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An Analysis of Cohesive Device Deployment in the Free and Guided writings of Iranian EFL Undergraduates

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Abstract: This study investigates the deployment of cohesive devices by Iranian undergraduate EFL learners under free and guided writing conditions and compares their cohesive patterns with those observed in the non-native component of the Michigan Corpus of Upper-level Student Papers (MICUSP). Using a comparative within-subjects design, 28 Iranian undergraduate students each produced one free-writing and one guided-writing essay (56 essays in total), which were analyzed alongside 28 MICUSP papers. Drawing on Halliday and Hasan's (1985) Cohesive Harmony framework, the study conducts a quantitative analysis of the frequency and distribution of grammatical and lexical cohesive devices across the three corpora. The findings reveal distinct cohesive profiles. Across both Iranian writing conditions, grammatical cohesion, particularly reference (39–42% of all cohesive devices), constituted the predominant strategy, with extensive use of exophoric pronominals. In contrast, the MICUSP corpus relied more heavily on lexical cohesion, especially lexical repetition (46%), contributing to terminological continuity and thematic development in academic discourse. The free-writing corpus exhibited a higher normalized frequency of cohesive device occurrences than the guided-writing corpus, whereas several cohesive resources, including ellipsis, substitution, equivalence, and semblance, occurred relatively infrequently across all three corpora. The findings suggest that different writing contexts encourage different patterns of cohesive resource use and highlight the pedagogical value of explicit instruction that expands learners' repertoire of grammatical and lexical cohesive strategies in academic writing.

***Keywords*:** Cohesion, Free writing, Guided writing, Halliday and Hassan's Theory, MICUSP

Introduction

Proficiency in academic writing is a critical component of success for students in English as a Foreign Language (EFL) contexts, serving as a primary tool for knowledge representation, academic communication, and professional advancement (Hyland, 2003; Graham & Perin, 2007). At the heart of effective academic prose lies the concept of cohesion—the linguistic "glue" that connects ideas and ensures a text is perceived as a unified, readable whole rather than a mere sequence of sentences (Halliday & Hasan, 1976). A command of cohesive devices, encompassing both grammatical ties like reference and conjunctions and lexical ties like repetition and synonymy, is indispensable for constructing coherent arguments and meeting the rigorous demands of academic discourse.

A persistent challenge in L2 writing pedagogy is determining the most effective instructional approach to foster this linguistic mastery. On one end of the spectrum, free writing is advocated for its potential to lower affective filters, promote fluency, and encourage idea generation by freeing students

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from the constraints of immediate accuracy (Elbow, 1998; Jacobs, 1986). On the other end, guided writing provides essential scaffolding, offering structured support on vocabulary, genre conventions, and grammatical accuracy, which is often deemed necessary for learners with limited linguistic resources (Pinnell & Fountas, 1998; Gibson, 2008). While both approaches have documented benefits, their differential impact on the acquisition and application of specific linguistic features, particularly complex cohesive devices, remains underexplored.

From a theoretical perspective, different writing conditions may influence the deployment of cohesive resources because they impose different cognitive and rhetorical demands on writers. Writing-process models conceptualize composition as the interaction of planning, translating, and reviewing processes (Hayes & Flower, 1980; Hayes, 1996), whereas task-based approaches suggest that variations in task structure and cognitive demands may influence the allocation of attentional resources during language production (Skehan, 1998; Robinson, 2001). Under less constrained writing conditions, learners may have greater flexibility to establish textual links and elaborate ideas, whereas more structured tasks may encourage different patterns of cohesive resource use. Although the present study does not directly measure cognitive load or task complexity, these perspectives provide a useful theoretical basis for examining how different writing conditions may be associated with variation in cohesion deployment.

This question is particularly pertinent in EFL contexts such as Iran, where recent curriculum reforms have introduced communicative and integrated approaches to English language teaching through the secondary school Prospect and Vision series. Nevertheless, previous studies have suggested that challenges remain in the classroom implementation of these reforms and in preparing students for the academic writing demands of higher education, particularly with respect to discourse-level competence and coherent composition (Naghdipour, 2016; Razavipour & Rezagah, 2018). The researches on Iranian EFL writers have extensively employed Halliday and Hasan's (1976) model, frequently identifying an overreliance on certain devices (like reference) and an underuse of others (e.g., Jafari, 2012; Zarepour, 2016). However, a significant gap exists since no study has yet utilized Halliday and Hasan's (1985) more nuanced theory of Cohesive Harmony to compare how these learners deploy cohesion across different writing conditions (free vs. guided).

Unlike the earlier 1976 framework, which primarily classifies traditional grammatical and lexical cohesive ties, Halliday and Hasan's (1985) model of Cohesive Harmony provides a broader account of textual connectedness by incorporating additional categories such as continuatives, equivalence, naming, and semblance and by emphasizing the interaction among cohesive resources across a text. This expanded taxonomy allows for a more detailed examination of how writers establish lexical and grammatical relationships and offers opportunities to identify cohesive patterns that may remain unnoticed under more restricted classification systems. Consequently, the Cohesive Harmony framework is particularly well suited to comparative analyses of L2 academic writing across different instructional and discourse contexts.

Furthermore, following the call by scholars like Cook (1999) and Brown (2013) to move beyond native-speaker benchmarks in L2 assessment, a more equitable and informative comparison can be made by evaluating Iranian learners against other high-proficiency non-native writers. The Michigan Corpus of Upper-level Student Papers (MICUSP) provides a useful reference corpus for such a comparison, representing the academic writing of multilingual students in authentic English-medium university contexts.

