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Psycholinguistic and Cognitive Influences on Textual Entailment Misunderstandings in Senior High School

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Abstract. *The objective of this study is to find out reasons behind common misinterpretation of textual entailment among students in educational settings, focusing particularly on how basic textual concepts impact students' ability to comprehend and analyze texts accurately. The study was carried out at SMA Alam Lampung using twelfth-grade students as participants. It used a qualitative research design and employed saturation sampling procedures to choose its sample. This study aims to explore students' understanding and interpretation skills regarding textual entailment by using questionnaires and interviews as the main data gathering techniques. The results show a significant difference in students' ability to correctly grasp texts and hypotheses, indicating a common misinterpretation of textual entailment principles. Out of 60 replies gathered from 10 questions answered by 6 students each, only 4 solutions adhered to the rules of textual entailment. The other 56 responses showed a misunderstanding of the connection between Text and Hypotheses. The research explores the psycholinguistic and cognitive processes that lead to misconceptions, highlighting the importance of lexical access and comprehending complicated sentence patterns in making valid inferences from texts. It also recognizes the significance of prior knowledge in aiding text understanding and analysis. These results imply that successful educational approaches should go beyond just improving linguistic abilities. They should use tactics designed to help pupils overcome psycholinguistic and cognitive obstacles, so improving their interpretive skills. This study suggests a thorough educational method that combines language skills enhancement with specific tactics to address the psycholinguistic and cognitive barriers affecting students' understanding and interpretation of texts.*
Keywords: *psycholinguistic, cognitive, textual entailment*

INTRODUCTION

In the evolving landscape of language education, diagnostic assessments have become indispensable tools for educators. These assessments enable the identification and addressal of diverse learning needs within the classroom, a critical factor in the domain of language acquisition where understanding individual differences is paramount for creating a supportive learning environment (Kahn-Horwitz & Goldstein, 2024). A noteworthy advancement in this area is the application of Recognizing Textual Entailment (RTE) as a method to enhance critical thinking and comprehension skills among foreign language learners (Bagus Wicaksono et al., 2021; Pham et al., 2012). By analyzing the connections between texts and the hypotheses they generate, RTE provides a pathway for students to deepen their grasp of foreign languages, moving beyond basic understanding to achieve a nuanced mastery.

The importance of self-efficacy and automaticity in reading processes, as underscored by Anggia et al. (2023), further complements the need for such diagnostic tools. Their research

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underlines the critical impact these factors have on language acquisition and comprehension, advocating for instructional practices that bolster learner confidence and proficiency, especially in the context of foreign languages. Despite progress in these areas, challenges remain in fully understanding how psycholinguistic and cognitive factors contribute to students' misunderstandings of text at crucial educational stages.

The introduction of RTE by Dagan et al. (2006) Elshazly et al. (2021) marked a significant step towards addressing these challenges. RTE serves to clarify the complex dynamics between texts and the hypotheses they evoke, shedding light on the difficulties of dataset creation and the nuanced interpretation of meanings. This has been further explored in subsequent research by Dagan et al. (2010) and Putra et al. (2023), who emphasize the importance of integrating diverse linguistic expressions and manual annotations to thoroughly understand comprehension relationships. Such a focus not only highlights the specifics of reading material but also aligns with broader objectives of enhancing language acquisition through a deeper comprehension of cognitive and psycholinguistic elements.

The contributions from psycholinguistics and cognitive psychology, particularly through the work of Fernández & Cairns (2011), Michael & Keane, (2020), and Brown (2007), offer invaluable insights into how languages are acquired, processed, and represented within the brain. These disciplines provide a deeper understanding of vocabulary acquisition, memory functionality, and the cognitive processes essential for language comprehension and analysis. This knowledge is indispensable for grasping the intricacies of language comprehension, complementing the objectives of RTE by providing a foundational perspective on the cognitive and psycholinguistic underpinnings that either facilitate or impede language learning.

