



# A corpus-based study on the use of cohesive devices in the lesson plans of pre-service teachers

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## ABSTRACT

This study explores the use of cohesive devices in lesson plans (LPs) prepared by pre-service teachers across various subjects, specifically focusing on English, Math, and Biology majorships in a state university in the Philippines. The research highlights the prevalent use of personal references among English pre-service teachers, who favor the word "you" for its role in maintaining a second- and third-person perspective. In contrast, Math and Biology pre-service teachers predominantly employ nominal substitutions and conjunctions to enhance coherence in their LPs. The study also notes the absence of ellipsis in the analyzed LPs and identifies the predominant use of nominal substitution and extension conjunctions across subjects. By comparing the frequency and types of cohesive devices used, the research underscores the variations in linguistic strategies employed by pre-service teachers of different disciplines. The findings suggest a need for greater awareness and training on the effective use of cohesive devices to improve lesson planning and instructional clarity.

## RESUMO

Este estudo explora o uso de dispositivos coesos em planos de aula (PAs) preparados por professores em formação em diferentes disciplinas, com foco específico em cursos de inglês, matemática e biologia em uma universidade estadual nas Filipinas. A pesquisa destaca o uso predominante de referências pessoais entre professores em formação de inglês, que favorecem a palavra "você" por seu papel na manutenção de uma perspectiva de segunda e terceira pessoa. Em contraste, os futuros professores de Matemática e Biologia empregam predominantemente substituições nominais e conjunções para aumentar a coerência nas suas LPs. O estudo também observa a ausência de reticências nos PAs analisados e identifica o uso predominante de substituição nominal e conjunções de extensão entre os sujeitos. Ao comparar a frequência e os tipos de dispositivos coesivos utilizados, a pesquisa destaca as variações nas estratégias linguísticas empregadas por futuros professores de diferentes disciplinas. As conclusões sugerem a necessidade de uma maior sensibilização e formação sobre a utilização eficaz de dispositivos coesos para melhorar o planejamento das aulas e a clareza do ensino.

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## Introduction

English, as a universal language, plays a fundamental role in bridging communication gaps across different cultures and contexts. This universality stems from its widespread use as a second language and its function as a lingua franca in global discourse (Crystal, 2003). An essential component of effective communication in English is cohesion, the linguistic glue that holds texts together and makes them comprehensible. Cohesive devices are critical elements that create connections and logical flow within a text, helping readers construct meaning from a series of sentences or paragraphs.

Furthermore, Bahaziq (2016) underscores the importance of cohesive devices in creating coherence within texts, particularly in written discourse. These devices enable both native and non-native speakers to discern the unity among disparate sentences and ideas. Halliday and Hasan (2013), seminal figures in the field of discourse analysis, introduced the concept of cohesion as the means by which linguistic elements are tied together in a text, forming a network of relationships that enhance readability and comprehension. They categorized cohesion into two main types: grammatical cohesion, which involves the use of reference, substitution, ellipsis, and conjunction; and lexical cohesion, which deals with the repetition of words, synonyms, and collocations that connect different parts of a text (Halliday & Hasan, 2013).

Additionally, the significance of cohesion in writing is widely acknowledged, as it is crucial for producing high-quality, coherent texts. As Rahman (2013) elaborates, cohesion ensures that textual elements are interlinked and meaningful to readers, with the interpretation of one element often dependent on others. Without cohesive devices, writing can become disjointed, leading to confusion and misinterpretation. This is particularly pertinent in educational settings where clear and coherent writing is essential for knowledge dissemination. However, there is a notable gap in research focusing on how different types of cohesive devices affect the reading comprehension of various learner groups, such as ESL (English as a Second Language) and EFL (English as a Foreign Language) students (Lee, 2020; Martínez, 2018).

In the educational realm, the importance of cohesive practices extends beyond writing to encompass instructional planning, such as lesson planning. Effective lesson planning requires smooth transitions between instructional elements to foster meaningful learning experiences (Bintana, 2016). Shen, Poppink, Cui, and Fan (2007) further argue that while lesson planning is vital for teachers' professional development and reflective practice, it is often underutilized as a tool for professional growth within educational communities. A gap exists in understanding how cohesive devices are taught and integrated into lesson planning and whether teachers across different disciplines perceive and use them differently (Ghasemi & Alavi, 2014; Taboada & Guthrie, 2006).

Thus, this current study draws on the work of Bahaziq (2016), who utilized the categories of cohesive devices identified by Halliday and Hasan (2013) as a basis for analyzing cohesion in students' essays. Halliday and Hasan (2013) asserted that cohesion is not only a matter of grammar but also involves vocabulary, dividing cohesion into grammatical and lexical categories. However, this study will focus exclusively on grammatical cohesion, which Halliday and Hasan (2013) classify into four types: reference, substitution, ellipsis, and conjunction. The reason is that grammatical cohesion ensures that clear articulation of learning objectives, instructions, and content are presented in a connected and logical manner, facilitating better comprehension for students (Farrell, 2015). For instance, conjunctions like "first," "then," "next," and "finally" help in sequencing steps in a lesson, making the instructional flow predictable and easier to follow for students (Thornbury, 1999). Studies have shown that well-structured lesson plans (LPs) with clear grammatical cohesion can lead to better classroom management and more effective learning outcomes (Shen et al., 2007).

While much research has concentrated on the analysis of written texts in academic settings, less attention has been given to how pre-service teachers develop their use of cohesive devices in their lesson planning, particularly across different subject specializations (Chen, 2019; Farrell, 2015).

The primary aim of this study is to identify the cohesive devices that pre-service teachers frequently use in their LPs and to classify these devices according to their grammatical coherence. Additionally, the study seeks to examine the similarities and differences between the cohesive devices used by pre-service teachers majoring in English, Biology, and Mathematics in their LPs. By understanding these patterns, the study provides insights into how different subject disciplines approach the use of cohesive devices, potentially informing future pedagogical practices and teacher training programs.