The use of MICUSP also aligns with the growing influence of corpus linguistics in L2 writing research. Corpus-based studies provide opportunities to investigate authentic patterns of language use across large collections of naturally occurring texts, enabling researchers to identify recurrent linguistic features that may not be readily observable through small-scale analyses (Biber et al., 1998; Hyland, 2008). In the field of academic writing, learner and reference corpora have increasingly been employed to examine lexical and grammatical choices, discourse organization, and cohesive resources across different proficiency levels and educational contexts (Ädel, 2006; Leńko-Szymańska & Boulton, 2015). Such approaches offer an empirically grounded basis for comparing writing practices across groups

while accounting for variation in textual characteristics and communicative contexts. The present study adopts this corpus-comparative perspective to investigate patterns of cohesive resource use across different contexts of L2 academic writing. Recent corpus-based investigations have likewise demonstrated the value of learner corpora for examining the development of linguistic and discourse features in academic writing across educational contexts (Zhang, 2023).

Addressing these theoretical, methodological, and corpus-based gaps, this study conducts a comparative analysis of cohesive devices in the writing of Iranian EFL undergraduates, examining their use under both free and guided conditions through the lens of Halliday and Hasan's (1985) taxonomy. Crucially, it then contrasts these findings with a corpus of texts written by high-achieving non-native speakers from the MICUSP database. This three-way comparison allows for a more nuanced understanding than previous research by isolating the effect of writing task on cohesion, providing a realistic developmental target through comparison with successful non-native peers rather than an idealized native norm, and employing the comprehensive 1985 framework to capture a wider range of cohesive devices, including often-neglected categories like equivalence and semblance.

This study is guided by the following research questions:

Research Question One: What are the differences in the frequency and type of cohesive devices used by Iranian EFL learners in free writing versus guided writing tasks?

Research Question Two: How does the use of cohesive devices in the free writing of Iranian EFL learners compare to that of high-proficiency non-native writers in the MICUSP corpus?

Research Question Three: How does the use of cohesive devices in the guided writing of Iranian EFL learners compare to that of high-proficiency non-native writers in the MICUSP corpus?

The findings aim to provide pedagogically actionable insights, helping instructors in Iran and similar contexts refine their writing syllabi to better address the specific cohesive challenges their students face, ultimately guiding them toward the discursive practices of successful academic writers.

Literature Review

Theoretical Foundations of Cohesion and Coherence

The conceptual foundation of this study rests on the seminal work of Halliday and Hasan (1976, 1985) on cohesion. Their initial model (1976) defined cohesion as the set of linguistic resources that create "texture," distinguishing a text from a random collection of sentences. They categorized these resources into grammatical cohesion (reference, substitution, ellipsis, conjunctions) and lexical cohesion (reiteration, collocation). This framework provided the first systematic tool for analyzing how texts are woven together through explicit linguistic ties.

However, this model faced criticism for suggesting that the mere presence of cohesive devices guaranteed textual coherence (Brown & Yule, 1983; Widdowson, 1978). Critics argued that a text could be cohesive yet incoherent if the ideas themselves were illogical ("pseudo-coherence", according to Enkvist (1978), and conversely, a text could be coherent with few overt cohesive markers, relying on the reader's inferential and background knowledge.

In response, Halliday and Hasan (1985) refined their theory with the concept of Cohesive Harmony, positing that coherence is achieved not just by the presence of ties, but through their interaction in chains and their relationship to the text's experiential meaning. This later framework offers a more holistic and robust model for analysis, as it accounts for how devices work in concert to create a meaningful whole. It is this 1985 framework, with its expanded taxonomy including categories like *naming*, *equivalence*, and *semblance*, that the present study adopts for a more nuanced analysis.

Table 1

Non-structural Cohesive Devices Analyzed in the Present Study, Adapted from Halliday and Hasan (1985)

		Componential Relation	Organic Relation
	Devices	Typical Tie Relation	
Grammatical Cohesive Devices		A: Reference	
	1. Pronominal	Co-reference	A: Conjunctives e.g. casual tie, concession tie ……
	2. Demonstratives		
	3. Definite article		
	4. Comparatives		B: Adjacency pairs e.g. question (followed by) answering; offer (followed by) acceptance; order (followed by) compliance
		B: Substitution & Ellipsis	
	1. Nominal	Co- classification	
	2. Verbal		
	3. clausal		
Lexical Cohesive Devices		A: General	
	1. Repetition	co-classification or co- extension	Continuatives (e.g. still, already,..)
	2. Synonymy		
	3. Antonymy		Co-reference (e.g. reject the proposal → this decision)
	4. Meronymy		Co-classification (e.g. a new policy → the reform)
		B: Instantial	Similarity/Comparison (e.g. the internet → this digital highway)
	1. Equivalence	co-reference or co-classification	
	2. Naming		
	3. Semblance		

Cohesive Devices in L2 Writing

A substantial body of research has investigated the use of cohesive devices by L2 writers, often yielding mixed results regarding the relationship between cohesion and writing quality. One line of inquiry has found a positive correlation. Studies by Liu and Braine (2005) and Yang and Sun (2012) on Chinese EFL learners concluded that a higher frequency and, more importantly, accurate use of cohesive devices were strong predictors of higher essay quality. Similarly, Crossley et al. (2016) observed that the development of local and global cohesion over a semester was linked to improved human judgments of essay quality, with advanced writers employing more sophisticated devices. Conversely, other studies have reported weak, non-significant, or even inverse relationships between cohesive device use and writing quality, suggesting that the contribution of cohesion depends on the type of cohesive feature examined and its interaction with other aspects of linguistic sophistication (Witte & Faigley, 2003; Crossley & McNamara, 2010, 2012; Liang & Lee, 2024; Abdi Tabari & Wind, 2025). Research on Iranian EFL learners is particularly illustrative. Dastjerdi and Samian (2011) and Jafari (2012) both reported that while Iranian students used a range of cohesive devices, their essays often featured misuse, overuse, or underuse. Jafari (2012) noted a specific overreliance on reference and conjunction, a finding

echoed by Khalil (1989) in the context of Arab EFL learners. Crossley and McNamara (2010, 2012) argued that high-quality writing is characterized not by more cohesion, but by greater linguistic sophistication (e.g., diverse vocabulary), and that proficient writers might actually use fewer cohesive devices, assuming a knowledgeable reader. These apparently conflicting findings suggest that the relationship between cohesion and writing quality is contingent on learner characteristics, writing context, genre, and the analytical framework adopted, indicating that the mere frequency of cohesive devices is an insufficient measure of effective textual organization.

