



# The Correlation between Student Higher Order Thinking Skills (HOTS) and Student Writing Hortatory Exposition Text at SMA Ahmad Yani 2 Baureno

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## Abstract

Higher-order thinking skills (HOTS) are essential for students to engage in complex cognitive processes necessary for academic success. Writing as a cognitive activity involves generating and organizing ideas effectively. In the Merdeka Curriculum twelfth-grade students are challenged to apply HOTS in writing hortatory exposition texts which require structuring arguments and clearly articulating viewpoints. This study investigates the correlation between students' HOTS and their ability to write hortatory exposition texts at SMA Ahmad Yani 2 Baureno.

This study employs a quantitative approach with a correlational design. The sample comprises 40 students from twelfth-grade classes using a random sampling technique. Data were collected using students' HOTS tests and assessments of students' writing hortatory exposition text. Pearson correlation coefficients were used to determine the strength and direction of the correlation.

The analysis revealed a Pearson correlation coefficient of 0.970 between students' HOTS and students' skills in writing hortatory exposition texts. This value exceeds 0.80, indicating a very strong correlation between the two variables. The p-value was 0.000, which is less than 0.05, indicating that the correlation is statistically significant. Additionally, the correlation coefficient surpassed the critical value ( $r$  table) of 0.312 confirming the clinical significance of the results. The analysis demonstrates a very strong and statistically significant correlation between students' HOTS and students writing hortatory exposition texts.

**Keywords:** Correlation; Student; HOTS; Writing; Hortatory; Pearson

## Introduction

Thinking skills are essential in the educational framework. In the world of education thinking skills require students to have high-level thinking skills (Paul, 2006). According to Brookfield (2011), thinking skills in education are not solely about acquiring information but also about fostering students' critical abilities in processing information. Thinking skills are described as a student's capacity to obtain ideas, knowledge, procedures, arguments, and decisions (Sumarni, 2020). Thinking skills in education are considered part of students' higher-order thinking skills (HOTS) because such skills involve complex abilities in students (Perkins, 1993). Students HOTS prepares students optimally to face challenges in academics Pogrow (2005). Students' HOTS serves as an indicator of a student's success, Students with HOTS are capable of completing educational tasks effectively through the ability to evaluate, analyze, and make decisions accurately (Marzano, 2006).

Writing is a thinking activity that generates an idea and organizes these ideas into statements and paragraphs that provide a clear understanding for the reader. Writing is meant to express knowledge, experiences, opinions, thoughts feelings, and imagination to create meaningful content in written form (Harmer, 2004). This statement aligns with Nunan (2003) writing is a complex activity, writing is not only about physical activity but writing is also included in mental activity. Writing is the physical activity of composing and conveying ideas or words in a format such as writing on paper. Writing in the mental

activity contains cognitive processes such as generating ideas, critical thinking, problem-solving, organizing thoughts, structuring arguments, crafting sentences, and revising drafts. Writing is a form of the essential skills in English language education that students are required to master. Writing skills are crucial significance for students across all levels of the educational system, this statement conveyed in Government Regulation of Indonesia number 19 of 2005 concerning Indonesia National Education Standards in Article 6 point (6) emphasizes the importance of reading, writing, and counting skills and interest at the level of education in Indonesia (Indonesia Government Regulation, 2005). Writing is aimed at being the most important language skill needed by students for personal development as well as academic success. Writing skills are the key to a student's success in education because writing skills aid students in excelling in educational programs (Rao, 2007). According to research conducted by Sarwat (2021), writing skills strengthen students' learning process, thinking, and reflection on the English Language in the academic context.

Writing in the education system encompasses various types of texts in English subjects. It is shown in the Merdeka Curriculum of Indonesia. The Merdeka Curriculum is a curriculum presented by the Indonesian Ministry of Education, Culture, Research and Technology in the year 2021 which aims to enhance the education system in Indonesia (Azmi et al., 2023). The various types of twelfth-grade high school texts are narrative, argumentative, exposition, and discussion (Kemendikbudristek, 2021). According to Coffin & Hewings (2004), an exposition is a form of English text categorized as factual writing. Writing Exposition is an extensive elaboration and explanation of an idea and argumentation. One type of exposition text based on its function is a hortatory exposition (Black, 2017). According to Dewi (2020), Students' writing hortatory exposition texts is a form that formally offers recommendations, advice, and a student's point of view to influence the reader to take action regarding a topic.

Writing hortatory exposition texts is challenging for a student because of the requirement for structured argumentation, extensive elaboration of ideas, and persuasive language usage (Inayah, 2021). Additionally Writing hortatory exposition texts demands thinking skills and a deep understanding of the topic being discussed making it a challenging task for students to convey their viewpoints effectively. According to Dewi's findings, Students fail to construct supporting arguments for statements in the hortatory exposition texts and struggle to establish connections among recommendation statements.