On the other hand, most studies, such as those by Halliday and Hasan (2013) and Bahaziq (2016), focus on the use of cohesive devices in general written discourse or specific contexts like ESL writing. There is a gap in understanding how these devices are used differently across various academic disciplines in lesson planning, particularly among pre-service teachers in subjects like Biology, Mathematics, and English (Chen, 2019). Additionally, research has shown the importance of lesson planning in professional development (Shen et al., 2007), yet there is a paucity of studies that explore how cohesive devices are explicitly taught or integrated into teacher training programs. The potential differences in how pre-service teachers from different disciplines understand and apply these devices remain underexplored (Farrell, 2015). Furthermore, while cohesion is recognized as essential for text comprehension (Rahman, 2013; Lee, 2020), there is a lack of research that investigates how different cohesive devices impact the reading comprehension of learners from diverse backgrounds, such as ESL and EFL learners (Martínez, 2018).

By addressing these gaps, this study seeks to provide a more nuanced understanding of the role of cohesive devices in educational contexts, particularly within the domain of lesson planning across various subject specializations.

This current study aims determine the different cohesive devices used in the lesson plans of pre-service teachers and to study these devices, the following objectives are specifically posed: identify the commonly used cohesive devices in the lesson plans of pre-service teachers; Categorize the commonly used cohesive devices according to the types of grammatical cohesion based on their usage in the lesson plans; and examine the similarities and differences in the cohesive devices used by English major, Biology major, and Mathematics major pre-service teachers in their lesson plans.

### **Scope and Limitations**

This study focused only on the following grammatical cohesive devices.

**Reference:** Reference involves using pronouns or demonstratives (e.g., "he," "this") to point to something within or outside the text, creating a link between sentences or ideas (Halliday & Hasan, 2013). It helps maintain coherence by avoiding repetition and allowing readers to connect different parts of a text based on previously mentioned information (Bloor & Bloor, 2013).

**Substitution:** Substitution replaces a word or phrase with another element (e.g., "one," "do so") to avoid repetition and maintain flow within a text (Eggs, 2004). This form of cohesion often appears in dialogue or explanatory texts where previously mentioned elements need to be referenced concisely (Thompson, 2014).

**Ellipsis:** Ellipsis involves omitting elements of a sentence that are understood from the context, thereby avoiding redundancy and creating a more concise and connected discourse (Halliday & Matthiessen, 2014). It encourages active engagement from readers or listeners, who must fill in the missing information from prior knowledge or the surrounding text (McCarthy, 1991).

**Conjunction:** Conjunctions link clauses or sentences to show relationships such as addition, contrast, cause, or time (e.g., "and", "but", "because", "then") (Martin, 1992). They provide logical progression and structure to a text, guiding the reader through the writer's line of reasoning (Halliday & Hasan, 2013).

The aforementioned grammatical cohesive devices were examined in the LPs of 52 pre-service teachers from Batch 2017-2018 from Cavite State University- Carmona Campus, Carmona, Cavite. There are only three (3) majorship under the BSE program in CvSU – Carmona Campus, so all of them were subjected in this study.

The LPs were the ones used in the final demonstration teaching of the pre-service teachers. All parts of the 52 LPs (15 from the English major pre-service teachers, 8 from the

Mathematics major pre-service teachers, and 29 from the Biology major pre-service teachers) were analyzed and screened for grammatical cohesive devices.

### **Materials and Methods**

This study employed the Content Analysis technique to investigate the use of grammatical cohesive devices in the LPs of pre-service teachers. Content analysis is a systematic and replicable method used to analyze written, spoken, or visual communication, allowing researchers to quantify and make valid inferences about the content of texts (Krippendorff, 2018). By using this technique, the study aimed to examine the patterns, frequency, and types of grammatical cohesive devices utilized in LPs, which are critical documents in teaching and teacher development.

The corpus for this study consisted of a substantial dataset, totaling 6,413 word-types (distinct words) and 104,221 word-tokens (total words, including repetitions). This size and diversity of the corpus allowed for a comprehensive analysis of the cohesive devices used by pre-service teachers across different disciplines. LPs were specifically chosen as the focus of analysis because they serve as one of the most vital tools for teachers, guiding instructional delivery and classroom management. Additionally, LPs are a key source of professional growth and reflective practice for teachers, helping them develop and refine their pedagogical skills (Shen et al., 2007). The collection of LPs was conducted by requesting each practice teacher to submit a soft copy of their plans. Before collection, informed consent was obtained from all participants, ensuring ethical research practices were followed regarding the use of their LPs as data in this study.

To determine the frequency of the commonly used cohesive devices in the LPs of pre-service teachers, the researcher utilized AntConc 3.4.4w (Windows, 2014), a corpus analysis software widely recognized for its efficiency in examining textual data for linguistic patterns (Anthony, 2014). This tool facilitated the automatic extraction and quantification of cohesive devices, providing an objective basis for identifying the most frequently occurring cohesive elements. Subsequently, all identified cohesive devices were systematically categorized under the types of grammatical cohesion—namely, reference, substitution, ellipsis, and conjunction—based on the frameworks established by Halliday and Hasan (2013). This categorization was further refined using the table of cohesive devices created by Mohammed (2015), which provided an updated and comprehensive classification system for analyzing the grammatical cohesion present in written texts.

After the categorization process, a detailed content analysis was conducted to examine the differences and similarities in the usage of cohesive devices among the pre-service teachers across three major subjects: English, Biology, and Mathematics. This analysis aimed to identify specific patterns or trends in the use of cohesive devices that could be attributed to the disciplinary backgrounds of the teachers.

