Examining the Comprehension of Effective Sentences through Grammaticality Judgment Tests and the Implication on Writing Instruction

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Abstract

Students are required to master effective sentences to support their writing skills. However, students often struggle with comprehending and constructing effective sentences due to their limited proficiency and competence. This research examines the comprehension of effective sentences through grammaticality judgment tests and its implications for writing instruction. This research employs mixed methods. Two hundred three first-semester students from Universitas Muhammadiyah Malang were selected for research using purposive sampling. Data was collected using grammaticality judgment tests and semi-structured interviews. Data analysis was carried out quantitatively using the Mann-Whitney U Test and qualitatively to describe patterns of findings. The results showed that 57% of students comprehended quite well, and 25% comprehended. Learners' comprehension of effective sentences is predominantly concerned with language efficiency rather than grammatical structure and lack of explicit linguistic knowledge. Effective sentences, especially parallelism, clarity, and explicit linguistic knowledge, are partially understood. The Mann-Whitney U Test shows that first- and second-language students comprehend effective sentences identically. Furthermore, male and female learners are dissimilar in their ability to comprehend effective sentences. Writing learning can emphasise mastery of effective sentences, explicit language knowledge, and collaborative writing based on language acquisition order and student gender. These findings can be applied to writing instruction by improving students' mastery of effective sentences in collaborative writing.

Keywords: *Grammaticality Judgment Test, Effective Sentences, Writing Skills, Language Learning, Sentence Structure*

Introduction

Proficiency in grammar is crucial for learners to acquire languages effectively (Farashaiyan & Tan, 2012). Therefore, learners must acquire the ability to construct effective sentences to

improve their mastery of the target language. The comprehension of effective sentences entails the utilisation of structural information to demonstrate syntactic capabilities (Brimo et al., 2017). Effective sentences adhere to grammatical rules of straightforwardness, accuracy, clarity, efficiency, and parallelism (Sasangka, 2015). Learners are required to possess the ability to comprehend the formal and standardised grammatical norms of sentences (Leivada & Westergaard, 2020), to facilitate the formation of logical and meaningful expressions through the combination of words and phrases (Wang, 2024). Improved mastery of grammar is essential for enabling effective communication and building a positive reputation in academic and professional domains (Namaziandost et al., 2023).

However, language learners struggle most with effective sentences. These issues suggest morphosyntactic issues (Prihatini et al., 2022). Previous research indicates that individuals encounter difficulties in mastering grammatical sentences although they have acquired various syntactic patterns., Most people also have difficulty expressing more complex syntactic structures, although particular rules of syntactic structure are comprehended (Binger & Light, 2008). It is due to grammatical sentence constructs being complex (Lau et al., 2017), making grammar comprehension and acquisition difficult for students (Khatib & Chalak, 2022; Wang, 2024). In addition, grammatical sentence forms are not always used for social communication. In the learning context, insufficient proficiency in effective sentences hinders students' comprehension and ability to produce high-quality written work (Citra & Afnita, 2019).

Initial interviews with students of Indonesian language classes at the University of Muhammadiyah Malang revealed that effective sentences were challenging to comprehend. They have studied effective sentences from primary school to senior high school. Nevertheless, students still encounter difficulties in comprehending effective sentences at the university. Students face obstacles in understanding the intricate rules of effective sentence construction in various contexts. Additionally, they are confused about choosing strategies for mastering effective sentences. These obstacles hamper their writing ability, and they must undertake scientific writing tasks with effective sentences.

The problem of comprehending effective sentences is due to the lack of comprehension and sensitivity of sentence structure. Comprehension of effective sentences can be assessed using grammatical judgment tests because grammatical competence is a theoretical entity that cannot be directly grasped by observation or measurement. Hence, it is necessary to provide a grammaticality judgment test to demonstrate and measure grammatical proficiency and grammar knowledge (Godfroid et al., 2015; Lau et al., 2017; Tan & Izzati, 2015) as well as to identify explicit and implicit language knowledge (Schurz, 2023). This test is conducted in various methods and modalities. Some stimulus sentences are presented; the learner decides whether a sentence is effective or ineffective. The stimulus sentences may influence whether learners rely on their explicit or implicit knowledge when judging the effectiveness of the sentences (Sándor, 2016).

Comprehension of effective sentences corresponds with proficiency in writing. Previous research found that high sensitivity to syntactic elements contributes to reading and writing abilities (Asadi & Kawar, 2023; Park & Warschauer, 2016). When writing, comprehension of effective sentences influences the sentence structures based on the mastered grammar. Therefore, proficiency in grammar is crucial for effective written language application (Khatib & Chalak, 2022).

In this regard, previous research primarily focused on investigating grammatical judgment based on explicit knowledge (Sándor, 2016), implicit and explicit knowledge (Aydin et al., 2023; Ellis & Roever, 2021; Piegzik, 2020; Schurz, 2023), and comparison with acceptability (Lau et al., 2017; Leivada & Westergaard, 2020). Based on the target grammatical features, previous research concentrated on well-formedness (Lau et al., 2017), passive voice and past progressive (Shiu et al., 2018); relative clauses, past tense, yes/no questions, modal verbs, comparative sentences, third person pronouns, possessive pronouns, and plural forms (Aydin et al., 2023). Typically, prior research are conducted on second language learners of English (Hwag et al., 2014; Sándor, 2016), foreign language learners of English (Aydin et al., 2023; Shiu et al., 2018), and foreign language learners of French (Piegzik, 2020).

These studies have demonstrated that grammatical judgment tests can demonstrate implicit and explicit knowledge in second and foreign languages. This test also could describe competence and performance on various grammatical features. However, some previous studies do not explicitly mention the grammatical features targeted in grammatical judgment tests (e.g., Lau et al., 2017; Leivada & Westergaard, 2020). Grammatical judgment tests must consider language features and language knowledge type within stimulus sentences (Schurz, 2023; Schütze, 2016; Shiu et al., 2018). Previous research still focused on English and French. Nevertheless, there is a lack of research investigating the comprehension of Indonesian grammar using grammatical judgment tests.

