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Changing Patterns of Interactive Metadiscourse in *English Teaching* Articles

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While metadiscourse use has been well-attended in second language (L2) writing research, relatively less effort has been made in documenting changing patterns of metadiscourse use among L2 writers. The present study addressed this gap by probing a diachronic change of interactive metadiscourse in research articles published in *English Teaching* across a span of 40 years. Using the corpus of 931 articles written by Korean L2 writers, we examined whether, and to what extent, interactive metadiscourse use in academic writing had changed over time. Our findings revealed an overall increase in the frequency of interactive resources mainly driven by a significant increase of evidentials. The observed pattern of change in interactives suggests that academic discourse within the applied linguistics community in Korea is becoming more persuasive and reader-oriented over time, consistent with Hyland and Jiang (2018) who reported a dramatic rise in interactive metadiscourse in the global discourse community of applied linguistics.

Key words: metadiscourse, interactive metadiscourse, corpus-based research, English for academic purposes, second language writing

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1. INTRODUCTION

Communication is more than just an information exchange in that it involves the personalities, attitudes, and assumptions of individuals engaged in communication (Hyland, 2005). Whether we speak or write, we manifest our position and attitude towards both the content and the target audience through the language we use. The ways in which we use language to inform, engage, and persuade others become particularly important in specialized discourses such as academic discourse, which vary in discoursal conventions and modes of persuasion across disciplinary communities. Previous research (Hyland & Bondi, 2006; Hyland & Jiang, 2018) reveals that different academic disciplines understand the world and conduct their academic practices in different ways, providing support for the claim that academic discourse is socially constructed in a disciplinary community (Bruffee, 1986; Geertz, 1983; Kuhn, 1970). As a result, developing competence in specialized discourse, which encompasses an ability to deploy disciplinary-specific conventions, is key to acting as members of one's disciplinary community.

In the context of academic writing (e.g., research articles, conference abstracts, undergraduate essays), specifically, effective communication depends in part on writers' ability to deploy metadiscourse. According to Hyland (1998), metadiscourse refers to "aspects of a text which explicitly organize the discourse, engage the audience, and signal the writer's attitude" (p. 437). It conveys writers' intended meaning to a potential audience by negotiating propositional information in ways that are familiar and appropriate to their discourse community. In this sense, metadiscourse reflects not only writers' awareness of the text, but also their awareness of a) the target audience, b) their needs for topic elaboration, clarification, and guidance, and c) their anticipated response to the text (Hyland, 2018). Displaying such awareness is a major feature of successful academic writing as it speaks to writers' ability to offer a credible representation of themselves and their arguments with readers' needs in mind.

Hyland's (2004) metadiscourse model recognizes that metadiscourse comprises two interaction dimensions: the interactive and interactional dimensions. The former concerns ways of organizing a text in anticipation of readers' needs and guiding them toward the writer's preferred interpretation; the latter involves writers' authorial interventions to comment on material and to engage with readers. Interestingly, cross-disciplinary metadiscourse studies have shown that there are considerable variations in the way these two types of metadiscourse are used in various forms of academic writing, including research articles (e.g., Cao & Hu, 2014; Hyland, 2007), undergraduate essays (e.g., Noble, 2010), dissertations (e.g., Charles, 2006), and academic book reviews (e.g., Tse & Hyland, 2006). That is, the soft disciplines (e.g., applied linguistics, sociology) tend to deploy more interactional features and less interactive features in academic writing compared to the hard

disciplines (e.g., biology, electrical engineering). This suggests that academic writing in the soft disciplines is generally less objective and more reader-friendly than academic writing in the hard disciplines.

However, more recent studies examining the diachronic change of metadiscourse in academic writing (Gillaerts, 2014; Gillaerts & Van de Velde, 2010; Hyland & Jiang, 2016, 2018, 2019, 2020) have shown that these discipline-specific patterns of metadiscourse are not static and that they are in fact susceptible to change over time. For example, Hyland and Jiang (2018) reported a substantial increase in interactive features and a significant decrease in interactional features in research articles (RAs) published in the soft disciplines over the span of 50 years, while the opposite trends were observed in RAs published in the hard disciplines. Similar findings were also reported in Deng, Fatemeh, and Gao (2021), which examined the diachronic evolution of doctoral dissertation writing in terms of interactional and interactive metadiscourse.

Taking a diachronic approach to metadiscourse research is essential and necessary in that it allows us to see how writing changes and develops over time, providing insights into the relationship between language and its context of use. However, such an endeavor has not been actively undertaken in second language (L2) writing research, which has mainly focused on examining metadiscourse from a synchronic perspective. To the best of our knowledge, there has been only one study to date (Park & Lee, 2022) that has investigated a diachronic evolution of metadiscourse in L2 academic writing. Park and Lee (2022) traced changes in *interactional* metadiscourse–markers that indicate authors' engagement with the text and readers–in RAs published in *English Teaching,* one of the top applied linguistics journals in South Korea, over the span of 40 years. Their research specifically focused on articles published by Korean L2 writers in order to compare the discoursal practices of the local (i.e., Korean) applied linguistics community to those observed in the global applied linguistics community defined in the present study as the community consisting of scholars who publish in internationally recognized top-tier journals (Hyland & Jiang, 2018). The findings indicated that the patterns of diachronic change in interactional metadiscourse were generally similar across contexts (local vs. global), although some distinct patterns of interactional features specific to Korean L2 writers were found.