## Results and Discussion

Based on the data in Table 1, the frequency analysis of grammatical cohesive devices in the LPs of pre-service teachers reveals a varied use of cohesive devices that contribute to the coherence and flow of instructional content.

**Table 1**  
*Top 20 Cohesive Devices used by all pre-service teachers in their lesson plans*

COHESIVE DEVICES	FREQUENCY	PERCENTAGE
And	2121	19.37
You	1488	13.59
That	808	7.38
It	726	6.63
Your	656	5.99
I	575	5.25
We	440	4.02
Our	415	3.79
Their	391	3.57
This	281	2.57
One	241	2.20
Then	226	2.06
So	207	1.89
They	195	1.78
Us	184	1.68
Other	148	1.35
His	129	1.18
Different	127	1.16
Me	122	1.11
But	117	1.07

The findings suggest that pre-service teachers heavily rely on certain cohesive devices, particularly conjunctions, pronouns, and demonstratives, to construct clear and connected LPs. The most frequently used cohesive device is "and" (19.37%), followed by a range of pronouns such as "you" (13.59%), "that" (7.38%), "it" (6.63%), and "your" (5.99%), which collectively reflect a preference for certain grammatical structures that facilitate logical sequencing, reference, and instruction delivery.

The conjunction "and", appearing with the highest frequency, indicates a strong reliance on additive cohesion to link ideas and instructions in the LPs. This device helps in listing multiple points, steps, or instructions in a sequential manner, ensuring that the flow of the LP is continuous and logically connected. Research suggests that "and" is often overused in novice writing to connect ideas because it is straightforward and easy to use (Mahlberg, 2005). However, while it creates basic cohesion, over-reliance on "and" can result in repetitive and less varied sentence structures, which could impact the sophistication of instructional language (Schleppegrell, 2004).

Moreover, the frequent use of pronouns such as "you", "that", "it", and "your", points to the importance of reference as a cohesive device in lesson planning. Pronouns are critical for creating cohesion by referring back to previously mentioned subjects or objects, reducing redundancy and helping readers or listeners understand the relationships between different parts of the text (Biber, Conrad, & Leech, 2002). For instance, the use of "you" suggests a direct address to the students or a second-person instructional style, which is common in teaching discourse as it engages students and gives them a sense of involvement (Cullen & Kuo, 2007).

Additionally, personal pronouns such as "I" (5.25%), "we" (4.02%), and "our" (3.79%) also rank highly among the cohesive devices used. These devices help to build rapport and create an inclusive classroom environment by establishing a connection between the teacher and students (Hyland, 2005). The use of "we" and "our" can foster a sense of community and collaborative learning, which is particularly valuable in education settings where interactive and participatory learning is encouraged (Carter & McCarthy, 2006).

Furthermore, demonstratives like "this" (2.57%) and "then" (2.06%) serve as anaphoric devices, guiding the reader back to earlier points or forward to new ones. "Then" specifically indicates temporal or logical sequence, which is critical in LPs that involve step-by-step procedures or instructions (Eggs, 2004). The use of "this" can help in drawing attention to specific content or instructions previously mentioned, aiding students in making connections between different parts of the lesson (Halliday & Hasan, 2013).

Likewise, the conjunctions "but" (1.07%) and "so" (1.89%) are used to show contrast and causality, respectively. These devices are essential in instructional texts where the teacher needs to explain differences, exceptions, or consequences, thereby helping students understand the logic and relationships between ideas (Thompson, 2014). "But" introduces contrast or opposition, which is useful in explaining concepts or differentiating between ideas, while "so" is used to indicate results or conclusions, supporting the logical flow of information (Martin & Rose, 2007).

Lastly, the presence of adjectives such as "different" (1.16%) and "other" (1.35%) reflects the teachers' efforts to provide variation and clarity in their LPs. These lexical choices can help in distinguishing between concepts or categories, which is particularly useful in subjects that require comparison or classification, such as Biology or Mathematics (Bloor & Bloor, 2013).

Thus, to answer the first objective, almost all the types of cohesive devices were used in all the LPS of all the pre-service teachers. However, the researcher found out that most of the cohesive devices that were used belonged to “reference”.

### 1. Reference

Table 2 provides a detailed account of the different types of reference used by pre-service teachers in their LPS. The data reveals that personal references dominate the use of cohesive devices, accounting for 76% of all references. This heavy reliance on personal references, particularly the pronoun "you" (1488 occurrences), reflects the instructional nature of LPS, which are often crafted in a second-person perspective to address students directly. Personal references such as "you," "it," and "your" play a crucial role in establishing a connection between the teacher's instructions and the students, facilitating direct communication and engagement in the lesson (Brown & Yule, 1983). This usage aligns with findings from research on instructional texts, which suggests that direct address and personal pronouns are key in creating a conversational tone and engaging students (Hyland, 2005).

In contrast, demonstrative references such as "that," "this," and "those" constitute 15% of the total references, indicating a secondary but significant role in providing clarity and emphasizing specific elements within the LPS. Demonstrative references help in pointing out particular parts of the lesson plan or referring to previously mentioned concepts, thus enhancing the coherence and readability of the instructional material (Halliday & Hasan, 2013). The use of demonstratives is essential for guiding students through complex or multi-step instructions, ensuring they can easily follow the progression of the lesson (McCarthy, 1991).

Additionally, comparative references, including terms such as "so," "other," and "different," make up 9% of the references and are used to draw comparisons or highlight distinctions between concepts. These references are valuable for explaining relationships between ideas or providing contrasts, which is particularly useful in subjects that involve comparisons or classifications (Thompson, 2014). While less frequent than personal and demonstrative references, comparative references contribute to the analytical depth of the LPS, allowing pre-service teachers to elaborate on differences and similarities among concepts, thus enriching the instructional content (Martin & Rose, 2007).