Based on this background, a research gap exists in utilising grammatical judgment tests to examine students' comprehension of Indonesian effective sentences. Research is needed to investigate the comprehension of effective sentences in Indonesian because they need to be mastered by Indonesian students from elementary school to university level. Previous research also proves that acquiring and enhancing grammatical knowledge is more challenging than other language learning aspects (Khatib & Chalak, 2022).

Therefore, this study investigated four research objectives, namely (a) delineating the comprehension of effective sentences through grammatical judgment based on the characteristics of effective sentences, (b) elucidating the comprehension of effective sentences based on the difference of language acquisition order, (c) describing the comprehension of effective sentences based on gender difference, and (d) expounding upon the implications of comprehension of effective sentences for writing instruction. The findings of this study contribute to developing a framework for effective sentence comprehension in both first and second-language learners, using the results obtained from grammatical judgment tests. The findings of this research also have consequences for writing instruction, particularly in terms of effective sentence construction and the utilisation of appropriate learning design based on the difference in comprehension, language acquisition order, and gender.

Effective Sentence Comprehension
Effective sentence conveys the writer's thoughts, enabling listeners or readers to comprehend the speaker's message (Saddhono et al., 2018). So, effective sentences consist of grammatical rules of straightforwardness, accuracy, clarity, efficiency, and parallelism (Saddhono et al., 2018; Sasangka, 2015). Straightforwardness refers to sentences that contain the primary information. Accuracy refers to sentences that have accurate meanings so as not to cause

misinterpretation. Based on clarity, sentences must have a clear, complete, and easy-to-understand structure. Based on efficiency, sentences should be structured sparingly and not wastefully. In the parallelism, sentence structures must be arranged invariably (Sasangka, 2015; Yu, 2017).

Comprehension of effective sentences involves using structural information to demonstrate syntactic capabilities (Brimo et al., 2017). Students must enhance their ability to determine whether a sentence is already effective or not. By developing the students' awareness through consistent practice, they can effortlessly use effective sentence concepts and revise any less effective sentences they encounter (Saddhono et al., 2018).

Language Knowledge

Learners acquire two distinct forms of language knowledge: implicit and explicit language knowledge (Godfroid et al., 2015; Mirzaei et al., 2011; Roehr-Brackin, 2024). Implicit language knowledge refers to the learner's unconscious grammatical knowledge that can be accessed and used automatically during spontaneous language use (Ellis & Roever, 2021; Fukuta & Yamashita, 2023; Godfroid et al., 2015). Explicit language knowledge pertains to the grammatical knowledge as well as technical and semi-technical terms that learners possess and utilise for language interpretation (Aydin et al., 2023; Godfroid et al., 2015; Sándor, 2016).

Implicit and explicit language knowledge are both needed by learners in language learning and communication (Aydin et al., 2023; Kim & Godfroid, 2023; Roehr-Brackin, 2024; Schurz, 2023). With implicit language knowledge, learners can have an intuitive sense of rules and procedural knowledge. With explicit language knowledge, learners know language rules based on declarative knowledge (Aydin et al., 2023; Ellis & Roever, 2021). The two types of language knowledge are equally needed for learners to understand the language system and facilitate communication (Fukuta & Yamashita, 2023).

Grammaticality Judgment Test

Grammaticality judgment test is a way to measure language proficiency and grammatical knowledge (Tan & Izzati, 2015). The test is needed to prove the learner's grammatical competence in sentence structure (Lau et al., 2017). In addition, the test is also used to identify learners' language knowledge, such as explicit and implicit knowledge (Schurz, 2023). Nevertheless, the tests only encourage learners to use specific knowledge. The knowledge utilised somewhat depends on the knowledge sources accessible to the learner. They cannot determine which type of knowledge is utilised (Godfroid et al., 2015).

This test is carried out in certain ways and modalities. Stimulus sentences are presented. Then, learners determine whether the sentence is true or false. The stimulus sentence presented can be either effective or ineffective. Therefore, the presentation of stimulus sentences can influence whether learners utilise their explicit or implicit knowledge when assessing the accuracy of the sentences (Sándor, 2016).

Writing Instruction

Writing is a key language ability that must be mastered in language learning. As a productive language skill, a writer must master grammar to generate high-quality written work. Grammar

is crucial in writing because it affects conveying meaning in the text. Grammar also impacts the form and structure of words (morphology) and sentences (syntax). Therefore, students with limited grammar knowledge will face anxiety in composing sentences with proper grammar (Moses & Mohamad, 2019).

However, writing becomes difficult because of students' challenges in learning writing skills. Students have a lack vocabulary, grammar, spelling, readiness, and literacy in books and reading materials (Moses & Mohamad, 2019). Nevertheless, learners must adjust the writing process at the planning, organising, writing, and revision stages (Cheung et al., 2021). Therefore, writing needs to be held in systematic learning steps for writing improvement by focusing on grammar development (Wyse & Torgerson, 2017).

Method

This research employs a mixed method to explain the comprehension of effective sentences based on quantitative and qualitative data. The research object is the comprehension of effective sentences. The research subjects were 203 students at the University of Muhammadiyah Malang in the odd semester of the 2022/2023 academic year. Research subjects were determined by purposive sampling based on specific criteria, namely (a) currently taking Indonesian language courses, (b) aged 17-22 years, (c) acquiring Indonesian as a first or second language, (d) Indonesian citizens, and (e) do not have any language disorders. Respondents expressed consent to participate in the study. The study was conducted according to the University of Muhammadiyah Malang guidelines.

Data was collected using a grammatical judgment test designed based on the characteristics of effective sentences (Sasangka, 2015). The grammaticality judgment test considers various factors, namely the test's design, the instructions for its implementation, and the specific competencies aimed to identify (Schütze, 2016). Specifically, tests also must consider time limitations, stimulus sentences, modality, and target grammatical features (Plonsky et al., 2020; Shiu et al., 2018).

