



Stylistic Analysis of Academic Writing Named “Scientists Discover First Algae that Can Fix Nitrogen”

Wenhui Zhao, Ting Wu*

Taiyuan University of Technology, Taiyuan 030600, Shanxi, China.

How to cite this paper: Wenhui Zhao, Ting Wu. (2025) Stylistic Analysis of Academic Writing Named “Scientists Discover First Algae that Can Fix Nitrogen”. *Journal of Humanities, Arts and Social Science*, 9(2), 269-273.
DOI: 10.26855/jhass.2025.02.010

Received: January 20, 2025
Accepted: February 16, 2025
Published: March 12, 2025

***Corresponding author:** Ting Wu, Taiyuan University of Technology, Taiyuan 030600, Shanxi, China.

Abstract

This article is from *Nature* and it is a typical kind of academic writing. Its main function is to disseminate and promote scientific and technological knowledge, emphasizing clear logic and precise thinking, and presenting facts and revealing truths in a calm and objective style. This kind of writing came into being and developed, accompanying the appearance and development of science and technology, it gradually drew the attention of the scientists and linguists. It is a scientific and technological register formed by the scientists and technicians to meet the needs of scientific communication. The content of academic writing emphasizes scientific, logical, and objective qualities, characterized by a style that is not exaggerated, not embellished, and does not use flamboyant rhetoric or literary devices, which distinguishes it from other types of writing. Compared to other genres, technical English in scientific literature is known for its abundance of specialized vocabulary, complex and lengthy sentences, frequent word class conversions, numerous non-finite verb forms, and strong professionalism.

Keywords

Academic writing; stylistic analysis; vocabulary; syntax; textual structure

1. Introduction

In the article, researchers have identified a novel organelle within the marine algae, marking the first instance of a eukaryote capable of nitrogen fixation. This discovery challenges the previous understanding that only prokaryotes, such as bacteria and archaea, could extract nitrogen from the atmosphere and convert it into a biologically usable form. The finding may pave the way for sustainable crop enhancement and environmental preservation strategies. Further studies will explore the mechanisms and applications of this nitrogen-fixing ability. This article aims to analyze the stylistic features of this type of writing in terms of vocabulary, syntax and text structure in order to further clarify the methods for learning English academic writing.

2. Vocabulary

In terms of vocabulary, the author's choice of words is both professional and formal, yet also infectious and persuasive.

The function of scientific and technological text is to disseminate and promote scientific and technological knowledge, which determines that the vocabulary used in scientific language will differ from that in ordinary English articles. The use of a large number of technical terms is a fundamental characteristic of scientific and technological style, and to express its professionalism (Song, Y., 2012). Scientific and technological style must employ precise

professional terminology (Li, S. S., 2013). In terms of the relationship between word choice and style, the vocabulary used in this paper is closely related to its style. Since the style of this paper is that of a scientific document, the author uses professional terminology, formal language, and also common vocabulary. For example, the paper begins with objective language and expressions, using professional terms such as "organelle," "nitrogen," "nitroplast," and "fertilizers," directly expressing the theme of the article and clarifying the main findings. It can be divided into three categories according to its meanings and functions: highly technical words, semi-technical words, and non-technical words. Technical words refer to words that can exactly explain definite concepts in a specific field of science and technology. In this article, 33 scientific and technical terms are used, accounting for 20% of the entire article. Although technical words just account for a small amount, they play a very significant role in the scientific and technical texts. The main characteristics of technical words are productivity, neutrality, informativeness, and internationalization. Semi-technical words are categorized as context-dependent terms that are frequently encountered across various disciplines, including words like efficiency, energy, discovery, laboratory, cell, and solution. The majority of these semi-technical words originate from the "core" vocabulary; they possess a degree of technical significance and are applicable in multiple fields of study. In this article, 45 semi-technical terms are used, accounting for 25%.

However, the author does not simply use professional terms. It retains some common vocabulary, reflecting the dissemination of knowledge to make it understandable to readers, rather than just emphasizing scientific nature. For instance, prepositions like "in" and "of," and adjectives such as "reliant" and "remarkable," do not carry emotional meaning but are used to state facts. In certain instances, these non-technical terms carry denotative significance; they remain neutral, devoid of praise or criticism, and lack any emotional connotations. They are more standardized and formal than everyday language. Here are a few examples: (Wu, X. H., 2010).

