

**CITATIONS IN RESEARCH ARTICLE SECTIONS:  
INTEGRATING FORMS AND FUNCTIONS**

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**ABSTRACT**

Making citations, or referring to others' studies, is regarded as an important academic convention. Previous studies have created various typologies for citations; however, most of them have focused on the forms of citations or on the reporting verbs used in citations. Only a few recent studies have investigated the discourse functions of citations. This study attempts to explore both the forms and functions of citations in IMRD sections, using a corpus of 36 research articles in applied linguistics. The form-based analysis reveals that all rhetorical sections except Results show a preference for non-integral citations. The function-based analysis indicates that "providing views or findings" of the cited study is the most prevalent function. It is also found many citations perform the functions characteristic of the specific communicative purposes of individual sections. For example, the function of "providing background information for a research topic" is found to occur exclusively in Introduction, and "providing a comparison" is more frequently used in Results and Discussion than in the other sections. This study provides empirical evidence that citations can perform a wide range of discourse functions in research articles other than reviewing literature. These findings provide insightful pedagogical implications.

Key Words: citation analysis, citation forms, citation functions, research article, functional typology

**INTRODUCTION**

Over the past decades, we have witnessed a surge in the number of studies examining various aspects of academic writing in a given genre: research articles (RAs). Among a variety of academic genres, RAs have received most interest probably because of their great visibility and accountability in professional promotion. Research on RAs has been

conducted along three different lines. One line of research has analyzed various rhetorical sections of RAs, such as Introduction (Posteguillo, 1999), Method (Lim, 2006), Results (Brett, 1994), and Discussion and Conclusion (Yang & Allison, 2003). Another line of inquiry has investigated the linguistic features of RAs, including tense (Malcolm, 1987), voice (Master, 1991), hedges (Hyland, 1996), and personal pronouns (Kuo, 1999). The third line has explored possible relations between the macro and the micro features of this genre, for instance, specific lexico-grammatical features in relation to various rhetorical functions in a particular section (Gledhill, 2000). Research on citations is another example, involving both the specific linguistic forms and communicative purposes of this genre.

Making citations refers to the act of reporting others' research for a variety of purposes. The strategic role citations play in research articles has long been discussed (Swales, 1990). For instance, Kaplan (1965) indicated that citations are used to acknowledge the property rights of others. Ravetz (1971) suggested that citations serve as a kind of cooperative reward system. Gilbert (1977) believed that citations are tools of persuasion and devices to make statements more authoritative. Bavelas (1978) pointed out that citations are used to demonstrate writers' familiarity with a specific field. From the perspective of genre, Swales (1990) argued that citations are used to create a research space for the writer's own study. By depicting what has been carried out in previous studies, citations clearly show what has not been done, which thus helps establish a niche for the present study. This academic practice is indispensable for documenting, accumulating, and advancing academic knowledge. Such a view was metaphorically described in Cronin (1981, p. 16):

Citations are frozen footprints in the landscape of scholarly achievement; footprints which bear witness to the passage of ideas. From footprints it is possible to deduce directions; from the configuration and depth of the imprint it should be possible to construct a picture of those who have passed by, ....

From the perspective of academic writing, citing others' works is an integral part of reporting research. It involves organizing ideas, categorizing information, and making knowledge transformation. Making effective citations, nevertheless, has been found challenging and

difficult for novice researchers. For example, studies on citations have indicated that student writers exhibit considerable difficulties in summarizing and paraphrasing others' studies (Campbell, 1990) or in making citations for knowledge transformation (Petrić, 2007). Some of these problems may even give rise to the risk of plagiarism (Pecorari, 2003, 2006; Shi, 2004).

Many earlier studies on citations have been conducted by information scientists, who often take a bibliometric or scientometric approach to citation analysis (White, 2004). Inspection of citations from the perspectives of applied linguistics has been comparatively limited. Moreover, many studies on citations have focused on developing typologies of citations. One type of citation typologies is based on the forms of citations (Dubois, 1988; Hyland, 1999; Pickard, 1995; Swales, 1990). The most renowned instance was Swales' (1990) dichotomous division between integral and non-integral citations. Another type of citation typologies is based on the discourse functions of citations (Petrić, 2007; Thompson, 2005), though this line of research has been relatively under-represented. Research using either form-based or function-based typologies has attested that citation practice may vary in different disciplines (Charles, 2006; Hyland, 1999; Samraj, 2008; Thompson, 2001), genres (Thompson & Tribble, 2001), and research types (Hemais, 2001). In addition, recent research has also looked into citation practices by native and non-native researchers or students (Yeh, 2009, 2010) and individual variations in citation practice (Chang, 2006; Harwood, 2009).

Although existing research has yielded fruitful results on the forms and functions of citations in the whole research article, very little has been unveiled about how the form of a citation, namely, the integral or non-integral citation, may be related to its discourse function and its rhetorical context, that is, the rhetorical sections in research articles. Since citations do not only occur in the Introduction section but also distribute throughout the research paper (Swales, 1990), they may perform different functions in the various sections of RAs as a result of the specific communicative purposes of the individual sections.

This study, accordingly, aims to empirically analyze both the linguistic forms and discourse functions of citations in the various sections of RAs in the hope of reaching a better understanding of citations. Four research questions are formulated as follows:

1. What are the occurrences of citations in the four major sections

- (IMRD) of research articles in applied linguistics?
2. What linguistic forms of citations are used in the four sections respectively?
  3. What are the discourse functions of citations in the four sections respectively?
  4. How do the forms and functions of citations relate to each other in the individual sections?

