

# COHESIVE DEVICES USED IN ENGLISH SCIENTIFIC ARTICLES: COMPARATIVE STUDY ACROSS GROUPS OF INDONESIAN, MALAYSIAN, AND NATIVE ENGLISH WRITERS

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## ABSTRACT

*In every piece of writing, cohesive devices play an important role in interconnecting the writer's ideas in such a way so that they are logically unified and coherent. However, employing cohesive devices in scientific articles is not always easy for authors who learn English as a foreign language, like Indonesians as well as their Asian counterparts. This current study attempts to look into the compared uses of cohesive devices in English scientific articles written by three different groups, namely Indonesian, Malaysian, and Native English speakers. The data on cohesive devices were collected from articles written in English by different Indonesian writers and from articles written by different Native English authors published in several international journals. The data analysis was carried out quantitatively by identifying and classifying them based on the taxonomy proposed by Halliday and Matthiessen. Descriptive statistics and One-Way ANOVA were also employed in this study. This study revealed that native and non-native writers employed different patterns of cohesive devices. Although Indonesian and Malaysian represent similar distribution patterns at the relatively equivalent level of English proficiency, it does not determine a completely general pattern of cohesive distribution in the reality of writing practice.*

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## A. Introduction

Writing proficiency, let alone academic writing, is not easy for those who learn English as a foreign language, like

Indonesians and their Asian counterparts. Statistically, Asian EFL test takers' writing scores are the lowest among the four major language skills.<sup>1</sup> It definitely implies that

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<sup>1</sup> IELTS, "Test Taker Performance 2018," 2019,

<https://www.ielts.org/for-researchers/test->

writing for EFL learners is not an easy skill to obtain for Asian students.<sup>2</sup> In composing a piece of essay in English, EFL learners are frequently hindered by several obstacles.<sup>3</sup> As revealed by some studies, the hindrances faced by the students are, among others, shortages in terms of vocabulary and diction,<sup>4</sup> and another common shortage is pertaining to grammatical features.<sup>5</sup>

Literature indicates an ongoing debate on the difference between cohesion and coherence. The discussion starts with how a text is defined. For example, a text is considered a means of communication, both in spoken and written forms that structure an idea. The difference between cohesion and coherence has been the

focus among scholars. Coherence focuses more on how readers can understand and interpreted a text, while cohesion deals with how some parts in a text are connected by several devices.

Indeed, writing a composition is not simply putting down random sentences together to form a paragraph or an essay.<sup>6</sup> It is coined that writing does not merely create a text in the written form but also includes the acts of thinking, composing, and encoding language into such a text. As a productive skill, it involves cognitive processes,<sup>7</sup> ranging from expressing intentions, composing ideas, problem-solving, and up to critical thinking.<sup>8</sup>

Thus, a writing skill highly demands an entirely different set of competencies.<sup>9</sup>

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statistics/test-taker-performance.

<sup>2</sup> Ju Zhan, Qiyu Sun, and Lawrence Jun Zhang, "Effects of Manipulating Writing Task Complexity on Learners' Performance in Completing Vocabulary and Syntactic Tasks," *Language Teaching Research*, June 23, 2021, 1–22, <https://doi.org/10.1177/13621688211024360>.

<sup>3</sup> Jakob Patekar, "A Look into the Practices and Challenges of Assessing Young EFL Learners' Writing in Croatia," *Language Testing* 38, no. 3 (2021): 456–79, <https://doi.org/10.1177/0265532221990657>.

<sup>4</sup> Dyah Ayu Nugraheni and Dihliza Basya, "Exploring EFL Students' Writing Difficulties: From Dimensions to Errors," *Jurnal Educazione: Jurnal Pendidikan, Pembelajaran dan Bimbingan Dan Konseling* 6, no. 2 (2018): 51–59; Rostanti Toba, Widya Noviana Noor, and La Ode Sanu, "The Current Issues of Indonesian EFL Students' Writing Skills: Ability, Problem, and Reason in Writing Comparison and Contrast Essay," *Dinamika Ilmu* 19, no. 1 (2019): 57–73, <https://doi.org/10.21093/di.v19i1.1506>; Maria Melissourgou and Katerina Frantzi, "Testing Writing in EFL Exams: The Learners' Viewpoint as Valuable Feedback for Improvement," in *Procedia - Social and Behavioral Sciences*, vol. 199, 2015, 30–37, <https://doi.org/10.1016/j.sbspro.2015.07.483>.

