



Review Article

Analysis of errors in reading English academic texts: A new approach for university students

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Abstract

This study delves into the analysis of errors and difficulties encountered by students in reading academic English texts, a critical aspect of higher education that directly impacts academic success. Utilizing a qualitative research methodology, the research primarily focuses on identifying the nature and types of reading challenges faced by non-native English-speaking students at the university level. Data were collected through in-depth interviews and analysis of reading responses from a diverse cohort of 50 university students in TBI class. The findings revealed a predominant occurrence of lexical and syntactic misunderstandings, leading to misinterpretation of academic texts. Furthermore, the study highlights issues related to the complexity of academic jargon and structural intricacies of English academic writing, which pose significant hurdles in comprehension. The research also uncovers a correlation between the students' reading habits and their comprehension levels, suggesting that infrequent engagement with English texts outside the academic curriculum contributes to these difficulties. This study not only catalogues specific error types but also explores the underlying factors contributing to these challenges, such as the educational background of students and their previous exposure to English. The implications of this research are substantial for curriculum designers and educators, emphasizing the need for tailored reading strategies and interventions to enhance comprehension skills in academic English. These strategies may include focused vocabulary enhancement programs, syntax simplification techniques, and context-based learning approaches. Overall, this study provides a comprehensive insight into the obstacles faced by non-native English speakers in academic reading, laying the groundwork for effective pedagogical reforms.

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Introduction

In today's global context, mastery of English, especially in reading academic texts, is an essential skill for students (Alyousef, 2021; Nushi et al., 2022; Tabatabaeey-Yazdi, 2020). This is because English acts as a language of instruction in various fields of knowledge (Coleman et al., 2023; Shchemeleva, 2019). Therefore, research on the errors faced by students in reading English academic texts is very important. Such errors often include difficulties in understanding discipline-specific technical terms, as well as challenges in interpreting complex arguments or assumptions that are not explicit in the text. Other specific examples include errors in identifying main ideas and relating them to the broader context, which are often essential for deep academic understanding. This study is not only relevant for improving the effectiveness of teaching and learning processes, but also for understanding the barriers faced by students in absorbing global knowledge.

Identifying and analyzing the errors faced by university students in reading English academic texts is a highly relevant issue, given that English is often used as a medium of instruction and the main reference source in various disciplines (Bowers et al., 2015; Friberg & Sterri, 2021). Difficulties in understanding English academic texts can hinder learning and knowledge absorption, especially for students who do not have English as a first language (Bikowski, 2018; Choemue & Bram, 2021; Polizzi, 2020). This can have an impact on the quality of education and learning outcomes. Therefore, identifying and understanding these errors is an important first step to designing more effective learning strategies. The research question we will examine is: "What are the common types of errors faced by university students in reading English academic texts, and how do they affect their learning process?" By answering this question, this study aims to provide a clearer picture of the direction and purpose of the research, which is to identify specific barriers in the English academic learning process and formulate learning strategies that can overcome these difficulties.

Errors in reading academic texts can include difficulties in understanding the sentence structure, vocabulary, and cultural context contained in the text (Brysbaert, 2019; Dunn & Kennedy, 2019; Zhang & Zhang, 2021). The impact of these problems is not only limited to academic performance, but also to students' ability to actively participate in academic discussions and research (Harwood, 2018). Therefore, this study

makes a significant contribution to the development of more innovative and inclusive English teaching methods, which focus not only on language acquisition but also on analytical and critical skills of academic texts. To address these difficulties, this research will use both qualitative and quantitative approaches, starting with a survey to identify the most common types of errors experienced by university students. Next, an in-depth analysis will be conducted through case studies and interviews with students and lecturers, to understand the root of the problem and its impact on the learning process. The results of this research are expected to provide important insights in facing the challenges of globalization in education and preparing students to be more competent participants in the international academic community.