Therefore, this study designed a grammatical judgment test as follows. Based on the target grammatical features, the test consists of five parts based on the characteristics of effective sentences, namely (a) straightforwardness, (b) accuracy, (c) clarity, (d) efficiency, and (e) parallelism. We used an untimed written grammaticality judgment test via Google Forms. Students choose *true* if the sentence is effective and *false* if it is not based on grammatical rules, especially the characteristics of effective sentences, without any time limitation to measure explicit and implicit knowledge (Ellis & Roever, 2021; Esteki, 2014; Langsford et al., 2019). The test has 20 stimulus sentences with true or false answer choices. All items of the grammaticality judgment test assign a zero score if the judgment is incorrect and one score if the judgment is correct (Vafaee et al., 2017). The selection of true-false answers is predicated on the assumption that sentences that do not adhere to grammatical standards are unequivocally considered ungrammatical (Leivada & Westergaard, 2020).

The validity of the grammatical judgment test instrument was measured using the Pearson Product Moment correlation with valid results because the calculated r value for each questionnaire item (0.468; 0.483; 0.531; 0.555; 0.571) > r table (0.138). In addition, the test instrument's reliability is assessed using Cronbach Alpha, yielding a computed value of (0.332)

> r table (0.1378). Therefore, it can be concluded that the test instrument meets the reliability criteria. The grammatical judgment test grid is displayed in Table 1.

Table 1

Grammatical Judgment Test Grid

No	Characteristics of Effective Sentences	Indicator	Answer		Implicit Knowledge	Explicit Knowledge
			Grammatical	Ungrammatical		
1	Straightforwardness	Sentences contain		✓		✓
2		main information	✓		✓	
3		only.		✓		✓
4			✓		✓	
5	Accuracy	Sentences contain	✓		✓	
6		precise information.		✓		✓
7				✓		✓
8			✓		✓	
9	Clarity	Sentence structure is		✓		✓
10		clear and complete.	✓		✓	
11				✓		✓
12				✓		✓
13	Efficiency	Sentences contain		✓		✓
14		accurate and efficient	✓		✓	
15		information		✓		✓
16			✓		✓	
17	Parallelism	The sentences' form		✓		✓
18		and structure must be		✓		✓
19		parallel	✓		✓	
20				✓		✓
	TOTAL		8	12	8	12

Data was also collected using semi-structured interviews to obtain thorough information on the learners' effective sentence comprehension when carrying out grammatical judgment tests. Students answer several points of questions during semi-structured interviews, namely (a) the strategies used for recognising effective sentences in grammatical judgment tests, (b) the challenges encountered in the test and in comprehending effective sentences, and (c) the advantages of understanding effective sentences in writing skills.

Data analysis was conducted quantitatively using descriptive statistics to measure the comprehension of effective sentences based on the characteristics of effective sentences, the difference comprehension based on language acquisition order, and the difference comprehension based on gender. The normality test findings indicate that the data does not follow a normal distribution (p < 0.001). Consequently, the hypothesis was examined using nonparametric statistics with the Mann-Whitney U Test. The test investigates the difference in effective sentence comprehension based on language acquisition order and gender differences of the participants. In addition, the findings of effective sentence comprehension and their differences are identified for their implications for writing instruction. The interpretation of the test results is presented in Table 2.

Table 2
Interpretation of Grammatical Judgment Results

Total of Correct Answers	Interpretation
17-20	very comprehend
13-16	comprehend
9-12	comprehend enough
5-8	do not comprehend
0-4	really do not comprehend

Results

The results are explained in three parts, namely (a) effective sentence comprehension based on the characteristics, (b) comprehension difference of effective sentences based on the language acquisition order of Indonesian, and (c) comprehension difference of effective sentences based on gender.

Effective Sentences Comprehension Based on the Characteristics of Effective Sentences

Comprehension of effective sentences based on the results of the grammaticality judgment test is presented in Table 3.

Table 3
Comprehension of Effective Sentences Based on the Characteristics of Effective Sentences

	N	Minimum	Maximum	Sum	Mean		Std. Dev	Variance	Skewness		Kurtosis	
	Statistics	Statistics	Statistics		Statistics	Statistics	Std. Error	Statistics	Statistics	Statistics	Std. Error	Statistics	Std. Error
Straight-forwardness	203	0	4	513	2.53	.069	.982	.963	-.235	,171	-.580	.340
Efficiency	203	0	4	509	2.51	.065	.919	.845	-.254	.171	-.120	.340
Accuracy	203	0	4	439	2.16	.061	.872	.761	-.006	.171	-.056	.340
Clarity	203	0	4	401	1.98	.074	1.050	1,103	-.106	.171	-.516	.340
Parallelism	203	0	4	329	1.62	.069	.979	.959	,248	.171	-.373	.340
Valid N (listwise)	203											

Table 3 shows that the order of the mean from the lowest is parallelism (1.62); then clarity (1.98); accuracy (2.16), efficiency (2.51), and straightforwardness (2.53) from a maximum value of 4. These findings indicate that learners outperform in comprehending effective sentences on straightforwardness and efficiency. It is difficult for students to master parallelism and clarity in effective sentences because both get the lowest scores. Students' comprehension of effective sentences from the results of the grammaticality judgment test is presented in Figure 1.