To further contribute to recent efforts to extend diachronic research in the context of L2 writing, the present study sought to complement Park and Lee (2022) by examining changing patterns of *interactive* metadiscourse–markers that organize the text to increase coherence and to guide readers through the information–in L2 writing over time. Using the same corpus as Park and Lee (2022), we explored whether and to what extent the use of interactive features has changed in RAs published by the local applied linguistics community over the past 40 years. The patterns of change found in the local context were also compared to those observed in the global context to investigate whether Korean L2 writers aligned with

members of the global applied linguistics community in their use of interactive metadiscourse over time.

2. LITERATURE REVIEW

2.1. Interactive Metadiscourse in Academic Discourse

Hyland (2005) proposed a model of metadiscourse that consists of two distinct functions: interactive and interactional. Interactive metadiscourse, also known as textual metadiscourse, refers to devices (e.g., code glosses, endophorics, evidentials, frame markers, transitions) that organize and structure discourse in order to guide readers through one's writing as intended. In contrast, interactional metadiscourse (e.g., hedges, boosters, attitude markers, self-mention, engagement) reveals the writer's position and engagement with the text and readers, thereby addressing interpersonal needs between the writer and readers.

According to Hyland's (2005) taxonomy, interactive metadiscourse can be categorized into five types that are distinguished from each other in their functions. Code glosses (e.g., *for example, in other words, such as*) are used to clarify, rephrase, or elaborate previous mentions. They facilitate readers' understanding of the propositions. Endophoric markers (e.g., *in this section, in Chapter X, see Table X, in Figure X*) serve similar functions as code glosses in that they point to different parts of a text in order to help readers understand the intended meaning better. While code glosses are introducers of paraphrasing and thus are textual, endophoric markers are 'metatext' (Dahl, 2004) because they explicitly identify discoursal locations to which readers must turn. Evidential markers (e.g., *according to..., cited, author (year)*) establish the relationship between the presented text and the relevant source, ensuring readers of the legitimacy of information or arguments in a text. Frame markers include a collection of items that segment or organize a text in order to guide readers through the presented information. There are four subtypes of frame markers based on their specific functions: goal announcers (e.g., *aim to, seek to*) that specify discoursal goals, stage-labeling terms (e.g., *in summary, so far, in conclusion*) that segment and label discoursal stages, sequencers (e.g., *first, second, finally*) that order discoursal units, and topic shifting terms (e.g., *with regard to, turn to, revisit*) that signal topical changes in discourse. Finally, transition markers (e.g., *although, in addition, similarly, in contrast*) indicate relationship among propositions, allowing readers to make logical connections between different information.

Research into interactive metadiscourse has primarily focused on cross-disciplinary comparisons, demonstrating recognizable differences between hard disciplines such as physics and engineering and soft disciplines such as philosophy and applied linguistics. For

example, Dahl (2004) reported that endophoric markers are more frequently utilized in the RAs in the fields of economics and linguistics than in the field of medicine. Peacock (2010), comparing four science disciplines and four non-science disciplines, observed that linking adverbials (largely overlapping with the transition markers) appeared significantly more frequently in the RAs in the non-science disciplines. The differences between hard disciplines and soft disciplines include not only the frequency of interactive metadiscourse features but also more nuanced patterns of particular types of interactive metadiscourse. Hyland (1999), for instance, found that evidentials appeared more frequently in the RAs in soft disciplines than in hard disciplines, and that soft disciplines tended to exhibit a higher rate of integral evidential markers –evidentials that are syntactically integrated in the citing sentence. Similarly, Hyland (2007) reported that hard and soft disciplines made use of code glosses differently: The 'reformulation' function of code glosses was more frequent than the 'exemplification' function in hard disciplines, whereas the reversed pattern was found in soft disciplines.

However, previous studies suggest that differences in interactive metadiscourse use also exist within disciplines. For instance, Khedri, Heng, and Ebrahimi (2013) reported that there were differences in how economics and applied linguistics, two soft disciplines, made use of interactive metadiscourse in RA abstracts. That is, applied linguistics abstracts made more frequent use of interactive metadiscourse compared to economics abstracts. In a similar manner, Cao and Hu (2014) also demonstrated that specific types of interactive metadiscourse such as code glosses, transition markers, endophoric markers, and evidentials were used with different frequency across three soft disciplines (i.e., applied linguistics, education, and psychology).

More recently, with the goal to broaden the scope of our understanding of metadiscourse, studies have focused on examining diachronic changes in metadiscourse in academic writing (Bondi, 2014; Deng et al., 2021; Gillaerts, 2014; Gillaerts & Van de Velde, 2010; Hyland & Jiang, 2016, 2018). The overall trend observed across these studies suggests a steady increase in the use of interactive metadiscourse over time and a decrease in the use of interactional metadiscourse. For instance, Gillaerts and Van de Valde (2010) and Gillaerts (2014) found that the degree of interpersonality achieved by interactional metadiscourse items diminished while the use of interactive metadiscourse increased in RA abstracts of applied linguistics journals. Similar patterns of change in interactional and interactive metadiscourse were observed in other diachronic studies focusing on cross-disciplinary differences in the use of metadiscourse such as Hyland and Jiang (2016, 2018) and Deng et al. (2021).