Table 1. EST Words and Everyday Words

EST Words	Everyday Words
fundamental	basic
bolster	boost
offspring	kid
remarkable	wonderful
hallmark	symbol

The article frequently employs derived words and uses neutral terms rather than vocabulary that carries obvious emotional connotations (Chen, H. & Liu, L., 2024, Characteristics and translation strategies of new words in scientific and technological English). This approach makes the research findings clearer and more objective, avoiding any unnecessary words, and also enhances the persuasiveness, effectively conveying scientific knowledge to the readers. Derivation, or the process of affixation, typically involves the creation of new words by appending derivational prefixes or suffixes, or both, to a root. This method of word formation is commonly observed in this kind of writing. For instance, the article employs derived words such as "fixation," "organism," and "symbiotic," which contribute to a more standardized expression and, consequently, convey clear meanings.

3. Syntax

This kind of writing is different from other writings in aspects of tense, voice, and sentence construction. It often employs passive voice instead of active voice, simple present tense, and long sentences.

In this type of writing, the subjects of narration typically consist of objective entities, phenomena, or processes, while the objects often involve individuals or instruments involved in specific tasks or devices. Utilizing the passive voice not only enhances objectivity but also directs the readers' focus towards the subjects (Ge, D., 2024). Consequently, the passive voice and the use of impersonal subjects are prevalent. The objectivity in the passive voice also makes the author's arguments more scientific and free from subjective bias. And passive sentences are usually shorter and more concise than active sentences. Here are three examples from the article.

Table 2. Three Passive Sentences in the Article

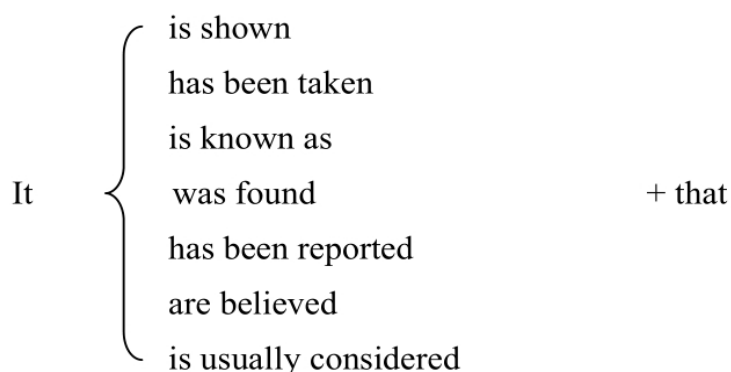
But in the latest study, Zehr and his colleagues conclude that UCYN-A should be classed as an organelle inside the alga, rather than as a separate organism (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

First, the cell structure in question must be passed down through generations of the host cell. Second, the structure must be reliant on proteins provided by the host cell (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

In this way, one nitroplast is passed down from the parent cell to its offspring, as happens with other cell structures (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

The above three sentences are the typical examples to show the extensive use of passive voice. The use of the passive voice mainly concerns information construction to emphasize the formality and objectivity. Given that scientists prioritize actions and facts over other elements, numerous references to individuals are often deemed unnecessary and can lead to confusion. From this perspective, the passive voice offers a clearer meaning and a more streamlined sentence structure.

What's more, there is another expression of passive voice, which is the "it" construction. For example, it found that the nitro-plast gets the proteins it needs to grow from the wider algal cell. Also, the following is a list of this pattern from a paper I have read: (Wu, X. H., 2010, The stylistic interpretation of scientific and technological English discourse).

**Figure 1. A List of "it" Construction.**

It is commonly known that English has sixteen tenses, but in English for academic writing, the simple present, simple past, and present perfect tenses are predominantly utilized, with the simple present tense being the most frequent (Huang, S. Y., 2023, A study on the translation strategies of the passive voice in scientific and technological English). Scientists employ the simple present tense when asserting facts they consider universally and timelessly true. As academic writing frequently conveys information about scientific knowledge without a specific temporal context, and since the simple present tense is often employed to express general truth, states, habitual action and process, it is the most prevalent tense. For example, researchers use two key criteria to decide whether a bacterial cell has become an organelle in a host cell. This sentence simply illustrates one of the steps of the study. And it embodies the objectivity of the research.

