

## 1. Introduction

Science is undeniably crucial in today's world because it has the potential to change the world. One example is that science forms public consciousness from the position of the research activity results, leading to the development of new scientific knowledge systems (Yakovlevna & Nickloaevna, 2021). In addition, science develops scientific literacy and critical thinking skills, equipping people to navigate challenging and complex matters such as public health crises, technology advancements, and other phenomena. As science and technology progress, tremendous changes are taking place in the lives of human beings worldwide (Rao, 2019). Therefore, the global distribution of new scientific knowledge and information is necessary.

In distributing information, English as a global language becomes a powerful means for facilitating the communication of scientific information across diverse communities. Thus, the role of English underscores its significance in today's interconnected world. The distribution of information across diverse communities using English employs various means, including social media, educational institutions, workshops, journals, and other forums and events. In the academic context, journal articles are pivotal for defining and refining information. Journal articles represent the final output of most research, providing a means of communication and a permanent record (Rallison, 2015). These journals contain research articles that meticulously explain detailed results, case studies, methodologies, and other studies that serve as foundational pillars of scholarly communication. Therefore, writers tasked with crafting such articles must possess a keen understanding of effective information organization.

One critical component among other components that determines the quality of an article's organization is the abstract. The research article abstracts can be seen as mini-papers or summaries of the paper (Hartley & Benjamin, 1998) that describe the whole research as the main gate for readers to know the focus of the research (Gani, et al., 2021). They become the readers' first exposure to comprehend the general points of the article (Huckin, 2001; Pratiwi & Kurniawan, 2021). Therefore, abstracts play a fundamental role in academic writing as they enhance accessibility and discoverability for the readers while serving as a valuable means of information distribution.

Regarding generating English research articles, particularly within abstract writing, writers from diverse global backgrounds exhibit distinct styles of writing. These variations trace back to Kachru's (1985) conceptualization of English into three concentric circles: the Inner Circle, where English is the primary language (e.g., USA, UK); the Outer Circle, where English serves

as the second language (ESL) (e.g., The Philippines, India); and the Expanding Circle, where English serves as foreign language (EFL) (e.g., Indonesia, Japan). Kachru's (1985) framework sheds light on how each circle establishes unique characteristics in language use, acquisition, and linguistic innovations, especially for the Outer and Expanding Circles in this study. The diversity of English use is evident in this context due to the influence of historical colonization (Kachru, 1985). Additionally, the influence of cultures, norms, and standards on communication styles within the Outer and Expanding circles, particularly in the context of globalization, is evident in academic writing. It is a reasonable conjecture that the new reality of globalization has affected culture-specific communication styles (Broeder, 2021).

Hall's (1976, 2000) theory of high-context and low-context cultures underscores this phenomenon. In high-context cultures, communication relies heavily on shared context, nonverbal cues, and implicit understanding, thereby encouraging varying interpretations. In written text, high-context culture writers usually think that a lot of information has to exist, making the article long to read (Zou, 2019). Conversely, low-context cultures prioritize explicit and language-dependent communication. The writers of this culture usually use direct messages (Broeder, 2021), thereby making the article straightforward and easier to understand. This theory holds significant implications for intercultural interaction, including academic discourse, as it shapes expression, argumentation strategies, and rhetorical preferences. Understanding how writers from diverse backgrounds manage these cultural differences illuminates the interplay between culture and communication in academic writing.

In academic writing, non-native writers can experience difficulties using English. The difficulties arise from differences in how they are taught to write in their first language, lack of feedback, cultural habits, and language proficiency, as emphasized by Hyland (2009). Consequently, writers from these circles employ distinct organizational strategies to help readers comprehend, organize, and interpret their writing, as Kopple (1985) noted. Notably, these strategies extend to the persuasive elements, wherein writers utilize communicative linguistic features to present facts, opinions, and arguments, as emphasized by Khalid (2023).

Considering that academic articles function primarily as a medium of communication and discussion within scholarly communities, metadiscourse emerges as a tool for facilitating these written conversations within research article abstracts. According to Hyland (2005), metadiscourse serves as devices that the writers use to explicitly organize texts, engage readers, and signal their attitudes to both material and audience. He also underscores metadiscourse as a form of self-reflective expression used to negotiate interactional meanings, allowing writers

to articulate viewpoints and engage readers within specific communities. Moreover, the two macro-categories that comprised metadiscourse according to Hyland's (2005) theory are textual/interactive markers and interpersonal/interactional markers. Textual metadiscourse refers to textual elements that support reader accessibility, coherence, and structure of the content. These elements guide readers through the text and highlight the connectors between different sections. Meanwhile, interpersonal metadiscourse focuses on communication between the writer and the reader. It contains elements that support both reader involvement and the writer's presentation of position. Consequently, it is demonstrated that metadiscourse is a useful strategy for drawing readers in and explaining ideas in written content. It is worth noting that each circle likely employs its metadiscourse patterns and strategies, influenced by cultural norms and variations in English usage within their respective contexts.