These diachronic studies (Hyland & Jiang, 2016, 2018) further note that the pattern of change in metadiscourse features is not uniform across disciplines. With respect to interactive features, an increase was more pronounced in soft disciplines than in hard disciplines. In contrast, interactional features were on the fall in soft disciplines, while the

reverse trend was observed in hard disciplines. These findings suggest that soft disciplines, including applied linguistics, has witnessed a change in the rhetorical tone toward increased objectivity and impersonality in their knowledge sharing practices.

2.2. Interactive Metadiscourse in L2 Academic Writing

The study of metadiscourse markers has received considerable attention in L2 writing research, and the focus has been on comparing metadiscourse in academic writing between first language (L1) writers and L2 writers. To date, there is only a handful of studies that have probed the use of interactive metadiscourse in L2 learners, and findings suggest that L2 academic writing is generally marked by higher use of interactive resources compared to L1 writing. For example, Park and Oh (2018) found that Korean L2 writers used interactive resources significantly more than native speakers of English, and that the higher reliance on interactive resources, particularly frame markers, was indicative of lower proficiency in the L2. Similar observations were made by Back (2019) who noted that master's theses written by L2 writers included more frame markers, specifically sequencing markers (e.g., *first, second, third, finally*, etc.) than those written by native speaker writers.

While there has been a series of studies examining the pattern of change in metadiscourse in academic writing over time, such an effort has not been undertaken much in the context of L2 writing. To the best of our knowledge, Park and Lee (2022), which probed the use of interactional metadiscourse in Korean L2 writers across a span of 40 years, was the only study that has examined metadiscourse from a diachronic perspective. This suggests that more research is warranted to uncover how metadiscourse, particularly interactive resources, changes over time and whether the pattern of change is similar to the ones observed in L1 writing. For example, does L2 writing exhibit a global increase in interactive resources over time as it was the case for L1 writing research (Gillaerts, 2014; Gillaerts & Van de Velde, 2010; Hyland & Jiang, 2018)? To address this question, the present study examined the evolution of interactive metadiscourse in English RAs published in one of the top applied linguistics journals in Korea, *English Teaching*. By focusing on RAs written by Korean L2 writers only, we sought to compare the evolution of interactive metadiscourse in one particular local community of applied linguistics to the one that is observed within the broader global community. This focused examination reflects our mindfulness of previous studies that reported that L2 learners' use of meatadiscourse markers is likely to differ by L1 background (Lee & Casal, 2014; Yoon, 2021). We believe that such a comparison between local and global academic communities is meaningful in that it may provide implications for novice academics or L2 writers who wish to gain competence in approved discourses of both the local and global academic communities.

The current study drew on the corpus developed by Park and Lee (2022), which included

931 RAs consisting of 6.4 million words extracted from *English Teaching* between 1980 and 2021 (henceforth, the ET corpus). Adopting Hyland's (2005) model of interactive metadiscourse as a theoretical framework, we explored how the use interactive resources (i.e., endophorics, evidentials, code glosses, frame markers, transitions) in Korean L2 writers has changed over the past 40 years. Additionally, we compared the evolution of interactive metadiscourse observed in the ET corpus to those found in the corpus of five internationally recognized top-tier applied linguistics journals (i.e., *TESOL Quarterly*, *Language Learning*, *Foreign Language Annals*, *Modern Language Journal*, and *College Composition and Communication*) created by Hyland and Jiang (2018) (henceforth, the HJ corpus). The comparison between the two corpora was performed to address the extent to which Korean applied linguists' discoursal patterns aligned with those found in the global community of applied linguistics. The two research questions (RQs) that guided the present study are as follows:

1) Has the use of interactive metadiscourse in RAs published in *English Teaching* changed over a span of 40 years?
2) To what extent do patterns of interactive metadiscourse observed in the ET corpus align with those found in the global applied linguistics community represented by the HJ corpus presented in Hyland and Jiang (2018)?

3. DATA AND ANALYSIS

The present study utilized the corpus constructed by Park and Lee (2022), which consisted of 931 RAs published in *English Teaching* between the year 1980 and 2021. An article was included in the corpus if a) it was written in English, b) it takes the form of research article (vs. essays, panel transcripts, etc.), and c) if it is written by a Korean scholar as inferred from their name. The references and appendices were removed from the articles. Table 1 summarizes the ET corpus, which amassed approximately 6.4 million words in total.

TABLE 1

Summary of the ET Corpus Data

Time Period	Number of RAs	Number of Words	Average Words per RA
1980s	56	259,712	4637.71
1990s	154	878,505	5704.58
2000s	406	2,874,779	7080.74
2010s	277	2,118,798	7649.09
2020s*	38	281,130	7398.15
Total	931	6,412,924	6888.21

Note. 1980s = 1980–1989; 1990s = 1990–1999; 2000s = 2000–2009; 2010 = 2010-2019; 2020–2021;
* It must be noted that the 2020s included only two years 2020 and 2021.

From each RA, five interactive metadiscourse types were identified, with the number of occurrences for each type extracted. The types include endophorics, evidentials, code glosses, frame markers, and transitions. Frame markers were further categorized into four groups: goal-announcing markers, stage-labels, sequencing markers, and topic-shift markers. A subset of Hyland's (2005) list of interactive metadiscourse items were included in the study. Table 2 lists all the markers examined in the present study.