## **LITERATURE REVIEW**

### **Form-based Analysis of Citations**

A number of EAP researchers have devoted themselves to developing typologies to classify citations based on forms (Dubois, 1988; Hyland, 1999; Pickard, 1995; Swales, 1990). As indicated earlier, the most well-known categorization is Swales' (1990) division of integral and non-integral citations. In integral citations, the cited works are syntactically integrated into the main text, while in non-integral citations, the cited works are placed outside the text by using superscript numbers or parentheses. This classification highlights a writer's choice to focus on either the cited study/researcher or the information which is provided or supported by the cited study/researcher. The cited study/researcher is thus given more weight in integral citations than in non-integral citations; in contrast, the reported information becomes more prominent in non-integral than integral citations (Weissberg & Buker, 1990). Determination of the citation focus may depend on the discourse function of a citation in the rhetorical context of an RA since citations are intended for supporting the propositions which fulfill the communicative purposes of the sections. It is thus beneficial to explore the occurrences of either citation form in various RA sections to see how they may be linked to different citation functions.

A body of research has employed Swales' (1990) typology for empirical analysis (Hemais, 2001; Hyland, 1999; Samraj, 2008; Thompson & Tribble, 2001). These empirical studies are diverse in their analysis in terms of disciplines, genres, or research goals. For example, Hyland (1999), using a collection of 80 research articles, conducted a cross-disciplinary study comparing citation practices across eight disciplines: sociology, marketing, philosophy, molecular biology, applied

linguistics, electronic engineering, mechanical engineering, and magnetic physics. Results showed that non-integral citations are more widely used than integral citations by academics in all of these disciplines except for philosophy; moreover, the frequency of non-integral citations is higher in hard sciences (e.g., mechanical engineering, physics, and electronic engineering) than in soft sciences (e.g., applied linguistics, sociology, and marketing). However, it is not clear how the nature of research in the various disciplines may result in disciplinary variation in terms of the choice of forms of citations.

Both similar to and different from Hyland (2001), Thompson and Tribble (2001) investigated citations in doctoral dissertations in two similar disciplines—agricultural botany (AB) and agricultural economics (AE)—using a corpus of 16 dissertations. Interestingly, they found non-integral citations to be more prevalent in AB (66.5%), whereas integral types occur more frequently in AE (61.9%).

Distinct from Hyland's (1999) inter-disciplinary study, Hemais (2001) examined citations in three types of journals in marketing: practitioner journals, research journals, and scholarly-applied journals. It was found that integral citations predominate in practitioner articles (90%), while non-integral citations do so in scholarly-applied articles (91%). In research articles, there is a nearly balanced proportion, with 48% of citations being integral and 52% non-integral.

While the above three studies scrutinized citations throughout complete texts in an academic genre, Samraj (2008) narrowed down his focus to Introduction in master theses and compared citation practices across three disciplines—philosophy, biology, and linguistics. Consistent with Hyland's (1999) findings, his study revealed that non-integral citations predominate in biology (88%) and linguistics (74%). In contrast, integral citations are far more common in philosophy (72%). Samraj's findings support Hyland's (1999) conclusion that each discipline probably has its own preferred way of constructing effective argumentation. Nevertheless, as citations distribute throughout the whole of a thesis, it seems that merely examining the citations in Introduction cannot provide a complete picture of disciplinary variation in the choice of citation forms.

To conclude, although the aforementioned studies showed that the use of integral/non-integral citations can vary as a result of differences in disciplines, genres, or research types, most of them analyzed citations within a whole genre. Since various rhetorical sections in RAs have their inherent communicative purposes, which may exert an impact on citation

practice, the use of citations in the individual sections is worth further exploration.

#### **Function-based Analysis of Citations**

More recently, research on citations by applied linguists has attempted to develop typologies based on the functions of citations (Petrić, 2007; Thompson, 2001, 2005). Among the few studies, Thompson (2001, 2005) classified the rhetorical functions of non-integral citations in PhD theses into four categories: source, identification, reference, and origin. It was found that citations are most frequently used to refer to the source of a proposition, followed by the functions of identification, reference, and origin in that order. In terms of the individual sections in a complete IMRD chapter, Thompson (2005) found considerable variations in the citation functions in different sections. In Introduction and Discussion, source and identification are the most common functions of citations, while reference and origin are more prevalent in Method. In Results, as high a percentage as 52% of the citations serves the function of source. Although Thompson's findings are quite insightful, showing how various types of citations allow thesis writers to focus on the researcher or to de-emphasize the researcher according to local rhetorical considerations, it seems that Thompson focuses more on the ways in which thesis writers manipulate focus and position in theses through citation practices than on a comprehensive analysis of the discourse functions of citations.

Examining the discourse functions of both integral and non-integral citations in master theses, Petrić (2007) used a modified typology based on Thompson (2005) to analyze citations in high- and low-rated master theses in gender studies. The modified typology comprises nine functional categories: attribution, exemplification, further reference, statement of use, application, evaluation, establishing links between sources, comparison of one's own findings or interpretation with other sources, and other. It was found that, similar to the function of source in Thompson (2001), the function of attribution is the most common category in both types of theses, accounting for 79% of occurrences in the high-rated theses and 92% in the low-rated ones. Petrić further compared the functions of citations in Introduction, Literature Review, Methods, Context, Analysis, and Conclusion of the theses. It was found that writers in the low-rated theses overuse attribution throughout all sections. Contrasts between the two groups in terms of other functions of citations were also found. For

example, the low-achievers use citations mostly for attribution but rarely for evaluation or establishment of links among the literature reviewed. The pedagogical implications from Petrić (2007) are significant since she suggested the problems that low-achievers may encounter in making citations; more importantly, the wide range of citation functions identified have provided valuable information for the academic writing pedagogy.