To fully express the principles and clarify the logical relationships and hierarchical structure of the text, long sentences that incorporate numerous phrases and clauses are often employed to ensure the scientific and rigorous nature of the content (Fang, H. M. & Ruan, L. Q., 2024). A long sentence, by definition, is one that spans more than two lines in length, and in some cases, can extend to the size of a large paragraph or even an entire page. Such sentences are capable of conveying complex ideas, which lends them a formal style and a serious tone (Zhao, J. F., 2007). In that case, academic writing usually uses long-sentence structure to show its accuracy. For example, the discovery of the structure, called a nitroplast, in an algal species could bolster efforts to genetically engineer plants to convert, or 'fix', their own nitrogen, which could boost crop yields and reduce the need for fertilizers. This sentence is a typical example of the structure of the long sentence. It not only illustrates the main discovery, but also states the benefits of the discovery. In that case, long sentences can carry more information than simple sentences and explain complex concepts. Here are more examples in the article:

Table 3. Some Long Sentences in the Article

In 2012, Zehr and his colleagues reported that the marine alga *Braarudosphaera bigelowii* interacted closely with a bacterium called UCYN-A that seemed to live in, or on, the algal cells² (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

According to genetic analysis from a previous study³, ancestors of the algae and bacteria entered a symbiotic relationship around 100 million years ago, says Zehr (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

Researchers have discovered a type of organelle, a fundamental cellular structure, that can turn nitrogen gas into a form that is useful for cell growth (Wong, 2024, Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure).

4. Text Structure

As a complete unit of meaning, discourse relies on vocabulary and sentences to fulfill the function of language. In addition, the relationships of every paragraph are also crucial to the coherence and cohesion of the whole passage. Therefore, the words and sentences that make up discourse are all related and closely linked together. Moreover, after studying the vocabulary and the syntax, we also need to pay attention to the whole text and discover features of this kind of writing.

In this article, the text structure is very clear. According to the content, it mainly can be divided into three basic parts. The topic is a new discovery about algae. Then it introduces the researchers, the past research, and the hypothesis, and the latest study, which is the most segment of the entire article. Next, of the latest research, it has five sessions, which are previous genetic analysis, the two criteria of the study, the condition, peer review, and the significance of the research. The following is a mind map:

