

Negation in the Move-Step of Introduction and Discussion Sections in Applied Linguistics Research Articles

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Abstract—Introduction and discussion sections in research articles (RAs) are more complicated than in academic essays. These sections' rhetorical structures and linguistic phenomena have received considerable attention. Despite the interest, however, few studies have examined negation in the structure of RA introductions and discussions. This study, therefore, contains preliminary research on the distribution, types, and functions of negation in the move-step of the two sections in applied linguistics. Two corpora—Introduction Corpus and Discussion Corpus—were established using data concerning applied linguistics. The theoretical model of negation and move-step models of introductions and discussions were selected as the analytical frameworks. The results reveal that writers are inclined to use various negative markers in the two sections, especially in discussions. Furthermore, regarding functional uses in introductions, interactive negation helps establish a research territory by reviewing previous studies, and interactional negation creates a research niche by critically evaluating previous work and identifying gaps. In discussions, writers tend to employ interactive negation to report results and summarise research and interactional negation to comment on results and assess the research. Additionally, interactive negation is more commonly used than interactional negation to create a coherent structure in RA introductions and discussions in applied linguistics. The findings may be pedagogically significant for providing negation instruction and guiding learning in academic writing.

Index Terms—negation, move-step, applied linguistics, research article introduction section, research article discussion section

I. INTRODUCTION

Research articles (RAs) tend to be considered a specialised academic genre due to their specific communicative purposes (Samraj, 2002), which are published in journals as a platform for communication. However, in recent years, international journal publishers have been facilitated by the development of globalisation and marketisation to improve their reputation and competitiveness through publishing influential research. This situation may have caused the low acceptance rate of RAs, which is “a brutal reality” for scholars aiming to publish their works in highly prestigious English international journals (Deng et al., 2024, p. 1). Therefore, a deep and comprehensive understanding of RA structure and linguistic features is crucial for scholars seeking publication.

Following Swales' (1990) genre analysis, much research has explored the rhetorical patterns and grammatical features of various sections in RAs. Regarding rhetorical organisation, the move-step analysis has proven valid and credible to examine the structural components of RA part-genres, such as introductions, methods, results, and discussions (Swales, 1990). This method helps novice writers to achieve a logical structure by dividing each RA section into moves and steps. Much interest has also been aroused by the linguistic features of RA sections, including the past tense in abstracts (e.g., Jiang & Hyland, 2023), phrases in introductions (e.g., Lu et al., 2021), and meta-discourse markers in discussions (Ash'ari et al., 2023). Additionally, disciplinary variations may influence the structural and linguistic features in specific and significant ways. For instance, Yang and Allison (2003) proposed that writers in applied linguistics RAs used unique disciplinary voice through their rhetorical selection (Ash'ari et al., 2023).

Although various types of linguistic features have been studied extensively, negation has been ignored in research on RAs (Swales, 2019). Negation is defined as “the opposite of something or an absence of something” (Sinclair et al.,

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2017, p. 648). This linguistic phenomenon is used to persuade readers to accept writers' ideas through the alternative voice (Marin & White, 2003). In RAs, negation contributes to constructing a negotiation dialogue in which writers may anticipate readers' opposite reply and deny it. Using negation, writers attempt to increase the persuasive power of statements while introducing other opinions (Jiang & Hyland, 2022). Despite the importance of negation in RAs, studies on negation have been limited to RA abstracts, results, and conclusions. How negation plays a role in introductions, literature reviews, methods, and discussions needs to be explored further.

In comparison with methods, results, and conclusions, RA introductions and discussions tend to be challenging for novice writers, since they use persuasive writing skills to justify their positions (Casal et al., 2021). Despite considerable attention being paid to rhetorical structures and linguistic features in the two sections, scholars have studied these characteristics using isolated approaches (Farhang-Ju et al., 2024). Few studies have focused on the relationship between the types and functions of negation and the organisation of the entire article. Given these research limitations, this study investigates negation in the move-steps of applied linguistics RA introductions and discussions, addressing the form and function gap.