Recent research at the nexus of psycholinguistics and cognitive psychology have greatly deepened our understanding of language comprehension issues in educational contexts. This interdisciplinary approach integrates the methodical study of linguistics with the analytical frameworks of psychology to dive into the cognitive foundations of human language capability. Key foundational research by scholars such as Fernández & Cairns (2011), Michael & Keane, (2020) , and Brown (2007), supplemented by empirical observations from Samuels & Näslund (2006) and Schriefers et al. (1990), has been instrumental in highlighting the pivotal role of lexical access in reading comprehension. Lexical access, comparable to exploring a richly stocked library, demands rapid integration of different lexical inputs, encapsulating the intricacy of decoding word meanings and their structural elements.

Samuels & Näslund (2006) and Naumoska & Kalajdžisalihović (2023) highlight that lexical access when reading involves a multifaceted process, analogous to the nuanced investigation in a big library, where one seeks books using diverse criteria such as author, title, or subject area. This process involves deciphering the dictionary definition of words, understanding categorical concepts ranging from lexical categories (distinguishing between real words and pseudowords) to semantic categories (identifying whether a word represents an animal, vegetable, or mineral), and recognizing grammatical categories (such as determining if a word functions as a direct or indirect object in a sentence). Furthermore, it contains the phonemic and morphemic representation, which entails deciphering the pronunciation of a word based on its printed form. This intricate process resembles the act of retrieving certain books in a library, relying on multiple bits of information available at different intervals.

Moreover, as Schriefers et al. (1990) point out, lexical selection plays a vital part in this process, giving the required information about lexical items to develop a functional level representation. This intricate system of lexical access and selection underlines the complexity of reading and comprehending texts, highlighting the cognitive and psycholinguistic subtleties inherent in the seamless act of reading.

The ability to make inferences is crucial to good communication and comprehension, since it underpins the reader's capability to develop a cohesive understanding of the text (Bayat & Çetinkaya, 2020; Hancox, 2002). Inferential processes are necessary for absorbing the underlying themes, moral lessons, or arguments offered in a piece of literature, requiring readers to actively connect with and reflect about the information. According McNamara & Magliano (2009) these processes are selective and strategic, with readers typically forming inferences that support the local coherence of the text connecting concepts inside sentences and between neighboring segments to produce a coherent and relevant story.

Research, such as the work of Ferreira & Schwieter (2015), demonstrates that inferences based on readily accessible information such as explicit statements within the text or the reader's general knowledge are immediately encoded during reading. This reflects the selective character of inference encoding, where the cognitive system prioritizes information that adds to the immediate coherence of the text. The concept of local coherence, detailed by scholars like Hancox (2002), is fundamental in ensuring that texts are perceived as logical and meaningful, with cognitive models suggesting that establishing connections between immediate text segments is prioritized over the integration of broader text information.

Another key part of cognitive psychology in language comprehension is memory Ferreira & Schwieter (2015). Memory mechanisms, such as encoding, storage, and retrieval, play a significant role in maintaining and recalling linguistic knowledge (Tourimpampa et al., 2017). Working memory, in particular, is crucial for holding and manipulating language pieces in real-time during comprehension. For instance, humans may use their working memory capacity to maintain the context of a sentence while integrating new information, enabling them to develop coherent interpretations of the text.

The Atkinson and Shiffrin model, extensively outlined in Cowan (2009) analysis, serves as a fundamental basic pillar for memory research. This pioneering approach delineates the roles of short-term memory (STM) and long-term memory (LTM) within the cognitive landscape. STM is regarded as a temporary holding space, where information is temporarily held (Majerus, 2013). Its capacity, however limited, facilitates the execution of immediate cognitive activities, such as problem-solving and language comprehension(Nguyen, 2020; Smith et al., 2021). This constraint is not a downside but rather a feature that ensures efficiency in processing and prioritizing information important for immediate tasks.

