Communicative Functions of Code Glosses in Academic Discourse

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Abstract

A considerable amount of research has already established that academic writing is an interactive accomplishment, the success of which largely depends on appropriate writer-reader relationship. Yet, the nature of this relationship has been the subject of few studies. Also scarce are the studies on how academic writers address the needs of their readers and so, through elaboration, manage their interactions with them. Drawing on a corpus of 68 research articles (RAs) from the field of applied linguistics, this study explores how experienced writers (EWs) and novice writers (NWs) elaborate their ideas in their RAs to address their readers' needs, and in so doing, manage their relations with them. Analysis of the corpus revealed that reformulation and exemplification, complex features of academic writing, serve important rhetorical functions. The results also show that these two groups of writers manage writer-reader relationship differently, differing in the type, number, (un)even distribution, and use of code glosses. These results are discussed, and pedagogical implications are offered.

Keywords: Academic discourse, academic writing, code glosses, reformulation, exemplification.

Akademik Söylemde Kod Belirleyicileri

Öz

Birçok araştırma, akademik yazın başarısının büyük ölçüde yazar-okuyucu etkileşimine bağlı olduğunu vurgulamaktadır. Ancak, bu etkileşim az sayıda çalışmanın konusu olmuştur. Ayrıca, akademik yazarların okuyucularının ihtiyaçlarına hitap edebilmek için metinlerini ayrıntılandırma yoluyla okurlarıyla olan etkileşimlerini nasıl yönettiklerine dair çalışmalar da azdır. Uygulamalı dilbilim alanından 68 araştırma makaleden oluşan bir derleme dayanan bu çalışma, deneyimli ve deneyimsiz akademik yazarların okuyucularının ihtiyaçlarına hitap edebilmek için metinlerini nasıl detaylandırdıklarını araştırmaktadır. Elden edilen verilerin analizi, akademik yazının kompleks özellikleri olduğunu ve farklı bir şekilde ifade etme ve örneklemenin önemli retorik işlevlere hizmet ettiğini ortaya çıkarmıştır. Sonuçlar ayrıca, bu iki yazar grubunun yazar-okuyucu ilişkisini farklı şekilde, tür, sayı, dağılım ve kod açıklamalarının kullanımı açısından farklı şekilde yönettiklerini göstermektedir.

Anahtar Kelimeler: Akademik söylem, akademik yazı, kod yorumları, açıklama, örneklendirme.

INTRODUCTION

It is now well established that academic writing is a social accomplishment, the end product of an essentially interactive process between writers and their discourse community (Hyland, 2002). Central to the success of this collaborative endeavor are writers' understanding of their discourse community, awareness of their needs, demands, expectations, and successful analysis and accommodation of them (e.g., Dahl, 2004; Hyland, 2005a; Swales & Feak, 1994; Thompson, 2001). "What you write about (subject) and your reason for writing (purpose) are greatly affected by whom you are writing for (audience)," argue Blanchard and Root (2004, p. 8), in underlining the importance of the intricate relationship among writer, subject, purpose, and audience.

Academic writers have at their service a repertoire of rhetorical resources to manage this relationship, which has far-reaching consequences for their credibility and persuasiveness. Among these rhetorical resources, some come to the fore: evaluations (Hunston, 1993; Hunston & Thompson, 2000; Thetela 1997), hedges (Myers 1989; Hyland, 1998), imperatives (Swales et al. 1998), theme (Gosden 1992), and metadiscourse (Crismore & Farnsworth 1990; Hyland, 2007). Metadiscourse is "self-reflective linguistic material referring to the evolving text and the writer and imagined reader of that text" (Hyland 2012, p. 37). It enables the writer to organize his/her text to be able to address and meet their readers' interests, expectations, and needs (Dahl, 2004) and manage their relations with the evolving text and the intended reader (Hu & Cao, 2011). In addition to allowing writers to tailor their texts to suit the needs and demands of their readers, metadiscourse aids writers in projecting their personality, credibility, and audience-sensitivity into their products (Hyland, 2000).

The acknowledgement of the significance of metadiscourse for academic writing of late has led to increasing scholarly attention (see Adel, 2006; Crismore et al., 1993; Hyland, 2005a; Vande Kopple, 1985) and a plenitude of research on its use in academic writing, especially in the RA. These studies examined metadiscourse from various cross-disciplinary perspectives, i.e., hard vs. soft disciplines and cross-linguistic/cultural studies. In addition to this, its employment in some other genres has been the focus of attention: textbooks, book reviews, oral and written conference presentations, student writing, feedback practice, post graduate writing, science popularizations, advertisements, newspaper discourse, lectures, and annual corporate reports. Yet, novice writers' employment of metadiscourse markers in the RA has been underexplored.