In conclusion, higher-order thinking skills (HOTS) are essential in education because students HOTS enable students to critically process and apply information, thereby preparing students for both academic and real-world challenges (Paul, 2006; Perkins, 1993; Marzano, 2006). Furthermore, writing involves the physical act of composing text and complex cognitive processes such as generating ideas, critical thinking, and structuring arguments, which are crucial for expressing knowledge and supporting personal and academic development (Nunan, 2003; Harmer, 2004). Despite this, writing hortatory exposition texts presents a particular challenge due to the necessity for structured argumentation, detailed elaboration, and persuasive language use (Dewi, 2020; Black, 2017). The challenges students face in writing hortatory exposition texts have led the researcher to investigate the correlation between higher-order thinking skills (HOTS) and writing skills.

The advancement of students' HOTS in education is proficient for improving and assisting students' thinking skills in school or social environments. This ultimately led researchers to investigate HOTS on skills in English language learning. The first study by Zulfa (2020) this study proposes to advance Students' HOTS and focus on student reading skills in analytical exposition texts. Future research should focus on developing HOTS-based assessment instruments for a broader range of text types and aligning with the latest curriculum standards. The second study by Sasmita (2019) aims to investigate the correlation among students' high-order thinking skills and focuses on students'

proficiency in writing analytical exposition texts in the eleventh grade of SMA. Future researchers investigating higher-order thinking skills (HOTS) and students' writing skills It is recommended that the researchers ensure thorough preparation and effective management to achieve more impactful results. The third study by Utami (2021) aims to assess the significant impact of students' HOTS assessments on enhancing students' critical and creative thinking skills in the twelfth grade of SMA. Future research should explore HOTS-based assessments in diverse educational settings to understand broader applicability.

Based on the previous study, the gap in this study is the researcher focuses on investigating the correlation between students' higher-order thinking skills and students writing hortatory exposition texts. The researcher conducted this research because the correlation between students' higher-order thinking skills (HOTS) and students' writing hortatory exposition texts is understudied in previous research.

The novelty of this study is the students' higher-order thinking skills and students' writing hortatory exposition texts within the context of the Merdeka Curriculum. The hortatory exposition texts are one of the subjects in the twelfth grade within the Merdeka Curriculum according to Kemendikbudristek (2021) and the students' higher-order thinking skills are arranged based on the Merdeka Curriculum according to Widana (2017).

In the conclusion, the researcher conducted the research titled "The Correlation Between Students' Higher Order Thinking Skills (HOTS) and Students' Writing Hortatory Exposition Texts At SMA Ahmad Yani 2 Baureno.

## Literature Review

### ***Students' Higher-order Thinking Skills (HOTS)***

#### ***Definition of Students' Higher-order Thinking Skills (HOTS)***

The definition of students' HOTS according to Heong et al., (2011) means students engage in deep thinking to face challenges in the world of education. students' HOTS requires students to implement the information and knowledge obtained and process this information to understand, apply, or create solutions. This includes students' ability to use information critically and creatively to solve problems or answer questions in a variety of situations within an academic context. According to Resnick (1987), students' HOTS are students' cognitive abilities that emphasize deep reasoning, reflection, and complex analysis. According to Bloom et al., (1956), students' HOTS are thinking skills that develop more complex cognitive processes compared to low-level thinking skills. Higher-order thinking skills involve the ability to break information into smaller parts, make judgments based on certain criteria, and combine elements to form a new whole or generate innovative ideas.

Based on the definition, it concluded that students' HOTS are critical thinking abilities that occur when students acquire new knowledge, store it in memory, and then connect, organize, and evaluate it to resolve challenges in education.

#### ***The level of higher-order thinking skills***

The level of higher-order thinking skills proposed by Anderson & Krathwohl (2001). Higher-order thinking skills include three levels of students' cognitive ability namely analyzing, evaluating, and creating.

Analyzing (C4) Analyzing involves students' ability to identify information based on relevant elements or aspects related to a specific topic, provide clear descriptions, organize systematically, and compare differences or similarities among the obtained information. Additionally, students are expected to uncover implied meanings from the information they

examine. This underscores that analysis is not merely about delineating elements within the information students acquire, but also about understanding the correlation among the information obtained on a particular topic to draw relevant conclusions.

Evaluating (C5) In the cognitive dimension of evaluating, students evaluate information based on the criteria and standards set in a particular topic. Students' ability to make hypotheses, criticize, predict, assess, test, provide reasons, and identify or highlight weaknesses and deficiencies in arguments and information obtained. This emphasizes that in the evaluation process, students are not only asked to provide assessments but also use critical thinking to investigate various arguments and make the right decisions.