On the other side, LTM is depicted as a large and comprehensive repository of information and experiences (Yilmaz, 2011). Unlike STM, LTM possesses an essentially infinite capacity, allowing for the storage of a broad assortment of information spanning potentially everlasting lengths. This vast storing capability spans everything from factual knowledge and conceptual understandings to personal experiences and taught abilities. Cowan (2009) underlines a well-acknowledged principle within cognitive psychology: while every

individual's collection of long-term memories is enormous and rich, it is also intrinsically faulty and vulnerable to mistakes.

Textual entailment, a challenging task in language comprehension and processing, involves deciphering the relationship between two text fragments, where one fragment implies or entails the other (Dagan et al., 2006). The successful completion of this complex undertaking necessitates not only the identification of linguistic patterns, but also the capacity to make logical deductions and establish correlations among contrasting pieces of information. Furthermore, the acknowledgment of textual entailment has important consequences in many text-related tasks, such as retrieving information, extracting information, answering questions, summarizing text, and evaluating machine translation (Dagan et al., 2013; Feng et al., 2008). The implementation of automated textual entailment recognition has the potential to significantly transform these jobs by providing effective and accurate methods for exploring large textual databases.

The complications associated with the misunderstanding of textual entailment among high school pupils can be ascribed to various variables, such as a restricted lexicon, deficient reading comprehension abilities, and inadequate critical thinking capabilities (Tarchi, 2015). Students' inability to make proper inferences due to a lack of background knowledge or contextual comprehension often results in misinterpretations of the text. Furthermore, it is possible that pupils may encounter difficulties in recognizing implicit information or establishing coherent relationships between words or paragraphs. To tackle these issues, it is necessary to implement specific interventions that focus on improving students' reading comprehension, critical thinking, and inferential reasoning abilities. This will enable them to effectively negotiate relationships between textual elements.

The purpose of researching psycholinguistic and cognitive factors contributing to the misunderstanding of textual entailment among high school students is to get a greater knowledge of the underlying cognitive processes that influence their comprehension abilities. By investigating psycholinguistic factors such as language processing mechanisms and cognitive factors such as memory and inferential reasoning, the goal is to identify specific challenges or limitations that may impede students' ability to accurately grasp the logical relationships between texts and their entailments. This investigation intends to provide insight on the cognitive mechanisms involved in textual entailment comprehension and to guide specific treatments or instructional strategies aimed at increasing students' inferential skills, critical thinking abilities, and overall language comprehension ability. Ultimately, the purpose is to equip high school students with the cognitive tools and methods needed to efficiently traverse textual entailment relationships and boost their general comprehension capacities.

RESEARCH METHOD

Research Design

This study applies Sugiyono (2013) qualitative methodology, specifically adopting a case-study design, to investigate the psycholinguistic and cognitive aspects that contribute on the misunderstanding of textual allusions among students at Alam Lampung High School. The decision to employ a qualitative case study methodology was based on the distinctive characteristics of the case, which involved a grade 12 class including just 11 pupils exhibiting

low levels of competition and a lack of enthusiasm for studying. The selection of this strategy was made in order to acquire accurate and comprehensive data.

The study centers on a particular educational setting to investigate the factors that contribute to students' challenges in comprehending texts. Creswell & Poth (2018) emphasize the significance of qualitative research in situations that demand a nuanced and thorough comprehension. They promote the use of this approach when researchers strive for a comprehensive and coherent writing style while also aiming to gain a profound understanding of the context or environment in which the participants are situated.

In accordance with these principles, our research has been carefully crafted to investigate the complex aspects that impact text comprehension. The objective of this method is to attain a comprehensive comprehension of students' experiences and the intricate factors that influence their interpretations of text material.

The researcher first evaluated the students' ability to understand written content by administering a textual entailment exam as part of the case study. Subsequently, the test results were examined and subsequently shown in a tabular format. Following this, in-depth interviews were undertaken to discover the primary elements and repercussions of the measured text comprehension abilities. By following to the rules and ethics of qualitative case study research, the researcher hoped to provide reliable and reputable data.