<sup>5</sup> Mohammad Hajeid, "Developing Students Essay Writing," *English Language Teaching* 11, no. 12 (2018): 101–5,

<https://doi.org/10.5539/elt.v11n12p101>; Jismulatif Jismulatif, "An Analysis of Student's Ability in Writing at Riau University Pekanbaru - Indonesia," *Theory and Practice in Language Studies* 7, no. 5 (2018): 380–88, <https://doi.org/10.17507/tpls.0705.08>.

<sup>6</sup> Alister Cumming, "Theoretical Perspectives on Writing," *Annual Review of Applied Linguistics* 18 (1998): 61–78, <https://doi.org/10.1017/S0267190500003482>.

<sup>7</sup> Naghmeh Jebreil, Akbar Azizifar, and Habib Gowhary, "Investigating the Effect of Anxiety of Male and Female Iranian EFL Learners on Their Writing Performance," in *Procedia - Social and Behavioral Sciences*, vol. 185, The Proceedings of 3rd World Conference on Psychology and Sociology, 2015, 190–96, <https://doi.org/10.1016/j.sbspro.2015.03.360>.

<sup>8</sup> Siti Aisah Ginting, "Lexical Formation Error in the Descriptive Writing of Indonesian Tertiary EFL Learners," *International Journal of Linguistics, Literature and Translation* 2, no. 1 (2019): 84–88, <https://doi.org/10.32996/ijllt.2019.2.1.11>;

Muhammad Fareed, Almas Ashraf, and Muhammad Bilal, "ESL Learners' Writing Skills: Problems, Factors and Suggestions," *Journal of Education and Social Sciences* 4, no. 2 (2016): 81–92, <https://doi.org/10.20547/jess0421604201>.

<sup>9</sup> H. Douglas Brown, *Teaching by Principles: An Interactive Approach to Language Pedagogy*, White Plains (New York: Longman, 2001), 335.

In other words, a writer needs to be resourceful in what to write and skillful in how to write or how to arrange ideas in systematically organized way.<sup>10</sup> He, therefore, must have a wide and insightful range of knowledge on the topic area he is meant to share with the readers. Furthermore, he must have a strong sense of how to interconnect ideas logically by means of his immense linguistic resources.<sup>11</sup>

Simply put, in producing a text, what a writer does is somehow similar to a spinner who weaves a bundle of threads into a piece of cloth. As a writer, he weaves sentences into interdependent paragraphs to create a unified unit.<sup>12</sup> Such a notion in terms of connecting ideas throughout the text is what experts technically have termed it as cohesion, a concept of which is a matter of establishing a connectedness within a text.<sup>13</sup> Cohesion makes text elements interconnected as to build the united parts into a well-organized text

structure.<sup>14</sup> Cohesion essentially provides a sense of unity in discourse.<sup>15</sup>

The aforementioned expert's views on the role of cohesion in a text suggest that the ability to interconnect ideas is pivotal in making up a piece of composition, which must be possessed by the learning writers to produce well-organized and coherently meaningful text. Hence, burgeoning interests on the study of cohesion both in the field of pure discourse and in the field of applied linguistics, especially within the realm of TEFL for writing, have been set on for the last two decades.<sup>16</sup>

To the extent of the present researcher's review, the studies on cohesion in relation to students' writing development have flocked to several directions and contexts. The first investigation sphere treats cohesion as a univariate issue in students' writing; for example, the one by Meisuo addressed the use of cohesive devices by Chinese

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<sup>10</sup> Audi Yundayani and Lidwina Sri Ardiasih, "Task-Based Material Design for Academic Purposes: Learners' English Writing Skill Improvement," *Studies in English Language and Education* 8, no. 1 (2021): 258–75, <https://doi.org/10.24815/siele.v8i1.18169>.

<sup>11</sup> Valeria Koroliova et al., "Information and Communication Activity of Students When Writing a Course Work on Linguistics," *Linguistics and Culture Review* 5, no. 1 (2021): 115–28, <https://doi.org/10.21744/lingcure.v5n1.1062>.