Creating (C6) In the cognitive dimension of creating, students are required to integrate various information and arguments into a coherent or functional whole and reorganize this information and argument into new patterns or structures. This process demands students to design, construct, plan, produce, discover, update, refine, strengthen, embellish, and organize. Thus, students are not merely gathering information but also creating something new and useful from the existing elements, developing students' creative and innovative thinking skills in facing various challenges.

### ***Writing***

#### ***Definition of Writing***

Writing is one of the fundamental English language skills that serve as a medium for conveying ideas, thoughts, and feelings in written form. It is a means of writing that generates language and articulates thinking, emotions, and viewpoints in a textual format (Harmer, 2004). Writing skills encompass one of the productive and expressive language abilities utilized for indirect communication, rather than face-to-face interaction, with other individuals (Tarigan, 2008). Writing serves as a means of conveying a message to a reader with specific intentions. These intentions include self-expression, dissemination of information, and persuasion (Troyka, 2000).

From the definitions concluded, writing is an important skill in English that enables individuals to express their thoughts, emotions, and points of view effectively in written form. Writing as a communication tool is also for self-expression, dissemination of information, and persuasion. Writing is conveying information through indirect interaction to convey a message to the reader.

#### ***Type of Writing***

The type of writing according to Kemendikbudristek (2022) The various types of twelfth-grade high school texts are narrative, argumentative, hortatory exposition, and discussion text.

##### **Narrative Text**

The narrative text is a type of text that tells a story or series of events. The narrative text aims to involve students in improving comprehension, imagination, and understanding of storytelling techniques, conveying morals, values, or life lessons as students' moral and intellectual development.

##### **Argumentative Text**

Argumentative text is a type of text that aims to present students' opinions or arguments about a particular topic or issue. Argumentative text for students aims to develop their abilities in critical thinking, analyzing information, and organizing arguments in an organized.

### **Hortatory Exposition Text**

Hortatory exposition text is a type of text that contains the author's argument to convince readers about the importance of a certain action or opinion. Hortatory exposition text for students aims to develop their abilities in constructing persuasive arguments and hone students' skills in critical thinking.

### **Discussion text**

Discussion text is a type of text that aims to present two or more points of view on an issue or topic, as well as providing arguments that support each of these points of view. The purpose of discussion texts for students is to understand different points of view and achieve a deeper understanding of a topic.

In conclusion, there are four types of writing, each with a different purpose. Hortatory exposition text is persuasive and mainly aims to convince the reader of a certain action or opinion. In hortatory exposition texts, students are required to compose critical and creative arguments to convince the reader. This text type is chosen because hortatory exposition is more challenging for students compared to the other three texts, as it requires them to formulate persuasive arguments and critically analyze issues. This challenges students in their twelfth year of high school, requiring students to develop higher levels of critical thinking and argumentation skills.

### ***Hortatory Exposition Text***

#### ***Definition of Hortatory Exposition Text***

According to Butt et al. (2003) an exposition is a factual text that aims to convince readers to accept a certain point of view. Hortatory exposition text is a type of nonfiction text. Hortatory exposition text is included in the category of persuasive text which is presented in exposition form. The hortatory exposition aims to convince readers that something should or should not happen in a topic or case (Gerot & Wignell, 1994). According to Siahaan & Shinoda (2008), Hortatory exposition text functions to convince readers to take action for certain benefits or impacts. In a hortatory exposition text, the author conveys various arguments to strengthen his opinion or idea. These arguments usually discuss problems occurring around them and are based on facts or theories to support the opinions expressed.

The definitions concluded that a hortatory exposition is a form of persuasive nonfiction writing that aims to convince readers to adopt a certain point of view or take certain actions to obtain certain benefits or impacts through carefully structured arguments based on facts or opinions.

### ***Generic Structure of Hortatory Exposition Text***

According to Yuniawati et al. (2017) hortatory exposition text consists of the following structures.

#### **A. Thesis**

A thesis is a statement of a problem of concern. The thesis is placed in an opening paragraph which consists of an introduction that describes the main idea to be discussed. The author expresses their position or views on the topic in this section.

#### **A. Argument**

Arguments are justifications or reasons that support an action or opinion. These arguments are details that support the text with various relevant arguments, opinions, and reasons. Arguments are used to strengthen the proposed thesis.

#### **B. Recommendation**

A recommendation is a viewpoint on the most effective course of action. Recommendations are typically conveyed in the closing paragraph, which contains statements about what is allowed or not allowed in a particular situation.

In conclusion, A hortatory exposition text consists of three main structures: thesis, arguments, and recommendations. The thesis introduces a problem and presents the author's stance. Arguments provide justifications supporting the thesis with detailed explanations. Recommendations offer the best course of action, concluding with advice on what should or should not be done. In essence, a hortatory exposition is a text that aims to persuade the reader to adopt a particular viewpoint or take specific actions, structured through a clear presentation of the problem, supporting arguments, and actionable recommendations.