**Table 2**  
References used by all pre-service teachers in their lesson plans

TYPE	REFERENCE	FREQUENCY	TOTAL		TOTAL USE OF REFERENCE
			NUMBER	PERCENTAGE	
<b>Personal Reference</b>	You	1488	6185	76%	8130
	It	726			
	Your	656			
	I	575			
	We	440			
	Our	415			
	Their	391			
	One	241			
	They	195			
	Us	184			
	His	129			
	Me	122			
	He	112			
	Her	103			
	She	99			
	Its	98			
	My	86			
Them	85				
Him	35				
Ones	5				
<b>Demonstrative Reference</b>	That	808	1236	15%	8130
	This	281			
	These	86			
	Those	61			
	So	207			
	Other	148			
	Different	127			
	More	51			
	Same	47			
	Additional	39			
<b>Comparative Reference</b>	Such	23	709	9%	8130
	Equal	21			
	Else	18			
	Less	16			
	Better	8			
	Otherwise	4			

## 2. Substitution and Ellipsis

The analysis of substitution and ellipsis in the LPs of pre-service teachers reveals a distinct preference for nominal substitution, with minimal use of clausal substitution and no instances of ellipsis. Nominal substitution, represented predominantly by the term "one"

(97.5% of the substitution cases), is employed to avoid repetition and simplify the language within the LPs (Halliday & Hasan, 2013). This high frequency of nominal substitution aligns with findings from previous studies which highlight its utility in maintaining textual coherence while reducing redundancy, particularly in educational materials where clarity and brevity are essential (Bloor & Bloor, 2013). The choice of "one" as a substitute helps in referring back to previously mentioned entities or concepts without repeating the exact terms, thereby streamlining the instructional content.

In contrast, the observation of only one instance of clausal substitution (2.5%) and the absence of ellipsis indicates a less frequent use of these cohesive devices. Clausal substitution, which replaces entire clauses or propositions with terms like "so," can be used to maintain coherence across complex sentences or extended discourse (Thompson, 2014). The limited use of clausal substitution and the lack of ellipsis suggest that pre-service teachers might prefer more straightforward substitutions to maintain coherence in their LPs. Ellipsis, which involves omitting parts of sentences when they are implied or understood, was notably absent, which could reflect a preference for explicitness and clarity in instructional materials (Eggins, 2004). The scarcity of these devices could also indicate a potential area for development in terms of using more sophisticated cohesion techniques to enhance the coherence and fluidity of educational texts (Schleppegrell, 2004).

**Table 3**  
*Substitutions used by all pre-service teachers in their lesson plans*

TYPE	SUBSTITUTION DEVICES	FREQUENCY	TOTAL		TOTAL USE OF SUBSTITUTION
			NUMBER	PERCENTAGE	
<b>Nominal</b>	One	25	39	97.5%	40
	Ones	3			
	Same	11			
<b>Clausal</b>	So	1	1	2.5%	

On the other hand, in the LPs of pre-service teachers, the use of nominal substitution and clausal substitution highlights the strategies employed to maintain coherence and avoid redundancy. For instance, in Example A from English Lesson Plan (ELP) 1, the nominal "imperative sentence" is effectively substituted by "one" in subsequent follow-up questions, demonstrating how nominal substitution can streamline instructional dialogue by avoiding repetitive phrases (Halliday & Hasan, 2013). Similarly, in Example B from ELP 9, "same" is used to substitute for an action described by the Youth, which helps to refer back to a previously mentioned activity, thus enhancing the fluidity of the discourse (Bloor & Bloor, 2013). On the other hand, the single instance of clausal substitution observed in Example C under ELP 1—where the clause "pick up any pieces of trash under your chair and arrange it properly" is replaced by "so"—illustrates the use of clausal substitution to simplify complex instructions,

allowing for a more concise and cohesive response from students (Thompson, 2014). This example underscores how clausal substitution can be employed to refer to an entire action or instruction, contributing to the overall coherence of the lesson plan while avoiding redundancy (Eggins, 2004).

**Table 4**

*Sample Substitutions used in the lesson plans of all pre-service teachers*

TYPES	Examples
<b>Nominal Substitution</b>	<p><b>A.</b> <b>In ELP1:</b></p> <p><i>Teacher: "Alright, let's start. What is the first <b>imperative sentence</b>? How about the second <b>imperative sentence</b>? Very good! How about the third <b>one</b>? Right! How about the fourth <b>one</b>? Good! How about the fifth <b>one</b>?"</i></p> <p><b>B.</b> <b>In ELP9:</b></p> <p><i>Teacher: "If you were the Youth in the poem, would you do the <b>same</b>?"</i></p> <p><b>C.</b> <b>In ELP1:</b></p> <p><i>Teacher: "Before taking your seats kindly <u>pick up any pieces of trash under your chair and arrange it properly</u>".</i></p>
<b>Clausal Substitution</b>	<p><i>Teacher: "Before taking your seats kindly <u>pick up any pieces of trash under your chair and arrange it properly</u>".</i></p>
<i>Students' Response: (The students will do <b>so</b>.)</i>	

### 3. Conjunction

Table 5 reveals that among the various types of conjunctions used in the LPs of pre-service teachers, conjunctions for extension are most frequently employed, accounting for 84% of the total use. The conjunction "and" is the most prevalent, appearing 2121 times, which underscores its role in linking examples, ideas, and procedures within the instructional content (Halliday & Hasan, 2013). This widespread use of "and" indicates a tendency towards additive cohesion, where multiple pieces of information or steps are connected to create a comprehensive and continuous flow of ideas (Bloor & Bloor, 2013). This aligns with research suggesting that additive conjunctions are particularly useful in educational contexts for elaborating on concepts and providing additional examples or explanations (Thompson, 2014).