<sup>12</sup> Dudley W Reynolds, "Language in the Balance: Lexical Repetition as a Function of Topic, Cultural Background, and Writing Development," *Language Learning* 51, no. 3 (2001): 437–76, <https://doi.org/10.1111/0023-8333.00161>; Beverly E. Cox, Timothy Shanahan, and Elizabeth Sulzby, "Good and Poor Elementary Readers' Use of Cohesion in Writing," *Reading Research Quarterly* 25, no. 1 (1990): 47–65, <https://doi.org/10.2307/747987>.

<sup>13</sup> Michael Alexander Kirkwood Halliday and Christian M.I.M. Matthiessen, *Halliday's Introduction to Functional Grammar*, 4th ed. (New York: Routledge, 2014), 593.

<sup>14</sup> George Yule, *The Study of Language* (Cambridge: Cambridge University Press, 2020); Maite Taboada, *Building Coherence and Cohesion: Task-Oriented in English and Spanish*, *Pbns.129*, vol. 129 (Amsterdam: John Benjamins Publishing Company, 2004), <https://benjamins.com/catalog/pbns.129>.

<sup>15</sup> Sanna-Kaisa Tanskanen, *Collaborating towards Coherence: Lexical Cohesion in English Discourse*, vol. 146 (Amsterdam: John Benjamins Publishing, 2006), 16.

<sup>16</sup> Bantalem Derseh Wale and Yenus Nurie Bogale, "Using Inquiry-Based Writing Instruction to Develop Students' Academic Writing Skills," *Asian-Pacific Journal of Second and Foreign Language Education* 6, no. 1 (2021): 4, <https://doi.org/10.1186/s40862-020-00108-9>.

students in their essays.<sup>17</sup> The study found that the students employed several cohesive devices in their essay writing in different distributions, in which lexical cohesive device was most frequently used and then respectively followed by conjunctions and references.

In line with Meisuo, Rahman also conducted a study on the same topic toward Omani EFL students' writing, with the result of similar frequency of distribution, i.e. respectively from the most to least frequent, lexical cohesion, references, and conjunctions.<sup>18</sup> It also found that native speakers employed substitution and ellipsis more frequently than any other types of cohesion. In the Indonesian context, Albana analyzed the cohesion of argumentative writing produced by fifth-semester of Darussunnah university students.<sup>19</sup> The result showed the frequency of distribution of use, for grammatical cohesive devices, are respectively Reference, Conjunction, Ellipsis, and Repetition and, for lexical cohesive devices, are respectively synonymy, antonymy, collocation and superordinate.

Another univariate study on cohesion also discussed the problems of using

cohesive devices in EFL learners' essays. For instance, a study conducted on Chinese tertiary EFL students' essays by,<sup>20</sup> who found that the students used limited lexical cohesion, vague references, and repeated and misused conjunctions. Such a finding was quite in contrast with what was found by,<sup>21</sup> who revealed that the use of references as the most common problem amongst Chinese EFL students, which is of similar finding of Ong study on Omani students who overused references in their descriptive essays.<sup>22</sup>

Similar studies by Indonesian scholars found that EFL students' essays are of poor quality due to major difficulties in grammar, cohesion, and coherence,<sup>23</sup> Indonesian EFL learners' ability in using cohesive devices in their writings still contains errors, as much as 7,4 % of the total cases, and rely on excessive use of particular cohesive items. Such a piece of empirical evidence highlights that writing instruction in the EFL context has not been successful, and teacher effort should consistently be encouraged. The previous research also signals that grammar, cohesion, and coherence are integral parts of writing. If one is not linked to the others, learners' writing skills and the use of

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<sup>17</sup> Zhang Meisuo, "Cohesive Features in the Expository Writing of Undergraduates in Two Chinese Universities," *RELC Journal* 31, no. 1 (2000): 61–95, <https://doi.org/10.1177/003368820003100104>.

<sup>18</sup> Zuhair Abdul Amir Abdul Rahman, "The Use of Cohesive Devices in Descriptive Writing by Omani Student-Teachers," *Sage Open* 3, no. 4 (2013): 1–10, <https://doi.org/10.1177/2158244013506715>.

<sup>19</sup> Haqim Hasan Albana et al., "Cohesive Devices in Student's Writing (A Discourse Analysis on Argumentative Text)," *Jurnal Pendidikan Humaniora* 8, no. 1 (2020): 6–11.

<sup>20</sup> Meisuo, "Cohesive Features in the Expository Writing of Undergraduates in Two Chinese Universities," 61.