### ***Language Feature of Hortatory Exposition Text***

According to Yuniawati et al. (2017) language features of hortatory exposition text include.

- A. Emphasize general participants, both human and non-human, with the speaker or writer referring to themselves as an authority
- B. Use of:
  - 1) Emotive Process: expresses the thoughts or feelings experienced by the writer regarding a problem.  
examples: confident, afraid, feel, appreciate.
  - 2) Material Process: describes the activities or actions that occur  
Example: Controlling, should be avoided.
  - 3) Relational Process: to show the connection or correlation between subjects and objects in the text, or to express conditions that exist or should exist.  
Example: involve, be attentive, and be expected to.
  - 4) use of the simple present tense.
- C. The common grammatical pattern
  - 1) Abstract nouns, e.g. Safety, etc.
  - 2) Action verbs, e.g. Secure, etc.
  - 3) Connectives, e.g. first, second, etc.
  - 4) Modal auxiliaries: Should, ought to, had better.

In conclusion, the language features of hortatory exposition texts include emphasizing general participants, both human and non-human, with the speaker or writer as an authority. Use emotive processes to express feelings, material processes to describe actions, and relational processes to show connections. The simple present tense is commonly used. Grammatical patterns include abstract nouns, action verbs, connectives, and modal auxiliaries. These elements ensure the hortatory exposition text is coherent and persuasive, effectively presenting arguments and recommendation.

## **Research Methods**

This study applies quantitative methods according to Creswell (2017) quantitative research aims to objectively test theories by analyzing variables' correlations. Change is measured with instruments that produce numerical data and are analyzed statistically. The type of research used is cross-sectional, which means it is an observational study conducted at a specific point in time (Levin, 2006).

In this study, the researcher adopts a quantitative approach with a correlational research design. According to Sugiyono (2017), interactive correlation refers to the correlation where one variable influences another in the context of quantitative data. Therefore, in this study, there exists a close correlation between the independent and dependent variables.

In this study, There are two variables: students' higher-order thinking skills and student's writing hortatory exposition text. According to Arikunto (2010), the dependent variable is observed and measured to assess the impact of the independent variable. Independent variables, often called main variables, are deliberately manipulated and measured by the researcher. Nazir (2009) states that the independent variable (X) influences the dependent variable (Y).

## Findings and Discussion

### Description of The Data

In this study, the researcher used a quantitative method with a correlational research design. The sample consisted of one class from the twelfth-grade *Ilmu Pengetahuan Alam (IPA)* and twelfth-grade *Ilmu Pengetahuan Sosial (IPS)* streams, totaling 40 students who were selected through random sampling. The study was conducted at SMA Ahmad Yani 2 Baureno. The instruments used in this study included the scores of students' higher-order thinking skills and student writing of hortatory exposition texts.

In this study, the researcher investigated the correlation between students' higher-order thinking skills and their writing of hortatory exposition texts in the twelfth grade at SMA Ahmad Yani 2 Baureno. The correlation between these two variables was calculated based on the scores each student obtained in higher-order thinking skills and in writing hortatory exposition texts. The data were then tested using Pearson correlation to determine the strength of the correlation between the two variables, utilizing SPSS version 27.0.

### The Results of Student Higher-Order Thinking Skills

In this study, the results of students' higher-order thinking skills were measured using a Higher Order Thinking Skills (HOTS) instrument consisting of 25 questions. The instrument included 8 multiple-choice questions at the C4 level (analyzing), 9 multiple-choice questions at the C5 level (evaluating), and 3 essay questions at the C6 level (creating).

The instrument was validated to ensure that each question accurately measured the intended students' higher-order thinking skills. This validation was conducted using content validity, which involved an assessment by two experts who were experienced in the field of education. The final result of this content validity assessment was 94% which was included in the excellent category. This rating indicates that the HOTS instrument is considered feasible to use without revision.

The Reliability tests were conducted to ensure the consistency and accuracy of the results obtained from the instrument. The reliability of the HOTS instrument was assessed using Cronbach's alpha analysis which produced a value of 0.657. Based on the standard interpretation of Cronbach's alpha, this value indicates a moderate reliability category. This indicates that the HOTS instrument has adequate internal consistency in measuring students' higher-order thinking skills.

The difficulty index of item tests was performed to assess whether the questions were appropriate for the student's level of ability. The results showed that out of a total of 20 items, 4 questions were categorized as easy, 14 questions were categorized as medium, and 2 questions were categorized as difficult. This distribution indicates that the instrument is primarily composed of questions with a medium level of difficulty, which is suitable for

evaluating students' higher-order thinking skills. The presence of easy questions ensures that basic comprehension is tested, while including difficult questions challenges students to apply their critical thinking abilities. The difficulty levels of the higher-order thinking skills instrument are well-balanced, allowing for a comprehensive assessment of students' cognitive skills.