TABLE 2

Interactive Metadiscourse Items Included in the Study

Type	Sub-Type	Markers
Code glosses		as a matter of fact, called, defined as, e.g., for example, for instance, I mean, i.e., in fact, in other words, indeed, known as, namely, put another way, specifically, such as, that is to say, that means, this means, vis, which means
Endophorics		in Chapter X, in Section X, in this chapter, in this section, Fig., Table, page
Evidentials		cited, quoted, according to, to cite, to quote, cite, quote, (author/date)
Frame markers	Announcing goals	aim, desire to, focus, intend to, intention, objective, purpose, seek to, want to, wish to, would like to
	Labeling stages	all in all, at this point, at this stage, by far, for the moment, in brief, in conclusion, in short, in sum, in summary, on the whole, overall, so far, thus far, to conclude, to repeat, to sum up, to summarize
	Sequencing	finally, first, first of all, firstly, last, lastly, next, second, secondly, subsequently, then, third, thirdly, to begin, to start with
	Shifting topic	back to, digress, in regard to, move on, resume, return to, revisit, shift to, to look more closely, turn to, with regard to
Transitions		accordingly, additionally, again, also, alternatively, although, as a consequence, as a result, at the same time, because, besides, but, by contrast, by the same token, consequently, conversely, equally, even though, further, furthermore, hence, however, in addition, in contrast, in the same way, leads to, likewise, moreover, nevertheless, nonetheless, on the contrary, on the other hand, rather, result in, similarly, since, so, so as to, still, the result is, thereby, therefore, though, thus, whereas, while, yet

Per article, each marker was identified and counted. This process was automated using the R Package 'Stringr' (Wickham, 2022). Because the process of extraction was automated, some items that could be used propositionally, instead of metadiscoursally, were excluded (e.g., 'say' as a gloss, 'now' as a frame marker, 'and' as a transition item). After all the markers were collected, the frequency rate for each marker per article was calculated by dividing the number of occurrences by the total number of words in the article. The frequency rate was then normalized per 10,000 words.

4. RESULTS

A total of 224,657 instances of interactive metadiscourse were found in the ET corpus. On average in any given article, interactive metadiscourse items comprised 3.5% of the total text. Transition markers comprised 41.85% of all interactive metadiscourse items, while evidentials and frame markers took up 28.62% and 16.63%, respectively. Glosses comprised 10.26% of the interactive metadiscourse. Endophoric markers were the least frequently used interactive metadiscourse items, comprising 2.64%. The number and rate of occurrences for each interactive metadiscourse type in the corpus are presented in Table 3 and visually illustrated in Figure 1.

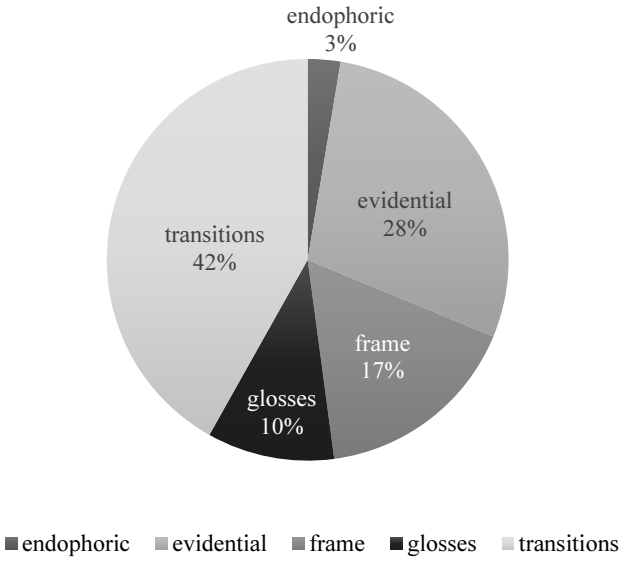
TABLE 3

Rate of Interactive Metadiscourse per Type in the ET Corpus

Type	Number of occurrences	Percent
Endophoric	5926	2.64
Evidential	64,290	28.62
Frame	37,370	16.63
Glosses	23,050	10.26
Transitions	94,021	41.85
Total	224,657	100

FIGURE 1

Percentage of Interactive Metadiscourse Features by Type



4.1. Diachronic Change in the Use of Interactive Metadiscourse (RQ1)

When looking at interactive metadiscourse as a whole, the frequency of interactive metadiscourse increased over time. As illustrated in Figure 2, a non-parametric Kendall's correlation analysis showed that there was a statistically significant positive relationship between frequency of interactive metadiscourse markers and year of publication ($\tau = 0.33$, $p < 0.01$). A closer examination of the use of interactive metadiscourse by type, as shown in Figure 3, revealed that this upward trend was observed in all types with the exception of frame markers, which decreased marginally, but significantly ($\tau = -.06$, $p < 0.01$). The increasing trend was most pronounced for evidentials (0.43, $p < 0.01$), and also marginally observed for glosses ($\tau = 0.14$, $p < 0.01$), transition markers ($\tau = 0.1$, $p < 0.01$), and endophorics ($\tau = 0.09$, $p < 0.01$).