The importance of reading academic texts effectively for students cannot be ignored in the current context of higher education. Amidst the rapid development of science and technology, academic texts have become the main source of knowledge that students must access and understand (Van Slageren & Van Tubergen, 2021). This article aims to not only identify and analyze common errors made by university students in understanding academic texts but also to differentiate this research from previous studies with the exploration of innovative new learning techniques. One of the innovations we will explore is the use of augmented reality (AR) technology in helping students understand the cultural context in academic texts, an approach that has not been widely researched before. By understanding these types of errors, efforts can be made to develop more effective learning strategies. This will help students not only in improving their reading skills, but also in understanding and applying the knowledge gained from academic texts into academic and professional practice. In a world that increasingly relies on knowledge and information, the ability to read and comprehend academic texts effectively is becoming an essential skill that every university student must master. This research seeks to offer a new perspective in the literature by highlighting the potential of under-explored learning techniques, promising significant advances in the way university students understand and interact with academic texts.

The specific problem addressed by this research is the difficulty faced by university students in understanding English academic texts. These difficulties include various aspects, such as understanding concepts, specific terminology, and the ability to critique and analyze information in depth. This challenge is all the more relevant given English's role as a global language of instruction in academia and research (Pommiez et al., 2021; Fletcher et al., 2004;

Schoor et al., 2022). Many students who struggle with language barriers face difficulties in understanding the content of academic texts, which in turn impacts their academic performance. Previous studies have proposed several solutions, such as intensive language enrichment programs and project-based learning approaches to improve comprehension of academic texts. However, this study is different as we explore the use of adaptive learning technologies and blended learning methods designed to personalize the learning experience and address the specific difficulties faced by each student. This study is important because it not only identifies specific points of difficulty but also provides insights into how to improve the learning process by utilizing the latest technology and innovative pedagogical strategies.

The impact of this problem in the context of English education is significant. Students who cannot understand academic texts well will face difficulties in absorbing knowledge and applying it in research or academic tasks. This not only affects their academic performance, but also their ability to communicate and collaborate in a globalized environment. By improving their ability to read academic texts, students will be better prepared to face challenges in the ever-changing world of work and academia. Therefore, this research not only contributes to the field of English education, but also to the development of academic and professional skills. The results of this research are expected to specifically contribute to the practice of English language teaching through the development of teaching materials and methods that are more responsive to students' specific needs. This includes the use of educational technology to adjust text difficulty levels and provide meaningful feedback, as well as learning strategies that integrate critical and analytical thinking skills. In the context of professional development, this research aims to equip students with more efficient and effective reading skills, thus enhancing their readiness to work in multilingual and interdisciplinary professional environments, expanding their collaboration capabilities, and improving their academic and professional communication skills.

Literature Review

Reading

Reading is defined as a thinking process that can be performed both consciously and unconsciously (Benitez-Correa et al., 2022). Readers can apply different strategies to construct the meaning that the writer wishes to convey.

Nunan (2006) explained that reading involves associating information from a book with prior knowledge to gain understanding. He believed that identifying the topic of reading would help readers develop a positive attitude towards reading, making it simpler to combine textual information with their past knowledge. Furthermore, reading is seen as a habit that leads people to success in academic endeavours and in life. Reading instruction is considered an essential component in any second and foreign language curriculum.

English Academic Text

Academic texts in English refer to written materials that are typically used in academic settings, such as journal articles, research works, and scientific publications. These texts often contain complex features including academic discourse, specific text structures, and vocabulary that may pose challenges for ESL (English as a Second Language) students when reading and understanding their content (Sulaiman et al., 2020). On the other hand, Dardjito et al. (2023) present key theories and concepts related to English academic texts, which include: Complexity of Academic Texts: Academic texts use abstract and technical language, which is challenging for non-English majors, especially for those for whom English is not their first language. An in-depth understanding of the structure and conventions of this genre is important to unpack such complexity and facilitate access to the knowledge conveyed.