II. LITERATURE REVIEW

A. Macrostructure and Introduction Section

The introduction section has been broadly examined using Swales' (1990, 2004) Create a Research Space (CARS) model. This framework consists of "establishing a territory, establishing a niche and occupying a niche" as its three moves, with some obligatory and optional steps in each move (Ozturk, 2007, p. 26). The move-step analysis presents a logical design for the research to decide the style of text and the choice of linguistic features. Swales (1990) also proposed that the CARS model may be used to identify the original patterns of introductions without the limitation of disciplines.

Subsequent research, however, has indicated that the organisation of the introduction section may vary across both different and related disciplines. Kanoksilapathan (2012), for instance, identified variation in introductions in biomedical, software, and civil engineering, three related disciplines. Similarly, Samraj (2002) observed "a background move dealing with features about the specific studied" only in wildlife behaviour introduction compared with conservation behaviour (p. 3). Regarding various disciplines, Crookes (1986) found topic-specific subheadings in soft science RA introductions contrary to hard science, which differs markedly from the Swales' (1990, 2004) model. These studies demonstrate the degree of variability across disciplines and sub-disciplines, which might not be fully analysed using the CARS model.

Many scholars have attempted to adapt the Swales' (1990, 2004) model to investigate the communicative functions of introductions (Joseph et al., 2014). In their studies (e.g., Joseph et al., 2014; Zhou et al., 2023), more steps have been added while maintaining the basic three moves. The description of the move-steps usually contains additional steps without changing the moves. For instance, Joseph et al. (2014) added the step "Claiming Centrality" to the Swales' model. Recently, Zhou et al. (2023) proposed a specific and detailed framework, proving its validity at examining the rhetorical structure and linguistic characteristics of the introduction section. Guided by Zhou et al.'s (2023) framework, this present research uses a genre analysis method to explore the organisational patterns of introductions.

B. Macrostructure and Discussion Section

The discussion section has attracted increasing attention, as this section may pose a challenge for academic writers to justify their claims persuasively. The communicative task of the discussion section is interpreting findings and presenting the significance of the research with concise comments that establish their connection with other work in the field. Therefore, points rather than facts lay the foundation for a discussion (Swales, 1990). The organisation of points might be challenging for writers who may lack sufficient understanding of rhetorical moves to deliver a powerful argument (Ash'ari et al., 2023; Annesley, 2010).

The organisation of applied linguistics RAs has been widely examined. Dudley-Evans (1994), provided a nine-move framework that this researcher added two moves (i.e., Claim and Limitation) not introduced in previous models. Yang and Allison (2003) also proposed a framework comprising seven moves with 10 steps. Compared with previous studies, Yang and Allison's (2003) model introduces new steps as the specific and detailed elements of the moves. It is evident that steps and moves act together to describe the entire structure of discussions.

Much work has been done to testify to Yang and Allison's (2003) framework, in which moves and steps are necessary or optional in various disciplines. For example, Amnuai (2017), in the field of accounting, observed that stating results and commenting on results are two necessary moves in discussions. Regarding applied linguistics, Liu and Buckingham (2018) identified each move with the exception of summarising the study, which may need to be investigated further. These scholars (Liu & Buckingham, 2018) suggest that Yang and Allison's (2003) framework proves effective in analysing the structure of applied linguistics RA discussions.

C. Research on Negation in Academic Writing

Negation, as the expression of semantic opposition, is realised by affixal or non-affixal forms (Tottie, 1991). Affixal negation depends on a negative affix to express negation (e.g., *un-* in *unhappy*, *dis-* in *disappear*), whereas non-affixal

negation acts to negate verbs/auxiliaries (e.g., *The result is not significant*). Non-affixal negation, also termed “clausal negation”, plays a role in negating the entire clause to produce a negative statement (Biber et al., 1999).

Within academic writing, negation serves as an interpersonal device to establish an effective interaction between writers and readers (Panago, 1994). For instance, when readers have different voices, probably due to their knowledge background and experiences, writers may take the readers’ possible assumptions into account and use negation to challenge and defend their own positions (Hyland, 2005). As Swales (2019) highlighted that the importance of negation cannot be underestimated in constructing an academic argument, the use of negation is concerned with authors’ rhetorical “efforts to clarify the exposition in opposition to what might otherwise be assumed and to distinguish his or her position from that of others” (Jiang & Hyland, 2022, p. 62). Therefore, examining the use of negation is significant for displaying authors’ competence in academic texts and winning approval from the academic community.