The discrimination index tests were used to evaluate the instrument's ability to differentiate between students with higher and lower skill levels. The results of the discrimination index analysis for the high-order thinking skills instrument showed a mostly good level of discriminatory effectiveness. Of the 20 items assessed, 16 were considered good, 3 were considered enough, and 1 was classified as excellent. This distribution shows that the majority of items effectively differentiate between high and low-achieving students, and are able to measure various levels of understanding and skills. This shows that the HOTS instrument is well-designed in assessing students' higher-order thinking skills.

The scoring of student HOTS was done using the higher-order thinking skills assessment rubric employs the scoring formula as outlined by Kubiszyn & Borich (2024). The score of multiple-choice and essay questions in the study receive the same score when students provide correct answers.

Based on the students' HOTS scores, the results were distributed into interval ranges to determine the score intervals for classification, according to Amaruddin (2010). The interval distribution helps define specific score ranges and analyze the overall performance of students. The interval table is presented below:

**Table 4.2 Data Distribution of Students' HOTS Score**

No	Data Distribution	Student Total	Percentage
1	30 - 39	1	2,5%
2	40 - 49	7	17,5%
3	50 - 59	8	20%
4	60 - 69	8	20%
5	70 - 79	10	25%
6	80 - 90	6	15%
		<b>Total 40 student</b>	<b>Total 100%</b>

In conclusion, the results of the students' Higher Order Thinking Skills (HOTS) assessment revealed variations in their performance. The distribution of scores showed that (2.5%) of the total students scored between 30 and 39, (17.5%) scored between 40 and 49, (20%) scored between 50 and 59, (20%) of the students scored between 60 and 69, 25% scored between 70 and 79, and (15%) scored between 80 and 90. This distribution provides a clear picture of the variation in students' performance on the HOTS assessment.

### **The Results of Students Writing Hortatory Exposition Text**

The results of students' writing of hortatory exposition texts were analyzed to assess students' ability to construct persuasive and argumentative essays. The evaluation was based on several criteria, including coherence, argumentation, structure, and adherence to the conventions of hortatory exposition. Each student's text was scored according to a detailed rubric that assessed the clarity and relevance of the thesis statement, the strength and persuasiveness of the supporting arguments, and the overall organization and flow of the text. Additionally, attention was given to the use of language, including vocabulary and grammar, to ensure that students effectively communicated arguments. The rubric also evaluated how well students maintained a consistent argument throughout student essays and provided conclusions with recommendations or proposed actions.

The instrument was validated to ensure each question accurately measured the intended students' writing hortatory exposition text. This validation was conducted using content validity, which involved an assessment by two experts who were experienced in the field of education. The final result of this content validity assessment was 94,2% which was included in the excellent category. This rating indicates that the student's writing hortatory exposition text instrument is considered feasible to use without revision.

The Reliability tests were conducted to ensure the consistency and accuracy of the results obtained from the instrument. The reliability of the students writing hortatory exposition text instrument was assessed using Cronbach's alpha analysis which produced a value of 0.832. Based on the standard interpretation of Cronbach's alpha, this value indicates a reliable category. This indicates that the student writing hortatory exposition text instrument has reliable internal consistency in measuring students' writing hortatory exposition text.

The rubric scoring of students writing hortatory exposition text according to Heaton (1988), the writing quality assessment rubric consists of five categories. Each of these categories is evaluated and summed to produce a final score with a maximum value of 100 points.

Based on the students' writing hortatory exposition text scores, the results were distributed into interval ranges to determine the score intervals for classification, according to Amaruddin (2010). The interval distribution helps in defining specific score ranges and analyzing the overall performance of students. The interval table is presented below:

**Table 4.4 Data Distribution Students' Writing Hortatory Exposition Text Score**

No	Data Distribution	Student Total	Percentage
1	30 – 40	8	20%
2	41 – 51	4	10%
3	52 – 62	9	22,5%
4	63 – 73	6	15%
5	74 – 84	11	27,5%
6	85 – 95	2	5%
<b>Total 40 student</b>		<b>Total 100%</b>	

In conclusion, the results of the student's writing of hortatory exposition texts revealed variations in students' performance. The distribution of scores showed that 20% of the total students scored between 30 and 40, 10% scored between 41 and 51, and 22.5% scored between 52 and 62. Additionally, 15% of the students scored between 63 and 73, 27.5% scored between 74 and 84, and 5% scored between 85 and 95. This distribution provides a clear picture of the variation in students' performance in the writing of hortatory exposition texts.

### Normality Test

#### Normality Test of Students' Higher-Order Thinking Skills

The results of the normality test for the student's higher-order thinking skills (HOTS) are reported as outlined below:

**Table 4.5 The Normality Test of Student's HOTS Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Score_Hots	,105	40	,200*	,971	40	,386

\*. This is a lower bound of the true significance.