According to Thompson (2005) and Petrić (2007), the function of source or attribution constitutes a high percentage of citations in either doctoral dissertations or master theses. However, we can observe that source or attribution in the above two studies is rhetorically too general or too broad to capture certain specific discourse functions of citations, such as providing a definition or providing background information, which can pinpoint the function of a citation characteristic of local discourse contexts. Moreover, both Thompson and Petrić investigated citation practices in theses/dissertations. To reveal the specific generic functions of citations in the various sections in research articles, a more comprehensive classification may be needed.

In addition, as mentioned in the preceding section, both the forms and functions of citations are closely related to what writers intend to focus on in local discourse contexts. Therefore, a direct link of citation practices to the sections should be of great value since writers can better understand what forms of citations are frequently employed in what discourse contexts to perform what discourse functions. In this study, we attempt to analyze both the forms and functions of citations in the major sections of research articles. We also explore how forms and functions of citations are related to each other in the sections.

## **METHOD**

### **The RA Corpus**

A corpus of RAs was compiled for analysis of citations. The corpus consists of 36 RAs from three prestigious applied linguistics journals in the list of Social Sciences Citation Index (SSCI), with 12 RAs from each. These RAs were selected on a stratified basis; that is, in each regular issue of the journals, we selected the first RA which appears to have a clear IMRD structure. This selection criterion was used since one of our research purposes is to compare citation practices in the different sections. Table 1 shows the basic information of the RA corpus, including the

selected journals, publication type, time span of the dates of publication and number of RAs collected.

Table 1. Basic Information of the RA Corpus

Journal <sup>a</sup>	Month/Year	Volume/Issue
<i>Modern Language Journal</i>	Mar. 2005 to Mar. 2008	89(1) to 92(1) <sup>b</sup>
<i>English for Specific Purposes</i>	Mar. 2005 to Dec. 2007	24(1) to 26(4)
<i>Journal of Second Language Writing</i>	Mar. 2005 to Mar. 2008	14(1) to 17(1) <sup>c</sup>

Note. <sup>a</sup>All three journals are published quarterly. N = 12 for each journal. <sup>b</sup>All of the articles in 89(3) are review articles; therefore, the first article in the issue of 92(1), published in March 2008, was selected. <sup>c</sup>No RAs in 16(3) have a clear IMRD structure; therefore, the first article in the issue of 17(1), published in March 2008, was selected.

Each RA in the corpus was coded with the abbreviation of the journal where it was taken from, combined with a number. For instance, MLJ 3 represents the third article taken from *Modern Language Journal*.

#### Identifying Citations

After the compilation of the RA corpus, the next step was to identify citations. In this study, the citations were extracted from Adobe PDF files. Entering “ ( ”— half of a pair of parentheses — as the search symbol, we extracted the citations occurring in the main text of IMRD sections. Citations occurring in the footnotes, endnotes, tables, and figures were excluded.

The count of a citation is based on the presence of the researcher’s name together with the publication year of his or her study, with the year or both the name and the year placed in parentheses. For instance, in Example 1 below, one citation is counted, while there are four citations in Example 2 since four studies are placed within the parentheses.

- (1) Chafe (1985)... includes first person reference.... (ESP2).
- (2) A rival explanation, and one at the base of this study, is ...



(Barron, 2003, 2006; Hoffman-Hicks, 2000; Kasper & Rose, 2002). (MLJ9).

#### **Data Analysis**

Once the citations were identified, the next step was to analyze them in terms of their forms and discourse functions. In the following, how each type of citations was identified is described in detail.

*Form-based analysis of citations.* The form-based analysis of citations was carried out using Swales' (1990) categorization of integral and non-integral citations. For instance, Example 1 shown earlier contains an integral citation –*Chafe (1985)*– which occurs at the position of the sentence subject. In contrast, non-integral citations –(*Barron, 2003, 2006; Hoffman-Hicks, 2000; Kasper & Rose, 2002*)– which occur outside the sentence in parentheses are demonstrated in Example 2.

*Function-based analysis of citations.* With respect to the functional classification of citations, initially, we attempted to apply Petrić's (2007) typology to the analysis of our data. However, after conducting a pilot study with nine RAs, we found that her typology was not as effective as expected. A major problem in using Petrić's classification was that the function of attribution, as indicated earlier, failed to capture the specific functions of citations in the various RA sections, which are the focus of our study. Therefore, we created a new typology of citation functions, consisting of nine categories. The nine categories were developed on the basis of the communicative purposes of the sections in RAs. This new classification is expected to better represent the specific functions of citations in research articles. The definition and example of each are given below.

1. Providing a term or a definition of a term

This type of citations is used to indicate the source of a specialized term that is referred to in the paper or to provide a definition or explanation of such a term. In Example 3, the researcher draws on Simensen's definition of "simplified texts" and focuses on three aspects of simplified texts.

- (3) According to Simensen (1987), simplified texts are texts written  
(a) to illustrate a specific language feature, such as the use of modals or the third-person singular verb form; (b) to modify the

amount of new lexical input introduced to learners; or (c) to control for propositional input, or a combination thereof. (MLJ8)

2. Providing background information for a research area/topic

This type of citations is employed to indicate the source of background information about a research area or topic to introduce that area/topic or state its value, importance or distinctiveness. The following example illustrates such a function.