There have been many studies on the functional categories of negation in academic genres. Don (2017) understood negation as denying background information, denying text/discourse information, and unfulfilled expectations. Webber (2014) identified the roles of negation as expressing disagreement, cautious stance, unfulfilled expectations, wholehearted agreement, dissatisfaction, correcting assumptions, purely using formulated structures, and making distinctions. Although Webber’s (2014) study may be more detailed than Don’s (2017), Webber (2014) claims that “the classification is far from adequate” (p. 195), as the overlapping issue still exists between dissatisfaction and unfulfilled expectations. Additionally, in their study on negation in establishing a niche of introductions in PhD theses, Sun and Crosthwaite (2022a) proposed unfulfilled expectation, cautious detachment, and disalignment as the types of negation. Although their research provides another insight into the functions of negation, Sun and Crosthwaite (2022b) admit there might be other functions that differ from the present three functions.

Despite these scholars’ efforts in classifying functions of negation, none have established an interaction for the role of negation between creating a cohesive text and building an authorial stance (Jiang & Hyland, 2022). The types of this interaction have been explored using Jiang and Hyland’s (2022) negation model based on the analysis of negative markers in RA abstracts. This interpersonal model helps reveal the use of negation to establish writers’ different positions towards their texts and readers in RAs. Following Jiang and Hyland’s (2022) model, Li et al. (2023) compare the functions of negation across sections of thesis, demonstrating that writers’ preference for negation is particularly in results and discussions. Their research (Li et al., 2023) provides further understanding of the functions of negation through the application of the interpersonal framework in academic writing.

Despite the increasing attention paid to negation in different academic genres, little is known about negation in the move-steps of applied linguistics RA introductions and discussions. As negation plays an essential interactive role in academic texts (Li et al., 2023), the researchers in this present study adopted Jiang and Hyland’s (2022) model to investigate how negation acts in various move-steps of introductions and discussions. Furthermore, applied linguistics RAs have been widely used as data sources because, compared with other disciplines, applied linguistics possesses a larger number of varied language structures due to persuasion and explanation (Hyland & Tse, 2005; Holmes & Nesi, 2009), which may demonstrate the various usages of negation. Therefore, our study provides insights into the functions of negation in building the structure of different sections in applied linguistics RAs.

III. METHODOLOGY

A. Research Design

This research used a qualitative descriptive approach based on a genre analysis. ABBYY FineReader 12 Professional (2022) (<https://help.abbyy.com/en-us/finereader/12/installandr/un/>) was utilised to change the format of RAs from PDF into TXT for the construction of the corpora. Then, the researchers adopted LancsBox 6.0 (Brezina et al., 2021) from <http://corpora.lancs.ac.uk/lancsbox/download.php>, which was developed by Lancaster University to examine language data. In the software, the KIWC (Key Word in Context) tool was employed to examine how 17 negative markers proposed by Jiang and Hyland (2022) are distributed in applied linguistics RA introductions and discussions. The occurrence frequency of these markers provides help revealing the functions of negation in the move-steps of two part-genres. The software programs in this research proved reliable and effective in processing the data.

Regarding the qualitative aspect, the researchers manually analysed the types of functions of negation using Jiang and Hyland’s (2022) model. To understand negation deeply, the analysis of the move-steps of introductions and discussions was conducted using Zhou et al.’s (2022) model and Yang and Allison’s (2003) framework, respectively. The inclusion of rhetorical move-steps analysis enabled the researchers to obtain an insight into the functions of negation in manifesting the structure of the two sections. Overall, the qualitative descriptive method was necessary for the generation of meaningful results that contribute to a more comprehensive understanding of negation in applied linguistics RA introductions and discussions.

B. Data Collection

The corpora for this research were built by collecting RAs from five top linguistic journals and their impact factors (IFs) indicate their reputations. According to *Thomson’s Web of Knowledge ISI* in 2022, as the golden standard for citation analysis, the selected journals with relatively high IFs were *Journal of Second Language Writing* (IF 6.1), *System* (IF 6), *Assessing Writing* (IF 3.9), *Journal of English for Academic Purposes* (IF 3), and *English for Specific*

Purposes (IF 2.5). For the research aim, the sampling method was purposive. Each RA published in 2022 is an empirical study with the same macrostructure (i.e., abstract, introduction, literature review, methods, results, discussion, and conclusion), since this format enabled the researchers to extract introductions and discussions easily.