<sup>21</sup> Justina Ong, "Investigating the Use of Cohesive Devices by Chinese EFL Learners," *The Asian EFL Journal Quarterly* 11, no. 3 (2011): 42–65.

<sup>22</sup> Abdul Rahman, "The Use of Cohesive Devices in Descriptive Writing by Omani Student-Teachers."

<sup>23</sup> A. Ariyanti and Rinda Fitriana, "EFL Students' Difficulties and Needs in Essay Writing," in *International Conference on Teacher Training and Education 2017 (ICTTE 2017)* (Atlantis Press, 2017), 32–42, <https://doi.org/10.2991/icctte-17.2017.4>.

appropriate, cohesive devices may not work together.

Aside from an investigating interest in a univariate manner, the studies on cohesion are characteristically bivariate. A study, for example, investigated the relationship between students' proficiency levels and text cohesion. It ended up with the notion that proficiency levels were not directly related to the student's ability to achieve text cohesion in writing.<sup>24</sup> In addition, several studies were geared toward examining the relationship between cohesion and writing quality. Some study results similarly suggest a weak or even no relationship between the quality of writing and the use of connectives.<sup>25</sup> Meanwhile, some studies oppositely found that there is a positive relationship between text cohesion and writing quality.<sup>26</sup> It is apparent that the studies examining the relationship between cohesion and writing quality revealed controversial notions, and they were still inconclusive. Such polarized outputs of these studies were probably attributed to the applied methodology, especially in the validity of the obtained data, data analysis, or sample number. The previous work has signaled that validity in collecting the data influence how

research findings can be well interpreted. If that is the case, in cohesive devices research, scholars should focus on what devices are often used and how these devices are applied.

The current study attempts to look into the compared uses of cohesive devices in English scientific articles written by three groups: Indonesian, Malaysian, and Native English speakers. Specifically, it aims at examining (1) the distribution of the use of each type of cohesive device across the groups and (2) the difference of the pattern cohesive device uses across the Indonesian, Asian, as well as native speaker-writers.

## **B. Method**

### **1. Research Design**

This quantitative study was conducted to analyze and compare the cohesive devices employed by Indonesian writers in their articles published in International Journals. The research design was a comparative study in which the researchers compared the patterns of distribution for the uses of cohesive devices from English Articles written by Indonesian, Asian, and Native English writers.

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<sup>24</sup> Scott A Crossley and Danielle S McNamara, "Predicting Second Language Writing Proficiency: The Roles of Cohesion and Linguistic Sophistication," *Journal of Research in Reading* 35, no. 2 (2012): 115–35.

<sup>25</sup> Vicki Todd and Jerry C Hudson, "Using Graded Peer Evaluation to Improve Students Writing Skills, Critical Thinking Ability, and Comprehension of Material in a Principles of Public Relations Course," *Journal of College Teaching & Learning (TLC)* 4, no. 10 (2007): 39–46; Meisuo, "Cohesive Features in the

Expository Writing of Undergraduates in Two Chinese Universities," 83.

<sup>26</sup> Meihua Liu and George Braine, "Cohesive Features in Argumentative Writing Produced by Chinese Undergraduates," *System* 33, no. 4 (2005): 623–36, <https://doi.org/10.1016/j.system.2005.02.002>; Steve Y Chiang, "Assessing Grammatical and Textual Features in L2 Writing Samples: The Case of French as a Foreign Language," *The Modern Language Journal* 83, no. 2 (1999): 219–32, <https://doi.org/10.1111/0026-7902.00017>.

## 2. Data Collection

The data on cohesive devices were collected from 31 articles written in English by different Indonesian writers and 30 articles written by native English authors. The randomly selected articles contain an average of 7000 words, and they were drawn from internationally published journals indexed by DOAJ, Research Gate, or Google Scholars. The researcher carried out multiple and thorough readings on the selected articles in order to identify all sorts of cohesive devices employed within them. Each identified cohesive device was coded according to the taxonomy proposed under the categories of (1) lexical cohesion, (2) reference, (3) conjunction, (4) substitution, and (5) ellipsis.<sup>27</sup>

## 3. Data Analysis

The obtained data were then analyzed in some stages. In the first stage, the articles were repeatedly read to identify instances and types of cohesive devices used in articles. The identified cohesive devices were then classified according to Halliday and Matthiessen.<sup>28</sup> In the next stage, each category was counted to obtain the numeric data on its frequency of use in the entire data corpus. The final stage was devoted to statistical analysis of the numeric data by utilizing the SPSS 25 package (IBM Corporation), in which two steps of analysis were accomplished. Descriptive statistics were used to know the average and distribution of cohesive

devices used in the articles, while One-Way ANOVA was used to examine the different use of cohesive devices by Indonesian and Asian writers in comparison to the use of cohesive devices by native English writers.