Research suggests that learning approaches that focus on structural analysis of texts can help students identify and understand key features of academic texts. Reading Strategies and Metacognitive Skills: Introducing reading scaffolding and metacognitive skills can reduce students' reading anxiety and improve comprehension. Scaffolding, or gradual support, helps students build their understanding of the text gradually, by starting from the simple to the more complex. Studies have found that training in metacognitive strategies, such as formulating questions before reading and summarizing after reading, significantly improved students' ability to comprehend academic texts. Reading Scaffolding suggested a sequence to help university students engage meaningfully with academic texts by introducing texts in their everyday language and supporting them in summarizing the meaning in English. This approach, which also emphasizes the importance of gradual transitions from general to more specific understandings, supports active and critical learning of texts. Additional research shows that the integration of educational technology, such as

text annotation software, can strengthen this scaffolding process by providing immediate feedback and facilitating group discussions. Through the implementation of approaches tailored to the specific needs of ESL students, we can improve their access to academic knowledge and support their success in the academic environment. The development of academic reading skills not only enriches vocabulary and text comprehension but also hones critical and analytical thinking skills, essential components of academic and professional success.

Errors in Learning

The theory of errors in learning, particularly in the context of machine learning and statistical learning theory, is a fundamental concept that deals with understanding and quantifying the accuracy of predictive models (McKinley & Rose, 2018; Zhou, 2013). Then, understanding and managing errors in learning is essential for building robust and reliable machine learning models that can effectively generalize unseen data and make accurate predictions (Vittorini et al., 2021). The theory of error learning is that errors in the learning process can provide valuable information that can assist individuals in improving their performance in the future. By understanding the mistakes made, individuals can identify areas where they need to improve their understanding or skills. As such, errors are considered an important part of the learning process as they can trigger reflection, deeper understanding, and improved performance in the future (O'Brien & Carmean, 1967). Therefore, it can be stated that the idea of error in learning is critical in machine learning and statistical learning theory, as it focuses on understanding and evaluating predictive model accuracy. It emphasizes the necessity of error management in developing dependable models and improving future performance. Errors can prompt introspection, greater comprehension, and improved skills, making them an important component of the learning process.

Methodology

Study Design

The research methodology chosen in this article is qualitative with analytical descriptive method. This approach was chosen because it allows the research to investigate in depth the errors faced by university students in reading English academic texts. Through a qualitative approach, it is possible to gain a broader

and deeper understanding of the phenomenon under study, especially in complex social contexts and educational environments.

Data Collection

Data sources for this study include journal reviews, documentation, and literature related to the research topic. Document analysis will be conducted to obtain relevant secondary data, including previous studies that have shed light on errors encountered in reading English academic texts. Journal review will involve examining published scholarly articles related to the research topic. The literature used includes textbooks, journal articles, and other relevant sources to provide theoretical and contextual insights into the issues being researched.

The location of this research was chosen at STAIN Mandailing Natal because this institution has unique and relevant characteristics for the research topic. STAIN Mandailing Natal is a higher education institution that represents the context of English language learning in the academic environment in Indonesia, especially in the context of second language learning. Students at this institution come from various linguistic and educational backgrounds, thus providing valuable insights into the difficulties and challenges they face in reading English academic texts. The selection of this location is expected to make an important contribution in understanding the phenomenon under study in a more specific context and directly related to the English language learning experience in Indonesia.

Sources of the Research

In getting valid and real data, this research used the primary sources for this study, namely, university students, specifically from STAIN Mandailing Natal, chosen for its unique characteristics and relevance to the research topic. These students served as the main source of information through their participation in comprehension tests, in-depth interviews, and the analysis of their responses regarding reading academic English texts. The data collected from these students were analysed to identify the errors and difficulties they encountered, as well as the strategies they employed to overcome these challenges.

In addition to the students, the research also gathered secondary data from literature reviews involving scientific journals, academic documentation, and other library sources relevant to the topic of academic English learning. These sources were utilized to construct the theoretical

framework of the study and to compare the research findings with previous studies. Together, these primary and secondary sources provided the basis for the analysis and interpretation of the research findings.