Figure 1

Effective Sentences Comprehension Based on the Characteristics of Effective Sentences
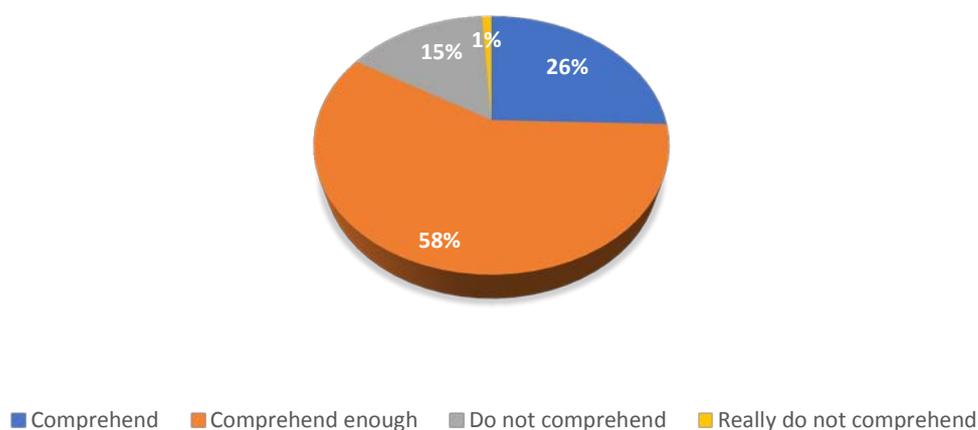
According to Figure 1, 1% of learners really do not comprehend, 15% do not comprehend, 57% comprehend enough, and 25% comprehend. More students comprehend than those who do not grasp at all. Nevertheless, none of the learners demonstrate a high level of comprehension. These findings are related to the interview results as follows.

> *"In my opinion, effective sentences are difficult. We have to understand the structure of words, sentences, and even their meaning, which is very complex. We may be able to speak Indonesian fluently in everyday life, but we are not used to using effective sentences in daily communication. So, it is challenging to understand, analyse, or even write effective sentences."*

The interview's findings demonstrate that learners struggle to comprehend effective sentences due to the complex linguistic structure. They must become proficient in word meaning, structure, and sentence form. Moreover, learners' unfamiliarity with effective sentences is another contributing factor. As a result, students frequently failed to judge the grammaticality of the sentences in Table 4.

Table 4

Sentences with Most Errors in the Grammaticality Judgment Test

Stimulus Sentences	The number of students who answered correctly		Characteristics of Effective Sentences	Language Knowledge
	N	%		
1. *Semakin bertambahnya minat masyarakat terhadap telepon seluler, secara langsung atau tidak langsung mampu mendorong variasi dan inovasi fitur-fitur baru di dalamnya.* (The increasing public interest in cellular telephones, directly or indirectly, can encourage variations and innovations in their new features).	90	44%	Straightforwardness	Explicit
3. *Debat yang berlangsung selama 4 jam itu telah mengungkapkan permasalahan fundamental*	101	50%	Straightforwardness	Explicit

Stimulus Sentences	The number of students who answered correctly		Characteristics of Effective Sentences	Language Knowledge
	N	%		
yang menjadi faktor penyebab meningkatnya kasus perundungan di tingkat sekolah dan perguruan tinggi. (The debate, which lasted for 4 hours, revealed fundamental problems: the factors causing the increase in bullying cases at the school and college level).				
1. Putra-dosen yang berprestasi itu telah mendapatkan banyak penghargaan, baik nasional maupun internasional. (These outstanding lecturers have received many awards, both national and international).	72	35%	Accuracy	Implicit
3. Ibuku mengajar matapelajaran Bahasa Indonesia di SMP Insan Cendekia sejak 2015. (My mother has taught Indonesian language subjects at Insan Scholar Middle School since 2015).	94	46%	Accuracy	Explicit
1. Bangunan itu memadukan gaya arsitektur minimalis dan futuristik. (The building combines minimalist and futuristic architectural styles).	40	20%	Clarity	Explicit
4. Nenek menceritakan tentang pengalamannya dalam merintis usaha kuliner sampai sukses hingga saat ini. (Grandma told about her experience in starting a culinary business until it was successful until now).	86	42%	Clarity	Explicit
3. Bab ini berisi ulasan pembahasan dengan dilengkapi bukti data hasil survei dan wawancara. (This chapter contains a discussion review and data evidence from surveys and interviews).	84	41%	Efficiency	Explicit
1. Berdasarkan metodenya, kata asing dapat diserap ke dalam bahasa Indonesia dengan tiga cara, yaitu adopsi, adaptasi, dan menerjemahkan. (Based on the method, foreign words can be absorbed into Indonesian in three ways: adoption, adaptation, and translation).	47	23%	Parallelism	Explicit
2. Produk itu dibuat oleh PT Abadi Jaya dan PT Surya Utama yang mendistribusikannya ke berbagai daerah di Indonesia. (This product is made by PT Abadi Jaya and PT Surya Utama, who distribute it to various regions in Indonesia).	77	38%	Parallelism	Explicit
4. Pada pembahasan, peneliti perlu menginterpretasi temuan berdasarkan teori yang digunakan, pembandingan dengan temuan penelitian-penelitian sebelumnya, serta menyusun proposisi temuan. (During the discussion, researchers need to interpret the findings based on the theory used, compare them with the findings of previous studies, and develop propositions based on the findings).	95	47%	Parallelism	Explicit

Table 4 demonstrates that learners made the highest grammaticality judgment test errors in stimulus sentences requiring explicit language knowledge. Learners made grammatical judgment errors in nine of the 12 stimulus sentences requiring explicit language knowledge.

These results reveal that learners face obstacles in judging sentences with grammatical faults in the test.

The results show that students still need to learn each characteristic of effective sentences because they still make many mistakes in assessing the effectiveness of sentences. Students experienced many errors in the characteristics of parallelism in three of the four sentences because only 23%, 38%, and 47% of learners correctly judged the grammaticality of the sentences. It implies that the parallelism principle is highly difficult for learners in the test. Additionally, students frequently make errors in judgment of the sentences' clarity in the test, as only 20% of students correct. These results are relevant to the interview results as follows.

"Effective sentences are the most difficult for sentence structure or syntactic function. I am confused about whether they include subject, predicate, object, complement, or additional information. I get even more confused, especially if the sentences are long and complex. The most difficult characteristic is parallelism because the sentence structure is more complex than other characteristics of effective sentences."