## C. Results

As previously stated that this study attempted to investigate (1) the distribution of cohesive devices used by the Indonesian, Malaysian, and Native English speaker-writers and (2) and the significant difference of the distributional pattern of cohesive devices used by those three groups of writers. After conducting statistical analysis the findings of the study concerning with those two issues are respectively presented in the sections below.

### 1. The distribution of cohesive device types in articles written by Indonesian, Malaysian, and Native English writers

After conducting descriptive analysis, the researchers found 8 (eight) types of cohesive devices used by those three groups of writers, i.e., Indonesian, Malaysian, and native English speakers, in the scientific article published in several international journals. Half of them are categorized into grammatical cohesive devices, while the other half belongs to lexical cohesive devices. The complete distributional picture of their uses by each group is presented in table 1.

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<sup>27</sup> Halliday and Matthiessen, *Halliday's Introduction to Functional Grammar*, 603.

<sup>28</sup> Halliday and Matthiessen, 603.

**Table 1.**

Types of cohesive devices employed by each typical writer in articles.

	Type	Indonesian		Malaysian		Native	
		N	%	N	%	N	%
<b>A.</b>	<b>Grammatical Cohesion</b>						
1.	Reference	476	26.9%	416	25.8%	546	25.9%
2.	Conjunction	392	22.2%	390	62.8%	390	18.5%
3.	Substitution	224	12.6%	234	14.5%	286	13.5%
4.	Ellipsis	140	7.9%	78	4.8%	208	9.8%
<b>B.</b>	<b>Lexical Cohesion</b>						
1.	Repetition	412	23.3%	372	23.1%	457	21.6%
2.	Synonymy	19	1.1%	22	1.4%	103	4.8%
3.	Hyponymy	81	4.6%	83	5.1%	97	4.6%
4.	Metonymy	20	1.2%	17	1.1%	19	0.9%
	<b>Total coh-dev</b>	1764	100%	1612	100%	2106	100%

As we can see in table 1, the cohesive devices in the articles used by those three groups are of similar types. To build the connectedness of their ideas in their articles, all of the groups similarly employed grammatical cohesive devices covering (1) reference, (2) conjunction, (3) substitution, and (4) ellipsis. Besides, they also employed lexical cohesive devices, namely (1) repetition, (2) synonymy, (3) hyponymy, as well as (4) metonymy.

What is interesting to notice is the frequency distribution in terms of grammatical types. From the most to the least frequently employed, shows the same order of occurring pattern. Noticing Indonesian writers' quantitative uses of grammatical ones, ranked from the highest to the lowest, are respectively reference, as many as 26.9%, conjunction 22.2%, substitution 12.6%, and ellipsis 7.9%. So is the frequency ranking of grammatical cohesive devices used by the other two groups, namely Malaysian and native

writers, the value of percentage which can be seen in Table 1.

Unlike the uses of grammatical types of devices, the uses of lexical devices show different patterns of frequency across the three groups. As we found in table 1, the lexical cohesive devices employed by Indonesian writers, ranked from the highest, are typically repetition 23.3%, hyponymy 4.6%, metonymy 1.2%, and synonymy 1.1%. Meanwhile, the lexical cohesive devices employed by Malaysians, ranked from the highest, are respectively repetition 23.1%, hyponymy 5.1%, synonymy 1.4% and, lastly, metonymy 1.1%. Unlike the first two groups, the native writers used lexical cohesive devices in the following rank of frequency; repetition 21.6%, synonymy 4.8%, hyponymy 4.6%, and metonymy 0.9%.

In order to accurately compare the quantitative employment of cohesive devices types across the three groups, we

can use the mean values of the number of uses of each type. We can see table 2, which shows the results of descriptive statistical analysis on the use of cohesive devices by the Indonesian, Malaysian, and native English writers in their articles. By noticing the mean scores, we can see the

employment of a similar cohesion pattern between Indonesian and Malaysian writers in their articles. In general, Indonesian writers employed more cohesive devices than Malaysian writers. We can see such a pattern of the uses of reference, ellipsis, and lexical cohesion.<sup>29</sup>

**Table 2.**

Types of cohesive devices employed by the different writers in their articles.

