). An empirical study of schema theory and its application in improving university students' writing ability. *Arab World English Journal*, 253, 1–77. <https://doi.org/10.24093/awej/th.253>.
- [3] Bai, J. (2024). The application of schema Theory in teaching continuation writing for senior high school students. *Scientific Journal of Technology*, 6(1), 50–55. <https://doi.org/10.54691/tj4rg348>.
- [4] Carrell, P. L. (1983). Some issues in studying the role of schemata, or background knowledge, in second language comprehension. *Reading in a Foreign Language*, 1(2), 81–92.
- [5] Chitravelu, N., Sithamparam, S., & Teh Soo Choon. (2005). *ELT methodology: Principles and practice*. Shah Alam: Penerbit Fajar Bakti Sdn. Bhd.
- [6] Cook, G. (1989). *Discourse*. Oxford: Oxford University Press.

- [7] De Larios, J. R., Murphy, L., & Manchon, R. (1999). The use of restructuring strategies in EFL writing: A study of Spanish learners of English as a foreign language. *Journal of Second Language Writing*, 8(1), 13–44. [https://doi.org/10.1016/s1060-3743\(99\)80111-8](https://doi.org/10.1016/s1060-3743(99)80111-8).
- [8] Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, 32(4), 365–387.
- [9] Hamed, L. a. A., Behnam, B., & Saiedi, M. (2014). The role of formal schemata in the development of précis writing in an Iranian EFL context. *Procedia - Social and Behavioral Sciences*, 98, 207–211.
- [10] Hyland, K. (2003). Genre-based pedagogies: A social response to process. *Journal of Second Language Writing*, 12(1), 17–29. [https://doi.org/10.1016/s1060-3743\(02\)00124-8](https://doi.org/10.1016/s1060-3743(02)00124-8).
- [11] Jalaluddin, I. (2019). Process approach in teaching of ESL writing: Teacher's assistance and its practicality in real classroom. *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 9(2), 66–78.
- [12] Jernudd, B. H. (1993). *Genre Analysis: English in Academic and Research Settings*. John M. Swales. Cambridge: Cambridge University Press, 1990. Pp. 288. \$38.50 cloth, \$15.95 paper. *Studies in Second Language Acquisition*, 15(1), 125–126.
- [13] Juffs, A., & Harrington, M. (2011). Aspects of working memory in L2 learning. *Language Teaching*, 44(2), 137–166. <https://doi.org/10.1017/s0261444810000509>.
- [14] Küfi, E. Ö. (2023). Activation of Content-Schemata for Scaffolding L2 Writing: Voices from a Turkish Context. *Journal of Psycholinguistic Research*, 52(6), 2405–2427.
- [15] Li, Y. (2024). The practical application of schema theory in teaching English writing in high schools. *International Journal of Education and Humanities*, 15(3), 125–127.
- [16] Li, Y., & Wang, W. (2008). A study on schema theory and English writing teaching. *Teaching and Management*, (6), 97–98.
- [17] Maftoon, P., & Babamiri, H. M. (2011). The effect of building formal schemata on EFL students' writing achievement. *TELL*, 5(2), 97–123.
- [18] Palpanadan, S. @. T. A., Ismail, F., & Salam, A. R. (2018). Evaluating Product Writing approach in the context of Malaysian Classrooms: A Conceptual paper. *LSP International Journal*, 2(2).
- [19] Rumelhart, D. E. (2017). *Schemata: The Building Blocks of Cognition*. In Routledge eBooks (pp. 33–58).
- [20] Sánchez Muñoz, M. (2019). *Academic writing in L2 English: A look at schematic and discursive features of research articles* (Bachelor's thesis). Universitat Autònoma de Barcelona.
- [21] Silva, T. (1993). Toward an Understanding of the Distinct Nature of L2 Writing: The ESL Research and Its Implications. *TESOL Quarterly*, 27(4), 657–677.
- [22] Squire, J.R. (1988). *The Dynamics of language learning: research in reading and English*. *College Composition and Communication*, 39, 91.
- [23] Sun, F. (2014). The application of schema Theory in teaching College English Writing. *Theory and Practice in Language Studies*, 4(7).
- [24] Sun, J. (2016). Research on the teaching strategies of college English writing under the guidance of Schema Theory. *SUN | Cross-Cultural Communication*.
- [25] Tribble, C. (1996). *Writing*. Oxford University Press.
- [26] Wang, Q., & Chen, L. (2022). An empirical research on schema theory based teaching of the continuation task for Chinese senior high school students. *Arab World English Journal*, 13(3), 378–402. <https://doi.org/10.24093/awej/vol13no3.25>
- [27] Yaseen, A. T. (2015). Investigating English composition writing problems encountered by preparatory school students and finding solutions to these problems through schema-based approach. *Journal of the College of Languages*, (33), 103–126.
- [28] Yaw, N. E., Fangyang, Z., & Jingang, Z. (2020). Teaching English as a Foreign language (EFL) in Chinese schools: The case of Dongchang Middle School using schema theory. *Yaw | Journal of Education and Practice*.
- [29] Zhou, S. (2005). The schema theory and L2 writing. *Foreign Languages and Teaching*, 2(2), 21–24.