(4) In the medical profession, besides reading, the ability to follow oral communication of research is also very important because international conferences are an essential part of the communicative network within the scientific discourse community (Ventola, Shalom, & Thompson, 2002). (ESP2)

3. Providing views or findings

This type of citations provides views or findings from relevant studies so as to lend support to an argument the researcher proposes. In Example 5, the author reviews two studies when discussing negative views about simplified texts.

(5) Simplification is not without its critics though. From a theoretical standpoint, many linguists find fault with the language features used in simplified texts. Long and Ross (1993) summarized this position by addressing the idea that the removal of complex linguistic forms in favor of more simplified and frequent forms must inevitably deny learners the opportunity to learn the natural forms of language. Widdowson (1978) argued that the process of simplifying vocabulary and syntax might actually complicate the message of a text. (MLJ8)

4. Providing support for a result

This type of citations is used with a view to backing up the findings reported in the researcher's own study. In Example 6, two studies are drawn on to support the researcher's own finding.

(6) These findings suggest that the content-linked ESL program achieved its goals of helping ESL students to accelerate academic English skills development, enhancing academic performance,

and facilitating academic success. In addition, they add to the evidence provided by previous studies (Kasper, 1997; Murie & Thomson, 2001) that content-based ESL instruction provides long-term benefits that promote academic success. (ESP8)

5. Providing an explanation

This type of citations seeks to render a possible account for a proposition, phenomenon, etc. In other words, the researcher uses plausible explanations from a relevant study to indicate a shared view between the cited scholar(s) and himself/herself, which is exemplified as follows.

(7) A possible reason for this low occurrence offered by Berkenkotter and Huckin (1995) is due to the fierce competition for the grants in the sciences. (ESP3)

6. Providing a further reference

This type of citations is aimed at supplying readers with a source of further information. This function is often realized through the use of the word *see* in non-integral citations, as shown in Example 8.

(8) Librarians began noting the need for a heightened level of critical awareness early in the Web's existence, and now there are dozens of sites detailing the skills required for critical Internet literacy (see Auer, 2002; and Humphries, 2002, for comprehensive lists). (MLJ2)

7. Providing an example

This type of citations functions to indicate studies which can serve as an example to explain the researcher's proposition. An example is given below.

(9) Honeyfield (1977) and Lautamatti (1978), for example, suggested that modifications to authentic texts affect the texts' cohesion and coherence, resulting in texts that, although simplified, are more difficult than the authentic texts for L2 readers to understand and manage. (MLJ8)

8. Providing a comparison

This type of citations is utilized to compare one's own study to others' research. It often occurs in discussing the research results or the research method adopted. In Example 10, the phrase of *in line with* is used by the researchers to indicate the similarity between their research findings and those of *Dubois (1987)*.

(10) In line with the findings of Dubois (1987), *about* is the most frequently used approximator, with 34 occurrences in this corpus. (ESP2)

9. Providing a method/approach/instrument/model/theory

This type of citations functions to indicate the source of a research method, approach, instrument, model, theory, and so on, which is used or referred to in the present study. The purpose is usually to emphasize the credibility of a research method employed or to compare the researcher's own method to the cited one. An example is shown below.

(11) We used purposeful sampling (Merriam, 1998) to recruit 4th and 5th grade Mandarin speakers. (JSLW2)

*Inter-rater reliability.* All of the data were analyzed by the researchers of this study. We analyzed the citations in the RA samples of the corpus independently. Then, in a weekly meeting, the results of independent coding were compared and discussed to reach consensus. Overall, consistency reached 92% in the form-based analysis and 78% in the function-based analysis. All of the inconsistencies were jointly discussed until agreement was reached.

## RESULTS AND DISCUSSION

### Occurrences of Citations in the Four Sections (IMRD) of RAs

Table 2 shows the occurrences of citations in the four rhetorical sections of RAs in applied linguistics: Introduction, Method, Results, and Discussion. As can be seen, citations occur most frequently in Introduction, accounting for 61.4% of the total occurrences, while they are used least frequently in Results, constituting only 4.6%. A further analysis of the density of citations per 1000 words in the four sections shows a

similar result. Introduction has the highest density of citations (22.5 occurrences per 1000 words), and Results the lowest (1.5 occurrences per 1000 words).

Table 2. Frequency, Range and Density of Citations in IMRD

	Introduction		Method		Results		Discussion		Total	
	n <sup>c</sup>	%	n	%	n	%	n	%	n	%
Frequency	1755	61.4	360	12.6	132	4.6	613	21.4	2860	100.0
Range <sup>a</sup>	36	100.0	33	91.6	21	58.0	36	100.0		
Density <sup>b</sup>	22.5		6.9		1.5		8.8			

*Note.* <sup>a</sup>Range refers to the number of samples in which at least one citation occurs. Total N=36 <sup>b</sup>Density refers to occurrences per 1000 words. <sup>c</sup>n indicates number of occurrences.

The relative frequency and density of citations in the four rhetorical sections suggest a possible relation between the communicative purposes of the sections and the need for citations. In Introduction, one of the main constituent moves is to establish a territory (Swales, 1990). To this end, it is obligatory to review a wide range of literature so that writers can make a counterclaim, indicate a gap, raise questions or continue a tradition from previous research (Swales, 1990). In other words, these rhetorical considerations create the need to cite pertinent studies. This may account for the ultra-high frequency and density of citations in Introduction.