This scarcity is surprising, since texts by novice writers i.e., MA thesis and PhD dissertations, require large quantities of metadiscourse (Swales, 1990) and postgraduate writers need great writing assistance (Bitchener & Basturkmen, 2006). This observation holds true, especially in Turkey, considering the limited academic writing training offered as part of MA and/or PhD curriculum. In spite of this focus upon this issue, there is considerable gap in our knowledge of the extent to which, and how the EWs and the NWs reformulate and exemplify their ideas by using code glosses. This study, therefore, aims to investigate how EWs and NWs reformulate and exemplify their ideas in the RA for the following reasons. First, we do not know to what degree code glosses vary in RAs by the EWs and the NWs, for there is no comparative study on this issue yet. Secondly, academic writers, including novice writers, need to publish RAs in international refereed English journals for academic advancement and other employment-related career benefits. Thus, studying code glosses in RAs by the EWs and the NWs will help understand the challenges novice writers face when publishing in international journals. With these in mind, this paper aims to seek answers to the following research questions:

1. What are the similarities and differences between the EWs and the NWs in the use of code glosses?

2. How do the EWs and the NWs choose code glosses in their RAs?

LITERATURE REVIEW

Metadiscourse in RAs

It is widely acknowledged that academic writing is an act of knowledge construction and that writers are not only interested in social or natural realities but also use language to recognize, create, and negotiate social relations during this creative act of social engagement (Hyland, 1998). Academic writers manage social relations using employing both linguistic and non-linguistic devices, commonly called metadiscourse (Abdollahzadeh, 2011; Crismore & Farnsworth, 1990; Hyland, 2005a, Hyland, 2007; Vande Kopple, 1985). As has been so underlined, metadiscourse has a prominent role in creating knowledge through organizing the communication between the writer and the reader (Hu & Cao, 2011; Hyland, 2005a).

Alongside the growing body of research on the relationship between the writer and the reader came the recognition of the crucial role of metadiscourse, leading to various proposals of taxonomies (Crismore et al., 1993; Dafouz, 2003; Hyland, 2005a). These classifications are mostly based on Halliday's (1994) and Hyland's (2004) and Hyland and Tse's (2004) views of metadiscourse. After Zellig Harris's coinage of the term 'metadiscourse', in 1959, the earliest work on it came from Crismore (1989) and Vande Kopple (1985), who classified metadiscourse as textual and interpersonal, drawing on Lautamatti's (1978) work. These classifications consider linguistic units as the functional headings of textual and interpersonal metadiscourse (Dafouz, 2008). While textual metadiscourse organizes discourse, interpersonal metadiscourse manifests the writer's position to the content of the text and the reader as well. Hyland and Tse (2004) adopted Thompson and Thetela's (1995) and Thompson's (2001) conception of metadiscourse, underlining their conviction, ''all metadiscourse is interpersonal in that it takes account of the reader's knowledge, textual experiences, and processing needs… (p.161)." This newer concept of metadiscourse underscores that all discourse choices writers make are based on the relationship between writers, their work, and their readers (Mur-Dueñas, 2011). Hyland and Tse (2004) have projected their conviction that "all metadiscourse is interpersonal…" (p.161) into their classification of metadiscourse: interactive and interactional metadiscourse. Interactive metadiscourse enables the writer to organize their texts and help guide their readers through texts, whereas interactional metadiscourse helps writers engage and orient their readers' perspectives towards content and their audience (Hyland, 2005a; Hyland & Tse, 2004; Thompson & Thetela, 1995).

Hyland's (2005a) model of metadiscourse was proposed to defuse the controversies over the earlier model of metadiscourse that was grounded in the distinction between textual and interpersonal metadiscourse and to offer a viable alternative to it. Hyland's new model views all metadiscourse as interpersonal, "in that it takes account of the reader's knowledge, textual experiences and processing needs and that it provides writers with an armory of rhetorical appeals to achieve this'" (Hyland & Tse 2004). What distinguishes this new model is its emphasis on the defining role of the socio-linguistic context of the writing act on the use of metadiscourse; that is, writers' purpose, audience, and socio-cultural setting control strategic use of metadiscourse. This calculated employment of metadiscourse in academic writing indicates writers' competence in their discourse community in addition to increasing the chances of knowledge claims being accepted (Hyland, 2005a).

Undoubtedly, previous studies on metadiscourse have substantially broadened our knowledge about the social nature of communication by shedding light on the role of the socio-linguistic context of the writing act on the use of metadiscourse. Despite the plethora of research on metadiscourse use in some genres, the RA in particular, the paucity of research on its use in post-graduate writing has also attracted attention (Hyland, 2004; Koutsantoni, 2006; Lee & Casal, 2014). The few studies available on metadiscourse focused on MA thesis (see Akbas, 2012; Akbas & Hardman, 2018; Hyland, 2004; Lee &

Casal, 2014; Önder-Özdemir & Longo, 2014) and on dissertation (see Alotaibi, 2018; Andresen & Zinsmeister, 2018; Bunton, 1999; Hyland, 2004; Kawase, 2015; Koutsantoni, 2006).