Then, two RAs were selected from each journal and stored in a file. Next, the introduction and discussion sections were extracted manually. Consequently, the two corpora (Introduction Corpus and Discussion Corpus) were developed. For a case study, the size of the corpora is decided by the requirement that they can provide enough information to answer the research questions (Krippendorff, 2004).

C. Data Analysis

The analysis of data in the Introduction Corpus and Discussion Corpus was conducted from rhetorical structures to negative markers. The move-step structure of introductions and discussions was investigated manually. Then, negation was annotated using the 17 negative markers recommended by Jiang and Hyland (2022), followed by a manual checking procedure to ensure each concordance is negation. The frequency of negation was counted using the KWIC of LancsBox 6.0 (Brezina et al., 2021).

Finally, the analysis of interpersonal functions of negation was conducted using Jiang and Hyland's (2022) framework. Retrieved instances of negative markers were classified into two categories: 1) interactive dimension (consequence, comparison, addition); 2) interactional dimension (boosting, hedging and affect).

IV. FINDINGS AND DISCUSSION

A. Frequencies of Negation in the Introduction and Discussion Sections

In this study, 102 instances of negation were identified in the RA introductions and discussions, or 4.43 instances per every 1,000 words. This finding implies that experienced authors tend to use negative markers in their RAs. Table 1 is an overview of the frequency of 17 negative markers based on Jiang and Hyland's (2022) negation model. Ten markers (*never, nothing, none, no one, hardly, seldom, barely, scarcely, nowhere, and nobody*) do not occur in the two corpora. Regarding specific markers in the two sections, *not* is the most commonly used negation, followed by *no*, which is consistent with Carter et al.'s (2011) finding. As noted by Biber et al. (1999), *not* is an automatic option for expressing negation unless a specific alternative is required. Compared with *not*, *no* is a less common choice, even if this marker has been used more frequently in writing than speaking.

Writers tend to use a greater variety of negation in discussions than in introductions. Negative markers (e.g., *neither, nor, no*) were identified in the discussions. This group of negation is typically adopted to express evaluation (Biber et al., 1999), which is a feature of discussions. In contrast to the introduction section, the discussion section might be characterised by more explanations and comments on results. An increased occurrence of negative markers was also found in the discussions, further revealing the evaluative characteristics of that section. The findings indicate that the language of introductions might be more direct and neutral regarding the limited use of negative markers, whereas that of discussions can be characterised by the argumentative structure.

TABLE 1
NEGATIVE MARKER DISTRIBUTION IN INTRODUCTIONS AND DISCUSSIONS

	Introduction Corpus		Discussion Corpus	
	Raw frequency	Normed frequency	Raw frequency	Normed frequency
not	14	2.74	62	4.62
no	3	0.59	12	0.89
little	2	0.39	1	0.07
rarely	1	0.20	0	0
neither	0	0	3	0.22
nor	0	0	3	0.22
few	0	0	1	0.07
never	0	0	0	0
nothing	0	0	0	0
none	0	0	0	0
no one	0	0	0	0
hardly	0	0	0	0
seldom	0	0	0	0
barely	0	0	0	0
scarcely	0	0	0	0
nowhere	0	0	0	0
nobody	0	0	0	0
TOTAL	20	3.92	82	6.09

The findings reveal that negation is used frequently in the two sections. This aspect is consistent with previous research that negation is one of the important linguistic features in academic genres (Swales, 1990; Jiang & Hyland, 2022). More negative markers were also found in the discussions as discussions consist of more content than introductions. Furthermore, writers tend to use more various evaluative negation (e.g., *no, neither, nor*) in discussions than in introductions. The rich use of negation in discussions compared with introductions might be attributed to the

former's role in evaluating and interpreting current results in relation to previous research.

B. Forms and Functions of Negation in the Introduction Section

The move-steps of introductions rely on the important role of negation from interactive and interactional dimensions, as listed in Table 2.