FIGURE 2

Frequency of Interactional Metadiscourse Over Time (Normalized per 10,000 Words)

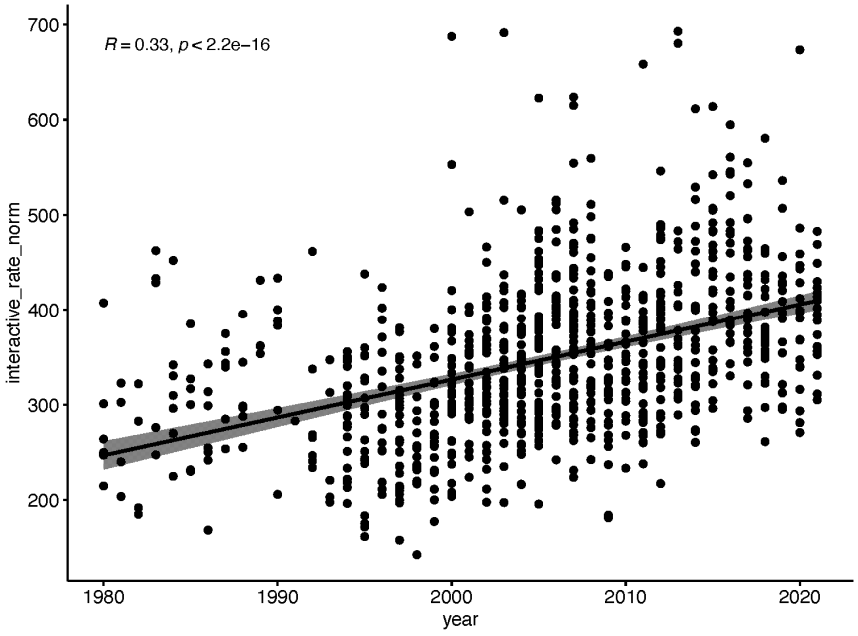
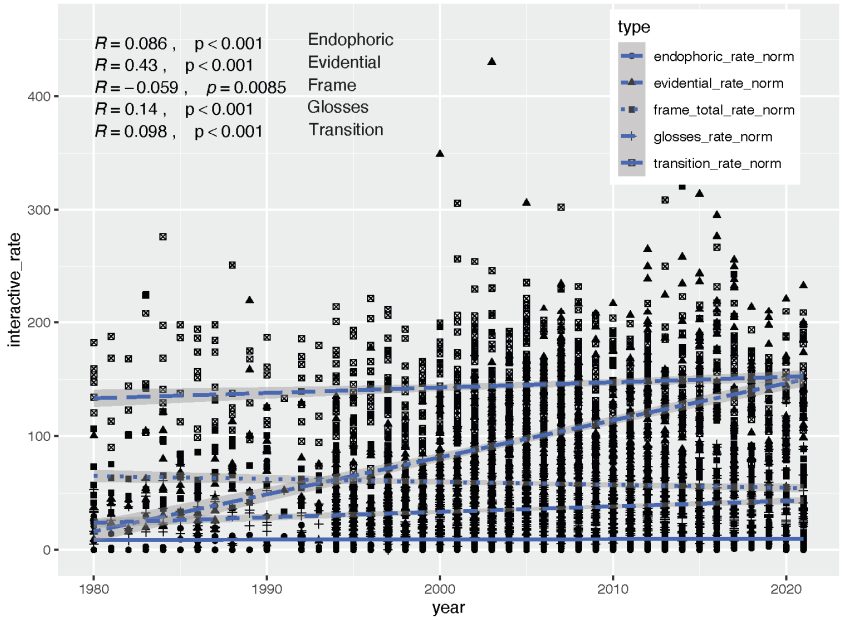


FIGURE 3

Frequency of Interactive Metadiscourse Over Time per Type

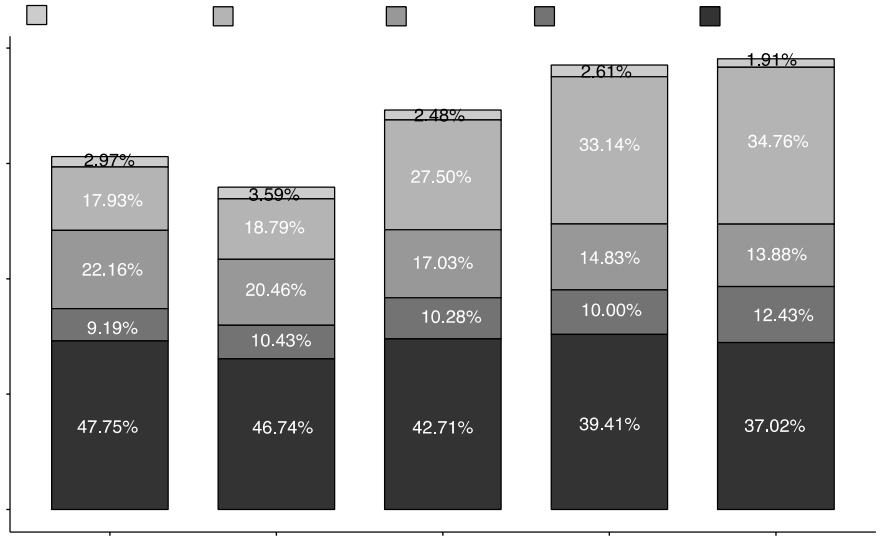
(Normalized per 10,000 Words)



We also examined the change in the use of interactive metadiscourse by focusing on the proportion of five interactive metadiscourse categories. As shown in Figure 4, transitions emerged as the most frequently employed markers and endophorics were the least frequent, the pattern of which remained constant throughout the decades. Code glosses and frame markers were relatively comparable in their frequency, although frame markers were on the fall. With the exception of evidentials, the proportion of interactive metadiscourse categories seemed stable over the span of 40 years. As mentioned earlier, the overall increase in the use of interactive metadiscourse is largely attributed to the increase of evidentials.

