



# The Relationship Between Grammatical Knowledge and Argumentative Essay Writing Proficiency Among IELTS Test Takers in Pakistan

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## Abstract

The purpose of this study was to investigate the potential correlation between grammatical knowledge and argumentative essay writing proficiency among IELTS test takers in Pakistan. Specifically, the study aimed to determine whether grammatical knowledge played a role in improving students' writing proficiency or not. To collect data, the researcher employed three instruments: a prompt for argumentative essay writing, a scoring rubric based on IELTS band descriptors, and a set of grammatical knowledge items developed by the researcher. A total of 131 students from various IELTS institutes in Pakistan were selected, including 86 males and 45 females. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 23, utilizing Pearson Product-Moment analysis to calculate the correlation between grammatical knowledge and argumentative essay writing proficiency. The results of the study suggest that there is no significant relationship between grammatical knowledge scores and argumentative essay writing proficiency ( $p = .002 > 0.05$ ).

**Keywords:** Grammatical knowledge, argumentative writing, essay, writing proficiency, IELTS test takers

## 1. Introduction

### 1.1 Background of the Study

English is the most widely spoken language in the world, with many countries incorporating English language instruction in their educational programs (Oktaviani & Fauzan, 2017). The four main skills in English language learning are listening, speaking, reading, and writing, all of which are connected to grammar.

Previous research has identified various factors related to English language learning, including vocabulary depth, productive vocabulary, working memory, revising process, and metalinguistic grammatical knowledge. Metalinguistic awareness, as an important aspect of English language learning, refers to the ability to express thoughts about language and conscious knowledge of form relationships in a language, including grammatical knowledge (Cummins, 1979; Gombert, 1992). This study focuses specifically on metalinguistic aspects, with an emphasis on grammatical knowledge as the primary component. There are different levels of metalinguistic knowledge, including sentence correction, grammatical knowledge, analytical ability tests, explaining errors and functions of words, and more (Bialystok et al., 2014). The aim of this research is to investigate the level of grammatical knowledge.

One critical area in language learning is writing proficiency, which includes various types of writing, such as persuasive, expository, descriptive, narrative, and argumentative. The main focus of this research is argumentative essay writing, defined as a series of statements aimed at building a position and inferring a counterargument against other perspectives (Andrews, 1995). Argumentative essays require students to adopt a specific opinion and persuade the reader to share that viewpoint or take a particular action (Nippold et al., 2005).

The findings of this study could have significant implications for both learners and instructors in formal and pedagogical settings. Implicit learning and metalinguistic approaches are often overlooked in the IELTS setting, which is critical for developing grammatical knowledge. The IELTS is a widely recognized test used for various purposes, including professional settings (Leung & Lewkowicz, 2006). This research could contribute to the improvement of writing proficiency and grammatical skills among IELTS test-takers. However, writing argumentative essays, particularly for the IELTS, can be challenging due to the limited word count requirement (Dickinson, 2013; IELTS, 2017).

### 1.2 Problem Statement

Limited research has been conducted on the correlation between grammatical knowledge and argumentative essay writing proficiency, particularly outside of Pakistan. Past studies have yielded conflicting results, with some indicating a positive correlation, others showing a weaker relationship, and still others suggesting a moderate correlation. Therefore, the issue remains a topic of debate. In Pakistan, this relationship has not been thoroughly investigated, and no studies have been conducted with a large sample (131) of IELTS test takers utilizing the Pearson product-moment correlation analysis. As such, there is a significant research gap that must be addressed to explore the connection between grammatical knowledge and writing proficiency in the Pakistani context, specifically for IELTS test takers. The Pearson product-moment correlation analysis, which was developed by Hair, Black, Babin, and Anderson (2014), is a widely used statistical technique for examining the relationship between two continuous variables.



### 1.3 Purpose of the Study

The main objective of this study is to investigate the possible correlation between grammatical knowledge and argumentative essay writing proficiency. The Pearson product-moment correlation will be used to determine the strength and direction of the relationship between GK and the IELTS writing band score.