Conversely, other sub-types of conjunctions such as those for elaboration, clarification, and enhancement are used less frequently. For instance, conjunctions under enhancement (e.g., "then") make up 15% of the total usage, which highlights their role in indicating temporal sequences or conditional relationships within the LPs (Eggins, 2004). The minimal use of conjunctions for variation and comparison (e.g., "differently," "instead") suggests that pre-service teachers may not fully utilize these devices to highlight contrasts or alternatives within their LPs (Martin & Rose, 2007). The varied application of conjunctions reflects the complexity

of instructional discourse and the need for a balanced use of different cohesive strategies to enhance clarity and coherence in LPs (Hyland, 2005).

**Table 5**  
*Conjunctions used by all pre-service teachers in their lesson plans*

TYPE	SUB-TYPE	CONJUNCTION	FREQUENCY	TOTAL		TOTAL USE OF CONJUNCTION		
				NUMBER	%			
<b>Elaboration</b>	Appositive	For example	8	10	1%			
		In other words	2					
	Clarification	At least	11	22				
		Actually	8					
		To sum up	3					
<b>Extension</b>	Additive	And	2121	2363	84%			
		But	117					
		Also	94					
		Yet	15					
		Nor	13					
		Variation	However				3	10
			Instead				10	
Then	113							
Next	105							
<b>Enhancement</b>	Temporal	Finally	14	242	15%	282p0		
		Previously	5					
		After a while	2					
		In the first place	1					
		In the end	1					
		Next time	1					
		Comparative	Differently				1	1
			Then				113	
		Conditional	Otherwise				4	121
			However				3	
			If not				1	
Concessive	Still	33	51					
	Yet	15						
	However	3						

#### 4. English

Table 6 illustrates the predominant use of personal references by English pre-service teachers in their LPs, comprising 81% of all reference types. The high frequency of the pronoun "you" (552 occurrences) underscores its role in directly addressing students, which aligns with the pedagogical need to engage learners personally and maintain a clear instructional tone (Halliday & Hasan, 2013). This heavy reliance on personal references is consistent with the findings of studies that emphasize the importance of direct address in educational contexts to foster interactive and personalized learning environments (Hyland, 2005). The use of personal references such as "you," "it," and "your" facilitates clear and direct communication, which is essential for effective teaching and instructional clarity (Bloor & Bloor, 2013).

On the other hand, demonstrative references and comparative references are used less frequently, with demonstratives like "that" (13%) and comparatives like "so" (6%) playing

secondary roles. Demonstrative references help in pointing out specific items or concepts within the lesson plan, enhancing coherence by linking back to previously mentioned material (Thompson, 2014). Comparative references, though less frequent, contribute to the instructional content by drawing comparisons or highlighting differences between ideas (Martin & Rose, 2007). The absence of ellipsis and limited use of substitution devices further indicates a preference for explicit and direct reference methods, which might reflect a focus on clarity and straightforwardness in lesson planning (Eggins, 2004).

**Table 6***References used by English pre-service teachers in their lesson plans*

TYPE	REFERENCE	FREQUENCY	TOTAL		TOTAL USE OF REFERENCE
			NUMBER	PERCENTAGE	
<b>Personal Reference</b>	You	552	2481	81%	3063
	It	256			
	I	245			
	Your	211			
	We	168			
	Our	155			
	His	112			
	He	103			
	She	93			
	Her	91			
	Their	89			
	One	85			
	Us	77			
	My	56			
	They	52			
	Me	43			
	Him	32			
Them	30				
<b>Demonstrative Reference</b>	Its	29	406	13%	3063
	Ones	2			
	That	286			
	This	83			
	These	19			
	Those	18			
	So	82			
	Other	28			
	Different	22			
	Same	9			
<b>Comparative Reference</b>	Additional	8	176	6%	3063
	Better	7			
	More	5			
	Equal	4			
	Else	4			
	Such	3			
	Otherwise	3			
Less	1				

Table 7 reveals a strong preference for nominal substitution among English pre-service teachers, with 91% of substitution instances involving the use of "one." This high percentage suggests that nominal substitution is favored for its simplicity and effectiveness in avoiding redundancy within LPs (Halliday & Hasan, 2013). The predominant use of "one" helps to refer back to previously mentioned concepts or objects without repeating them, thereby maintaining clarity and conciseness in instructional texts (Eggins, 2004). Conversely, the minimal use of clausal substitution, represented by a single instance of "so," indicates a lesser reliance on this device for linking entire clauses or actions. This limited use might reflect a preference for more direct and straightforward methods of cohesion, possibly due to the straightforward nature of the LPs (Thompson, 2014). The stark contrast in frequency between nominal and clausal substitution highlights the emphasis on simplicity and clarity in ELPs, aligning with research that underscores the importance of explicitness and ease of understanding in educational materials (Martin & Rose, 2007).

**Table 7**  
*Substitutions used by English pre-service teachers in their lesson plans*

TYPE	SUBSTITUTION DEVICES	FREQUENCY	TOTAL		TOTAL USE OF SUBSTITUTION
			NUMBER	PERCENTAGE	
<b>Nominal</b>	One	8	10	91%	11
	Ones	0			
	Same	2			
<b>Clausal</b>	So	1	1	9%	

Conversely, Table 8 provides insight into how English pre-service teachers employ nominal and clausal substitution in their LPs. In Example A from ELP1, the term "one" is used to substitute for a specific student, demonstrating how nominal substitution can streamline communication by avoiding repetitive mentions of individuals (Halliday & Hasan, 2013). Similarly, Example B from ELP9 illustrates the use of "same" to refer back to an action described earlier in the text, thereby maintaining cohesion and preventing redundancy in the instructional dialogue (Eggins, 2004).