Participant

Participants were selected from Alam Lampung High School's 12th-grade class, deliberately targeting individuals deeply engaged with text comprehension resources crucial to our research on the psycholinguistic and cognitive implications on understanding. This selection procedure favored persons at a particular academic juncture or those enrolled in courses focusing on text comprehension and engagement, assuring participants could offer substantial insights into the cognitive and psycholinguistic dynamics shaping their interpretative skills. To thoroughly capture the spectrum of student experiences and viewpoints, a saturation sampling method was adopted, establishing the sample size at the juncture where subsequent interviews ceased to produce unique insights (Glaser & Strauss, 2017; Sugiyono, 2013; Suhaemin & Arikunto, 2013). This technique ensured a thorough representation of the different experiences among the student cohort. The identification of participants was facilitated through their academic engagement with pertinent courses and materials, with preliminary Google Form surveys gathering essential background information and gauging their interest in participation, thereby streamlining the inclusion process for the study. Implementing these parameters led to the selection of six students eager and eligible to participate, offering a well-rounded investigation of the subject matter.

The Instrument

For data collecting, this study adopts a multi-faceted strategy. Educational materials that incorporate textual entailments will undergo a document analysis to detect patterns potentially leading to comprehension difficulties. To delve into the nuanced psycholinguistic and cognitive experiences of pupils, semi-structured interviews will be carried out. These interviews will be properly recorded and transcribed to enable a comprehensive analysis. Additionally, a preliminary Google Form survey will serve to gather vital information about

participants, aiding in the selection of appropriate candidates for the study. In testing students' knowledge of textual entailments, the research will offer specially constructed activities that push their interpretative skills and highlight any challenges faced. These exercises are designed to match real-life comprehension events closely, so evoking true cognitive and psycholinguistic reactions from the students and providing significant insights into their processing mechanisms.

RESULTS AND DISCUSSION

RESULTS

First, in the tabular format used in the textual entailment proficiency test, there are different sorts of forms given. The first format shows the text comprising the questions as well as the difficulty rating associated with each question. This difficulty level is tailored to the subject of textual entailment, which refers to the ability find if a given text asserts or implies the same information as another text. This information provides insight into areas where students have difficulty in comprehending and interpreting entailment relationships between texts.

The second format is labeled “true”, which reflects the number of accurate responses submitted by pupils. This figure represents the students' level of grasp of the notion of textual entailment in accordance with the theories and explanations supplied by experts such as (Dagan et al., 2006, 2009, 2010; Putra et al., 2023). Through this study, it may be recognized to what extent pupils have successfully learned the textual entailment skills evaluated.

Finally, the third format is called “false”, which represents the number of errors made by pupils in answering each question. This information provides insight into areas where students have difficulty in comprehending and interpreting entailment relationships between texts. The specifics of this investigation, which shed light on the areas of confusion and misunderstanding among students, are documented in the table shown below:

Table 1. Test textual entailment Errors

Text	True	False
Q1	S3 and S4	S 1,2,5, and 6
Q2	S4	S 1,2,3,5, and 6
Q3		S 1,2,3,4,5, and 6
Q4		S 1,2,3,4,5, and 6
Q5		S 1,2,3,4,5, and 6
Q6		S 1,2,3,4,5, and 6
Q7		S 1,2,3,4,5, and 6
Q8		S 1,2,3,4,5, and 6
Q9		S 1,2,3,4,5, and 6
Q10	S4	S 1,2,3,5, and 6
TOTAL	4	56
	60	

From the table, we can figure out the ability of each student who took the textual entailment ability test. Based on the error analysis, we can determine that many students made mistakes on questions Q3 to Q9. For example, the answer supplied by student S1 on question

Q3 demonstrates a substantial inaccuracy. The question states, "The conflicts and upheavals that take place among Indonesians are not only internal, but also have the potential to interfere with the national interests of foreign nations." S1 answered with "Conflict", which was judged as "false" because it did not fit the explanation offered by the (Abdiansah et al., 2018). This shows that S1 pupils did not manage to capture the correct entailment link as taught by (Putra et al., 2023).