Recent research has further demonstrated that the role of cohesion in L2 writing is dynamic and highly sensitive to contextual and task-related variables. Corpus-based and longitudinal studies have shown that the development and deployment of cohesive devices vary according to genre, task characteristics, instructional context, and writers' developmental trajectories rather than simply reflecting overall language proficiency. For example, recent investigations have highlighted the importance of lexical cohesion in the development of academic writing and have demonstrated that different writing tasks elicit distinct cohesive patterns (Zhang & Zhang, 2023; Tabari et al., 2023; Abdi Tabari & Golparvar, 2024). These findings reinforce the view that cohesion should be examined as a context-dependent textual resource, making comparative analyses across different writing conditions particularly valuable.

The Iranian EFL context presents a unique landscape for writing research, which further illuminates these challenges. Despite national curriculum reforms aimed at promoting communicative competence (Razavipour & Rezagah, 2018), the reality in classrooms often remains focused on grammatical accuracy and preparation for high-stakes exams that do not assess writing skills (Kiany et al., 2010; Naghdipour, 2016). Consequently, university students often arrive with a weak foundation in composing extended, coherent prose. Studies focusing on Iran have consistently identified specific patterns and challenges. Researchers have documented an overuse of repetition and personal reference (pronominals like *I*, *you*), an underuse of ellipsis and substitution, and errors in using conjunctions and demonstratives (*this*, *that*) (Jafari, 2012; Zarepour, 2016; Khorram et al., 2023). These issues are frequently attributed to L1 interference (e.g., the lack of a definite article in Persian (Ghomeshi, 2003) and a lack of explicit instruction on discourse-level features (Sadighi & Heydari, 2012).

The pedagogical tools employed in such contexts are critical to addressing these challenges. The debate between process-oriented (e.g., free writing) and product-oriented (e.g., guided writing) approaches is long-standing in composition studies. Free writing, championed by Elbow (1973, 1998), is designed to liberate the writer from the internal "editor," promoting fluency, creativity, and idea generation. Its proponents argue that by temporarily disregarding accuracy, writers can tap into a richer flow of ideas and overcome writer's block (Jacobs, 1986). Investigation into the pedagogical utility of creative writing among Iranian EFL learners provides compelling evidence that such an approach yields measurable gains in written production fluency and simultaneously fortifies learners' self-perceived competence in writing (Tajiki & Negari, 2022). In an EFL context, studies have shown that free writing can reduce anxiety and build writing fluency and self-confidence (Hwang, 2010; Park, 2020; Alharthi, 2021). Barjesteh and Niknezhad (2020) shows that discussion-based methods can boost students' critical thinking skills. Classroom discussions helped students move from simple descriptions to more critical and creative writing and that policy makers and textbook writers should support this new, student-centered way of teaching. However, critics contend that it can produce disorganized, inaccurate text and may not adequately prepare students for the structured demands of academic writing (Fox & Suhor, 1986; Rivers, 2007). Guided writing, in contrast, is a scaffolded instructional approach where the teacher provides structured support tailored to small groups or individuals. It emphasizes modeling, collaborative writing, and direct instruction on specific skills like grammar, vocabulary, and text structure (Pinnell & Fountas, 1998; Gibson, 2008). This method is considered particularly effective for lower-proficiency learners and for teaching specific genres (Zarei & Dodangeh, 2015; Usman & Rizki, 2016). Its structured nature is believed to lead to greater accuracy but is sometimes criticized for potentially stifling creativity and personal voice. Few studies have directly compared the effect of these two techniques on specific linguistic features like cohesion. Zarei and Dodangeh (2015) found that controlled and guided writing were more effective than free writing for improving cohesion in Iranian

high school students' writing, suggesting guided approaches are more suitable at lower proficiency levels.

To meaningfully assess L2 writing development, it is essential to move beyond traditional native-speaker benchmarks, a practice heavily criticized for ignoring the unique nature of multicompetent language users (Cook, 1999; Firth & Wagner, 2007). As Brown (2013) argues, a fairer assessment values "near native-like competence" by comparing L2 performances to other successful L2 performances, accounting for shared learning challenges.

This corpus-based perspective is consistent with recent developments in L2 writing research, which increasingly emphasize the value of authentic learner corpora for investigating the linguistic features of academic writing across different educational and disciplinary contexts. Rather than treating native-speaker production as the sole reference point, contemporary corpus studies have highlighted the importance of comparable L2 corpora in identifying patterns of language use and developmental tendencies in academic writing (Zhang, 2023; Emir & Yangın Ekşi, 2023). Such approaches provide ecologically valid benchmarks for examining how L2 writers deploy linguistic resources in naturally occurring academic texts and offer valuable insights for both writing research and pedagogy.

The variability in previous findings may partly be explained by important differences in research design and analytical focus. Studies have examined writers with different proficiency levels, ranging from secondary school learners to advanced university students, whose linguistic resources and writing experience naturally differ. Likewise, the writing tasks and genres investigated—including argumentative, narrative, expository, and academic essays—place different rhetorical and organizational demands on writers and may encourage different patterns of cohesive resource use. Methodological differences also contribute to divergent results, as some studies measure the overall frequency of cohesive devices, whereas others emphasize their appropriateness, distribution, or contribution to textual quality. Furthermore, researchers have employed different analytical frameworks, including Halliday and Hasan's (1976) cohesion model, computational indices of textual cohesion, and corpus-based approaches, each highlighting different aspects of textual organization. Consequently, apparently conflicting findings in the literature may reflect differences in research context and analytical perspective rather than genuine contradictions regarding the role of cohesion in L2 writing.