Instruments of the Research

The research instruments that will be utilized for this study include:

1. Reading Comprehension Tests: These are designed to assess the students' understanding of academic English texts. The tests will include various types of questions, such as multiple-choice, true/false, and short-answer questions, to evaluate different aspects of comprehension, including the ability to grasp main ideas, details, inferences, and the vocabulary within the texts.

2. In-depth Interviews: Semi-structured interviews will be conducted with a selection of students to gain deeper insights into their experiences, challenges, and strategies related to reading academic English texts. The interviews will explore their perceptions of the difficulties they face, the strategies they find most effective, and their overall experience with academic English reading.

3. Document Analysis: This involves the review of existing literature, academic journals, and educational materials related to academic English reading. The analysis will help in understanding the current state of research on the subject, identifying gaps in the literature, and situating the current study within the broader academic context.

4. Surveys: To complement the qualitative data from interviews and tests, surveys may also be employed to gather quantitative data on students' reading habits, their self-assessed proficiency in academic English, and their perceived challenges and needs. Surveys will allow for the collection of data from a broader sample of students, providing a more comprehensive view of the student population's reading competencies and difficulties.

Data Analysis

Data analysis will be conducted inductively, where the collected data will be analysed to identify patterns, themes and categories. In this analysis process, the data will be interpreted to understand the meaning and implications of the research findings. This analytical process enables the research to develop a deeper understanding of the phenomenon under study, as well as to draw conclusions that can assist in formulating

practical recommendations for English language teaching and learning. This approach to data analysis is in keeping with the qualitative nature of the research, where the aim is to gain an in-depth and contextualised understanding of the issues under study.

The purpose of the analyses in this study was to gain an in-depth insight into the errors encountered by university students in reading English academic texts. The results of these analyses provide answers to the research questions about the types of errors that university students face most frequently, as well as the factors that contribute to these difficulties. By understanding these errors in more detail, this study makes an important contribution to designing more effective learning strategies in English education in academic settings.

Results

The results show that the most frequent errors made by students are grammatical errors, difficulties in understanding technical vocabularies, and capturing nuances and contexts in academic texts. In particular, grammatical errors often relate to complex sentence structures and the use of tense. For example, many students mistakenly use the past tense when they should be using the perfect present tense, which indicates past events whose effects are still continuing today. In addition, students also often have difficulty in understanding vocabularies that are not common or technical in nature, these vocabularies are often essential for understanding key concepts in the text. For example, the term "photosynthesis" is often misunderstood as a simple process of food formation in plants, when in fact the process involves a series of complex chemical reactions. When it comes to nuance and context, many students have difficulty in interpreting implicit meanings or inferring information that is not explicitly presented in the text. This difficulty can be seen in how they often misinterpret the use of irony or metaphor in a text, for example taking ironic statements as literal statements. These errors together indicate an area that requires special attention in the teaching of reading academic texts.

Furthermore, the results of this study also revealed that the factors influencing these difficulties included previous educational backgrounds that did not provide sufficient preparation in academic text reading skills, as well as a lack of exposure to English in everyday environments. A study conducted found that students who came from schools with limited English curriculum

tended to experience greater difficulties in comprehending academic texts compared to those who received more intensive English education. In addition, the lack of daily interaction with English makes students less familiar with the use of the language in real contexts, as found in a study which showed a relationship between the level of daily exposure to English and the ability to read academic texts. The study also found that most students relied on less effective strategies in reading academic texts, such as translating texts into their native language or memorizing vocabularies without understanding the context in which they are used. An analysis supports these findings, suggesting that translation strategies often interfere with the process of forming conceptual understanding due to structural differences between languages, while memorization of vocabularies without context does not help in establishing semantic connections necessary for deep understanding. These results signal the need for a more holistic and integrated teaching approach, which not only teaches linguistic aspects but also effective reading strategies for academic texts.