The interview results indicate that learners find it challenging to comprehend syntactic functions. They are confused to identify the sentence structure. This challenge pertains to the attributes of clarity in effective sentences. Moreover, the most notable obstacle in effective sentences is parallelism, attributed to the perceived intricacy of the sentence structures.

Difference of Effective Sentence Comprehension Based on Order of Indonesian Language Acquisition

The results of the grammaticality judgment test based on the order of Indonesian language acquisition are presented in Figure 2.

Figure 2

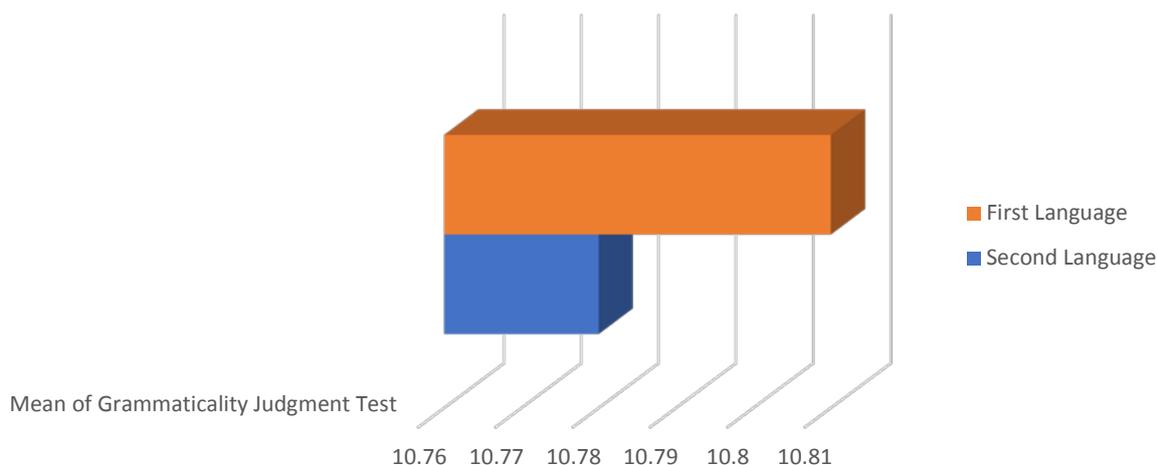*Mean of Grammaticality Judgment Test Based on Order of Indonesian Language Acquisition*

Figure 2 displays the mean of the grammaticality judgment test score for first-language learners (10.81) and second-language learners (10.78). The mean indicates that learners

comprehend enough about effective sentences. In addition, the mean between first and second-language learners is not much different. Indonesian as a first or second language for learners taking Indonesian language courses at the University of Muhammadiyah Malang does not indicate differences in the ability to comprehend effective sentences.

Table 5

Effective Sentence Comprehension Based on Order of Indonesian Language Acquisition

Categories of Effective Sentence Comprehension Based on Differences in Order of Indonesian Language Acquisition	Asymph. Sig (p-Value)	Mann Whitney U
➢ *Language Knowledge*		
Implicit Language Knowledge	0.488	4,833,500
Explicit Language Knowledge	0.735	5,254,500
➢ *Characteristics of Effective Sentences*		
Straightforwardness	0.546	4,874,000
Accuracy	0.996	5,117,000
Clarity	0.680	4,950,000
Efficiency	0.383	5,459,000
Parallelism	0.735	5,249,500

Based on the results of the Mann-Whitney U Test, Table 5 shows that there is no significant difference in understanding effective sentences on the straightforwardness (p = 0.546), accuracy (p = 0.996), clarity (p = 0.680), efficiency (p = 0.383), and parallelism (p = 0.735) for learners based on the order of Indonesian language acquisition. These findings suggest that the order of Indonesian language acquisition does not affect their comprehension of effective sentence characteristics. Learners who acquire Indonesian as their first or second language have a similar level of comprehension of effective sentences.

The Mann-Whitney U Test results indicate no significant difference in effective sentence comprehension in implicit language knowledge (p= 0.488) and explicit language knowledge (p= 0.735) in learners based on the order of language acquisition. These findings suggest that differences in the order of Indonesian language acquisition do not indicate disparities in the comprehension of effective sentences based on the language knowledge type. Students who learn Indonesian as a first or second language have almost the same implicit and explicit language knowledge.

Difference of Effective Sentence Comprehension Based on Gender
The grammaticality judgment test results based on gender are presented in Figure 3.

Figure 3

Mean of Grammaticality Judgment Test Based on Order of Indonesian Language Acquisition
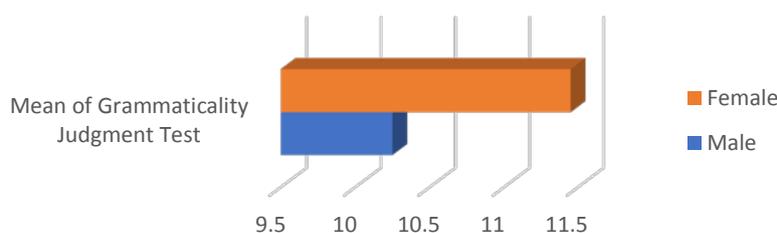
Figure 3 shows that the mean of females (11.45) is higher than that of males (10.25) on the grammaticality judgment test. These results suggest differences in the ability to comprehend effective sentences between male and female learners. However, the average difference is not much.

Table 6

Effective Sentence Comprehension Based on Gender Differences

Categories of Effective Sentence Comprehension Based on Gender Differences	Asymph. Sig (p-Value)	Mann Whitney U
Language Knowledge		
Implicit Language Knowledge	0.032	5,977,500
Explicit Language Knowledge	0.021	6,056,500
Characteristics of Effective Sentences		
Straightforwardness	0.048	5,893,000
Accuracy	0,000	6,537,500
Clarity	0.901	5,155,500
Efficiency	0.503	5,369,500
Parallelism	0.065	5,840,000

Table 6 presents the findings of the Mann-Whitney U Test, indicating a significant difference in the comprehension of effective sentences across male and female learners regarding straightforwardness (p= 0.048) and accuracy (p= 0.000). However, the characteristics of clarity (p= 0.901), efficiency (p=0.503), and parallelism (p=0.065) did not show significant results. In other words, there is no significant difference in effective sentence comprehension on the clarity, efficiency, and parallelism between male and female learners.