FIGURE 4

Relative Use of Interactive Metadiscourse Categories Over Time



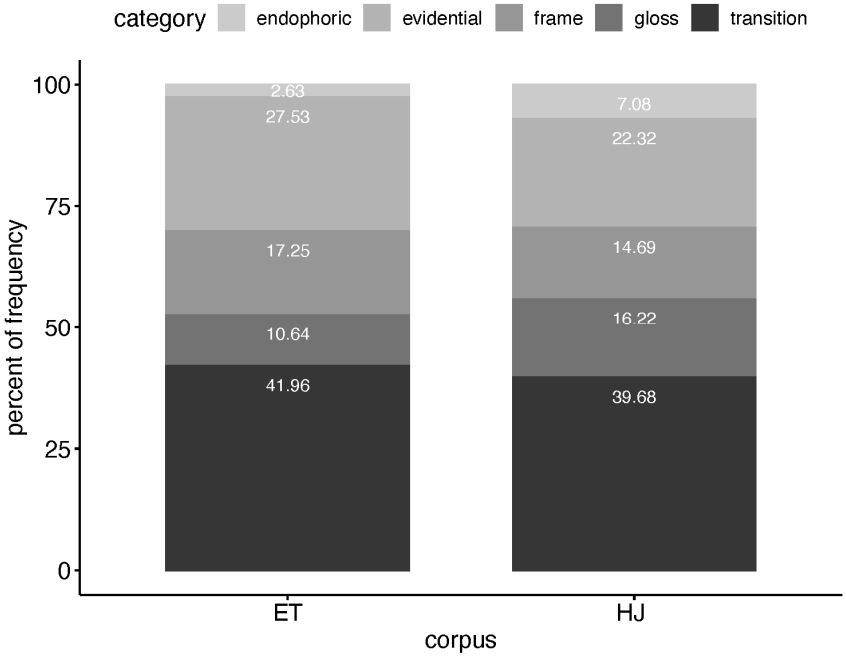
4.2. Comparison of Interactive Metadiscourse Between the *English Teaching* Corpus and the Hyland and Jiang (2018) Corpus (RQ2)

In order to better understand the use of interactive metadiscourse, a comparative analysis was conducted between the ET corpus and the HJ corpus. The former represents the local Korean applied linguistics community, while the latter represents the global applied linguistics community.

In terms of the total count regardless of the year of publication, the most frequent type of interactive metadiscourse was transition markers for both corpora (41.96% out of all interactive metadiscourse items in the ET corpus and 39.68% in the HJ corpus), followed by evidentials (27.53% in the ET corpus and 22.32% in the HJ corpus). These two types alone accounted for well over 60% of all interactive metadiscourse items. Frame markers accounted for 17.25% in the ET corpus and 14.69% in the HJ corpus. Glosses accounted for 10.64% in the ET corpus and 16.22% in the HJ corpus. Finally, endophorics accounted for 2.63% in the ET corpus and 7.08% in the HJ corpus. Figure 5 summarizes the composition of interactive metadiscourse in terms of its type for each corpus.

FIGURE 5

Percent of Interactive Metadiscourse Type: ET vs. HJ Corpora



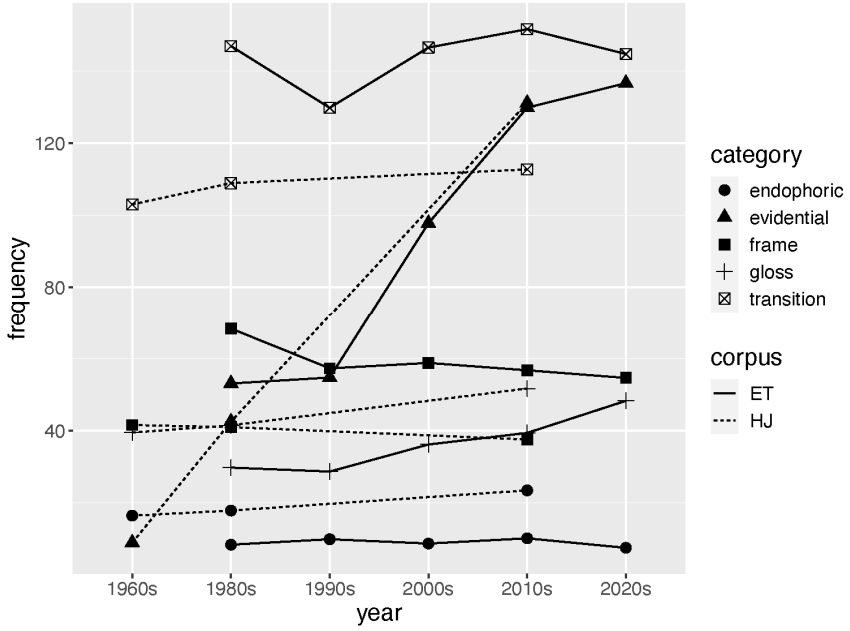
While the two corpora exhibited similar proportion of interactive metadiscourse items categorized in different types, the frequency of some types significantly differed. On average, 3.43% of the total text in an *English Teaching* article makes up interactive metadiscourse compared to 2.73% in an applied linguistics article in the HJ corpus. This difference in frequency rate, however, was not statistically meaningful. Significant differences were observed only when specific types of interactive metadiscourse were compared. Specifically, the Welch Two Sample t-test revealed that transition markers were more frequently used in the ET corpus (mean = 143.9) than in the HJ corpus (mean = 108.2), and that this difference was statistically significant with a large effect size ($t(5.97) = 7.67$, $p < .001$, Cohen's $d = 5.25$). Frame markers were also more frequent in the ET corpus (mean = 59.15) than in the HJ corpus (mean = 40.07), with the difference being statistically significant with a large effect size ($t(5.64) = 7.09$, $p < .001$, Cohen's $d = 4.69$). On the other hand, endophorics were more frequently used in the HJ corpus (mean = 19.3) than in the ET corpus (mean = 9.0), with statistical significance with a large effect size ($t(2.21) = -4.69$, $p = 0.035$, Cohen's $d = -3.77$). There was no significant difference in the frequency of evidentials nor in the frequency of glosses.