This review reveals several critical gaps in the existing literature. Previous studies on Iranian EFL writers have not systematically compared cohesive device use across free and guided writing conditions within the same cohort. In addition, Halliday and Hasan's (1985) Cohesive Harmony framework, with its richer taxonomy of cohesive relations, has rarely been applied to EFL writing and remains largely unexplored in the Iranian context. Furthermore, previous comparisons have typically been limited to either within-group analyses or contrasts with native-speaker norms, with little attention given to benchmarking learner performance against successful advanced L2 academic writing. To address these gaps, the present study conducts a quantitative analysis of cohesive devices in Iranian EFL writing under two pedagogical conditions, employing Halliday and Hasan's (1985) framework and using the non-native component of the Michigan Corpus of Upper-level Student Papers (MICUSP)—a collection of highly rated academic papers written by advanced L2 university students from diverse linguistic backgrounds—as a reference corpus. The findings are expected to provide targeted insights into the effects of instructional conditions on cohesion and to identify attainable areas for the development of academic writing proficiency.

Methodology

This study employed a quantitative, corpus-based research design to investigate and compare the use of cohesive devices across three distinct corpora of academic writing. The primary aim was to conduct a fine-grained analysis of how cohesive features manifest in the writing of Iranian EFL learners under different conditions and to benchmark their performance against that of non-native writers. The data collection procedure was conducted in May 2024 within a single EFL classroom setting.

The study involved 28 Iranian undergraduate students majoring in English Literature at Shahid Chamran University of Ahvaz. Participants were purposively selected from the fifth semester of the program, during which they were enrolled in the compulsory Essay Writing course. An important criterion for participation was the successful completion of the prerequisite Advanced Writing course, which all students had passed before entering the Essay Writing course. Consequently, the participants shared a common academic trajectory and had received comparable formal instruction in English writing, providing a relatively homogeneous background for the purposes of the study. Because the focus of the study was the comparison of cohesive practices under different writing conditions within a single instructional context, participants were drawn from the same academic cohort to minimize variation arising from differences in educational experience and writing instruction.

Throughout the semester, participants received systematic instruction based on Longman Academic Writing Series 5. The course incorporated explicit instruction in academic writing conventions, multiple genre-specific writing tasks, and iterative instructor feedback. Students completed at least ten writing assignments during the semester before participating in the writing tasks analyzed in the present study. This instructional background provided a common pedagogical foundation for both the free-writing and guided-writing conditions. The study employed three corpora representing distinct contexts of L2 academic writing: a free-writing corpus, a guided-writing corpus, and a reference corpus of successful advanced L2 academic writing drawn from the non-native component of the Michigan Corpus of Upper-level Student Papers (MICUSP). The objective was not to compare identical genres, text lengths, or writing processes, but rather to examine the relative deployment of cohesive devices across different contexts of L2 academic writing. Accordingly, subsequent analyses employed normalization procedures to facilitate meaningful comparisons among the three corpora. The study utilized a within-subjects design for the Iranian cohort, as each student produced two writing samples under different conditions, yielding a total of 56 essays. The first corpus consisted of 28 essays produced under a free writing instruction. During a midterm examination session, students were instructed to write spontaneously on a topic of their own choosing without prior notice, focusing on content and fluency over grammatical accuracy or structural concerns. The second corpus also consisted of 28 essays from the same students but produced under a guided writing instruction during the final examination. For this task, students selected one of four prescribed, structured topics provided by the instructor ("Classification of football fans," "Steps to creating marketing plans," "What can be done to reduce the impact of misleading fake news on social media and mainstream news platforms?" and "It is sometimes said that people should be encouraged to get married before 30, and this is best for individuals and for society. Do you agree or disagree?"). In both conditions, to ensure authenticity and minimize the use of external aids like online translators or AI tools, students were supervised and permitted only a hardcopy dictionary.

The quantitative analysis was designed primarily as a descriptive corpus-comparative investigation. Normalized frequencies and proportional distributions were employed to facilitate comparison across corpora differing in length and production context, with the objective of identifying patterns of cohesive resource deployment rather than testing population-level statistical hypotheses.

In the present study, guided writing refers to a writing condition in which learners, following a semester of explicit instruction and repeated practice in academic writing, compose an essay in response to one of several instructor-provided prompts that delimit the topic while allowing flexibility in the development of ideas and arguments. Although the prompts represented different academic writing tasks, they were selected to reflect the range of genres practiced during the semester using the course textbook. In contrast, the free-writing condition permits students to determine the topic independently without externally imposed thematic constraints. The self-selected topic was an intentional feature of the free-writing condition, designed to maximize learner autonomy and spontaneous idea generation. The third corpus functioned as a reference corpus of successful advanced L2 academic writing and consisted of 28 texts selected from the non-native component of MICUSP. The MICUSP non-native corpus was not intended to provide structurally identical writing samples but rather a corpus of successful advanced L2 academic writing for comparative analysis of cohesive practices. This approach shifts the focus from deviation from native-speaker norms to comparison with successful international

L2 peers and the identification of attainable areas for pedagogical improvement. To ensure a relevant and analytically manageable comparison, essays were selected from disciplines familiar to the researcher (Linguistics, Sociology, English, and Education) and represented a range of academic genres similar to those attempted by the EFL students, including argumentative, critique, report, creative, and evaluation papers. This selective process was necessary due to the limited number of non-native texts available in the MICUSP database. Although the MICUSP papers were drawn from several academic disciplines and genres, the selection was restricted to fields and text types that shared broad academic and expository characteristics with the university writing tasks completed by the Iranian participants. The intention was not to establish genre equivalence but to provide a representative sample of authentic advanced L2 academic writing for comparative purposes.