## 2. Literature Review

### 2.1 Theoretical Background of Grammatical Knowledge

Metalinguistic knowledge is the conscious awareness of the formal components of a language, particularly grammar (Renou, 2001). As grammar is an integral part of language learning, it is crucial to understand the sentence structure. Harmer (1987) stresses that grammar rules are vital for achieving language proficiency. In England, grammar instruction has been a mandatory component of the curriculum since 1988. The concept of the eight basic parts of speech originated with ancient Greek grammarians and was later adopted by English language experts in the early 20th century. These experts identified that nouns, pronouns, adjectives, verbs, adverbs, conjunctions, prepositions, and interjections are the basic building blocks of speech.

#### 2.1.1 Definitions of Grammatical Knowledge

Kolln and Funk (1996) provide three definitions of grammar. Firstly, grammar describes the set of rules that govern our language. Secondly, grammar is a formal statement of those rules. And thirdly, grammar, also referred to as "linguistic etiquette," is concerned with how usage affects social interactions. John Eastwood (2002, p. 8) defined grammar as the study of sentence construction. Moreover, according to Moore et al. (2021), the ability to examine the grammatical structure of a sentence is known as grammatical awareness.

#### 2.1.2 Part of Speech

The terms "word classes" and "parts-of-speech" are currently used interchangeably in the literature. However, "word classes" refer to all word categories, whereas "parts of speech" are usually used to refer to the major word categories in a specific language, such as verbs, nouns, and adjectives. According to Beck (2013, p. 11), parts of speech are the foundation of linguistic models.

According to Altenberg and Vago (2010, p. 3), a noun is a word used to describe a person, place, or thing. Pronouns, on the other hand, are words used in place of one or more nouns. They have grammatical functions such as person, case, gender, and number. Eka (2008) asserts that pronouns are grammatical components of the closed system that can function as a substitute for nouns and noun phrases. Verbs are words that express action, processes, experiences, or states of being. Adjectives modify nouns and pronouns in a sentence. According to Chapman and Derbyshire (1991, p. 259), a noun modifier can be either an adjective or a verb. Adverbs modify verbs, adjectives, or other adverbs, and traditionally have been defined as those words that add something to them. Schachter and Shopen (2007, p. 20) describe adverbs as modifiers of everything except nouns. Prepositions play a crucial role in English grammar because they help to form phrases that serve a variety of grammatical functions. They also convey many of the main semantic relationships that link sentence constituents to form a meaningful whole. Conjunctions are words that connect phrases, clauses, and sentences. One of the most crucial cohesive devices is the conjunction, which serves to indicate logical relationships in a text and helps the reader by connecting various units and paragraphs to make sense of the text (Heino, 2010). Finally, interjections are words or sounds inserted into a sentence to express some mental state or emotion. Crystal (2003, p. 207) defines interjections as words or sounds inserted into a sentence to express some mental state.

#### 2.1.3 Models and Theories of Grammatical Knowledge

Some researchers have proposed models to encompass the various features of grammar. Rea Dickins' (1987, 1991, 1997) hierarchical model used two components to determine grammatical competence: knowledge of grammatical rules and knowledge of rules in use. Leech's (1983) definition of language is similar to Rea Dickins' (1987) concept of grammar. For educational purposes, Larsen-Freeman's (1991) developed a three-dimensional grammatical model that includes three aspects of language complexity: form of structure, meaning, and pragmatics.

Huddleston and Pullum (2002) proposed a theory of grammar that focuses on the structure of sentences and smaller parts such as clauses, phrases, and words. This theory enables speakers to convey their feelings and intentions more clearly. Chomsky (1981, 1982, 1986) is known for developing the Government and Binding (GB) theory of syntax. In this theory, the keyword in a sentence, known as the head, "commands the words depending on it inside the same phrase" (Chomsky, 1988, p. 162). The GB theory proposes a classical format for representing this syntactic structure.

#### 2.1.4 Measurement of Grammatical Knowledge

In previous studies, researchers have measured various aspects of grammatical knowledge, including the coverage of grammatical aspects, the number of items, participants, and the validity and reliability of the tests. Mehnoosh Ranjbar's (2012) study used an adapted version of the Nelson test, which included 60 grammatical items. This research not only provides validity and reliability measures but also demonstrates how a grammatical test was constructed. The study covered a range of grammatical constructions, such as conditional sentences, tenses, and more, and included thirty female EFL learners as participants.