When we compared the two corpora with time as a variable, the findings reported that

both the proportion of different types of interactive metadiscourse and their frequency changed over time. As shown in section 4.1, interactive metadiscourse in the ET corpus generally increased over time in terms of its frequency (see Figures 2 and 3). The upward trend of interactive metadiscourse observed in the ET corpus was likewise observed in the HJ corpus. Similar to the ET corpus, the only interactive metadiscourse type that seemed to decrease over time in the HJ corpus was the frame markers. In both corpora, transition markers and glosses seem to be marginally increasing. Additionally, endophorics increased over time in the HJ corpus while it rather plateaued in the ET corpus. By far, the most drastic increase was found in the use of evidentials for both corpora. The rate of evidentials increased from 9 (i.e., 9 evidentials in 10,000 words) to 42.5 (i.e., 42.5 evidentials in 10,000 words) from the 1960s to 1980s, representing a 350% increase within the 20-year period. Between 1980s sand 2010s, the rate increased 208% in the HJ corpus, from 42.5 to 131.1. In the ET corpus, the rate of evidentials did not change much between 1980s and 1990s. However, between 1990s and 2000s, the rate jumped from 54.74 to 97.78 (78.6% increase), and between 2000s and 2010, it jumped from 97.78 to 129.83 (32.8% increase). Figure 6 illustrates the use of interactive metadiscourse in the two corpora.

FIGURE 6

Comparison of Interactive Metadiscourse Over Time Between ET and HJ Corpora



5. DISCUSSIONS AND CONCLUSIONS

The present study set out to examine the changes in the use of interactive metadiscourse in RAs featured in *English Teaching* between 1980 and 2021. The findings suggest that the use of interactive metadiscourse has become more frequent over time. This observation is in line with previous diachronic studies that examined the metadiscourse use of research texts (Deng et al., 2021; Gillaerts, 2014; Hyland & Jiang, 2018), all of which reported an overall increase of interactive metadiscourse across disciplines. Considering the functions of interactive resources in enhancing clarity and cohesion (e.g., Hyland, 2005), this trend suggests the growing emphasis on the rhetorical practices of explicit meaning making and explicit structural guidance over the years. The need for more explicitness may reflect researchers' growing desire and willingness to make research more accessible to non-expert readers. That is, successful research writing should entail guiding its readers through both the complex structure of a research text as well as discipline-specific concepts, and this task of 'translating' expert-approved codes into more transparent terms and phrases can in part be achieved by skillful uses of glosses, endophorics, and transitions, i.e., interactive metadiscourse items.

With the general increase of interactive metadiscourse in mind, it seems worthwhile to attend to two types of interactive resources that did not exactly align with the overall pattern of steady growth observed in the present study. The first type is evidentials. Between 1980s and 2020s, the use of evidentials in the ET corpus spiked up from 54.87 per 10,000 words to 135.81 per 10,000, which was an increase of 147.6%. Compared to the increase of evidentials, the growth of other interactive resources appeared small. The dramatic increase of evidentials was also noted by Hyland and Jiang (2018), who showed that multiple disciplines have witnessed drastic growth in the use of evidentials since 1960s, including biology (up 43%), sociology (up 153%), and applied linguistics (up 1357%). They speculated that this increase is likely due to the accumulation of relevant sources over time, and that it may have become more important over the years to demonstrate an awareness towards prior work to ensure readers of the credibility of the writing. After all, a disciplinary contribution can only be made when the study justifies its motivation and goals in the context of previous work. Thus, knowing how to incorporate a growing number of citable sources in a succinct way in the form of evidentials becomes a key competence in academic writing. Another type to discuss further is frame markers. As shown above, the use of frame markers in the ET corpus has decreased over time, standing out as the only interactive type that is deviating from the generally upward trend. Interestingly, this downward trend of frame markers in the field of applied linguistics is documented elsewhere. For instance, Hyland and Jiang (2018) found that frame markers have declined in the soft knowledge fields such as applied linguistics and sociology, but increased in the hard sciences such as electronic

engineering and biology. They suggest that overt signposting of segments and sequences may be regarded as the rhetorical standard among the hard sciences, whose readership has expanded over the years, reaching widely to those who are not familiar with the methodological steps nor well versed in the background knowledge. It may be speculated, then, that soft disciplines are increasingly relying on readers' responsibility to decode and understand the conventional structure of the writing (Deng et al., 2021).