The results demonstrate a significant difference in the level of comprehension of effective sentences between male and female learners in both implicit and explicit language knowledge. The Mann-Whitney U-Test results suggest that gender indicates differences in comprehension of effective sentences based on the language knowledge type. This finding was proven by significant test results, namely implicit language knowledge (p= 0.032) and explicit language knowledge (p= 0.021).

Discussion

Representation of Effective Sentence Comprehension Based on the Results of the Grammaticality Judgment Test

Explicit language knowledge among students is less comprehended than implicit language knowledge. These findings are relevant to previous research that students' explicit knowledge is inadequate in the grammaticality judgment test (Aydin et al., 2023; Tokowicz & MacWhinney, 2005; Tokowicz & Warren, 2010; Ward & Lo, 2023). Nevertheless, these findings contradict previous studies, which found that students' implicit and explicit language knowledge is quite balanced on the grammaticality judgment test (Piegzik, 2020). This study shows no significant difference in effective sentence comprehension between first and second-language learners. These findings differ from previous research, which found that a second language can be processed fluently and grammatically with implicit and explicit knowledge, which is useful in using a second language (Khresheh, 2020).

The results of this study corroborate prior research, indicating that gender is an indicator of language knowledge and ability (Alkhawaldeh & Khasawneh, 2023; Azizmohammadi &

Barjesteh, 2020; Farashaiyan & Tan, 2012; Saricaoğlu & Arikan, 2009). Specifically, females demonstrate excellent language proficiency than males (Alkhawaldeh & Khasawneh, 2023; Azizmohammadi & Barjesteh, 2020; Farashaiyan & Tan, 2012; Moghimi & Khalaji, 2016; Vilhjálmsdóttir, 2017). Nevertheless, males exhibit a higher level of grammatical knowledge (Vilhjalmsdottir, 2017). Conversely, other research proves that gender differences do not indicate differences in language knowledge (Al Balushi, 2019; Moghimi & Khalaji, 2016).

The grammaticality judgment test reveals that students' comprehension of effective sentences primarily focuses on language efficiency in sentence composition, namely straightforwardness and efficiency characteristics. Straightforwardness refers to the conveyance of essential information in efficient sentences. Additionally, efficiency refers to concise sentences that avoid wordiness. It is because effective sentences must encompass the intended information the writer aims to communicate and the information the reader comprehends using efficient sentences (Saddhono et al., 2018).

Lowest-average sentence attributes are parallelism and clarity. These findings indicate that the difficulty in effective sentences refers to linguistic structure, namely clarity and parallelism characteristics. The interview results show that comprehending clarity is challenging due to the need to understand the syntactic elements in sentence structure, such as subject, predicate, object, complement, and additional information. Students experience difficulties in tests on parallelism because they need to assess sentence structure and syntactic function, both form and meaning, in parallel and complex structures (Gutiérrez, 2013; Sasangka, 2015; Susmita, 2022).

These findings indicate that students struggle with grammatical judgment in sentences with language faults. Determining the effectiveness of incorrect sentences requires explicit knowledge. However, learners do not realise that the sentence is wrong (ineffective), so their answers are wrong. So, these findings suggest that learners' explicit language knowledge is less than their implicit language knowledge. This study corroborates other research, demonstrating that learners exhibit inadequate proficiency in the explicit knowledge in the grammaticality judgment test (Aydin et al., 2023; Tokowicz & MacWhinney, 2005; Tokowicz & Warren, 2010). Other research states that explicit language knowledge is necessary since it encompasses metalinguistic knowledge about technical and semi-technical rules that focus on language structure (Roehr-Brackin, 2024; Sándor, 2016; Vafaee et al., 2017). Consequently, this knowledge influences students' abilities in the grammaticality judgment task (Andringa & Curcic, 2015) since implicit and explicit language knowledge correlates with language proficiency (Estek, 2014).

Based on these two types of language knowledge, previous studies show no significant correlation between implicit language knowledge and general language proficiency. However, there is a significant relationship between explicit language knowledge and general language proficiency in Chinese (Li, 2017) and English (Mirzaei et al., 2011). Explicit language knowledge, primarily cognitive academic language abilities or skills, is needed in language learning (Mirzaei et al., 2011). Nevertheless, this study did not investigate the correlation between these types of language knowledge. Hence, additional investigation is required to ascertain the correlation between explicit and implicit language knowledge and overall language proficiency or skills.

The results of this study contrast with prior research, which indicated that students acquired both implicit and explicit knowledge in a fairly balanced manner through a time-constrained grammaticality judgment test (Piegzik, 2020). The discrepancy in the results is attributed to the absence of a time constraint in conducting the grammaticality judgment test in this study. However, this study differs from Sandors' research, employing a time constraint in the grammaticality judgment test (Sándor, 2016). Therefore, it can be assumed that the presence or absence of a time constraint in conducting the grammaticality judgment test is not the sole determinant of the test outcomes.

In this regard, Sandors proves that all groups of learners, both native speakers and second language learners, get better scores in grammaticality judgment tests that do not impose time constraints, thus enabling them to rely on their explicit knowledge when their implicit competence is not yet available (Sándor, 2016). In contrast, other research suggests that timed grammatical judgment tests did not effectively restrict participants' access to explicit knowledge while processing grammatical sentences (Satori, 2023). The differences in findings can be attributed to the characteristics of the participants in the study. The present study employed first and second-language learners, while Piegzik and Sandors used foreign-language speakers.