TABLE 2
DISTRIBUTION OF FUNCTIONS OF NEGATIVE MARKERS IN THE MOVE-STEP OF INTRODUCTIONS

Functional Categories	Move/Step								
	M1S1b	M1S2	M1S3	M2S1a	M2S1b	M2S1e	M2S2	M3S1b	M3S6
Interactive dimension	2	1	3	0	1	3	0	1	0
Consequence	0	1	3	0	0	3	0	0	0
Addition	2	0	0	0	0	0	0	0	0
Comparison	0	0	0	0	1	0	0	1	0
Interactional dimension	1	0	1	1	0	4	1	0	1
Hedging	0	0	0	1	0	4	1	0	1
Affect	0	0	1	0	0	0	0	0	0
Boosting	1	0	0	0	0	0	0	0	0

Hedging was most frequently observed when addressing the limitations of prior studies (M2S1e). In this step, negation serves to reduce the force of claims to enable authors to discuss shortcomings in previous studies while preserving respect for other scholars. In Examples (1) and (2), the writers use markers such as *little* and *not* to emphasise gaps in knowledge or potential issues with previous methods while maintaining an academically modest tone.

Example 1: "Nonetheless, little is known about how a joint combination of pre-task and within-task (online) planning affects the CAF of L2 written production." (M2S1e)

Example 2: "...teaching content subjects in English may not have the desired effects on knowledge acquisition." (M2S1e)

Negative markers associated with consequence were employed more frequently in contexts in which authors reviewed previous research to establish a research territory (M1S3) and highlighted limitations of previous studies to define a niche (M2S1e). These steps involve examining previous findings (Example 3) and mentioning their limitations (Example 4), which leads to a more frequent use of negation (consequence) to explain the results or influences of previous studies.

Example 3: "The study found that most students in the EMI [English-medium instruction] courses had language-related difficulties following lectures and interacting with the lecturers, which they had not had in Korean-medium instruction (KMI) courses." (M1S3)

Example 4: "Previous studies have often failed to strictly monitor student reading, thus 'there is no way to guarantee that all of the students actually read [what they reported] every week' (Huffman, 2014, p. 24)." (M2S1e)

The largest use of addition is in emphasising the implication of the current research in M1S1b. This function of negation can construct arguments by ensuring coherent and cohesive links between statements (Jiang & Hyland, 2022). *Not only* is employed to establish an additive relationship by building upon one idea. As illustrated in Examples (5) and (6), the expression (*not only*) presents one positive aspect; the expression (*but*) adds another that might challenge or complement the first point. This negative construction highlights how topics such as EMI or agreements play a key role in education or professional development.

Example 5: "...English-medium instruction (EMI)...has continued to be widely implemented not only in higher education (HE) but in secondary education in South Korea for more than two decades." (M1S1b)

Example 6: "These agreements have meant not only international integration for the country, but also the need for developing English language skills..." (M1S1b)

Comparison has been observed as an effective means of indicating a gap (M2S1b) and introducing current research (M3S1b). The functional use of negation, in two steps, acts to emphasise distinctions from previous concepts. For instance, in Example (7), negation directs the readers' attention to the current state of research before contradicting it to identify the gap. This functional use is supported by the results from Jiang and Hyland (2022) on RA abstracts. In Example (8), negation is used to clarify the present study's focus on comparing two groups of writers.

Example 7: "...however, no study has closely analysed novice academics' specific needs during a DS." (M2S1b)

Example 8: "...who used an online writing tutor versus those who did not use it in a course on research proposal writing." (M3S1b)

This study found that the functional use of negation makes a significant contribution to the rhetorical structure of introductions. Regarding the interactive dimension, negation in introductions is most commonly used to establish a research territory (M1), enabling authors to present ideas coherently and guiding readers' comprehension (Jiang & Hyland, 2022). By using negation at the beginning of introductions, writers explain the research background, particularly as associated with previous literature. For example, consequence in interactive subcategories acts mainly to review previous studies (M1S3).

Regarding the interactional dimension, negation in introductions contributes to creating a research niche (M2). Writers use negation to express their views and critically evaluate previous studies, particularly by identifying their

limitations. Hedging, for instance, was found to address research limitations (M2S1e). Therefore, the functional use of negation in introductions serves two key purposes: helping to construct a coherent introduction (M1) and contributing to establishing a niche through critical evaluation (M2).