In addition to the diachronic changes of interactive metadiscourse, the study also reported the relative frequency of endophorics, evidentials, code glosses, frame markers, and transitions. The most common interactive resources used among Korean L2 writers were transitions and evidentials, followed by frame markers and code glosses. Endophorics are the least frequently used interactive resource among Korean L2 writers. The prevalence of transitions, in particular, has been documented elsewhere for both native writers and L2 writers (e.g., Cao & Hu, 2014; Ha, 2014; Huh & Lee, 2016; Hyland, 2004; Hyland & Jiang, 2018; Hyland & Tse, 2004; Khedri et al., 2013; Kim & Lee, 2014; Mu et al., 2015). The previous studies showed that transition markers, mainly consisting of conjunctions and adverbial phrases, are essential in managing the logical flow of the writing, thereby attributing to the high frequency in academic writing. In this sense, the high frequency of transitions observed in the ET corpus is expected. However, transitions in the ET corpus occurred significantly more frequently compared to the transitions in the HJ corpus. Similarly, frame markers were much more frequent in the ET corpus than in the HJ corpus. These findings echo Park and Oh (2018), who reported the over-reliance on transitions and frame markers among Korean L2 writers. Whereas Park and Oh (2018) suggest that the higher frequency of transitions and frame markers may reflect the L2 writers' developmental status in writing, we argue that the higher frequency of transitions and frame markers in RAs in the present corpus is more reflective of cultural variation than of proficiency. Research articles in the ET corpus were produced by very advanced L2 writers with disciplinary training and had to be revised and edited rigorously per expert reviewer comment. Furthermore, the present study demonstrated that RAs in the ET corpus aligned with RAs in the HJ corpus not only in terms of the diachronic patterns but also of the relative frequency of interactive metadiscourse types. Taken together, it would be more pertinent to ascribe the higher frequency of transitions and frame markers in RAs in the ET corpus to L2 writers' increased awareness of the rhetorical conventions of an RA. One way to showcase the competence in RA writing as an L2 scholar is to explicitly demonstrate the knowledge of RA structures and of forming arguments in a coherent manner. By employing frame markers, L2 writers may explicitly structure their writing in addition to indicating the flow propositionally. And by employing transition words, writers can explicitly connect ideas without the risk of ambiguity.

In closing, this study contributes to our understanding of metadiscourse in RAs in applied

linguistics by a) showing how the use of metadiscourse changed over time and b) comparing two intra-disciplinary communities (local vs. global) as operationalized by the publishing venues. The study demonstrated that there is a diachronic direction in the use of metadiscourse over time, and that this direction is opposite for interactive and interactional metadiscourse. The study provided evidence of local applied linguistics communities in Korea participating in the global diachronic trends. The study allowed us to speculate on the changing rhetorical practices in applied linguistics based on the observation on metadiscourse. Specifically, the field of applied linguistics seems to be moving towards objectivity, as shown by the decrease in interactional metadiscourse resources, and formality, as shown by the increase in interactive metadiscourse resources. The study also identified the differences in metadiscourse use between Korean L2 writers and their global counterparts who publish their work in applied linguistics journals.

Two implications can be obtained from the findings of this study. Firstly, the study contributes to our understanding of the cross-cultural and cross-linguistic aspects of interactive metadiscourse in academic writing, thereby providing insights into the discursive relationship between the conventional rhetorical practices and their variable adoption by various local communities. Secondly, the study might be used as a practical and/or pedagogical guide for novice scholars in Korea who wish to better align their use of metadiscourse with the patterns established within the global community.

However, the present study is not without limitations. Most importantly, it should be acknowledged that the applied linguistics RAs included in this study are drawn from one particular journal, namely, *English Teaching*. It should be noted that the HJ corpus (to which the ET corpus was compared to) contains applied linguistics RAs published in more than one journal, and so the inclusion of multiple applied linguistics journals circulated mainly in Korea would certainly improve the generalizability of the current study. Recognizing this, we readily admit that our findings might be limited in terms of their generalizability due to a lack of diversity in the sample. Still, *English Teaching* is one of the main venues in which applied linguistics studies are published and circulated in Korea, and their extensive archive of RAs spanning four decades which are made readily available greatly facilitated the data collection process. Therefore, we maintain that the present corpus containing 931 articles with a total of 6.4 million words produced over the past four decades is accomplishing what we set out to do (i.e., investigating the diachronic changes of interactive metadiscourse in RAs written by Korean L2 writers). A replication of the current study with a larger corpus containing applied linguistics RAs from various journals would provide us with a more comprehensive and clearer picture of the patterns of change in metadiscourse in L2 writing by Korean scholars.

Applicable levels: Primary, secondary, tertiary

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