#### a. Lilliefors Significance Correction

The p-value obtained from the Shapiro-Wilk test is 0.386. Since this p-value is greater than the significance level of 0.05, it indicates that the data follows a normal distribution. Therefore, the assumption of normality is met for the higher-order thinking skills (HOTS) instrument used in this study.

#### Normality Test of Students Writing Hortatory Exposition Text

The results of the normality test for the student writing of hortatory exposition texts are reported as outlined below:

**Table 4.6 The Normality Test of Student's Writing Hortatory Exposition Text**  
**Tests of Normality**

ScoreWriting	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
	,105	40	,200*	,963	40	,208

\*. This is a lower bound of the true significance.

#### a. Lilliefors Significance Correction

The p-value obtained from the Shapiro-Wilk test is 0.386. Since this p-value is greater than the significance level of 0.05, it indicates that the data follows a normal distribution. Therefore, the assumption of normality is met for the student writing of hortatory exposition texts in this study.

#### Homogeneity Test

##### Homogeneity Test of Students Higher-Order Thinking Skills

The results of the homogeneity test for students' higher-order thinking skills are reported as outlined below:

**Table 4.7 The Homogeneity Test of Student's HOTS**

**Tests of Homogeneity of Variances**

ScoreHOTS		Levene Statistic	df1	df2	Sig.
	Based on Mean	,110	2	37	,896
	Based on Median	,074	2	37	,928
	Based on the Median and with adjusted df	,074	2	34,062	,928
	Based on trimmed mean	,106	2	37	,900

The p-value obtained from Levene's test for homogeneity of variances is 0.896. According to the scale for determining homogeneity, a p-value greater than or equal to 0.05 indicates that the groups of data *Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* originate from populations with equal variances. Therefore, the assumption of homogeneity of variances is met for the comparison of students' higher-order thinking skills between the two classes in this study.

#### Homogeneity Test of Students' Hortatory Exposition Text

The results of the homogeneity test for students' hortatory exposition texts are reported as outlined below:

**Table 4.8 The Homogeneity Test of Student's Writing Hortatory Exposition Text**

**Tests of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
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ScoreWriting	Based on Mean	,085	2	37	,919
	Based on Median	,049	2	37	,953
	Based on the Median and with adjusted df	,049	2	34,605	,953
	Based on trimmed mean	,075	2	37	,928

The p-value obtained from Levene's test for homogeneity of variances is 0.919. According to the scale for determining homogeneity, a p-value greater than or equal to 0.05 indicates that the groups of *data Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* originate from populations with equal variances. Therefore, the assumption of homogeneity of variances is met for the comparison of students' hortatory exposition texts between the two classes in this study.

### Hypothesis Test

The hypothesis test was conducted using the Pearson correlation test because the variables students' higher-order thinking skills (HOTS) and student writing of hortatory exposition texts were confirmed to be normally distributed. The results of the hypothesis test are as outlined below:

**Table 4.9 The Hypothesis Test of Students' HOTS and Students' Writing Hortatory Exposition Text Correlations**

		ScoreHots	ScoreWriting
ScoreHots	Pearson Correlation	1	,970**
	Sig. (2-tailed)		,000
	N	40	40
ScoreWriting	Pearson Correlation	,970**	1
	Sig. (2-tailed)	,000	
	N	40	40

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Based on Table 3.24, which outlines the Pearson correlation parameters according to Dahlan (2010). This study interprets the correlation values to determine the strength and direction of the correlation between students' higher-order thinking skills and students' writing hortatory exposition texts. This study uses these parameters to interpret the data and draw conclusions about the correlation between the two variables. which can be elaborated as follows:

1. The strength of the statistical correlation is categorized as follows 0.0 - < 0.2 is very weak, 0.2 - < 0.4 is weak, 0.4 - < 0.6 is moderate, 0.6 - < 0.8 is strong, and 0.8 - < 1.00 is very strong. The Pearson correlation coefficient between students' higher-order thinking skills (HOTS) and students' writing of hortatory exposition texts is (0.970) which is greater than (0.80). This indicates a very strong correlation between the two variables, Indicating that students' higher-order thinking skills were very strongly correlated with students' writing of hortatory exposition texts.
2. The correlation direction can be described as follows:
  - Positive: As variable X increases, variable Y also increases.
  - Negative: As variable X increases, variable Y decreases.

In this study, the Pearson correlation coefficient between students' higher-order thinking skills (HOTS) and students' writing of hortatory exposition texts is 0.970. This positive value indicates a strong positive correlation. This means that variable X students' higher-order thinking skills increase and variable Y students' writing hortatory exposition texts also increase.

3. p-value can be described as follows:

- $p\text{-value} \geq 0.05$ : Indicates that the correlation is not significant.
- $p\text{-value} < 0.05$ : Indicates that the correlation is significant.