The present study does not seek to compare structurally identical writing tasks or equivalent production conditions. Rather, it adopts a corpus-comparative perspective to examine how cohesive resources are deployed across three distinct contexts of L2 academic writing: timed free writing, timed guided writing, and extended academic writing produced by multilingual university students. Although these contexts differ in genre, length, and writing process, they represent authentic manifestations of L2 academic discourse. To facilitate meaningful comparison, the analysis focuses on normalized frequencies and proportional distributions of cohesive devices rather than raw counts, allowing patterns of cohesive resource use to be examined independently of differences in text length.

The primary instrument for analysis was the taxonomy of cohesive devices outlined in Halliday and Hasan's (1985) model of Cohesive Harmony. This framework was chosen for its comprehensiveness, extending beyond the 1976 model to include categories such as *continuatives*, *equivalence*, *naming*, and *semblance*. Each cohesive device in the three corpora was identified and coded according to this scheme. The analysis was conducted manually for the Iranian free and guided writing samples due to their shorter length (approximately 370–750 words each). However, the substantially longer MICUSP academic papers required computer-assisted coding using NVivo to facilitate the systematic identification and management of cohesive devices across a larger textual dataset. Although the MICUSP texts (ranging from approximately 1000 to 4500 words) are substantially longer than the Iranian student essays, the objective of the present study was not to compare overall text structure or rhetorical organization but rather the relative distribution and deployment of cohesive devices. Because the three corpora differed substantially in overall text length, direct comparison of raw frequencies would have been misleading. Accordingly, the occurrence of each cohesive device was normalized relative to the total word count of each corpus and supplemented by proportional analyses of cohesive categories. This normalization procedure enabled meaningful comparisons of cohesive patterns across texts of varying lengths and rhetorical complexity while minimizing the influence of corpus size. In addition to descriptive frequency analyses, chi-square tests of independence and Cramer's V effect sizes were employed to examine whether differences in the distribution of major cohesive categories across the three corpora were statistically significant.

To enhance coding consistency, a detailed coding manual based on Halliday and Hasan's (1985) Cohesive Harmony framework was developed prior to the analysis. Operational definitions and representative examples for each cohesive category were established and jointly reviewed by the research team. Following recommendations for consensus-based coding procedures (Miles et al., 2014; Saldaña, 2021), a subset of essays from each corpus was independently examined, after which coding decisions were compared and any discrepancies were discussed until agreement was reached. The remaining texts were subsequently coded according to the agreed protocol. Because the study employed a negotiated consensus approach rather than an independent double-coding design intended for statistical estimation of inter-rater reliability, formal reliability coefficients such as Cohen's κ were not calculated. Future studies could strengthen the methodological rigor of cohesion research by implementing fully independent double-coding procedures and reporting statistical measures of inter-coder agreement, such as Cohen's κ or Krippendorff's α.

Results

The analysis of the first research question, which sought to identify the cohesive devices employed most frequently in each writing corpus, revealed distinct patterns. Reference constituted the predominant cohesive strategy in both the Iranian free- and guided-writing corpora, accounting for 42% and 39% of all cohesive devices, respectively. Within this category, pronominals represented the largest subgroup of reference ties. In contrast, the MICUSP reference corpus relied predominantly on lexical repetition, which accounted for 46% of all cohesive devices and represented its most frequently employed cohesive resource.

A comparison of the overall frequency of cohesive devices, normalized by total word count, revealed further differences among the three corpora (Table 2). The analysis yielded approximately 50 cohesive device occurrences per 100 running words in the MICUSP corpus, compared with approximately 45 occurrences per 100 words in the Iranian free-writing corpus and 36 occurrences per 100 words in the guided-writing corpus. These frequencies should not be interpreted as indicating that every second word was itself a cohesive marker. Rather, following Halliday and Hasan's (1985) framework, they represent the cumulative occurrence of grammatical and lexical cohesive resources, including repeated lexical items, reference forms (e.g., *the, this, it*), conjunctions (e.g., *and, however*), and other cohesive devices that contribute to textual continuity. For example, in the sentence *"Social media has transformed communication. This transformation has affected education and society,"* the repeated lexical item (*transformation*), the demonstrative reference (*this*), and the definite article (*the*) all contribute to cohesive relations under Halliday and Hasan's framework. The results indicate that cohesive device occurrences were more frequent in the MICUSP corpus and the Iranian free-writing corpus than in the guided-writing corpus.

Conjunctives also displayed variation across the three corpora. Iranian learners employed conjunctions more frequently in both writing conditions (16% in free writing and 18% in guided writing) than the MICUSP writers (13%). Although basic coordinators such as *and*, *but*, and *or* occurred frequently in the Iranian corpora, the MICUSP corpus exhibited a broader range of additive, adversative, causal, and temporal conjunctions. Lexical repetition represented an important cohesive resource in the MICUSP corpus and contributed substantially to its overall lexical cohesive profile. According to Halliday and Hasan (1985), lexical repetition functions as a mechanism for maintaining textual continuity across discourse. Devices such as ellipsis, equivalence, and semblance occurred only rarely across all three corpora.

Table 2

Total Cohesive Devices in Free, Guided, and MICUSP Writings

Texts Types	Total Cohesive Devices	Total Texts' Words	Total Cohesive Devices Percentage
Guided	3902	10742	36%
Free	4268	9391	45%
MICUSP	23186	45526	50%

The comparison of reference cohesion across the three corpora (Table 3) revealed that Iranian learners relied predominantly on pronominals, whereas the MICUSP reference corpus relied heavily on definite articles. Reference constituted 42% and 39% of all cohesive devices in the free and guided-writing corpora, respectively, but only 27% in the MICUSP corpus.