C. Forms and Functions of Negation in the Discussion Section

The functional use of negation contributes to constructing the rhetorical move-steps of the discussions in Table 3.

TABLE 3
DISTRIBUTION OF FUNCTIONS OF NEGATIVE MARKERS IN MOVE-STEP OF DISCUSSIONS

Functional Categories	Move/Step											
	M1	M2	M4S1	M4S2	M4S3	M4S4	M5	M6S1	M6S2	M6S3	M7S1	M7S2
Interactional dimension	1	16	8	5	8	1	4	5	1	0	2	1
Consequence	0	9	6	3	5	1	0	4	0	0	1	1
Addition	0	3	1	0	2	0	1	0	0	0	0	0
Comparison	1	4	1	2	1	0	3	1	1	0	1	0
Interactive dimension	0	3	14	1	5	1	1	0	0	1	1	0
Hedging	0	3	10	1	5	0	1	0	0	1	0	0
Affect	0	0	3	0	0	1	0	0	0	0	0	0
Boosting	0	0	1	0	0	0	0	0	0	0	1	0

The findings indicate negation has the highest percentage in reporting results (M2), followed by interpreting findings (M4S1), discussing results associated with previous studies (M4S3), comparing findings with the literature (M4S2), and identifying research limitations (M6S1). Regarding the interactive perspective, consequence is the most prevalent function of the five move-steps, as it plays a crucial role in presenting results. In these move-steps, writers rely on this functional use of negation to indicate a situation in which a phenomenon is demonstrated not to be an effect or outcome of an investigation (Jiang & Hyland, 2022). Within the context of reporting results, consequence reveals either negative relationships, such as contrasts between subject groups (Example 9), or adverse effects of one variable on another (Example 10). Similarly, regarding results interpretations in M4S1 and M4S3, discussing negative interactions or effects is fundamental and frequently appears before explanations, which accounts for the broad usage of the consequence function.

Example 9: "...no paired interactions between PTP and OLP were found to be significant." (M2)

Example 10: "...despite their online scores not counting towards their course grades, most OAW participants worked especially hard on achieving maximum scores on language activities..." (M2)

Comparison is most frequently employed in reporting results (M2), followed by summarising research (M5) and comparing findings with previous literature (M4S2). In M2, comparison highlights the differences between two outcomes, as exemplified in Example (11). In M5, this function of negation reflects contrasts in research subjects' circumstances, as demonstrated in Example (12). When comparing findings with previous studies (M4S2), the value of the second result is emphasised, as illustrated in Example (13). This finding supports Jiang and Hyland's (2022) observation that negation acts in a broader role than its basic contrasting function.

Example 11: "...PTP/OLP increased accuracy while PTP had no effect." (M2)

Example 12: "Although the students in the non-OAW group did not complete the online activities before they submitted their first draft, many completed them after submitting their Introductions..." (M5)

Example 13: "This finding correlates with Long's (2005a, p. 27) claim that teachers are outsiders..." (M4S2)

Addition is more frequently applied when describing results (M2), followed by its use in explaining findings through comparisons with previous studies (M4S3). The role of negation within the move-steps enhances arguments, for example, by rejecting two groups of students when presenting findings (M2) in Example (14) or by linking one statement to another when strengthening explanations (M4S3) in Example (15).

Example 14: "...the overall mean scores indicated that neither students at early-full EMI schools nor students at late-full EMI schools preferred to speak English in the science classroom." (M2)

Example 15: "This involvement in linguistic processing showed itself not only in the linguistic complexity of the written product but in linguistic appropriacy..." (M4S3)

The interactional use of negation occurs more frequently when interpreting results (M4S1), with less frequent use when comparing current findings with previous studies (M4S3). Therefore, the dimension serves an essential function in explaining research results. In M4S1, hedging contributes particularly to expressing caution and challenging specific viewpoints in Example (16). Additionally, in M4S3, hedging is used to display the writers' uncertainty of conclusions in Example (17).