In this study, the p-value is (0.000) less than (0.05), which signifies that the correlation between students' higher-order thinking skills and students' writing of hortatory exposition texts is statistically significant.

4. the clinical significance can be described as follows:

- $r \text{ obtained} < \text{minimum } r$ : The correlation is not significant.
- $r \text{ obtained} > \text{minimum } r$ : The correlation is significant.

In this study, the correlation coefficient of (0.970) is greater than the critical value ( $r \text{ table}$ ) of (0.312) for a sample size of 40 at a significance level of 0.05 with a 95% confidence interval. Therefore, the correlation between students' higher-order thinking skills and students' writing of hortatory exposition texts is considered clinically significant.

In conclusion, the analysis reveals that the Pearson correlation coefficient between students' higher-order thinking skills (HOTS) and students' writing of hortatory exposition texts is 0.970. This positive value signifies a strong positive correlation, indicating that as students' higher-order thinking skills increase, students' writing hortatory exposition texts also increase. The p-value of 0.000, which is less than the significance level of 0.05, demonstrates that the correlation is statistically significant. Furthermore, the correlation coefficient exceeds the critical value ( $r \text{ table}$ ) of 0.312 for a sample size of 40 at a significance level of 0.05 with a 95% confidence interval, confirming its clinical significance.

As a result, the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is supported, indicating a significant correlation between students' higher-order thinking skills and their writing of hortatory exposition texts at SMA Ahmad Yani 2 Baureno.

The correlation results align with the parameters for interpreting Pearson correlation values confirming the correlation between students' order thinking skills and students writing hortatory exposition text. these variables are very strong and significant correlation.

## DISCUSSION

The discussion in this section is derived from the findings and results of the research on the correlation between students' higher-order thinking skills and students' writing of hortatory exposition texts. This study aimed to investigate the correlation between students' higher-order thinking skills and students' writing of hortatory exposition texts to students in twelve-grade at SMA Ahmad Yani 2 Baureno. In this study, the participants were 40 students from twelve grades in *Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* classes at SMA Ahmad Yani 2 Baureno.

In this study, the hypothesis analysis employs a Pearson correlation test, the analysis reveals that the Pearson correlation coefficient between students' higher-order thinking skills (HOTS) and students' writing of hortatory exposition texts is (0.970) which is greater than (0.80). This positive value signifies a very strong positive correlation, indicating that variable X students' higher-order thinking skills increase and variable Y students' writing hortatory exposition texts also increase. The p-value of 0.000, which is less than the significance level of 0.05, demonstrates that the correlation is statistically significant. Furthermore, the correlation coefficient exceeds the critical value ( $r \text{ table}$ ) of 0.312 for a sample size of 40 at a significance level of 0.05 with a 95% confidence interval, confirming its clinical significance.

This indicates that the alternative hypothesis ( $H_a$ ) was accepted, while the null hypothesis ( $H_0$ ) was rejected. confirming a significant correlation between students' higher-order thinking skills (HOTS) and students' writing skills in hortatory exposition texts at SMA Ahmad Yani 2 Baureno.

The results accordance with the research conducted by Sasmita (2019) regarding the correlation between students' HOTS and students' writing argumentative skills in students' writing analytical exposition text. The hypothesis analysis from the research indicates that there are significant correlation between students' HOTS and students' writing argumentative skills in students' writing analytical exposition text. The participants were 30 students in *Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* classes. In this study, the hypothesis analysis employs a t-test. That observed (12,959) that greater than the t table which is (1,6892). This indicates the students' HOTS has a significant correlation to students' writing skills.

According to Sasmita (2019), The score of significant correlation ( $r_{xy}$ ) of 0.69 suggests that there is a strong positive relationship between the two variables, which in this research are students' higher-order thinking skills and their ability to write analytical exposition texts. The correlation coefficient ( $r_{xy}$ ) of 0.69 indicates that as students' higher-order thinking skills improve, students' performance in writing analytical exposition texts also tends to improve significantly. The statement means that the correlation is considered to be in a high category, showing a strong and meaningful connection between the two factors being studied.

According to findings from (Sholikah,2021), higher-order thinking skills (HOTS) emerged as a significant factor in the English achievement of eleventh-grade students at SMA 2 Kudus. The survey research, which involved 44 purposively sampled students, aimed to determine the linear correlation between HOTS and English achievement. Using Pearson's Product Moment Correlation with a significance level of .05 and a degree of freedom of 42, the results indicated a high positive significant linear correlation between HOTS and English achievement. Specifically, the correlation coefficient ( $r_{xy}$ ) revealed a strong positive relationship, suggesting that as students' higher-order thinking skills improved, their performance in English also tended to improve significantly. This finding underscored a meaningful and robust connection between HOTS and English achievement, highlighting the importance of integrating HOTS into educational practices to enhance students' academic success.