Piegzik, Sandors, Satori and this research examine the differences between explicit and implicit language knowledge in grammaticality judgment tests. The linguistic features examined in this study pertain to five key attributes of effective Indonesian sentences: straightforwardness, clarity, accuracy, efficiency, and parallelism (Sasangka, 2015). However, Sandors and Piegzik employ other linguistic features, such as (a) structures that are universally problematic for learners; (b) initial and final structures acquired in the development process; (c) a structure that includes multiple levels of proficiency; (d) structure consisting of morphological and syntactic features (Sándor, 2016). The differences in linguistic features in the grammaticality judgment test are closely related to the characteristics of the target language. Most researchers use word order, tenses, gender, relative clauses, and numerals in the grammaticality judgment test (Plonsky et al., 2020). Prior research has not utilised the attributes of effective sentences as a basis for employing the grammaticality judgment test. This research contributes to the existing body of research by demonstrating how the properties of effective sentences can assess students' implicit and explicit language knowledge using the grammaticality judgment test.

The results demonstrate that most learners comprehend enough of the effective sentence characteristics. The result is pertinent to prior research, which found that participants generally exhibited sufficient grammatical proficiency (Vilhjalmsdottir, 2017). However, no learners were categorised as highly comprehended in Indonesian effective sentences.

According to the interview results, they typically utilise Indonesian for both spoken and written communication, focusing on delivering the necessary information. It can be assumed that Indonesian language students have not developed the practice of using effective sentences. Thus, when students speak spontaneously, their sentences may be affected by many factors that hinder natural interaction, including false starts, interruptions, and omissions caused by limitations in memory capacity (Leivada & Westergaard, 2020). So, effective sentences are typically not employed in everyday communication. For this reason, sentences that are categorised as wrong/ineffective by linguists are still considered natural to lay people. In

contrast, sentences that are considered correct/effective by linguists seem unnatural to lay people (Lau et al., 2017). Consequently, sentences strictly adhering to the norms are less acceptable in communication (Langsford et al., 2019).

The results indicate that Indonesian language acquisition order does not affect sentence comprehension. First- and second-language learners may comprehend effective sentences using implicit and explicit language skills equally. The features of Indonesian learners who have acquired regional languages since infancy and received Indonesian instruction in early childhood education show the similarity in this second language research.

Conversely, the findings indicate significant differences between male and female learners' comprehension of effective sentences on straightforwardness and accuracy. There are also significant differences in implicit and explicit language knowledge between male and female learners. So, male and female learners possess different levels of effective sentence comprehension. These findings confirm previous research which proves that gender indicates differences in language proficiency and grammatical knowledge (Azizmohammadi & Barjesteh, 2020; Farashaiyan & Tan, 2012) and even become an indicator of language intelligence (Saricaoğlu & Arikan, 2009).

In this study, females had a higher comprehension of effective sentences than males. These findings support previous research showing that females have better abilities in language proficiency (Farashaiyan & Tan, 2012), for example, in grammar (Azizmohammadi & Barjesteh, 2020; Moghimi & Khalaji, 2016). In addition, previous research also shows that females have higher scores than males on the syntactic skill of evaluating correct sentences (Vilhjalmsdottir, 2017). However, males possess greater grammatical knowledge (Vilhjalmsdottir, 2017). Even though males and females have similarities and disparities in language competency, current and earlier studies show that gender differences suggest grammatical knowledge.

On the other hand, contrasting research has indicated no significant difference between males and females in grammatical knowledge (Al Balushi, 2019) and basic language knowledge (Moghimi & Khalaji, 2016). Both studies were conducted on enrolled participants in courses in English as a foreign language. In contrast, the current study focused on participants studying Indonesian as a first or second language. Furthermore, the grammaticality judgment test employed in this study specifically examined the linguistic features that contribute to the effective sentences. In contrast, the prior studies used a grammatical knowledge test instrument (Al Balushi, 2019) and reading comprehension tests (Moghimi & Khalaji, 2016), not a grammaticality judgment test.

Implications of Effective Sentence Comprehension Based on the Grammaticality Judgment Test on Writing Instruction

Based on research findings regarding students' effective sentence comprehension, the implications for learning to write can be carried out in various aspects.

Emphasis on Mastering Effective Sentence in Writing Instruction

Previous research found that writing necessitates intricate language processing and a thorough understanding of grammar (Prihatini et al., 2023) and metalinguistic knowledge (Gutiérrez, 2013), as writing involves intricate processes (Prihatini et al., 2024). Therefore, proficiency in

writing requires mastery of effective sentence construction, as they are pivotal in conveying ideas within discourse (Saddhono et al., 2018). So, writing instruction should provide students with sentence structure comprehension, especially syntactic function, since writing requires complicated linguistic processes, vocabulary, and grammar skills (Muñoz, 2010; Prihatini et al., 2023; Prihatini et al., 2022). Therefore, learners must ascertain and construct suitable sentence structures utilising subjects, predicates, objects, complements, and additional information. So, teachers must provide students with clear information about the material to improve their comprehension of metalinguistic knowledge (Aydin et al., 2023).

Writing instruction should emphasise students' comprehension of parallelism and clarity because these two characteristics are the most difficult for students. However, conveying other effective sentence characteristics is also essential. Thus, students can write and fulfil all the characteristics of an effective sentence. Previous studies have demonstrated the significance of mastering effective sentence structures in developing writing skills. These studies have found a positive correlation between comprehension of effective sentences and writing skills, for example, in expository texts (Munawarah, 2017; Saddhono et al., 2018) and description texts (Pitaloka, 2017), writing a summary (Lestari et al., 2018), as well as other texts. Learning should be designed innovatively, considering that students often struggle to comprehend effective sentences in a grammatical form to enhance writing skills (Khatib & Chalak, 2022).

Besides emphasising only grammatical aspects, lecturers should encourage learners to use language appropriately in various situations and contexts (Farashaiyan & Tan, 2012). Thus, the sentences generated by students adhere to grammatical rules and can also be acceptable and seem natural from a linguistic and social perspective. There is a recent tendency in second language acquisition to merge grammar learning with communicative language use, particularly in focus-on-form techniques that integrative formal instruction with communicative language use (Gutiérrez, 2013).