No.	Type	Indonesian		Malaysian		Native English	
		N	%	N	%	N	%
1.	Reference	476	17.1	416	16.0	546	20.9
2.	Conjunction	392	14.4	390	15.3	390	15.1
3.	Substitution	224	8.1	234	9.3	286	11.2
4.	Ellipsis	140	5.1	78	2.9	208	7.9
5.	Lexical Cohesion	532	19.4	494	19.2	676	26.1

The study's findings shed light that there a different number of cohesive devised used by Indonesian and Malaysian writers. By the same token, Indonesian writers use more resources to mean their writing. This finding is consistent with the previous research by Warna et al.<sup>30</sup> In the previous study, researchers revealed that though Indonesian writers use various cohesive devised, they still faced difficulties and mistakes in practicing such cohesive into good academic writing. In another work that compared Indonesian authors and Thailand authors, Andayani unpacked that various cohesive devised

were used by Indonesian authors, although they encountered challenges in using the devised in their writing.<sup>31</sup>

On the other hand, Malaysian writers employed more cohesive types of substitution as well as conjunction than those employed by the Indonesian ones. A different pattern is shown by the native English writers who quantitatively employed more cohesive devices than the two-mentioned groups in all the observed types.

Compared to their native counterparts, the Indonesian and Malaysian writers most frequently

<sup>29</sup> Anis Firdatul Rochma, Anita Triastuti, and A. Ashadi, "Rhetorical Styles of Introduction in English Language Teaching (ELT) Research Articles," *Indonesian Journal of Applied Linguistics* 10, no. 2 (2020): 304–14, <https://doi.org/10.17509/ijal.v10i2.28593>.

<sup>30</sup> Dewi Warna et al., "Cohesive Devices Used in Argumentative Essays of Undergraduate EFL Students in Indonesia," *ENGLISH FRANCA* :

*Academic Journal of English Language and Education* 3, no. 02 (2019): 125, <https://doi.org/10.29240/ef.v3i02.1164>.

<sup>31</sup> Wuwuh Andayani, "The Use of English Discourse Markers in the Argumentative Writing of EFL Indonesian and Thai University Students: A Comparative Study," *Journal of Education* 7, no. 1 (December 4, 2014): 33–39.

employed lexical cohesive devices and grammatical devices like conjunction and reference. In contrast, the native English writers outnumbered both groups in using all types of devices. This suggests that native writers are more resourceful in employing the five cohesive device categories.<sup>32</sup>

Native writers are found to employ more various cohesive devices in writing. It is because they have been well-trained to use a variety of devices in writing in their classes. This evidence is revealed by the previous work by Tian et al.<sup>33</sup> In their work, native writers are more empowered to employ various devices because writing skills in US universities have been given much attention by instructors, so students in the universities are assisted by such training in their academic writing classes. However, interestingly, another work by Zulfiqar suggests that those native speakers have gained lexical-grammatical competence due to the benefits of L1, that is, English as their first language.<sup>34</sup>

## **2. The difference of cohesive devices across three groups: Indonesian, Malaysian, and Native English writers**

In order to convince whether there is a significant difference across the three groups of writers, the researchers used One-Way ANOVA to compare the quantitative uses of cohesive devices by the Indonesian, Malaysian, and Native English writers. The statistical analysis aims to investigate such multiple comparisons among the groups, resulting in several kinds of statistical interpretation.

The first interpretation dealing with the mean value difference in the number of references, substitutions, conjunctions, and lexical cohesion devices employed by the Indonesian and Malaysian groups shows a general trend.

We can see in table 3 below that all mean differences of all types are less than one except ellipsis.

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<sup>32</sup> Hesham Suleiman Alyousef, "Text Cohesion in English Scientific Texts Written by Saudi Undergraduate Dentistry Students: A Multimodal Discourse Analysis of Textual and Logical Relations in Oral Biology Texts," *SAGE Open* 11, no. 3 (2021): 1–13.

<sup>33</sup> Yu Tian et al., "Cohesive Devices as an Indicator of L2 Students' Writing Fluency," *Reading and*

*Writing*, November 27, 2021, 1–23, <https://doi.org/10.1007/s11145-021-10229-3>.