The density of citations in Discussion ranks second, with 8.8 occurrences per 1000 words. According to Yang and Allison (2003), the main communicative focus in Discussion is to comment on results. After reporting results in the Results section, researchers will attempt to relate the findings to other relevant research in the Discussion section, with a hope to build up the meaning of the important findings or to show the value of their own study. The common ways to comment on results include comparing the results with related literature or referring to previous literature for a convincing explanation for the results. The fulfillment of these rhetorical functions creates the need for a number of citations. However, citations in Discussion do not occur as densely as in Introduction. This is probably because in Introduction, a comprehensive literature review to show the researchers' familiarity with the research topic usually engenders more citations than are needed in Discussion.

Bazerman (1988) suggested that citations play an important part in Method since they can manifest the appropriateness of a research design and attract the interest of professionals. Lim (2006) further pointed out that the appropriate use of citations by researchers in Method can “strengthen the credibility of their findings to be reported subsequently in the Results section” and “ward off possible doubts about both their results and related interpretations” in the Discussion section (p. 284). In the present study, it was found that the density of citations in Method, following the Discussion section, is 6.9 occurrences per 1000 words, ranking third in the four rhetorical sections. The citations in this section are aimed mainly at justifying the method of data collection, instruments used, or data analysis, which are the main rhetorical functions of the Method section (Lim, 2006).

The Results section has the lowest density of citations, with 1.5 occurrences per 1000 words. The scant use of citations may be attributed to the fact that a majority of researchers focus only on reporting their own research findings in this section. In contrast, in Discussion, they may refer to relevant studies for explanation, comparison, exemplification, or support.

Moreover, when we examined the range of citations, that is, the number of samples in which at least one citation occurs, we found that, as shown in Table 2, citations occur in both Introduction and Discussion in all 36 RAs; however, not all of the RAs include citations in Method (92%) and Results (58%). This finding suggests that making citations seems obligatory in Introduction and Discussion, while it is usually necessary in Method and optional in Results.

Although the frequency and range of citations decrease in the order of I-D-M-R, a close inspection of the citations in the 36 RAs revealed that even in the same rhetorical section, there may exist some degree of variation in the use of citations. The research topic and focus were found to influence the number of citations employed. For instance, researchers in ESP 4, entitled *Managing rapport in lingua franca sales negotiations: A comparison of professional and aspiring negotiators*, employ 15 citations in the Introduction section, whereas as many as 114 citations occur in the same section in MLJ 3, entitled *Foreign language reading and study abroad: Cross-cultural and cross-linguistic questions*. Since the former study investigates intercultural sales negotiations, which is an under-explored topic in applied linguistics, few pertinent studies are cited. Conversely, the topic of the latter study (i.e., foreign language reading)

has been extensively researched in the past and the study has double themes (i.e., reading and studying abroad), so a multitude of studies are reviewed. We also noticed that the research method employed may affect the number of citations used in a research article. When researchers use research instruments or adopt models or frameworks from other studies, they have to make a number of citations. In comparison, when researchers use a self-developed model for analysis or an innovative method, citations are rarely used.

**Forms of Citations in the Four Sections**

Table 3 shows the frequencies of integral and non-integral citations in the applied linguistics RAs. As can be observed, non-integral citations are more frequently used than integral citations (55.6% vs. 44.4%). This finding is in line with that of Hyland (1999) that non-integral citations are more prevalent than integral citations in applied linguistics RAs. A further analysis of citations in IMRD sections suggests that non-integral citations are more frequently used than integral citations in Introduction, Method, and Discussion. The only exception is in Results, in which the frequency of integral citations (51.4%) is slightly higher than that of non-integral citations (48.6%).

Table 3. Frequencies of Integral and Non-integral Citations

	Introduction		Method		Results		Discussion		Total	
	n <sup>a</sup>	%	n	%	n	%	n	%	n	%
Integral	511	45.3	105	40.1	57	51.4	176	42.9	849	44.4
Non-integral	617	54.7	157	59.9	54	48.6	234	57.1	1062	55.6
Total	1128	100.0	262	100.0	111	100.0	410	100.0	1911	100.0

*Note.* <sup>a</sup>n indicates number of occurrences.

A preference for integral citations rather than non-integral citations often suggests that greater prominence is attributed to the cited researchers or studies than the reported information, or that the cited studies are of great relevance to the author’s study. As we re-examined Results in our RA samples, we found that in Results, researchers may

need to refer to appropriate literature to interpret or justify their findings, as indicated in Yang and Allison (2003). This necessitates the naming of the researchers of the cited studies or the citation of specific data from relevant studies; hence, integral citations, such as *Sengupta (1998) also found, this finding is consistent with Davis and Koch's (1999) suggestion, this perspective is also shared by Paulus (1999), or as noted by Hyland (1998)*, are frequently used in Results. The use of these structures may account for the higher proportion of integral citations than non-integral citations in Results.