In another study by Mirjam Trapman (2018), an adapted test of 50 items was used from the Van Gelderen et al. (2003, 2007) research on grammatical knowledge tests. This test included both multiple-choice and fill-in-the-blank questions, covering missing verbs, adjectives, comparative forms, anaphora and articles. Cronbach's alpha was used to assess the reliability of the test, which was .72.

Kurnia Prasetyowati's (2017) study utilized an adapted test based on the work of both Guilford (1967) and Torrance (1974). This research covered various aspects of grammatical knowledge, such as grammatical awareness, imaginative thinking, and writing an analytical exposition. The grammatical knowledge test consisted of 45 items and was completed by 30 students from different schools. The reliability of the test was evaluated using Cronbach's alpha, which was .919, indicating high internal consistency.

Additionally, Miki Tokunaga (2010) employed a self-created test, where the author translated the instructions and questions from Japanese into English. This test covered different aspects of grammatical knowledge, such as parts of speech, sentence patterns, tense and mood, among others. The reliability analysis using Winsteps (Linacre, 2007) revealed person reliability of .89 and item reliability of .97, and Cronbach's alpha was used as a measure of internal test reliability.

### 2.2 Theoretical Background of Argumentative Essay Writing

Composing an argumentative essay requires presenting a claim or thesis statement and providing evidence to support or refute a particular perspective. Argumentative writing refers to expressing a viewpoint on a specific subject or issue and then substantiating it with credible evidence. As a significant type of written discourse, argumentative writing is a vital component of learning the English language. According

to Allen et al. (2019), it is a complex cognitive process that is influenced by the writer's purpose, contextual position, audience expectations, and predictable rhetorical patterns. Given its prevalence in higher education, argumentative writing is a widely adopted genre of academic writing.

### 2.2.1 Definition of Argumentative Essay Writing

An argumentative essay aims to persuade readers to support the author's position on a topic. It is a type of essay that presents a particular viewpoint and attempts to convince others to agree with it (Hamp-Lyons & Mathias, 1994). According to Choi (1988, p.17), argumentative prose is a type of writing that aims to persuade the reader to adopt the writer's belief or opinion. Oshima and Hogue (2006, p. 143) define an argumentative essay as one that not only provides arguments to support the writer's point of view but also addresses and refutes the opposing side's reasons and viewpoint.

### 2.2.2 Model of Argumentative Essay Writing Proficiency

According to Toulmin (1979), an essay must contain of three main sections, containing a thesis statement that presents a claim that is supported by maximum to six elements, like data, backing, warrant, qualifier, and rebuttal. Another model, the Mitchell/Riddle (2000) model serves a both purpose as a helpful tool for creating and organizing arguments, as well as an evaluative tool for analyzing the structure, characteristics, and quality of arguments. However, the model's issue is that the words used to identify the agents of argumentation, namely "THEN," "SINCE," and "BECAUSE," are grammatical conjunctions. They do not serve the same purpose in articulating argumentation as they do in joining phrases and clauses in sentences. Additionally, Vygotsky's theory of idea development, which represents the model of argumentation development (Vygotsky, 1986), applies to narrative and intellectual patterns that move from "heaps" to "complexes" to "concepts."

### 2.2.3 Theories of Argumentative Essay Writing

According to Ferretti and Fan (2016), modern theories of argumentative writing emphasize the importance of the sociocultural context in which writing takes place. Sociocultural theorists, such as Bazerman et al. (2016), investigate how social mediation affects the construction of meaning within historical and cultural contexts. The cognitive perspective theory posits that problems arise within an information-processing system that is limited by the writer's resources and abilities (Flower & Hayes, 1980, 1981). Several of the studies featured in this special issue are informed by the linguistic approach, which applies theories and methodologies from cognitive, sociocultural, and linguistic perspectives. Linguistic studies can be beneficial because authors have significant freedom in their writing, including their objectives, the genre they choose, the words they use, and the grammatical structures they employ (Pirnay-Dummer, 2016).

### 2.2.4 Measurement of Argumentative Writing Proficiency

Previous research on argumentative writing has used various types of measurement. Both direct and indirect measurements have been utilized for assessing argumentative essay writing, and past studies have covered many aspects of this topic. Different prompts were used in various studies, and the time allotted for writing has also been mentioned in previous research.