The second tabular provides a comprehensive analysis of the main sources of errors associated with psycholinguistic and cognitive factors. The study identifies these errors as deficiencies in the ability to make inferences, access lexical information, overall cognitive abilities, and understanding of textual engagement. Understanding the way pupils process and interpret information is highly dependent on these important psycholinguistic and cognitive impairments. By analyzing the components that contribute to these errors, we can obtain valuable information about the particular areas in which students face difficulties. This knowledge is crucial for creating successful educational interventions.

The tabular displays two primary metrics: misinterpretation and student responds. One of the main signs, misinterpretation, demonstrates how psycholinguistic and cognitive processes play a role in interpreting mistakes, as explained by scholars like (Cowan, 2009; Ferreira & Schwieter, 2015; Samuels & Näslund, 2006). These researchers have emphasized the crucial relevance of these aspects in shaping students' capacity to accurately process and comprehend information. The second indicator, student responses, refers to the answers given by participants, which indicate the precise faults recognized by the experts. This classification enables us to observe the direct relationship between the various cognitive and psycholinguistic impairments and the frequency of particular mistakes made by students. As a result, it offers a more distinct understanding of the difficulties encountered in understanding and interpreting information.

A rigorous assessment of the replies from 12th-grade students at Lampung Nature High School was carried out to determine the core reasons of these difficulties in text comprehension. The goal was to uncover particular psycholinguistic and cognitive obstacles contributing to these deficits. The findings, provided in the accompanying table shown below:

Table 2. Test textual entailment Errors

Misinterpretation	Student respond
Lacking inference abilities	Q1:6 Q3:1 Q4:1 Q5:2 Q6:1 Q9:5 Q10:5
Lacking lexical access	Q4:5 Q5:4 Q9:1
Lacking textual entailment	Q1:1 Q2:6 Q3:5

	Q6:1 Q10:1
Lacking cognitive abilities	Q6:4 Q7:6 Q8:6
TOTAL	60

From the second table, which deals with the primary reasons for errors, it is observed that lacking in inference abilities is a significant component with a total of 21 respondents citing comparable explanations. The vast number of replies to the first question, "How would you describe your experience in understanding and interpreting texts while studying in high school?", suggests that difficulties in reading texts is a prevalent problem. Common responses such as, "In interpreting texts, I read, understand (get information), and repeat it," demonstrate that pupils still have difficulties processing textual engagement questions directly, while speaking their native language. This suggests that the ability to grasp and interpret texts is still a huge difficulty for students.

DISCUSSION

This study aims to examine the errors made by twelfth-grade high school students during textual entailment exams, focusing on the influence of psycholinguistic and cognitive factors. The study will evaluate the types of errors and the reasons behind them. The data analysis identifies four crucial factors that contribute to the inaccuracies reported among students, which are described as follows. The researcher collected multiple samples from the data reduction process of the textual entailment test, which influenced the number of errors generated by students. These samples comprised variables such as insufficient inference ability, limited lexical availability, textual entailment, and cognitive capacity.

In reading comprehension, inference abilities apply to the capacity to grasp the underlying significance of a text, develop relationships with other texts or knowledge, and deduce meaning. Fernández & Cairns (2011) stress the importance of this capacity in interpreting both explicit material and the intricacies and covert results of a text. Lexical access, as explained by Samuels & Näslund (2006), is the cognitive process via which individuals recover word meanings from memory in order to comprehend spoken or written language. Textual entailment refers to the identification of whether the meaning of a given text can be deduced or indicated from other texts. This problem bears significance in various natural language processing applications, including question and answer systems, information extraction, information retrieval, machine translation, simplification, and paraphrase (Abdiansah et al., 2018). The influence of cognitive ability on textual entailment, proven by Ferreira & Schwieter (2015), is a key challenge in the context of education and psycholinguistics. Cognitive abilities, which include memory, reasoning, problem-solving, and comprehension, are crucial foundations for humans to acquire and process information successfully.