These uses of nominal substitution are consistent with findings that emphasize its role in maintaining clarity and coherence by substituting repetitive elements with simpler terms (Thompson, 2014). Conversely, the sole instance of clausal substitution in Example C, where "so" replaces a more complex directive, highlights its utility in simplifying and consolidating instructional content (Martin & Rose, 2007). This limited use of clausal substitution suggests that while nominal substitution is frequently employed for its directness, clausal substitution is less common, possibly due to its more complex nature and the preference for straightforward communication in educational contexts (Hyland, 2005).

**Table 8**  
*Sample Substitutions used in the lesson plans of English pre-service teachers*

TYPES	Examples
<b>Nominal Substitution</b>	<p><b>A.</b> <b>In ELP 1:</b> <i>Group Representative: "No <u>one</u> in our group is absent"</i></p> <p><b>B.</b> <b>In ELP9:</b> <i>Teacher: "If you were the Youth in the poem, would you do the <u>same</u>?"</i></p>
<b>Clausal Substitution</b>	<p><b>C.</b> <b>In ELP1:</b> <i>Teacher: "Before taking your seats kindly <u>pick up any pieces of trash under your chair and arrange it properly</u>".</i></p> <p style="text-align: center;"><i>Students' Response: (The students will do <u>so</u>.)</i></p>

Contrariwise, as seen in Table 9, English pre-service teachers predominantly use conjunctions for extension, accounting for 76.75% of all conjunctions employed in their LPs. The conjunction "and", with 623 occurrences, is the most frequently used, reflecting its critical role in linking examples, connecting ideas, and elaborating on instructional content (Halliday & Hasan, 2013). This aligns with research suggesting that additive conjunctions like "and" are essential for creating coherence and continuity in educational materials, as they help integrate multiple pieces of information and provide a logical flow of content (Thompson, 2014). The substantial use of "and" demonstrates the teachers' focus on building a comprehensive and interconnected instructional narrative.

Conversely, conjunctions under other sub-types such as elaboration, enhancement, and comparison are used less frequently. For instance, temporal conjunctions like "next" and "then" make up 22.1% of the total, indicating their role in sequencing events and providing clarity in the progression of instructional activities (Martin & Rose, 2007). This varied use of conjunctions highlights the teachers' strategies in structuring LPs, where the emphasis on additive conjunctions supports a cohesive and well-organized instructional approach.

**Table 9***Conjunctions used by English pre-service teachers in their lesson plans*

TYPE	SUB-TYPE	CONJUNCTION	FREQUENCY	TOTAL		TOTAL USE OF CONJUNCTION	
				NUMBER	%		
<b>Elaboration</b>	Appositive	In other words	2	4	1.15%	955	
		For example	2				
	Clarification	At least	3				
		Actually	3	7			
		To sum up	1				
<b>Extension</b>	Additive	And	623	730	76.75%		
		But	55				
		Also	26				
		Yet	15				
		Nor	9				
		Variation	However				2
			Instead			3	
Next	57						
Then	47						
<b>Enhancement</b>	Temporal	Finally	13	126			
		Previously	5				
		Next time	1				
		In the first place	1				
		In the end	1				
		After a while	1				
		Differently	1		1	22.1%	
<b>Enhancement</b>	Comparative	Then	47	53			
		Otherwise	3				
		However	2				
		If not	1				
		Yet	15				
<b>Enhancement</b>	Concessive	Still	14	31			
		However	2				

## 5. Mathematics

Table 10 highlights that Math pre-service teachers predominantly use personal reference devices in their LPs, accounting for 75% of all references. Among the 18 personal reference devices, "you" is the most frequently used, with 128 instances, reflecting the instructional style commonly employed in lesson planning, where directives and instructions are aimed directly at the student or audience (Halliday & Hasan, 2013). The extensive use of "you," along with other personal references such as "your" and "we," aligns with pedagogical approaches that emphasize engagement, direct communication, and inclusivity in the classroom setting (Hyland, 2002). This trend is consistent with the notion that second-person and inclusive language help to personalize lessons and foster a sense of involvement, making the content more relatable and easier to follow (Thompson, 2014).



The comparatively lower usage of demonstrative (13%) and comparative references (12%) suggests that while Math pre-service teachers occasionally use these references to clarify concepts or draw comparisons, the focus remains primarily on direct interaction with the learners through personal pronouns, supporting a more interactive and student-centered teaching approach (Martin & Rose, 2007).

**Table 10**  
*References used by Math pre-service teachers in their lesson plans*

TYPE	REFERENCE	FREQUENCY	TOTAL		TOTAL USE OF REFERENCE
			NUMBER	%	
<b>Personal Reference</b>	You	128	504	75%	676
	Your	77			
	I	57			
	We	49			
	Our	35			
	It	34			
	Their	29			
	Us	18			
	One	16			
	Me	14			
	Its	14			
	My	9			
	They	7			
	Them	5			
	She	4			
<b>Demonstrative Reference</b>	Her	3	88	13%	676
	He	3			
	His	2			
	That	59			
	This	17			
	These	9			
	Those	3			
	Other	18			
	Additional	18			
	So	11			
<b>Comparative Reference</b>	Equal	11	84	12%	676
	Less	8			
	Different	8			
	More	5			
	Same	3			
	Such	1			
	Else	1			

On the other hand, Table 11 reveals that Math pre-service teachers exclusively used nominal substitution in their LPs, accounting for all six instances of substitution observed (100%). This indicates a preference for substituting nouns with general terms such as "one" or "same," which are used to avoid repetition and maintain cohesiveness within the text (Halliday & Hasan, 2013). The use of "one" in four out of the six cases suggests its effectiveness in mathematical contexts, where it often serves as a shorthand to refer to previously mentioned

or understood entities, thereby simplifying explanations and enhancing clarity (Martin & Rose, 2007). The remaining two cases involving "same" underscore its utility in mathematical discussions for emphasizing equivalence or reinforcing previously established concepts.