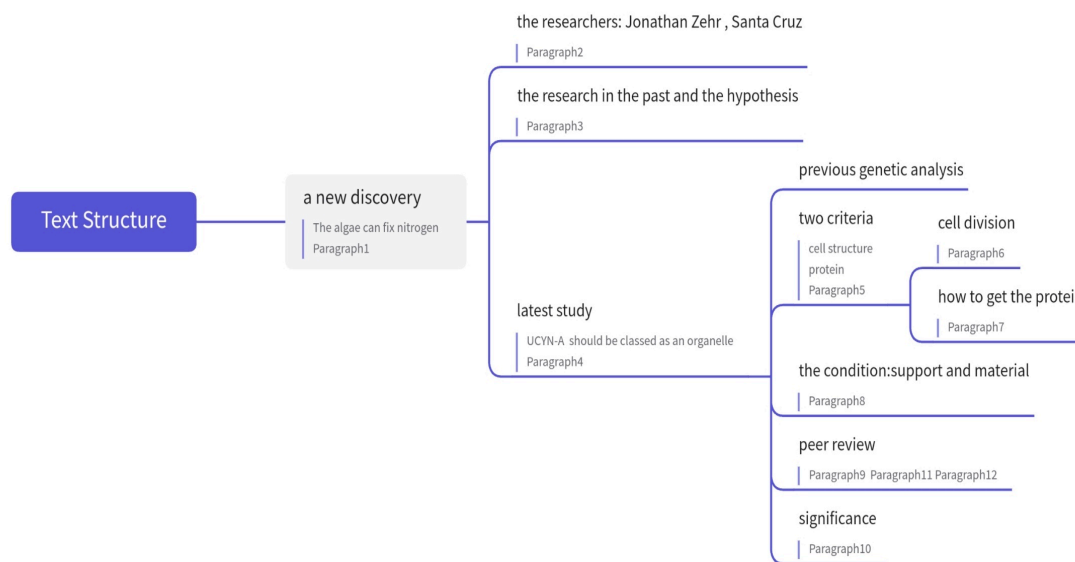


Figure 2. The Text Structure of the Article.

Through the mind map, we could see that this article has an obvious structure. Therefore, the connection of every paragraph is perfect in the aspect of cohesion. More importantly, the conjunctions of this passage also play an essential role. Although there are not many connectives, they indeed improve the relationships between paragraphs and sentences. There are five connectives in total. Three of them are in the beginning of the paragraph. At the beginning of paragraph four, "But" is used to connect the past study and the latest study. At the beginning of paragraph six and seven, "By doing" "Next" are used to illustrate the process of the research.

As for this article, it involves research. In order to do this kind of writing, we are supposed to fully explain our

research. There are four points that we need to consider. First, it is vital for us to introduce the study. The background and the topic are prerequisites. In the second place, we need to understand how the research is conducted, as well as the method and the criteria. Third, we need to provide the findings after the research. Finally, it is crucial to draw a conclusion. Only by doing these points can we truly be comprehensive and specific. And the article that we analyzed is a perfect example. From my level of understanding, this kind of writing should be well-organized, have a clear view, and a logical order.

5. Conclusion

Academic writing, a distinct genre of discourse, typically employs English to address the specialized content and objectives tailored for a select audience engaged in scientific inquiry and technical practice. It covers many specific fields such as the English of chemistry, the English of physics, the English of mathematics, the English of biology, the English of psychology, etc. In addition, it can also be regarded as several types, scientific and technical writing, report, thesis, experiment report, and scheme; various kinds of information and writing material of science and technology, etc.

But they have common features in terms of three parts. In the lexical level, three categories of vocabulary are usually considered: highly technical words, semi-technical words, and common words, technical words. In the syntactical, passive voice, simple present tense and long sentences are frequently used in texts. In the textual level, the text should be well-organized. A clear view and a logical order are necessary to successfully make the article more professional and objective. Especially when we write a text about research, we ought to consider four points, which are introduction, the process, the findings, and the conclusion.

All in all, this kind of writing has a formal style. Academic writing should also be clear, accurate, and concise to maintain its objectivity.

References

- Chen, H., & Liu, L. (2024). Characteristics and translation strategies of new words in scientific and technological English. *English Square*, (19), 58-62.
- Fang, H. M., & Ruan, L. Q. (2024). Sentence pattern selection for the expression of objectivity in scientific and technological English writing. *Overseas English*, (15), 44-46+50.
- Ge, D. (2024). A brief discussion on the syntactic features of scientific and technological English and translation strategies. In Metallurgical Industry Education Resource Development Center, China Steel Association Vocational Training Center (Eds.), *The 13th Steel Industry Vocational Education and Training Excellent Multimedia Courseware Activity Series Seminar — High-Quality Development Path of Education Theory and Educational Management*, 5.
- Huang, S. Y. (2023). A study on the translation strategies of the passive voice in scientific and technological English. *Overseas English*, (04), 30-32.
- Li, S. S. (2013). Lexical features of English scientific and technological style. *Science and Technology Wind*, (02), 188.
- Song, Y. (2012). A brief analysis of the stylistic characteristics of scientific and technological English. *Electric University Science and Engineering*, (02), 65-66.
- Wong, C. (2024). Scientists discover first algae that can fix nitrogen — thanks to a tiny cell structure. *Nature*, (35), 25-27.
- Wu, X. H. (2010). The stylistic interpretation of scientific and technological English discourse. Chongqing Normal University.
- Zhao, J. F. (2007). Syntactic characteristics of scientific and technological English and translation. *China Bidding*, (35), 25-27.