<sup>34</sup> Zulfiqar Ahmad, "Textual Variation in L2 Academic Writing: A Study of Cultural Visibility in Lexico-Grammatical Choices and Semantic Relations," *International Journal of Multidisciplinary Research and Publications* 5, no. 1 (2022): 13–21.

**Table 3.**

Results of One-Way ANOVA comparing the use of cohesive devices across three groups.

	(I) Writer Group	(J) Writer Group	Difference		Difference (I-J)	(I) Writer Group
			(I) Writer Group	(J) Writer Group	Lower Bound	Upper Bound
Ref	Indonesian writers	Malaysian writers	.82*	.006	.22	1.41
		Native English	-3.78*	.000	-4.31	-3.21
	Malaysian writers	Indonesian writers	-.83*	.006	-1.33	-.22
		Native English writers	-4.58*	.000	-5.36	-4.03
Sub	Indonesian writers	Malaysian writers	-.45	.062	-1.00	.02
		Native English writers	-2.59*	.000	-3.12	-2.06
	Malaysian writers	Indonesian writers	.47	.062	-.02	1.00
		Native English writers	-2.11*	.000	-2.62	-1.57
El	Indonesian writers	Malaysian writers	1.19*	.000	.77	1.72
		Native English writers	-3.38*	.000	-3.87	-2.89
	Malaysian writers	Indonesian writers	-1.18*	.000	-1.72	-.75
		Native English writers	-4.64*	.000	-5.13	-4.14
Conj	Indonesian writers	Malaysian writers	-.93*	.000	-1.45	-.42
		Native English writers	-.83*	.002	-1.33	-.31
	Malaysian writers	Indonesian writers	.92*	.000	.42	1.45
		Native English writers	.12	.661	-.39	.62
Lex	Indonesian writers	Malaysian writers	.21	.510	-.38	.78
		Native English writers	-6.24*	.000	-6.85	-5.64
	Malaysian writers	Indonesian writers	-.20	.510	-.79	.38
		Native English writers	-6.43*	.000	-7.06	-5.83
Total	Indonesian writers	Malaysian writers	.17	.186	-.06	.41
		Native English writers	-3.36*	.000	-3.62	-3.11
	Malaysian writers	Indonesian writers	-.16	.186	.38	-.06
		Native English writers	-3.53*	.000	-3.79	-3.27

Meanwhile, the interpretation of the mean difference in term of evidence that the Indonesian writers employed more cohesive devices of reference and ellipsis types than the Malaysian writers can be given as follow. As seen in the table, the *sig.* values are respectively .006 and .000. Therefore, it is considered to be significant since both *sig.* values are smaller than 0.05 ( $p < .01$ ).

The next interpretation, in terms of using substitution type, the Malaysian writers outnumbered the uses of

substitution devices by Indonesian writers. The *sig.* value, as shown in the table, is .062. Since it is bigger than 0.05 ( $p > .05$ ), the mean difference was insignificant. Meanwhile, the comparison between Asian writers, namely Indonesian and Malaysian, and native writers in terms of substitution uses is significant because *sig.* value is .000 ( $p < 0.05$ ).

Still another interpretation is the evidence that the Malaysian writers employed more conjunctions than the Indonesian group. For this aspect, as seen

in the table, the *sig.* value is .000, which means that it is significant since it is smaller than 0.05 ( $p < .01$ ). Meanwhile, the comparison between Indonesian and native writers in terms of conjunction uses is significant because *sig.* value is .002 ( $p < 0.05$ ). However, the comparison between Malaysian and native writers of the same issue is insignificant because its *sig* value is .661 ( $p > 0.05$ ).

The different uses of lexical cohesive devices can be interpreted as follows. The comparison between Asian writers, Malaysian and Indonesian writers, and native writers overall is shown by the *sig.* value of .000 ( $p < .005$ ). Thus, it is of significant difference. However, the comparison between Indonesian and Malaysian writers in using lexical devices is insignificant because the *sig* value is .510 ( $p > .05$ ).

At last, the statistical interpretation of the comparison in the total number of cohesive devices employed by Asian writers, namely Malaysian and Indonesian writers, and by native writers overall showed significant differences. Given in the table, the *sig* value is .000, which is smaller than 0.05 ( $p < .01$ ). Thus, it is significant. However, the comparison in the number of cohesive devices employed by Indonesian and Malaysian writers was insignificant because the *sig.* value is .186 ( $p > .05$ ).