Example 16: "...the NP group seemed to engage in idea generation and conceptual planning without specifying the language to be used (i.e. abstract text planning), but they could not plan for the specific linguistic units to be used." (M4S1)

Example 17: "...students' negative perceptions of EMI due to lack of English proficiency should not always be considered a hindrance to their effective learning of subject content." (M4S3)

Affect was used most commonly when interpreting findings (M4S1). The function of negation in this context

influences the writers' perspective on the materials, frequently motivating them to question the credibility, sufficiency, or clarity of the research findings (Jiang & Hyland, 2022). In Example (18), the writers tend to evaluate results through affective negation.

Example 18: "The result may not be surprising because the reading-writing connection is more direct in the former than the latter." (M4S1)

Among the interactional categories, boosting is the least frequently used function, which is primarily found when interpreting findings (M4S1) and offering suggestions (M7S1). In this category, the function of negation is to increase the rhetorical power of a statement, making it more persuasive than it might otherwise be (Jiang & Hyland, 2022). The limited use of boosting could be due to its emphasis on the writer's judgement in cases such as Example (19), which might exclude alternative voices and risk damaging the reader-writer relationship.

Example 19: "One is that, taking the face value of the result, the IW construct is indeed not substantially different between L1 and L2." (M4S1)

This study found that the distribution of negation in the rhetorical move-steps of discussions is characterised by variety. Negation accounted for the highest proportion when commenting on results (M4), especially while interpreting results (M4S1), followed by research evaluation (M6). These move-steps are characterised by argumentative language through emphasising comments and evaluation. Authors, therefore, employ negation to express uncertainty or to address the complexity of the linguistic phenomenon under study.

Interactive negation in discussions functions to express explicitly what results do not reveal or imply, clarifying the boundaries of the reported findings. In result reporting (M2) and research summarisation (M5), this type of negation ensures coherence by preventing misinterpretations. For example, the negation (e.g., *No ... was found to be significant*) enables authors to present explicitly the negative result, which is consistent with the principle of precision in scientific discourse (Swales, 1990).

Interactional negation is a powerful rhetorical tool for the persuasive construction of discussions, particularly when commenting on results (M4) and evaluating research (M6). By denying the interpretations in previous literature, authors stress more strongly that their own findings are valid. For instance, the negation with the consequence function (e.g., *... should not always be considered as a hindrance to...*) enables researchers to challenge alternative viewpoints while positioning their own analysis as more plausible (Hyland, 1998).

V. CONCLUSION

In this study, by investigating frequency, forms, and functions, the researchers found that the interactive and interactional roles of negation have contributed to the move-steps of applied linguistics RA introductions and discussions. The findings reveal that negation is notably frequent in both sections, with greater use in discussions due to their length and evaluative nature.

The functional use of negation not only constructs the structure of introductions and discussions coherently but also expresses the authors' stance and certainty about their own results. In introductions, interactive negation helps establish a research territory (M1) by reviewing previous studies, and interactional negation creates a research niche (e.g., hedging in M2S1e) by critically evaluating previous work and identifying gaps. In discussions, writers tend to use interactive negation to report results (M2) and summarise research (M5), whereas they generally employ interactional negation to comment on results (M4) and evaluate research (M6). This study also found that negation is most frequently employed to establish consequential relations and least employed to boost tones. This finding may explain why there are many descriptions of results in RAs. Additionally, interactive negation is employed more frequently than interactional negation by experienced writers to create a coherent and well-organised structure in applied linguistics RA introductions and discussions.

The findings are significant from methodological, theoretical, and pedagogical standpoints. Methodologically, this study distinguishes itself from previous studies (e.g., Swales, 2019; Jiang & Hyland, 2022; Zolfaghari, 2023) by analysing the function of negation across specific move-steps within RA part-genres based on corpus-based methods. This approach can also generate valuable new data to explore further the rhetorical frameworks of part-genres in applied linguistics. Theoretically, this study emphasises writers' strategic choices of negation corresponding to the rhetorical purpose of these part-genres. By providing detailed analyses of negation's forms and functions, this research advances our understanding of negative propositions and their rhetorical significance, contributing meaningfully to academic writing studies. Pedagogically, this study addresses the current oversight of negation in academic instruction by offering data to support novice writers' development. The findings can empower these writers to comprehend and apply negation effectively when constructing move-steps, enabling them to craft persuasive academic texts and engage more effectively in academic communication.

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