According to (Muspitarini, 2019) the research findings indicated a significant correlation between higher-order thinking Skills (HOTS) and reading comprehension among eleventh-grade students at SMAN 1 Colomadu. The study, which involved 26 randomly selected students, used multiple linear regression to assess the relationship between HOTS and reading comprehension. The results showed a strong correlation, with a t-value of 4.102, surpassing the critical value of 2.034, indicating that higher HOTS was associated with improved reading comprehension.

## Conclusion

This study aimed to investigate a significant correlation between student higher order thinking skills (HOTS) and student writing hortatory exposition text in twelve grade at SMA Ahmad Yani 2 Baureno. A quantitative method with a correlational research design was used in this study. The sample consisted of 40 students from the *Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* departments, selected through a random sampling procedure.

The instruments used in this study comprised two main components. First, the HOTS instrument consisted of 20 questions: 8 multiple-choice items at the C4 level (Analyzing), 9 multiple-choice items at the C5 level (Evaluating), and 3 essay items at the C6 level (Creating) all items were validated for reliability, difficulty level, and item discrimination index. The validation of the HOTS instrument showed high quality resulting in the final validation rating of (94.2%), indicating excellent validity. The instrument's reliability, as

measured by a Cronbach's Alpha of (0.657), was classified as moderately reliable, reflecting adequate internal consistency. The difficulty analysis revealed a well-balanced distribution with 4 easy, 14 medium, and 2 difficult questions, ensuring a comprehensive assessment. Additionally, the discrimination index results demonstrated effective differentiation, with 16 items rated as good, 3 as enough, and 1 as excellent, showing the instrument's capability to distinguish between varying levels of student performance.

The writing instrument for students writing hortatory exposition texts was a worksheet containing instructions for students to create hortatory exposition texts on a given topic. The quality of the resulting texts was assessed based on five evaluation categories: content, organization, vocabulary, grammar, and mechanics.

The validation of the writing hortatory exposition text instrument revealed high quality culminating in a final validation rating of (94.2%), indicating excellent validity. The instrument's reliability, as reflected by a Cronbach's Alpha of (0.832), was classified as reliable, showing very strong internal consistency in measuring students' writing abilities. This indicates that the writing hortatory exposition text instrument is appropriately designed for assessing the writing skills of twelfth-grade students at Ahmad Yani 2 Baureno.

Based on the results of the students' Higher Order Thinking Skills (HOTS) assessment revealed variations in their performance. The distribution of scores showed that (2.5%) of the total students scored between 30 and 39, (17.5%) scored between 40 and 49, (20%) scored between 50 and 59, (20%) of the students scored between 60 and 69, 25% scored between 70 and 79, and (15%) scored between 80 and 90. This distribution provides a clear picture of the variation in students' performance on the HOTS assessment.

Based on the results of the student's writing of hortatory exposition texts revealed variations in students' performance. The distribution of scores showed that 20% of the total students scored between 30 and 40, 10% scored between 41 and 51, and 22.5% scored between 52 and 62. Additionally, 15% of the students scored between 63 and 73, 27.5% scored between 74 and 84, and 5% scored between 85 and 95. This distribution provides a clear picture of the variation in students' performance in the writing of hortatory exposition texts.

Based on the findings, in this study the normality of the data was confirmed using the Shapiro-Wilk test, which resulted in p-values of (0.386) for students' higher-order thinking skills (HOTS) and (0.208) for student writing of hortatory exposition texts, indicating that both datasets followed a normal distribution. Additionally, Levene's test for homogeneity of variances produced p-values of 0.896 for HOTS and (0.919) for hortatory exposition text writing, suggesting that the variances between the *Ilmu Pengetahuan Alam (IPA)* and *Ilmu Pengetahuan Sosial (IPS)* groups were equal.

In this study, the hypothesis analysis employs a Pearson correlation test, the analysis reveals that the Pearson correlation coefficient between students' higher-order thinking skills (HOTS) and students' writing of hortatory exposition texts is 0.970. This positive value signifies a strong positive correlation, indicating that variable X students' higher-order thinking skills increase and variable Y students' writing hortatory exposition texts also increase. The p-value of 0.000, which is less than the significance level of 0.05, demonstrates that the correlation is statistically significant. Furthermore, the correlation coefficient exceeds the critical value (r table) of 0.312 for a sample size of 40 at a significance level of 0.05 with a 95% confidence interval, confirming its clinical significance.

This indicates that the alternative hypothesis ( $H_a$ ) was accepted, while the null hypothesis ( $H_0$ ) was rejected. confirming a significant correlation between students' higher-order thinking skills (HOTS) and students' writing skills in hortatory exposition texts at SMA Ahmad Yani 2 Baureno.

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