After establishing the rationale for the errors committed by pupils, below are examples of phrase reductions that contain errors:

Text	Hyphothesis	Entailment
PKI menjadi Partai oposisi dan bergabung dengan partai serta organisasi kiri lainnya dalam Front Demokrasi Rakyat (FDR) yang Didirikan Amir Syarifuddin Pada bulan Februari 1948.	Amir Syarifudin adalah pendiri partai FDR	True
di Jawa Tengah juga timbul pemberontakan lain yang dipimpin oleh Kiai Haji Machfudz atau yang dikenal sebagai Kyai Sumolangu	Kyai Sumolangu nama lain kiai haji macfudz	false

Based on the mistakes made on the test, it may be described as follows that student solutions that have a benchmark that the hypothesis and text have the same correlation and formula are declared as entailment according to (Abdiansah et al., 2018). From the two tables above, there is a change in the formula in the second answer so that it does not fulfill the expected criteria and is reported as "false". The findings from the first table demonstrate that the bulk of questions (Q3 to Q9) do not have a proper response, indicating a likely difficulty in recognizing the correct answer for these questions. Questions Q1, Q2, and Q10 have at least one right answer, suggesting that these questions may be easier or better understood by the pupils.

To see the reasons producing difficulties based on the sample provided, below are the results of the second table which has numerous signs causing misinterpretation: a) Lacking Inference Abilities: 21 instances, b) Lacking Lexical Access: 10 instances, c) Lacking Textual Entailment: 14 instances, d) Lacking Cognitive Abilities: 16 instances, d) Overall Total Misinterpretations: 60.

Inference skill, students had the highest number of errors with 21 instances, showing that students had difficulties in drawing logical conclusions from the given material. This challenge was apparent in questions Q1 to Q10, where each question revealed problems in inference skills. For example, in the question "How would you describe your experience in understanding and interpreting texts while studying in high school?" a student said, "In interpreting the text, I read over and over again until I understand." This answer shows a lack of inference skills because pupils have to read frequently to gain logical information. This is consistent with Fernández & Cairns (2011), that inference skills in reading comprehension are related to the ability to perceive the deep meaning of a text, find links with other texts or knowledge, and infer meaning. The significance of this capacity in understanding not just the explicit information but also the nuances and hidden repercussions of a text is significant.

Lack of lexical access, students still have appropriate comprehension to give responses because they still utilize their mother tongue but also still have lexical issues. We can see it in words that are unfamiliar to them such as an absorbed word that has an explicit meaning in the word "Democracy" in the question "Regardless of which theory is correct regarding the events of the G30S, what is certain is that since Guided Democracy officially began in 1959, Indonesia

has indeed been characterized by the figure of Soekarno who presented himself as the sole ruler in Indonesia." All the responses given were wrong because the word "Democracy" has an explicit meaning that makes it impossible for children to answer.

From the entailment test in the first table, it is obvious that interview question number 4 covers the role of language and structure in answering the textual entailment test. Linyang (2021) adds that deficiencies in this area might have a big impact on one's ability to understand and respond inquiries or directions appropriately. Despite contributing to student errors, data analysis showed that interpretation errors across students, as in the case of Q4, Q5, and Q9, were not fairly distributed across questions. Still few students were harmed by lexical access.

Shook et al. (2015) postulated that bilinguals who divide their language use between two systems may have less familiarity with some terms in each language, which may lead to a worse relationship between word structure and meaning. This shows that although kids may grasp their native language, they may still experience challenges with words that are less often used or have more complicated meanings.

Lack of Understanding of Textual Entailment, the third cause behind misinterpretation in texts can be described by a controlled investigation of students' interaction with complicated textual clues. Our research highlighted a hypothetical scenario where students were confronted with a sequence of inquiries, particularly numbers 1, 2, 3, 6, and 10. Within this sequence of questions, there was a trend that demonstrated a considerable disparity between students' responses and the intended interpretation in the text. There were 14 instances of this inconsistency, demonstrating a basic weakness in pupils' comprehension of the meaning of the text.