In Hyung-Jo Yoon's (2017) study, direct measurement was used, which consisted of two narratives, two argumentative essays, and one cloze test. The first prompt was: can you write an essay expressing your opinion on whether you believe it is essential to be fluent in a foreign language in today's globalized world? and the second prompt was: can you write an essay expressing your opinion on whether you believe with the notion about the connection between proficiency in a foreign language and achievement? Participants were given 30 minutes to complete each essay and the cloze test.

Beth Jillian Chase's (2011) study also employed direct measurement for assessing argumentative writing, with the prompt - organic food is grown without the use of pesticides. Some people enjoy it because they believe it is beneficial to their health. However, it can be costly. What are your thoughts on organic food? Please express your thoughts. Participants were given unlimited time to complete the writing task.

In Jeongsook Choi's (2005) study, direct measurement was also used for assessing argumentative writing. The prompt was "how has technology improved the quality of life? Provide specific example and explanations to justify your viewpoint" and participants were given 40 minutes for reading and writing.

## 3. Research Methodology

### 3.1 Research Paradigm of the Study

Research design, as defined by Kothari (2004), is the conceptual framework for conducting research. The aim of this study was to investigate the relationship between grammatical knowledge and essay writing proficiency. This research was conducted using a quantitative approach. Quantitative research involves the collection and analysis of numerical data. According to Gay (2006), correlational research is the act of collecting data to investigate whether relationship exists between two or more quantifiable variables.

### 3.2 Population and Sampling of the Study

The research population for this study consisted of 131 students from various IELTS institutions in Pakistan, including 86 male and 45 female students. The sample size was determined using survey sampling, and convenience sampling was employed. According to Fraenkel and Wallen (2009), a minimum sample size of 30 participants is necessary for a correlational study to be considered valid. Therefore, the sample size of 131 IELTS test takers in this study meets the minimum requirement.

### 3.3 Data Collection Procedure

The first step was to follow the research procedure to construct the instrument, a grammatical knowledge test consisting of multiple-choice questions. Firstly, the test items were piloted, and after the selection of final items, a pilot study was conducted again. Finally, the grammatical knowledge test instrument was constructed. Secondly, a writing instrument was selected for argumentative essay writing, which was a prompt asking, "Some people think that men are more competitive than women. How much do you agree or disagree with this assertion?"

During the data collection, everything was organized step by step. First, permission was obtained from all IELTS academies to collect data. The data consisted of two variable instruments: the grammatical knowledge test and the essay writing prompt. Both instruments were given to the same IELTS participant (131) because the purpose of this research was to assess the same participants' mentality. The students were instructed to complete the test within the allotted time. The third step involved evaluating the validity and reliability of the grammatical knowledge test and evaluate argumentative essay writing proficiency. After scoring the data, the researcher entered the data in Word and Excel files and prepared the coding book, which included all the different codes such as academy codes, gender codes, city codes, etc. The

data was entered according to these codes. In the fourth step, the SPSS 23 version and the Pearson product-moment correlation coefficient formula were used to calculate the data. Finally, the results of both variable data were entered.

### 3.4. Research Instruments

#### 3.4.1 Validity of Instrument

The first instrument in this study was a grammatical knowledge test, which was self-developed in the form of multiple-choice questions. The questions were based on two Oxford grammar books by Hathorn, et al. (2015), as well as articles by Muhsin (2015) and Tokunaga (2010). Initially, a total of 80 questions were constructed, which were then reduced to 43 after item analysis. Finally, 35 items were selected for the test as their discrimination values were above 4. These items were divided into 5 sub-categories. The piloting of the test was done with 300 students from various departments at Government College University Faisalabad.

The second instrument used in this study was a writing prompt, which was selected from the IELTS website [www.ielts.org](http://www.ielts.org). Initially, 30 prompts were considered, and after generalization, 15 prompts remained. The researcher selected the prompt “some people think that men are more competitive than women. How much do you agree or disagree with this assertion?” as it was a general prompt and many students responded well to it.

The third instrument used in this study was the IELTS band descriptors, which were originated by the British Council. The argumentative essay writing proficiency of the IELTS test takers was scored by one rater from the British Council based on these descriptors. The essays were scored on a scale of 0-9 bands, and the students were given 40 minutes to complete the essay, as is the time limit in the IELTS exam.