Emphasis on Explicit and Implicit Language Knowledge in Effective Sentences on Writing Instruction

The result reveals that explicit language knowledge was lower than implicit language knowledge. Learners often struggle to acquire explicit knowledge of effective sentence construction. Aydin's research discovered a strong relationship between explicit and implicit language knowledge (Roehr-Brackin, 2024) and general language proficiency (Aydin et al., 2023). In other words, high levels of explicit language knowledge also indicate abilities in other grammar components and vice versa. The reason is that explicit language knowledge makes learners aware of the grammatical rules (Ellis, 2005, 2009; Roehr-Brackin, 2024). Therefore, explicit and implicit language knowledge is needed to support grammar mastery.

Students require explicit language skills in writing (Estek, 2014). Students are expected to reduce the ineffectiveness of sentences they construct. Through explicit language knowledge, learners can self-review their text to be aware of ineffective sentences. Thus, it is possible to revise the text to be more effective.

Instructors must adjust their teaching methodologies to accommodate the needs, interests, and diverse learning styles of their students (Wang, 2024). Therefore, teachers must encourage intentional student learning through explicit instruction (Ellis, 2009). The previous results show that explicit instruction has advantages in developing explicit grammatical knowledge

among foreign language learners (Aydin et al., 2023; Ellis & Roever, 2021). Therefore, in light of the results obtained from this study, it is imperative to incorporate explicit grammar instruction into student writing programs for first and second-language learners.

Nevertheless, learners need to possess both explicit and implicit language skills. Explicit and implicit language knowledge is necessary for effective writing. Lecturers must provide learners with both knowledge for writing activities. Kim & Godfroid (2023) found that explicit and implicit knowledge mutually influenced each other throughout time. Previous research also proves that although the implicit and explicit language knowledge dichotomy is confusing, both can be applied to learning (Aydin et al., 2023). The utilisation of explicit knowledge can be more readily induced through tasks that necessitate formulating or applying language rules. Conversely, the measures for implicit knowledge depend on the emphasis placed on communicative tasks (Roehr-Brackin, 2024).

Language proficiency necessitates implicit and explicit linguistic competence (Fukuta & Yamashita, 2023; Sándor, 2016). Effective sentences must follow grammatical rules (Langsford et al., 2019). So, teachers' awareness during the learning phase can enhance the formation and retention of explicit and implicit representations (Fukuta & Yamashita, 2023). Explicit language learning emphasises the formal aspects of language, while implicit learning occurs through meaningful and communicative language use in or out of the classroom (Schurz, 2023). Therefore, teachers must consider the unique characteristics of a learning setting when analysing learner performance on implicit and explicit knowledge (Schurz, 2023).

Other research has also proven that explicit knowledge can be used simultaneously with implicit knowledge when communicating in a second language as a foreign language (Khresheh, 2020). The development of implicit knowledge can be influenced by explicit language knowledge, which is developed through explicit learning mechanisms (Roehr-Brackin, 2024; Suzuki & DeKeyser, 2017). Implicit and explicit learning processes are intricately associated with conscious and unconscious knowledge, influenced by the prominence of form-meaning connections within target items (Fukuta & Yamashita, 2023). So, this research suggests that adult Indonesian learners can employ implicit and explicit language skills in grammaticality judgment tests.

Implementation of Heterogeneous Collaborative Writing Instruction
In connection with these findings, previous research states that two or more learners interact during collaborative writing (Storch, 2013). Collaborative writing activities have been widely applied in language learning (Svenlin & Sørhaug, 2022; Zhang et al., 2021). Collaborative writing learning requires lecturers with pedagogical skills to assist students in producing effective sentences in their writing.

Prior research shows that pedagogical competence requires lecturers to teach, advise, train, and evaluate learners (Sulfemi & Supriyadi, 2018). In addition, lecturers must consider several factors in learning, namely (a) educational level and age group (Langsford et al., 2019), (b) verbal strategies in managing class conditions, developing awareness, focusing attention, and knowing students' level of knowledge (Rohma & Prihatini, 2022), (c) learning innovation to create more active learning between teachers and students so that curricular goals are achieved well (Rohma & Prihatini, 2022), as well as student characteristics (Prihatini & Sugiarti, 2022; Vilhjálmsdóttir, 2017).

This research has demonstrated comprehension of effective sentences based on the effective sentence characteristics and language knowledge types of male and female learners and first- and second-language learners. Nevertheless, there are still limitations in this research. First, the participants are still limited to students at one university in Indonesia. Second, this research focuses on understanding effective sentences based on their characteristics and type of language knowledge. Third, this study examines differences in understanding effective sentences based on the order of language acquisition and gender only.

Conclusion

The results show that students are more likely to comprehend effective sentences regarding language efficiency but less in grammatical structure. In addition, students often make mistakes in ungrammatical sentences, which indicates a lack of explicit language knowledge. The Mann-Whitney U test found no significant difference in effective sentences between first and second-language learners. On the other hand, male and female learners have significant differences in comprehending effective sentences. Writing instruction with sentence comprehension can be beneficial because it emphasises mastery of effective sentence characteristics, explicit language knowledge, and collaborative writing application that varies based on the language acquisition order and gender. Therefore, it can be concluded that although most students comprehend effective sentences, they still do not fully understand them, especially those related to parallelism, clarity, and explicit language knowledge. Collaborative learning optimises students' comprehension of effective sentences, aiding them in developing their writing skills. There are various recommendations for future research based on the limitations described in this research. First, it is recommended to broaden the scope of research by including a variety of topics from multiple universities. Second, other research could employ different linguistic characteristics to assess the comprehension of effective sentences. Third, future studies should employ other comparison criteria, such as variances in age, proficiency level, or educational attainment.

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Ethics Declarations

Competing Interests

No, there are no conflicting interests.

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