Table 3

Reference Cohesive Devices across the Three Corpora

Reference Type	Free Writing n (%)	Guided Writing n (%)	MICUSP n (%)
Pronominals	1074 (59)	922 (59)	2453 (39)
Demonstratives	192 (11)	193 (12)	676 (11)

Definite articles	527 (29)	430 (27)	3232 (50)
Comparatives	2 (0.1)	12 (1)	2 (0.1)
Total references	1795	1557	6363
Reference as % of all cohesive devices	42%	39%	27%

Note. Percentages in parentheses are calculated relative to the total number of reference devices within each corpus.

Grammatical cohesion (Table 4) exhibited both shared tendencies and noteworthy differences across the three corpora. Conjunctives represented the most frequently employed grammatical cohesive device after reference. The Iranian guided-writing corpus showed the highest proportion of conjunctives (18%), followed by the free-writing corpus (16%) and the MICUSP reference corpus (13%). Although Iranian learners employed conjunctions more frequently, their repertoire was largely restricted to common coordinators and basic logical connectors such as *and*, *but*, and *or*. By contrast, the MICUSP writers employed a wider range of additive, adversative, causal, and temporal conjunctions, indicating a broader range of discourse-linking functions.

Table 4

Grammatical Cohesive Devices across the Three Corpora

Device	Free Writing	Guided Writing	MICUSP
Conjunctives	711 (16%)	712 (18%)	3178 (13%)
Substitution	25	6	45
Ellipsis	2	34	12

A closer examination of the internal structure of substitution and ellipsis revealed additional differences among the three corpora. In the Iranian free-writing corpus, nominal substitution was the predominant subtype, accounting for the majority of substitution instances, whereas clausal and verbal substitutions occurred only rarely. A similar pattern was observed for ellipsis, with nominal ellipsis representing the most frequent form. The guided-writing corpus displayed a slightly different tendency: while nominal forms remained dominant, clausal substitution occurred more frequently than in the free-writing corpus, indicating a different distribution of substitution patterns across the two writing conditions. In the MICUSP reference corpus, nominal substitution and ellipsis likewise constituted the principal subcategories, although clausal and verbal forms were somewhat more evenly distributed than in the Iranian corpora. Despite these differences, substitution and ellipsis were infrequent across all three writing contexts, indicating that these cohesive resources played a relatively limited role compared with reference and lexical cohesion. Their low frequency is consistent with previous observations that these cohesive resources occur relatively infrequently in L2 academic writing.

Lexical cohesion (Table 5) revealed the most substantial differences among the three writing contexts. Repetition was the predominant lexical cohesive strategy in all corpora but was especially prominent in the MICUSP reference corpus, where it accounted for the majority of lexical cohesive ties. Within the Halliday and Hasan (1985) framework, repetition should not be interpreted as a sign of limited vocabulary; rather, it functions as a mechanism for maintaining topical continuity and ensuring lexical precision in extended academic discourse. The Iranian free- and guided-writing corpora also relied heavily on repetition, although to a considerably lesser extent than the MICUSP corpus.

Table 5

Lexical Cohesive Devices across the Three Corpora

Device	Free Writing n (%)	Guided Writing n (%)	MICUSP n (%)
Repetition	1373 (79)	1305 (82)	10800 (79)
Synonymy	22 (1)	35 (2)	30 (<1)
Antonymy	30 (2)	72 (5)	243 (2)
Meronymy	136 (8)	44 (3)	116 (1)
Continuatives	97 (6)	95 (6)	584 (4)
Equivalence	4 (<1)	5 (<1)	0 (0)

Naming	68 (4)	31 (2)	1809 (13)
Semblance	4 (<1)	6 (<1)	5 (<1)
Total lexical devices	1734 (40% of all cohesive devices)	1593 (40%)	13587 (74%)

Note. Percentages in parentheses are calculated relative to the total number of lexical cohesive devices within each corpus.

The remaining lexical cohesive devices occurred relatively infrequently across all three corpora. Synonymy, antonymy, meronymy, and continuatives contributed only modestly to the overall cohesive profile. Equivalence and semblance were particularly rare, appearing only a few times in the Iranian corpora and scarcely at all in the MICUSP corpus. This consistent underuse across the three writing contexts suggests that these instantial lexical relations represent advanced cohesive resources that are not commonly exploited even by successful L2 academic writers.

A comparison of the overall cohesive profiles of the three corpora (Table 6) highlights their distinctive characteristics. Reference constituted the principal cohesive strategy in both Iranian writing conditions, accounting for 42% and 39% of all cohesive devices in the free- and guided-writing corpora, respectively. In contrast, lexical cohesion dominated the MICUSP reference corpus, where lexical devices represented 74% of all cohesive ties. The guided-writing condition also exhibited the highest proportion of conjunctives, indicating that the structured writing prompts encouraged explicit logical connections between ideas. At the same time, the lower overall frequency of cohesive device occurrences in the guided-writing corpus indicates a distinct cohesive profile characterized by fewer cohesive device occurrences per unit of text than the free-writing corpus.

Table 6

Overall Distribution of Major Cohesive Categories

Cohesive Category	Free Writing	Guided Writing	MICUSP
Reference	42%	39%	27%
Lexical cohesion	40%	40%	74%
Conjunctives	16%	18%	13%
Substitution & Ellipsis	<1%	1%	<1%

To determine whether the observed differences in the distribution of the major cohesive categories across the three corpora were statistically meaningful, a chi-square test of independence was conducted using the frequencies of reference, lexical cohesion, conjunctives, and substitution/ellipsis. The analysis revealed a statistically significant association between corpus type and cohesive category, $\chi^2(6, N = 31{,}354) = 839.42$, $p < .001$. The corresponding effect size was small to moderate (Cramer's V = .116), indicating that the three corpora displayed significantly different cohesive profiles. These findings support the descriptive analyses by demonstrating that the observed variation in cohesive resource deployment is unlikely to be attributable to chance.