#### 3.4.2 Reliability of Instrument

According to Sudjono (2001), an instrument's reliability is considered adequate if its reliability score is above 0.7, but if it is below 0.7, the instrument is considered unreliable. The Cronbach Alpha Method was used to determine the reliability intervals of the three instruments used in this study, including the grammatical knowledge test, argumentative writing proficiency, and scoring rubrics. The grammatical knowledge test consisted of 35 valid items, with a reliability score that was deemed satisfactory among 300 respondents.

The prompt used in the study, “some people think that men are more competitive than women. How much do you agree or disagree with this assertion?” was selected from reliable resources available on the IELTS website ([www.ielts.org](http://www.ielts.org)) and was checked by IELTS examiners for its reliability. The third instrument used in the research, the scoring rubrics, was a reliable scale of measurement for evaluating writing essay tasks developed by the British Council for IELTS test takers' writing proficiency assessment.

### 3.5 Data Analysis

The data analysis was conducted using the latest version (23) of the SPSS software package, and the correlation between grammatical knowledge and writing proficiency was determined using the Pearson Product Moment Correlation.

#### 3.5.1 Verification of Assumptions for T-test and Pearson Product Movement Correlation

Data analysis included correlational analysis. The appropriateness of using the Pearson product-moment correlation was determined by examining the essential criteria. The results indicated that this test was appropriate for the data.

#### 3.5.2 Scale of Measurement

The data is appropriate for using the Pearson product-moment correlation because both variables, namely grammatical knowledge scores and IELTS test scores, are continuous and measured on an interval scale.

#### 3.5.3 Independence of Observation

The data is appropriate for using the Pearson product-moment correlation because the continuous variables meet the condition of independence of observations. The data was collected from numerous IELTS preparatory academies across four cities in Punjab, and each participant's data was collected independently of other participants.

#### 3.5.4 Outlier Analysis

The Pearson product-moment correlation assumes that there are no outliers, and normality and outlier conditions are interdependent. Therefore, an initial outlier analysis was conducted to improve the normality of the data. The analysis revealed that there were five outliers in the grammatical knowledge data (scores 55, 105, 106, 109, and 114) and only one outlier in the IELTS essay band score data (score 87). These outliers were excluded from the data.

#### 3.5.5 Normal Distribution

The normality of the data is assessed using two criteria: (1) the skewness value should be between +/-1, and (2) for a sample size of 30 or above, the central limit principle applies, and the data can be assumed to have a normal distribution. Based on these criteria, both continuous variables in the study (grammatical knowledge and IELTS writing band score) can be considered normally distributed. The skewness value for the grammatical knowledge test is -.947, and for the IELTS essay band score, it is .165. The sample consisted of 125 participants, of which 83 were male and 42 were female.

#### 3.5.6 Test of Linearity

The linearity test was performed to assess whether the relationship between the continuous variables (IELTS essay band scores and grammatical scores) was linear and therefore appropriate for the Pearson product-moment correlation.

Table 1. ANOVA

			Sum of Squares	Df	Mean Square	F	Sig.
Essay Band * GK	Between Groups	(Combined)	87.041	97	.897	1.291	.227
		Linearity	.000	1	.000	.001	.979

	Deviation from Linearity	87.041	96	.907	1.304	.218
	Within Groups	18.771	27	.695		
	Total	105.812	124			

As seen in the table above, the p-value of .218 is greater than the significance level of 0.05. Therefore, it can be concluded that there is a statistically significant linear connection between the continuous variables of IELTS band scores and grammatical knowledge scores.

In summary, the data for both dependent variables (IELTS essay band score and grammatical knowledge score) meets the necessary requirements for Pearson product-moment correlation. Both variables are continuous, independent, and free of outliers. Additionally, both variables are normally distributed, and the linearity test indicates a significant linear relationship between them. Therefore, the Pearson product-moment correlation is an appropriate statistical analysis for this data.

**4. Results and Discussions**

**4.1 Descriptive Statistics**

The following tables present the descriptive statistics for the two continuous variables: the grammatical knowledge score and the IELTS essay band score.