The absence of ellipsis suggests that Math pre-service teachers may favor explicit language to ensure precision and avoid ambiguity, a common practice in technical and educational writing

**Table 11**  
*Substitutions used by Math pre-service teachers in their lesson plans*

TYPE	SUBSTITUTION DEVICES	FREQUENCY	TOTAL		TOTAL USE OF SUBSTITUTION
			NUMBER	PERCENTAGE	
<b>Nominal</b>	One	4	6	100%	6
	Ones	0			
	Same	2			

where clarity is paramount (Hyland, 2005).

In the same vein, Table 12 provides examples of nominal substitutions used by Math pre-service teachers in their LPs, illustrating how these devices help maintain cohesiveness by avoiding repetition. In Example A from Math Lesson Plan (MLP) 1, "one" is used to substitute for a student, allowing for a more generalized reference that avoids directly repeating the noun "student." Similarly, in Example C under MLP 2, the term "one" substitutes for an item being referenced by the teacher, simplifying the language while maintaining clarity (Halliday & Hasan, 2013).

In Example D under MLP 4, the word "same" is employed to replace "the characteristics of the square," effectively emphasizing that the rhombus shares similar attributes without redundancy. These substitutions demonstrate how Math pre-service teachers strategically use nominal substitution to create cohesive and concise LPs that facilitate better understanding and communication in the classroom context (Martin & Rose, 2007).

**Table 12***Sample Substitutions used in the lesson plans of Math practice teachers*

TYPE	Examples
<b>Nominal Substitution</b>	<b>A.</b> <b>In MLP1:</b>  <i>Secretary: "I am glad to tell you that no <b>one</b> is absent in our class"</i>
	<b>B.</b> <b>In MLP2:</b>  <i>Teacher: "Very good! How about this <b>one</b>?"</i>
	<b>C.</b> <i>Teacher: "Tell whether the following measurements can form a triangle. There is no such thing as sabay so the <b>one</b> who get it first will get the point."</i>
	<b>D.</b> <b>In MLP4:</b> <i>Student: "...rhombus is <b>same</b> with the square"</i>

The table above (Table 13) illustrates that Math pre-service teachers predominantly used conjunctions categorized under "extension," similar to their English counterparts, with 85% of conjunctions falling under this type. The additive conjunction "and" appeared 237 times, indicating that Math pre-service teachers frequently utilized it to add information, provide examples, and link ideas cohesively within their LPs (Halliday & Matthiessen, 2014). This preference for "and" suggests that Math practice teachers often rely on simple additive structures to maintain the flow of their content and to connect various mathematical concepts and instructional steps (Thompson, 2013). Furthermore, the use of temporal conjunctions like "then" (14%) reveals an emphasis on sequencing and logical progression in mathematical explanations, which is crucial in explaining problem-solving steps or mathematical procedures (Coffin et al., 2009).

**Table 13***Conjunctions used by Math practice teachers in their lesson plans*

TYPE	SUB-TYPE	CONJUNCTION	FREQUENCY	TOTAL		TOTAL USE OF CONJUNCTION
				NUMBER	%	
<b>Elaboration</b>	Clarification	At least	4	4	1%	301
		And	237			
<b>Extension</b>	Additive	But	10	255	85%	
			8			
		Also				
		Then	19			
<b>Enhancement</b>	Temporal	Next	3	22	14%	
		Then	19			
	Conditional	Then	19	19		
		Concessive	Still			

## 6. Biology

Table 14 reveals that Biology pre-service teachers predominantly used cohesive devices under "personal reference" (73%) in their LPs, with "you" being the most frequent, appearing 808 times. The high frequency of "you" and other personal references like "it" and "your" aligns

**Table 14**  
*References used by Biology practice teachers in their lesson plans*

TYPE	REFERENCE	FREQUENCY	TOTAL		TOTAL USE OF REFERENCE
			NUMBER	%	
<b>Personal Reference</b>	You	808	3200	73%	4391
	It	436			
	Your	368			
	I	273			
	Their	273			
	Our	225			
	We	223			
	One	140			
	They	136			
	Us	89			
	Me	65			
	Its	55			
	Them	50			
	My	21			
	His	15			
	<b>Demonstrative Reference</b>	Her			
He		6			
Him		3			
Ones		3			
She		2			
That		463			
This		181			
These		58			
Those		40			
So		114			
Other		102			
<b>Comparative Reference</b>	Different	97	449	10%	4391
	More	41			
	Same	35			
	Such	19			
	Additional	13			
	Else	13			
	Less	7			
	Equal	6			
	Better	1			
Otherwise	1				

Table 14 reveals that Biology pre-service teachers predominantly used cohesive devices under "personal reference" (73%) in their LPs, with "you" being the most frequent, appearing 808 times. The high frequency of "you" and other personal references like "it" and "your" aligns with the common structure of LPs, which are typically written from the second- or third-person point of view to engage students directly and provide clear instructions (Hyland, 2004). The frequent use of personal references suggests a pedagogical focus on making lessons

interactive and student-centered, as teachers often address students or describe their actions directly to facilitate understanding and participation (Derewianka, 2011). Moreover, this choice of cohesive devices indicates that Biology teachers prioritize clarity and directness, essential for explaining complex biological concepts and procedures (Coffin et al., 2009).

**Table 15**  
*Substitutions used by Biology practice teachers in their lesson plans*

TYPE	SUBSTITUTION DEVICES	FREQUENCY	TOTAL		TOTAL USE OF SUBSTITUTION
			NUMBER	%	
Nominal	One	13	23	100%	23
	Ones	3			
	Same	7			

On the other, the analysis of Table 15 shows that Biology pre-service teachers exclusively used nominal substitution (100%) in their LPs, with 23 instances recorded. Among these, "one" was the most frequently used device (13 instances), followed by "same" (7 instances) and "ones" (3 instances). The reliance on nominal substitution aligns with the need to maintain cohesion and avoid redundancy while referencing previously mentioned items or concepts in the LPs (Halliday & Hasan, 1976). This strategy is particularly useful in a subject like Biology, where clarity and precision are vital for describing processes, objects, or phenomena (Martin, 1992). The absence of ellipsis suggests a preference for explicitness in instruction, ensuring that all necessary information is provided to students, a practice that enhances comprehension, especially when dealing with complex scientific concepts (Eggins, 2004).