These findings answer the first research question by showing that reference constituted the predominant cohesive strategy in the Iranian free and guided-writing corpora, whereas lexical repetition was the dominant cohesive resource in the MICUSP reference corpus. The comparison between the free and guided-writing corpora addresses the second research question by indicating that the two writing conditions exhibited distinct cohesive profiles. Free writing contained a higher overall density of cohesive devices, whereas guided writing showed relatively greater reliance on conjunctive relations.

Table 7

Overall Corpus Characteristics

Corpus	Word range	Total cohesive devices	Cohesive occurrences per 100 words
Free Writing	370–750	4268	45
Guided Writing	370–750	3902	36
MICUSP	1000–4500	23186	50

Taken together, these findings address the third research question by demonstrating that the Iranian learner corpora and the MICUSP reference corpus exhibited distinct cohesive profiles. Whereas the

Iranian free- and guided-writing corpora relied primarily on grammatical cohesion, particularly reference, the MICUSP corpus depended more heavily on lexical cohesion, especially repetition. These patterns suggest differences in cohesive preferences across authentic contexts of L2 academic writing rather than differences in writing quality per se.

Discussion

This study's comparative analysis yields significant insights into how different contexts of L2 academic writing and instructional conditions shape the deployment of cohesive devices. The findings reveal not only quantitative differences in frequency but also qualitative differences in the cohesive strategies employed across the three writing corpora. The most salient finding is the fundamental divergence in cohesive strategy between the cohorts. The Iranian EFL learners, across both conditions, exhibited a primary reliance on grammatical cohesion, with reference constituting the cornerstone of their cohesive framework. This aligns with a body of research indicating that EFL writers often over-rely on referential devices, particularly personal pronouns (Jafari, 2012; Zarepour, 2016). A notable feature of the free-writing corpus was the relatively high frequency of exophoric references, particularly personal pronouns such as *I*, *we*, and *you*. This tendency may reflect the greater freedom afforded by the self-selected writing topics, which allowed learners to draw on personal experiences and viewpoints. In contrast, the more structured writing prompts in the guided-writing condition and the academic texts included in the MICUSP reference corpus provided fewer opportunities for such personally anchored discourse. Consequently, differences in reference patterns are likely to reflect not only individual stylistic preferences but also the communicative demands of the writing context and task. From a pedagogical perspective, these findings suggest that different writing conditions may encourage different cohesive strategies. While free-writing activities may provide opportunities for idea generation and personal engagement, more structured academic tasks appear to encourage patterns of cohesion that are less dependent on personal reference and more closely aligned with conventional academic discourse.

In contrast to the Iranian corpora, the MICUSP reference corpus relied predominantly on lexical cohesion, particularly lexical repetition. Within Halliday and Hasan's (1985) framework, repetition refers to the recurrence of lexical items that maintain topical continuity across a text. A closer examination of the MICUSP papers indicated that repeated lexical items frequently involved key disciplinary and topic-related terms rather than indiscriminate duplication of vocabulary. For example, central concepts were often reiterated throughout a text to sustain thematic development and maintain referential clarity. This pattern suggests that lexical repetition functioned as an important cohesive resource within this corpus of advanced L2 academic writing. However, the findings should not be interpreted as implying that repetition itself is a marker of writing quality; rather, its effectiveness depends on its function, distribution, and appropriateness within the communicative context and genre. More broadly, the present findings should not be interpreted as suggesting that lexical cohesion is inherently superior to grammatical cohesion or that a greater frequency of lexical cohesive ties automatically leads to higher-quality writing. Rather, the three corpora appear to reflect different cohesive preferences associated with different writing contexts and communicative purposes. The comparison therefore highlights variation in discourse strategies rather than a direct relationship between particular cohesive devices and writing quality.

The comparison of overall cohesive frequency also provides insight into the influence of writing conditions. The MICUSP reference corpus exhibited the highest normalized frequency of cohesive device occurrences, reflecting the extensive use of cohesive resources in sustained academic discourse. Among the Iranian corpora, the free-writing condition showed a higher normalized frequency than the guided-writing condition. Rather than attributing this difference to content familiarity, which was not directly measured in the present study, it may reflect differences in task characteristics and the degree of writer autonomy associated with the two writing contexts. The opportunity to select topics and organize ideas more freely may have encouraged the production of a greater number of cohesive links, whereas the structured nature of the guided-writing tasks may have promoted a more economical use of cohesive devices. These findings suggest that writing conditions can influence the deployment

of cohesion, although further research is needed to disentangle the effects of task design, genre, and planning activities.

The guided-writing condition yielded the lowest normalized frequency of cohesive device occurrences among the three corpora. Rather than attributing this outcome to topic unfamiliarity or other unmeasured learner variables, it is more appropriate to interpret it in relation to the characteristics of the writing task itself. The structured prompts and examination context may have encouraged students to organize their ideas within a more constrained rhetorical framework, resulting in a comparatively economical use of cohesive resources. In contrast, the free-writing condition provided greater flexibility in topic selection and text organization, which may have allowed learners to employ a wider range of cohesive links. These findings suggest that different writing conditions can influence the deployment of cohesion, although further research is needed to examine the specific contributions of task design, planning opportunities, genre, and other contextual factors.