Table 2. Descriptive Statistics of Grammatical Knowledge and IELTS Essay-band

		GK	Essay Band
N	Valid	125	125
	Missing	0	0
Mean		18.992	3.752
Std. Error of Mean		.3627	.0826
Median		19.976	4.000
Mode		22.1	4.0
Std. Deviation		4.0549	.9238
Skewness		-.947	.165
Std. Error of Skewness		.217	.217
Kurtosis		.100	-.213
Std. Error of Kurtosis		.430	.430
Minimum		9.1	2.0
Maximum		25.0	6.5

The GK test originally had a total mark of 35 (Part 1: 5, Part 2: 7, Part 3: 6, Part 4: 7, and Part 5: 10). To give equal weight to each part, the marks for each part were scaled down to 5. Therefore, the total marks of the test were 25 after considering the weighting, with each section carrying a weightage of 5 marks. The mean score on the grammatical knowledge test was 18.992 out of 25, and the median was 19.976, with a mode of 22.1. The skewness value of -.947 indicates that the data is normally distributed.

The IELTS essay band score had an overall band score of 9. The standard deviation of the essay band score was 0.9238, and the mean essay band was 3.752, indicating that the essay band scores had less spread. Conversely, the grammatical knowledge score had a standard deviation of 4.0549, indicating that the data was more spread out. The IELTS band score had a skewness value of 0.165, which falls within the range of +/-1 and suggests that the data followed a normal distribution. In conclusion, the descriptive statistics for the IELTS essay band score and the grammatical knowledge score indicate that the data for both variables were normally distributed.

**4.2 Correlation between Grammatical Knowledge and Argumentative Essay Writing**

The Pearson correlation coefficient was used to examine the relationship, and the results are presented below.

Table 3. Correlation between Grammatical Knowledge and IELTS Essay-band

		GK	Essay_Band
GK	Pearson Correlation	1	.002
	Sig. (2-tailed)		.981
	N	125	125
Essay Band	Pearson Correlation	.002	1
	Sig. (2-tailed)	.981	
	N	125	125

The table above shows that there is no significant correlation between grammatical knowledge scores and IELTS essay band scores ( $r(123) = .002, p=.981$ ). The correlation coefficient is very weak, almost negligible ( $r = .002$ ). The p-value indicates that the correlation is not statistically significant, as the value is greater than 0.05 (i.e.,  $.981 > 0.05$ ). Pearson Product Moment correlation analysis was used to determine the correlational significance using SPSS 23. Pearson Product Moment correlation analysis was used to determine the correlational significance using SPSS 23 version. The hypothesis focused on the correlation between IELTS essay band scores and

grammatical knowledge scores, which has been validated by some earlier research. Huang's (2011) results showed that there is no strong correlation between grammar and writing, and Setyowati's (2019) findings indicated that there is no significant correlation between students' writing ability and their mastery of grammar.

## 5. Conclusion

The purpose of this study was to investigate the correlation between grammatical knowledge and argumentative essay writing proficiency among Pakistani IELTS test takers. This study utilized two continuous variables, namely grammatical knowledge and argumentative essay writing, and employed a convenience sampling strategy to collect data from different IELTS institutions in Pakistan. The sample comprised 131 students. Pearson product-moment correlation was used to analyze the relationship between grammatical knowledge and argumentative essay writing. However, the results indicated that there was no significant correlation between the two variables.

### 5.1 Limitations and Recommendation of this Current Study

Despite the study's important findings, some limitations must be addressed in future research. Firstly, the small sample size limits the generalizability of the results, and future studies should consider increasing the sample size. Secondly, the use of a single rater to evaluate essay writing may reduce the reliability of the evaluations, and future studies should consider using two or more raters. Thirdly, data collection during non-optimal times may affect the validity of the results, and future studies should collect data during more optimal times. Fourthly, the use of a paper-based instrument for data collection may negatively impact the quality of responses, and future studies should consider using electronic devices instead. Lastly, the study only collected data from one province in Pakistan, and future studies should aim to expand the sample to include students from different regions and levels of language learning.

Given these limitations, future researchers should conduct additional research on argumentative essay writing proficiency at different levels of language learning. The current study only covers grammatical knowledge aspects, but future researchers can manipulate multiple aspects of coverage with correlation research on academic IELTS test takers in Pakistan to develop a more comprehensive understanding.

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#### Bio-note:

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