In contrast, in the other three sections, non-integral citations are used more frequently than integral citations. This seems to suggest that in these sections the reported information is underscored more often than the names of the cited researchers. For example, in the early part of Introduction, writers often need to make topic generalizations (Swales, 1990) which are aimed at introducing a promising research area or topic of concern. Thus, several studies or groups of researchers in the area or on the topic are usually cited in order to show the writers' familiarity with relevant literature. However, the focus is placed on the reported information which indicates that the research trend or research activity is based on the non-integrally cited studies. Non-integral citations, therefore, are found frequently in this part. Although in the subsequent part of literature review in Introduction, there may be individual researchers and studies which are crucial and closely related to the writers' own studies and integral citations have to be used, the use of non-integral citations still seem to outnumber integral citations in Introduction. In Discussion, the organization proceeds from specific to general. After specific research findings are reported, they are discussed in a larger research context where relevant literature is referred to; more often the data or information under concern, rather than the cited researchers, are foregrounded. To sum up, although the distinction between integral and non-integral citations is merely based on the surface features of citations, the choice in their use could reflect the focus and rhetorical purpose of citing in a specific context in an RA. More discussion on the choice of integral or non-integral citations will later be made in relation to the results from the function-based analysis of citations for a better understanding of the form-function dynamics of citations in RAs.



**Discourse Functions of Citations in the Four Sections**

After carrying out the form-based analysis of citations, we proceeded to analyze the discourse functions of the citations. Table 4 shows the frequencies of the nine discourse functions of citations. As can be observed, the most frequently used functional category of citations in complete RAs is Category 3—providing views or findings from relevant studies, which constitutes almost two thirds of all occurrences (65.5%). Further examination of this category within each of the four sections reveals that most of the occurrences of the citations performing this function occur in Introduction (890 out of 1251 occurrences, 71%). This cross-reference confirms one of the major communicative purposes of Introduction: to review previous research, which requires researchers to cite the views and findings of a wide range of pertinent studies.

Table 4. Frequencies of Citations in terms of Discourse Functions

	Introduction		Method		Results		Discussion		Total	
	n	%	n	%	n	%	n	%	n	%
Definition	25	2.2	9	3.4	8	7.2	6	1.5	48	2.5
Background	79	7.0	0	0.0	0	0.0	0	0.0	79	4.1
Views or findings	890	78.9	124	47.3	39	35.1	198	48.3	1251	65.5
Support for results	0	0.0	0	0.0	6	5.1	42	10.2	48	2.5
Explanation	0	0.0	0	0.0	6	5.4	8	2.0	14	0.7
Further reference	24	2.1	20	7.6	12	10.8	26	6.3	82	4.3
Example	96	8.5	11	4.2	2	1.8	47	11.5	156	8.2
Comparison	0	0.0	16	6.1	34	30.6	76	18.5	126	6.6
Method	14	1.2	82	31.3	4	3.6	7	1.7	107	5.6
Total	1128	100.0	262	100.0	111	100.0	410	100.0	1911	100.0

Note. <sup>a</sup>n indicates number of occurrences.

The widespread use of citations for this function in Introduction is crucial and necessary in that it can help demonstrate researchers'

familiarity with a topic studied (Bavelas, 1978). Further, by making attribution to previous research, researchers not only tell their readers what has been done so far but also create a possible research space for themselves (Swales, 1990). This function of citations thus establishes a niche for researchers to bring forth their own arguments and claims. Examples 12 and 13 in the following illustrate citations providing the views and findings of other studies. In Example 12, the citation occurs when the writer reviews literature on how NSs react to NNSs' inaccuracies. Porte (1999) is one of the studies reviewed and the finding that NNS teachers tended to judge errors more severely than their NS colleagues is cited. In Example 13, before the example sentence cited here, the writer indicates that studies demonstrate consistently that content-based second language teaching promotes both language acquisition and academic success by citing a group of studies as a whole non-integrally. The views or findings as presented in these non-integrally cited studies are then given one by one. Kasper (1997) is one of them.

- (12) Porte (1999) noted that NS and NNS teachers of English shared the disinclination to consider errors serious and that, although not distinctly different, NNS teachers tended to judge errors more severely than did their NS peers. (MLJ11—Introduction)
  
- (13) Students receiving linked instruction perform better in language courses than those not receiving such instruction (Kasper, 1997). (ESP8—Introduction)

In addition to Category 3, Category 7 and Category 2 also occur commonly in Introduction (though having much lower percentages in comparison with Category 3). With a citation in Category 7, providing an example, writers attempt to explicate an argument that they have proposed by citing a study as an example. The prevalence of its use can be attributed to the fact that in Introduction where a lot of propositions are engendered, the citing of other studies as examples of propositions, especially studies by well-known researchers, not only helps to substantiate the proposed propositions and make them comprehensible, but also provides strong support as well. This also explains the high frequency (11.5%) of Category 7 in Discussion in which writers must comment on research results, indicating their implication and significance; hence, they often interpret results by using citations for

exemplification. This necessitates the wide use of Category 7. The recurrent markers signaling this function are *for example*, *for instance*, *exemplified*, *e.g.*, and *such as*. The following are two examples.

- (14) *For example*, Haynes and Carr (1990) reported on studies that found that Spanish, Arab, and Chinese intermediate to advanced learners of English read at rates that minimally.... (MLJ10—Introduction)
- (15) A number of researchers (*e.g.*, Ferris, 2003) have noted the benefits of such peer reviews. (JSLW3—Introduction)

On the other hand, Category 2, providing background information for a research topic, was found to occur exclusively in Introduction. The reason why this function does not occur in the other sections of the RAs in our corpus is probably that citations serving this function seem to occur only when writers, usually in the early part of Introduction, need to depict the trend in an area of research, to indicate the importance of a research topic, or to explain the origin of an inquiry. The following is an example.

- (16) *For example*, Haynes and Carr (1990) reported on studies that found that Spanish, Arab, and Chinese intermediate to advanced learners of English read at rates that minimally.... (MLJ10—Introduction)

In Method, the most commonly-occurring function of citations is Category 3, followed by Category 9 (providing a method/approach/instrument/model/theory), constituting 47.3 % and 31.3% of all occurrences, respectively. Citations in Category 3 in this section are mainly used to state other researchers' views in order to justify the method adopted. The following is an example of Category 3.