Importantly, the present findings should not be taken to imply that any individual cohesive device or cohesive strategy is intrinsically associated with writing quality. Effective cohesion depends on the interaction between linguistic resources, genre conventions, communicative purposes, and the broader organizational demands of a text. The study confirms that certain high-level cohesive devices remain a significant hurdle. The scarcity of ellipsis, substitution, comparative reference, equivalence, and semblance across all three corpora indicates that these are late-acquired features in academic L2 development. Their absence in the MICUSP papers is particularly revealing, signifying that even highly proficient non-native writers may struggle to integrate these sophisticated devices seamlessly. For the Iranian learners, the problem is one of both range and mastery. Their writing demonstrated a pattern of relatively frequent use of certain cohesive resources, particularly reference and simple conjunctions, alongside limited use of more complex lexical and grammatical devices. This pattern suggests a comparatively restricted cohesive repertoire, although the present findings should not be interpreted as direct evidence of textual coherence, which depends on a broader interaction of linguistic, cognitive, and contextual factors. Compared with the MICUSP reference corpus, the Iranian writing samples exhibited a less diverse distribution of cohesive resources, particularly in the domain of lexical cohesion. From a pedagogical perspective, these findings highlight the value of instructional practices that extend beyond error correction and encourage learners to develop a broader functional repertoire of cohesive strategies appropriate to different academic writing contexts. The explanations proposed for the observed differences should be regarded as tentative interpretations of textual patterns rather than direct evidence of the cognitive processes underlying writers' decisions, since the present study did not include measures such as interviews, questionnaires, or think-aloud protocols.

Conclusion

This study investigated the use of cohesive devices in the writing of Iranian EFL learners under different instructional conditions and compared their cohesive patterns with those observed in the non-native component of the MICUSP reference corpus of advanced L2 academic writing. The findings reveal a complex interplay between writing conditions and cohesive strategies.

The findings indicate that the Iranian writing corpora exhibited a cohesive profile characterized by a relatively greater reliance on grammatical cohesion, particularly reference, whereas the MICUSP reference corpus displayed a greater reliance on lexical cohesion, especially lexical repetition. The two Iranian writing conditions also differed in their deployment of cohesive resources, with the free-writing corpus exhibiting a higher normalized frequency of cohesive device occurrences than the guided-writing corpus. Rather than suggesting that one writing condition is inherently superior to the other, these findings indicate that different instructional contexts may encourage different patterns of cohesive resource use. Across all three corpora, devices such as ellipsis, substitution, comparative reference, equivalence, and semblance occurred relatively infrequently, suggesting that they represent less commonly employed cohesive resources in L2 academic writing.

The findings of the present study may have pedagogical implications for the teaching of L2 academic writing. Although the study was not designed to evaluate the effectiveness of particular

instructional approaches, the observed patterns of cohesive resource use suggest several areas that may warrant pedagogical attention. One possible implication is that writing instruction could benefit from providing learners with greater opportunities to explore a wider range of cohesive resources within different academic genres. Model texts and guided analyses may help students become more aware of the diverse functions that grammatical and lexical cohesive devices can perform in academic discourse. Similarly, the differences observed between the free and guided writing contexts suggest that incorporating a variety of writing tasks may provide learners with opportunities to develop different aspects of their written discourse. The present findings do not establish the superiority of any particular instructional approach but indicate that different writing contexts may encourage different patterns of cohesive resource use.

This study suggests several avenues for future research while also highlighting a number of methodological limitations that should be considered when interpreting the findings. First, the study was based on a relatively small sample of undergraduate students from a single Iranian university, which may limit the generalizability of the results. Replication with larger and more diverse learner populations drawn from different educational contexts would provide a broader understanding of cohesive resource deployment in L2 academic writing.

A second limitation concerns the comparative design itself. The Iranian essays and MICUSP texts were produced under different writing conditions and for different communicative purposes. Whereas the Iranian corpus consisted of timed classroom compositions, the MICUSP texts represented extended academic writing produced in authentic university settings. Consequently, the findings should be interpreted as reflecting variation across authentic contexts of L2 academic writing rather than direct comparisons between identical writing tasks. Future research could strengthen this line of inquiry by employing matched genres, comparable text lengths, and similar production conditions across learner and reference corpora.

A further methodological limitation relates to the coding procedure. Although the coding scheme was collaboratively developed and a subset of texts was independently reviewed to enhance consistency, formal inter-rater reliability statistics were not calculated. Future studies could strengthen the robustness of cohesion analyses by incorporating larger independently coded samples and reporting statistical measures of inter-coder agreement.

Another limitation concerns the analytical scope of the quantitative investigation. Although normalized frequencies enabled meaningful cross-corpus comparisons, the study did not employ inferential statistical procedures to evaluate the significance of observed differences. Future research could complement descriptive corpus analyses with statistical techniques such as chi-square tests, log-likelihood analyses, and effect size measures.

Finally, the present study focused primarily on the textual realization of cohesion and did not directly investigate the cognitive processes underlying writers' choices or the effects of particular instructional practices on the development of cohesive resources. As a result, interpretations concerning the factors that may influence patterns of cohesive resource use should be regarded as tentative. Future research could build on the present descriptive findings by employing experimental and longitudinal designs to examine how different instructional approaches influence the development of cohesive resources in L2 writing. In addition, qualitative and process-oriented methods, including interviews, questionnaires, and think-aloud protocols, could provide deeper insight into the reasons behind writers' choices and avoidance strategies. Ultimately, integrating corpus-based, experimental, and qualitative approaches may contribute to a more comprehensive understanding of how cohesive resources develop and how L2 academic writing can be effectively supported in educational contexts.

Taken together, the findings suggest that effective L2 academic writing depends not simply on the frequency with which cohesive devices are employed but on the ability to deploy a varied range of cohesive resources appropriately across different writing contexts. The present study highlights distinct patterns of cohesive behavior associated with free writing, guided writing, and advanced L2 academic writing and underscores the importance of providing learners with opportunities to expand their repertoire of cohesive strategies. Although the study does not directly evaluate instructional

interventions, the observed patterns may have pedagogical implications for L2 writing instruction. In particular, pedagogical approaches that combine opportunities for extended writing practice with explicit attention to the functions of cohesive resources may help learners develop greater flexibility in managing textual relationships across academic genres.

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