The findings of this study significantly revealed the difference in the use of cohesive devices among Indonesian, Malaysian, and native writers. The results showcase that both Indonesian and Malaysian writers do not significantly differ in using cohesive devices. This finding is due to a similar background of cultures and ethnicities that the two countries are bound with. The findings are supported by the previous work of Akmilia.<sup>35</sup>

In addition, some research tends to focus on analyzing cohesive devices used by L1 speakers, such as native speakers of English. As Rassouli and Abbasvandi elaborate, the use of cohesive devices develops gradually in different schooling levels. This phenomenon occurs among L1 speakers.<sup>36</sup> The present study is done to expand the scant attention on cohesive devices used by L2 writers, especially in the Indonesian context. Furthermore, many studies conducted to explore Asian students' challenges in using cohesive devices in their writing. There is an interconnection between learners' use of cohesive devices and their writing competence. Interestingly, this study, highlights the minimum use of cohesive devices by Indonesian and Malaysian authors. In explaining this evidence, literature has indicated that native English speaker seem to employ more variants in their cohesive use in writing articles.

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<sup>35</sup> Perwari Melati Akmilia, Abdurrachman Faridi, and Zulfa Sakhiyya, "The Use of Cohesive Devices in Research Paper Conference to Achieve Texts Coherence," *English Education Journal* 12, no. 1 (2022): 67–75, <https://doi.org/10.15294/eej.v12i1.53228>.

<sup>36</sup> Masoumeh Rassouli and Mehdi Abbasvandi, "The Effects of Explicit Instruction of Grammatical Cohesive Devices on Intermediate Iranian Learners' Writing," *European Online Journal of Natural and Social Sciences* 2, no. 2s (2013): 15–22.

Furthermore, this study's findings also imply that the teaching of writing with cohesive devices should be referred to as how native writers write. It can be done by exposing EFL students to more comprehensive examples of texts written by native-speaker researchers. In the context of curriculum design, there should be a consistent effort from curriculum designers to introduce a native-like writing style in writing classes, such as designing more contextual lesson planning and providing authentic materials for both teachers and students.

By focusing on the aspects of the distribution of the use of cohesive devices and its significant difference of the distributional pattern of cohesive device uses across the Indonesian, Asian, as well as native speaker-writers, this present study can contribute an inferred explication on (1) the cohesion quality gaps amongst scientific articles written by those groups as well as (2) the relationship between the use of cohesive devices and the quality of text connectedness in writing. As such, this present study could potentially fill the theoretical gaps revealed by previous studies. Hence, a complete picture of the nature of cohesive devices in academic writing, particularly scientific writing, can be better portrayed.

This study is also expected to provide a detailed picture of cohesive devices used by Indonesian and Malaysian authors. It is confirmed that these authors employ less cohesive devices than native speakers of English. Therefore, teachers in writing classes should enact effective pedagogy in order to improve the

awareness of L2 learners in using cohesive devices in their writing classes. This effort can be made, for example, by redesigning the writing course using evidence-based instruction from research. The design of the writing course could follow recent findings, so teachers will be empowered to teach students more variants of cohesive devices.

#### **D. Conclusion**

The present study has revealed several generalizing points. First, there are different patterns of cohesive devices practiced between non-native and native English writers, as reflected in their scientific articles. Indeed, there is a similar distribution of cohesion patterns among Asian writers, represented by Indonesian and Malaysian writers in this study. However, an obvious inference can be made, that is, a relatively equivalent level of English proficiency, as represented by the Indonesian and Malaysian writers, does not determine a completely general pattern of cohesive distribution in the reality of writing practice. It confirmed the previously conducted studies on the low usage of cohesive devices among Asian ESL/EFL users compared to native English counterparts.

The current study mainly contributes to an introduction to a cross-linguistic analysis of EFL writers in using cohesive devices in their very formal context, i.e., scientific articles. The variation in the use of and problems with cohesive devices in writing may also lie in the writers' cognitive-social background. Future studies are encouraged to investigate more variants of cohesive devices used by L2 speakers. It

can be done by using multiple case studies design and ethnography classroom models to explore how those devices are used in writing.

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