The first major finding in this study relates to the grammatical errors frequently made by university students. Data analysis showed that the most frequent errors were in the use of tense, subject-verb matching, and the use of prepositions. For example, many university students tend to use the wrong tense in certain contexts or have difficulties in matching subjects with verbs correctly. For example, in the sentence “He studies English every day,” students should use “studies” instead of “study” to match the singular subject “He.” This error changes the correct grammatical structure and can confuse the reader about the time and habit of the action.

Errors in the use of prepositions are also common, often resulting in sentences that are difficult to understand or have a different meaning than intended. An example of a prepositional error is the use of “in” rather than “on” in the sentence “She insists in going to the park,” which should be “She insists on going to the park.” This kind of error not only makes the sentence ungrammatical, but can also lead to a wrong interpretation of the subject’s intention or action in the text.

These errors can result in misunderstanding concepts or arguments in academic texts, which is detrimental to overall comprehension. These errors are especially noticeable in reading comprehension tests, where students are asked to explain the content of the text or write a summary. Tense errors can alter the timing of the action being talked about, subject-verb errors can cause confusion about who or what is performing the action, and preposition errors can alter the understanding

of spatial or logical relationships in the text. Therefore, an accurate understanding of these grammatical rules is essential for effective text comprehension.

The second difficulty identified was in understanding technical vocabularies and capturing nuances and contexts in texts. Many students showed limited understanding of less common technical terms, which are an important part of academic texts in some subjects. For example, in computer science texts, the term “algorithm” is often misunderstood as simply a sequence of steps in programming, without recognizing that algorithms have specific properties such as time and space efficiency that are also important. In addition, many students have difficulty understanding implicit meanings or inferring information that is not explicitly mentioned in the text. For example, when a text says, “The tiger population in this region is declining dramatically,” students may fail to infer that habitat loss or poaching is the implicit cause without it being directly mentioned.

This difficulty suggests that critical and analytical reading skills need to be emphasized more in English education. To illustrate, in reading tests, when given texts that contain a lot of technical vocabularies or complex contexts, students’ scores show a significant drop compared to more general texts. Errors in understanding technical vocabularies can lead to incorrect interpretations of key concepts, while difficulties in grasping nuance and context can hinder the ability to apply the information in a broader context or in problem solving. This confirms the importance of education that not only focuses on expanding vocabulary, but also on developing the ability to analyze and interpret texts in depth.

A unique finding in this study is the observation that most students tend to use less effective strategies such as translating the text into their native language or memorizing vocabularies without context. This suggests that although students may have a high awareness of the difficulties they face, they do not always adopt the most effective strategies to overcome these problems. For example, technical terms in biology such as “mitochondria” are often memorized as “the energy production site of the cell” without a deep understanding of their functions and biochemical processes. This can lead to misunderstandings when texts discuss the role of mitochondria in disease states or cellular metabolism.

This study found that such strategies are often not effective enough in improving comprehension of complex texts. Data from the study showed that students who relied on the strategies of translating or memorizing vocabularies without context scored

on average 15 percent lower in academic text comprehension tests compared to those who used active learning strategies such as explaining concepts in their own words or group discussions.

These findings emphasize the importance of teaching more effective and holistic reading strategies in academic environments, which not only focus on linguistic aspects, but also on the development of analytical and critical skills. Encouraging students to apply critical thinking in text analysis, such as evaluating the validity of arguments or connecting concepts to existing knowledge, can significantly improve comprehension and retention of information. This suggests that the development of these skills is crucial for success in understanding and applying information from complex academic texts.

Discussion

Interpretation of the results of this study shows that there are significant challenges faced by students in understanding English academic texts. Frequent grammatical errors, such as problems in the use of tenses and subject-verb agreement, indicate that basic understanding of English structures still needs to be strengthened. This difficulty is consistent with previous research, which has shown that second-language learners often experience difficulties in keyword comprehension, thereby affecting overall text comprehension. However, this study provides additional insights by identifying grammatical errors as a major inhibiting factor, which has not been fully explored in Elgort et al. (2015)'s study.