- (17) Texts with expository prose were chosen because, within an EAP context, they are the type most commonly required for university students (Benson, 1991; Spector-Cohen, Kirschner, & Wexler, 2001). (MLJ5—Method)

The heavy use of citations for the function of Category 9 reflects the

rhetorical context in which they are located. Since the Method section, as its name reveals, is a place for researchers to state the method, instrument, approach, model or theory, a large number of citations in this section thus serve to help provide the source and explanation of the research method and relevant issues.

Genre analysis studies have found that Results and Discussion share some similar rhetorical moves/steps (Yang & Allison, 2003). The result of our functional analysis of citations confirmed this finding. In both sections, it was found that Category 3, providing views or findings, is the most frequently used function, followed by Category 8, providing a comparison. Both categories constitute approximately two thirds of all occurrences of citations in either section. When we scrutinized the relative frequencies of Category 8 in the four sections, it was revealed that this category has much higher percentages in Results and Discussion than in Introduction and Method. This result implies that Category 8, *providing a comparison*, is a crucial function in Results and Discussion. As noted by Yang and Allison (2003), one of the important communicative foci in both Results and Discussion is the need to examine the research findings in a larger research context, and comparing results with the findings of other researchers' studies is obviously a good way to achieve this communicative purpose. This accounts for the high frequency of Category 8 in these two sections. The commonly employed words or phrases signaling Category 8 are *be consistent with*, *be in accord with*, *be in line with*, *be similar to*, *be different from*, *counter*, *support*, *confirm*, *verify*, *corroborate*, *echo*, and so on. Example 18 and Example 19 show two instances of the use of Category 8.

- (18) This finding *is consistent with* Davis and Koch's (1999) suggestion that synchronous computer-mediated interaction is more suited to addressing global issues in writing .... (JSLW5—Results)
- (19) This result *confirms* previous research that has indicated that the L1/L2 gap persists for a long time and across many contexts of experience (Haynes & Carr, 1990; Segalowitz, 1986). (MLJ10—Discussion)

### **Functions in Relation to Forms of Citations**

As indicated earlier in the introduction section, one of the foci of this study is to explore how the forms of citations may be related to their discourse functions and contexts, that is, the rhetorical sections in research articles. In this section, we attempt to link the functions to the forms of citations in the various RA sections.

Generally speaking, citations in the various sections of research articles perform different functions and take appropriate forms as a result of the specific communicative purposes of individual sections. For example, providing views or findings from relevant studies, as indicated in the previous section, is the most common rhetorical function that citations perform in Introduction (constituting 78.9% of all occurrences of citations), largely because one of the major communicative purposes of Introduction is to review previous research, which requires researchers to present the views and findings of pertinent studies. The citations realizing this function can take either an integral or non-integral form. For example, in Example 12 in the previous section, the writer employs integral structure to report Porte's finding, while non-integral citation is used in Example 13 to report Kasper's finding. As we retrieve and examine the discourse contexts where the two examples are situated in the RAs, we observe that in the context of Example 12, the writer first gives a proposition and then cites the views and findings of several studies individually and sequentially. The citation in Example 12 is one of the studies that the writer cites. In the context of Example 13, the writer first cites a group of studies as a whole non-integrally in one sentence, which is followed by the citation in Example 13 and other sentences, each containing a non-integral citation. These two examples in fact show very similar discourse contexts where a proposition is first stated and views or findings of relevant studies are then provided as a review of studies linked to the proposition. We can note that either the integral or non-integral form may be used for a citation to perform the function of providing views or findings from relevant studies. However, it can be observed that writers usually use either one or the other of the two forms consistently in reviewing literature. For the purpose of literature review in Introduction, therefore, the choice of form seems to be made according to the writer's preference to organize the arguments in terms of the views or findings of individual studies/researchers or in terms of how the views or findings themselves are related to the writer's

proposition.

The function of providing an example is commonly used in Introduction and Discussion. Both integral and non-integral forms can be drawn on to realize this function; nevertheless, the integral form is usually used when a writer cites only one study as an example and gives details or specific data of the cited study, as shown in Example 14 in the previous section. Non-integral citations for exemplification serve to tell the readers that there are many relevant studies, and that the studies cited in the parentheses are merely some examples. In Example 15, the writer intends to indicate that Ferris (2003) is one of the researchers that have noted the benefits of the kind of peer reviews that the writer has discussed.

With respect to the function of providing background information for a research area/topic, all of the occurrences were found to occur in Introduction, and non-integral structures were used to realize this function. This is probably due to the fact that since the writers focus on introducing a research area/topic, rather than the cited studies or researchers, they tend to use non-integral citations in order to foreground the background information of the research area/topic, as shown in Example 16 in the previous section. Nevertheless, in view of our small corpus size, further research is needed to re-examine the link between this function and the non-integral form. It is also worth noting that some writers often include multiple non-integral citations in one or two sentences to realize this function; this typifies expert writers' citation practice, as shown in the following example.