**Table 16**  
*Sample Substitutions used in the lesson plans of Biology practice teachers*

TYPES	Examples
Nominal Substitution	<p><b>A.</b> <b>In BLP1:</b></p> <p>Teacher: "The second <b>one</b> is the Plateau. I have here the plateaus in Baguio, Bukidnon and Aurora"</p>
	<p><b>B.</b> <b>In BLP17:</b></p> <p>Student: "<b>One</b> of the devices used to reverse the direction of heat flow."</p>
	<p><b>C.</b> <b>In BLP19:</b></p> <p>Student: "Decomposition is a reaction when two or more elements break down into simpler <b>ones</b>."</p>
	<p><b>D.</b> <b>In BLP7:</b></p> <p>Teacher: "...if both blocks were initially at the <b>same</b> temperature, which one will now have the higher temperature?"</p>

In the same vein, Table 16 illustrates the use of nominal substitutions in the LPs of Biology pre-service teachers, emphasizing their role in maintaining cohesion by avoiding repetition of key terms. In example A under Biology Lesson Plan (BLP) 1, the word “one” substitutes "landform," referring to "the Plateau" to maintain coherence without redundancy. Similarly, in example B under BLP17, "one" substitutes for "thing," specifically referring to a "heat pump," which streamlines the discussion on heat flow without losing context (Halliday & Hasan, 1976). In example C under BLP19, "ones" replaces the word “elements” to cohesively summarize the decomposition reaction, while in example D under BLP7, “same” substitutes for “the scale of temperature of a block,” providing clarity and continuity (Eggin, 2004). These examples demonstrate the strategic use of nominal substitution in Biology lessons to manage information flow effectively and ensure student comprehension (Martin, 1992).

**Table 17***Conjunctions used by Biology practice teachers in their lesson plans*

TYPE	SUB-TYPE	CONJUNCTION	FREQUENCY	TOTAL		TOTAL USE OF CONJUNCTION
				NUMBER	%	
<b>Elaboration</b>	Appositive	For example	6	6	1%	
	Clarification	Actually	5	11		
		At least	4			
		To sum up	2			
<b>Extension</b>	Additive	And	1261	1374	89%	
		Also	60			
		But	52			
		However	1			
		Variation	Instead			
<b>Enhancement</b>	Temporal	Then	47	94	10%	1560
		Next	45			
		Finally	1			
	Conditional	After a while	1	49		
		Then	47			
		Otherwise	1			
		However	1			
Concessive	Still	18	19			
	However	1				

Alternatively, Table 17 shows that Biology pre-service teachers predominantly used conjunctions under the "extension" category, similar to English and Math pre-service teachers. Specifically, 89% of their conjunction use falls under "extension," with "and" being the most frequently used at 1,261 instances. The high frequency of "and" suggests a tendency among practice teachers to connect ideas, provide examples, and link thoughts, thereby facilitating logical progression and cohesion in instructional discourse (Halliday & Hasan, 1976). This aligns with the findings that educators often employ additive conjunctions like "and" to illustrate relationships between concepts and maintain clarity in classroom instructions (Thompson, 2014). Other conjunctions under "extension," such as "also" (60 times) and "but" (52 times), further exemplify the emphasis on logical connections, while "however" (1 time)

and "instead" (7 times) are less frequently used, suggesting a more straightforward and less complex presentation style by pre-service teachers (Eggins, 2004).

## Conclusions

This study provides a comprehensive analysis of the use of grammatical cohesion devices (reference, substitution, ellipsis, and conjunction) in the lesson plans (LPs) of pre-service teachers across three subject areas: English, Mathematics, and Biology. The findings indicate that cohesive devices play a critical role in structuring lesson plans and ensuring logical flow and clarity in instructional content. Across all three disciplines, personal reference was the most frequently used type of cohesive device, with terms like "you" and "it" appearing prominently. This trend is consistent with the pedagogical requirement of LPs to be written from a second- or third-person perspective to address students directly or describe actions and instructions. Demonstrative references such as "that" and "this" were also commonly used but to a lesser extent, showing a preference for direct engagement with learners.

Regarding substitution, nominal substitution was the only type identified across all disciplines, with frequent use of the words "one," "ones," and "same" to replace nouns and avoid repetition. However, there were no cases of ellipsis found in any of the LPs, suggesting a limited use of more complex cohesive techniques. The absence of ellipsis could imply a need for further training in employing more sophisticated linguistic structures to enhance textual cohesion. Conjunctions, particularly those under the "extension" category like "and", "but", and "also", were heavily utilized by pre-service teachers to connect ideas, add information, and elaborate on concepts. This reflects a tendency to rely on simpler, additive conjunctions rather than more diverse and nuanced types of logical connectors that could provide richer and more varied textual cohesion.

The study highlights the importance of cohesive devices in lesson planning and suggests that while pre-service teachers are competent in using fundamental cohesive elements, there is a need for more comprehensive training in utilizing a broader spectrum of cohesive strategies. By diversifying their use of cohesive devices, pre-service teachers can enhance the effectiveness of their instructional materials, create more engaging and coherent lesson plans, and improve overall student comprehension and engagement. Future research could explore interventions or training programs aimed at expanding teachers' repertoire of cohesive devices, as well as examining how the use of these devices affects student learning outcomes in various educational contexts.

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