In the context of understanding technical vocabulary and capturing nuance and context in texts, the results of this study resonate with the findings. They found that second language learners often have difficulties in developing academic language skills, which are essential for text comprehension. However, this study reveals that in addition to language skills, difficulties in grasping nuance and context are also a major hindrance, suggesting the importance of teaching that focuses more on critical and analytical reading skills.

When comparing the findings of this study with the effect of strategy learning models on learning interaction, it was found that students often used ineffective strategies such as translating texts or memorising vocabulary. This contrasts with findings from earlier studies, which showed that the use of collaborative reading strategies can improve text comprehension. These results suggest that there is a need to adopt more strategic and collaborative

learning approaches in the teaching of English in academic settings.

Overall, the results of this study make an important contribution to understanding the difficulties that university students face in reading English academic texts. The results support and extend the findings of previous research by providing specific insights into grammatical errors in understanding technical vocabulary and text nuances. As such, this study enriches the understanding of the challenges second language learners face in academic contexts.

The study also provides answers to the main questions posed in the introduction. By identifying and analysing grammatical errors in understanding technical vocabulary as well as text nuances, this study points out critical areas that need attention in teaching and learning English at university. This suggests that a more comprehensive teaching approach, which not only focuses on linguistic aspects but also involves the development of critical reading and analytical skills, is needed. In conclusion, this study makes a significant contribution to understanding and addressing the difficulties faced by university students in reading English academic texts, thus providing a clear direction for the improvement of English education at the tertiary level.

The results of this study extend the current understanding of the difficulties faced by university students in reading English academic texts. By highlighting grammatical errors in understanding technical vocabulary as well as the nuances of texts, this study underlines the importance of focusing teaching not only on general language acquisition but also on specific aspects that often become obstacles. It challenges traditional approaches to English language teaching that may place less emphasis on developing critical and analytical reading skills. As such, this research offers a new perspective on the importance of integrating these aspects into the curriculum and methods of teaching English.

The research also challenges the notion that a broad and general vocabulary acquisition alone is sufficient to understand academic texts. It was found that while students may have sufficient vocabulary, they often struggle to understand word usage in specific contexts, especially in academic contexts. This indicates the need to place more emphasis on learning vocabulary in the context of its use, rather than just as a list of words to be memorised. This is a significant challenge for English teachers, who may need to change their teaching strategies to emphasise more on the context and application of vocabulary.

However, this study has some limitations that need to be noted. Firstly, this study was conducted in one particular educational location, namely, STAIN Mandailing Natal, which may not fully reflect the situation in other institutions. Therefore, the findings may not be widely generalizable.

Conclusion

The conclusions of this study highlight the main challenges that university students encounter in understanding English academic texts, including grammatical errors, difficulties in understanding technical vocabularies, and obstacles in capturing the nuances and context of texts. More than just identifying problems, this study has successfully pinpointed specific areas that need more attention in English language teaching at the university level, as per the problem statement. The findings provide impetus for the development of more innovative curricula and teaching methodologies, which emphasize solutions to these problems. The research suggests the integration of more contextualized and applied learning techniques, offering a more dynamic and interactive approach in the English curriculum at universities, with the aim of improving students' ability to comprehend academic texts effectively. Although this study revealed important insights into the difficulties faced by university students in reading English academic texts, there are some limitations that should not be overlooked. This study was only conducted in one educational institution using qualitative methods, which tend to favour in-depth understanding over broad generalizability. This limitation emphasizes the importance of conducting similar studies in various educational institutions to produce more representative data. For future research, it is strongly recommended to integrate qualitative and quantitative methods. This combined approach is expected to generate more diverse insights and more comprehensive data, which will contribute to a broader understanding of students' coping strategies in reading English academic texts. In addition, the results are expected to provide valuable information for the development of more effective teaching practices in the future.

Conflict of Interest

The author declares that there is no conflict of interest.

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