- (20) Peer response/review has been found to help both college (de Guerrero & Villamil, 1994; Mendonca & Johnson, 1994; Villamil & de Guerrero, 1996) and secondary (Peterson, 2003; Tsui & Ng, 2000) students obtain more insight into their writing and revision processes, foster a sense of ownership of the text (Tsui & Ng, 2000), generate more positive attitudes toward writing (Min, 2005), enhance audience awareness (Mendonca & Johnson, 1994; Mittan, 1989; Tsui & Ng, 2000), and facilitate their second language acquisition (Byrd, 1994; Lockhart & Ng, 1995) and oral fluency development (Mangelsdorf, 1989). (JSLW6—Introduction)

In the above example, seven non-integral citations are placed in one

single sentence. The first two citations show two educational contexts in which research on peer review has been conducted. The other five citations present different types of effects that peer review has on students, such as generating positive attitudes toward writing or facilitating second language acquisition. When researchers attempt to make such a “one-sentence summary” in topic generalization or an overview of relevant literature on a topic, it requires both classification and integration so that information can be condensed into a single sentence containing a number of non-integral citations grouped into several categories. For novice researchers, making this type of citations appropriately is not easy. It has been found that a lot of student writers fail to effectively analyze and integrate information from relevant sources (Dong, 1996; Petrić, 2007).

In Method, it was found that almost half of the citations are used to state other researchers’ views in order to justify the method adopted (that is, Category 3 of the functions). The citations realizing this function often appear in non-integral structures, since the focus is placed on the views that the cited researchers present rather than the views of the researchers themselves, as shown in Example 17 in the previous section. Citations in Method also frequently perform the function of providing a method/approach/instrument/model/theory. Both integral and non-integral citation forms were found to serve this function. If non-integral structures are employed, as shown in Example 21 below, prominence is given to the instruments employed rather than their originators. Conversely, if integral structures are used, credit is given to the cited researcher as the originator of the method, approach and so on, as shown in Example 22.

(21) Motivation goal orientations were measured using the Patterns of Adaptive Learning Survey (PALS) personal goal orientation subscales (Midgely et al., 1997). (MLJ6—Method)

(22) To assess the writing, a scoring sheet adapted from Arnold (1991) and Tompkins (2004) was used. (JSLW11—Method)

In Results and Discussion, the function of providing views or findings from relevant studies is also used most frequently, followed by the function of providing a comparison. In terms of forms, while these functions can be realized with both integral and non-integral structures,

the former are used more frequently than the latter. This often occurs when the cited studies are either very closely related to the writer's study or able to provide authoritative views so that attribution of credit to the cited researchers is necessary, as shown in Example 18, in the previous section, in which the cited study provides results for comparison. In Example 19, however, the non-integral form is used since the two non-integrally cited studies are regarded as generally representing "previous research."

To sum up, it seems that both integral and non-integral forms can be used to perform most of the discourse functions of citations. The generic contexts where citations are situated seem crucial for RA writers to make appropriate choice of forms in relation to functions. Moreover, the writers' preference may also play a role in the choice of forms and the specific functions of citations when they organize the text with a focus on their own propositions or on individual cited studies/researchers.

## **CONCLUSION**

In this study, we scrutinized citations in terms of their occurrences, forms, and discourse functions in 36 applied linguistics research articles. A genre-based and corpus-based approach was taken to show citation practices in the four rhetorical sections of this genre.

Firstly, the occurrences of citations decreased in the order of I-D-M-R. Citations in Introduction constituted more than three fifths of all occurrences, whereas Results contained the least. In addition, citations occurred in every Introduction and Discussion section of all 36 RAs in the corpus, but not in every Method or Results.

With respect to the forms of citations, the results showed that non-integral citations were used more frequently than integral citations in Introduction, Method, and Discussion, whereas in Results, integral citations occurred more frequently. The slightly higher frequency of integral citations than non-integral citations in Results may be due to the need to refer to specific studies or researchers for support or explanations of research results in this section. However, we suspect that there may be disciplinary variation in the choice of citation forms in individual rhetorical sections. A comparison of the two citation forms in the sections of RAs in different disciplines should yield interesting results. We also observed that many writers consistently use integral or non-integral citations, particularly in reviewing literature. This finding



suggests the possibility of writer preference in terms of writing style.

Using the self-developed classification of nine functional categories, we found that “providing views or findings from relevant studies” is the predominant function of citations in all four sections. However, other citation functions identified in each rhetorical section typically characterize the communicative purposes of the individual section.

By and large, cross-sectional variations were found in both the forms and functions of citations. The differences suggest a close link between the forms-functions of citations and the distinctive communicative purposes of the sections, while the choice of citation forms might be related to local rhetorical considerations or writers’ preference. Different from previous research on citations, the present study focused on the relationships between the forms and functions of citations and variations across the different sections in research articles. The results revealed a clearer picture showing how citations are actually used in the different rhetorical sections of research articles as an academic genre and how the forms and functions of citations may operate in relation to each other and within the discourse contexts in the sections.

The pedagogical implications of this study are three-fold. Firstly, students should be informed that citations are not limited to Introduction and Discussion only but may occur in Method and Results as well. They serve various discourse functions in each individual section. Secondly, most of the functions of citations can be realized by different forms. EAP instructors, therefore, are suggested to familiarize their students with both integral and non-integral citations as well as their linguistic realizations, especially the frequently used patterns. Thirdly, while a number of EAP textbooks have given valuable advice and guidance on teaching citations, most of them present citations in complete isolation without noting the contexts in the RA sections in which the citations are located. EAP instructors should relate the use of citations to the communicative purposes of the sections in RAs.

While this study sheds light on citation research and pedagogy, it is not without limitations. Since it is based on a small corpus comprising only 36 RAs from three journals in a single discipline, the generalization of the results should be treated with caution.

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