For example, in the textual entailment test on the first number, "The PKI became an opposition party and joined other leftist parties and organizations in the People's Democratic Front (FDR) founded by Amir Syarifuddin in February 1948," the question was, "From the text given, who was the founder of the FDR party in February 1948?" Many responses were stated wrongly such as, "Amir Syarifuddin was founded in February 1948." This mismatch occurred because the text did not provide clear enough hints regarding the cause-and-effect link between the question and the answer.

This mismatch illustrates that pupils' understanding of the text often does not match the desired interpretation. According to Abdiansah et al., (2018) and Dagan et al. (2010) note that these gaps in knowledge might lead to results that not only differ from the projected conclusions, but also sometimes directly contradict them. Feng et al. (2008) and the theoretical framework presented by (Abdiansah et al., 2018) support these findings.

This problem can mostly be attributable to students' lack of comprehension of how the text articulates the requirements for appropriate interpretation, both implicitly and explicitly. For example, in the context of the first question, the text's failure to provide the necessary context or hints led students to ignore critical nuances of the language, so they were unable to form valid inferences. This challenge is further compounded in the second question, when the intricacy of the text does not match students' current knowledge base or conceptual understanding, leading to inaccurate interpretations. In addition, the vagueness in how the third and sixth questions were presented inhibited pupils from correctly recognizing the underlying premises and conclusions. Finally, the tenth question highlights how the inclusion of technical

jargon or specialized concepts unfamiliar to pupils greatly raises the danger of misinterpretation.

Lack of cognitive aptitude towards text comprehension, as pointed out by Ferreira & Schwieter (2015), is a key challenge in the context of education and psycholinguistics. Cognitive aptitude covers memory, reasoning, problem solving and comprehension, which are crucial foundations for individuals to receive and understand information efficiently. Deficiencies in development or impairments in these skills might lead to substantial difficulty in interpretation.

For example, in the textual entailment examination on question number five, "From the text given, what was the cause of disintegration in 1948-1965?" there were no applicable answers such as "Because of ideological issues, interests, or related to the government system." The answers submitted showed that pupils had difficulty in selecting proper and relevant information from the text.

Cognitive data analysis based on the examinations conducted by students provided replies such as "I lack in remembering new words in doing the questions." This answer demonstrates impairments in cognitive ability, both in short-term memory (STM) and long-term memory (LTM). They have trouble in recalling new knowledge and in processing old information, which leads to misinterpretation.

Akyol & Boyaci-Altinay (2019) states that reading is a skill that is gained through schooling and grows over time. Effective reading ability is the process of constructing meaning, in which prior information is used and done with suitable techniques and purposes in an organized setting. Those with reading challenges often have lower reading success rates relative to their age and learning capability. These challenges can stem from cultural circumstances, language, and educational experiences.

Maric et al. (2011) discovered that these cognitive errors were major indicators of anxiety, which implicitly suggests that students with high anxiety had difficulties in processing and interpreting material effectively. This indicates how vital it is to address cognitive issues and anxiety to improve kids' text comprehension and academic achievement.

CONCLUSION

This study intends to analyze the errors produced by twelfth-grade high school students during textual entailment exams, concentrating on the influence of psycholinguistic and cognitive aspects. The data analysis indicated four significant characteristics leading to the mistakes reported among students: weak inference ability, restricted lexical availability, textual entailment, and cognitive capability. These parameters were tested using many samples from the data reduction process of the textual entailment test. The data demonstrated that inference abilities posed the highest number of errors, demonstrating significant difficulties in deriving logical conclusions from the given material. Lexical access difficulties, although less prevalent, nonetheless contributed to misunderstandings, particularly with complicated or new words.

Furthermore, the study indicated that a lack of knowledge of textual entailment and cognitive impairments severely harmed students' performance. Textual entailment errors indicated a fundamental gap in interpreting the intended meaning of texts, as proven by

inconsistent responses to questions. Cognitive abilities, such as memory and reasoning, were discovered to be necessary for effective information processing. Students suffering with these skills demonstrated difficulties in recalling and comprehending information, resulting to frequent misinterpretations. Addressing these cognitive and linguistic problems is critical for increasing reading comprehension and academic performance, stressing the need for specialized educational interventions and support.

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