A common feature of studies on metadiscourse, notwithstanding their genre, is that all—with few exceptions, i.e., Hyland (2007) and Mur-Duenas (2011)—focused on only the most widespread metadiscourse devices. In her study on metadiscourse in the RA by Spanish and North American scholars in a corpus of English RAs, Mur-Duenas (2011) focused on over thirty code glosses, among other metadiscourse markers, and found that scholars belonging to the former group employed more metadiscourse markers in general and more code glosses in particular. In another comprehensive study—the only one of its type owing to its scope; on code glosses only—Hyland (2007) investigated how professional academic writers used code glosses in a corpus of RAs from eight disciplines and concluded that both their use and meanings vary from one discipline to another.

Comparative Study of Metadiscourse in RAs

Previous studies on metadiscourse have produced differing, at times, conflicting results. A substantial number of previous intercultural studies claimed that metadiscourse use differs from one language and culture to another (e.g., Abdollahzadeh, 2011; Çapar & Deniz Turan, 2019; Hu & Cao, 2011; Mauranen, 1993; Moreno, 1997; Mu, Zhang, Ehrich & Hong, 2015; Zarei & Mansoori, 2010). Yet, the claim that linguistic and cultural differences may cause writers to use different metadiscourse markers is now extensively challenged. A growing number of scientists have argued against the view that metadiscourse differs from one language and culture to another (e.g., Çandarlı, Bayyurt, & Martı, 2015; Dahl, 2004; Gülru, Yüksel & Kavanoz, 2018; Loi & Lim, 2013). Kachru (2009), for example, argues that academic writing is not a given; not even for native speakers; rather, it is "acquired through lengthy formal education" (p. 111). Support for this argument comes from numerous studies. In their research on novice-non-native, novice-native, and expert native speakers' employment of metadiscourse, Gülru, Yüksel and Kavanoz (2018) found that being a native speaker did not have a positive impact on their use of metadiscourse markers, and concluded that the competence to use metadiscourse develops by experience irrespective of L1 background. This view is shared by Kachru (2009), who underlines that academic writing is not inherited or pre-determined by geographic variables. Recently, more and more scholars have argued that rather than L1 background, experience matters in academic writing (e.g., Habibie, 2019; Hyland, 2019; Swales, 2004). What makes a difference in academic writing is the writer's competence in academic discourse and his/her familiarity with the rhetorical conventions of the field, not his/her linguistic and/or cultural background (P. K. Matsuda, personal communication, March 2016). Sharing Matsuda's viewpoint, Kellogg (2008) stresses the importance of gaining the competence and capacity to craft knowledge in a discourse community. This argument is supported by several studies. For instance, a study by Khoshsima, Talati-Baghsiahi, Zare-Behtash, Safaie-Qalati (2018) on the use of interactional metadiscourse by novice and established writers found that novice writers diverge from the rhetorical standards laid down by widely accepted members of the discipline. Similarly, Koutsantoni (2006) noted that expert and novice writers differ greatly in displaying authority and power through the use of hedging devices. Given these arguments, Zhao (2017), therefore, concludes that all novice writers, irrespective of their L1 background, must learn and develop academic language out of disciplinary studies with targeted instruction. So, given the above-mentioned discordant findings regarding metadiscourse markers, the idea that having experience in the field rather than linguistic and/or cultural background is now widely acknowledged. So, this study investigated the EWs and the NWs' use of code gloss markers in their RAs.

METHODOLOGY

Corpus

The study is based on a research article (RA) corpus of 68 published papers, from the field of teaching English as a second/foreign language, totaling 393,126 words. It investigates how the EWs and the NWs manage writer-reader relationship in RAs by using code glosses. A mixed-method research design, consisting of quantitative and qualitative approaches, was pursued to provide an in-depth picture of the EWs and the NWs' use of code glosses to formulate and exemplify their ideas as they marshal their arguments.

First of all, the NW corpus, consisting of 34 research articles, was constructed. To construct the NW corpus, all the English Language Teaching programs that raise English language teachers in Turkey were identified. Then all the academics who have had their PhDs in teaching English as a foreign language since 2010 and are currently serving in these programs were determined. Then, among these academics, academics who single-authored an article during the first three years following their completion of dissertations were identified to form the NW corpus, for novice is defined as academics who have less than three years of experience in their careers (Freeman, 2001). So, the NW corpus was made certain to contain articles written during the first three years of their academic careers. Articles that included the content of a standard four-part organization (Introduction, Methods, Results, Discussion; IMRD), fully separated or integrated and published in Turkey-based academic journals between 2010 and 2018 were chosen. Articles that were published in Turkey-based academic journals made up the NW corpus, for these journals are the main venue for novice writers. These journals underline that they address international audiences as well as Turkish audiences and are indexed in TR Index by the Turkish Academic Network and Information Center (ULAKBIM). Only the main text of each RA was kept, excluding its title, table of contents, bios of writers, acknowledgements, list of abbreviations, tables, figures, stand-alone quotations, excerpts of data, notes, footnotes, references, and appendices. This rigorous scrutiny yielded 34 articles by the NWs.

The EW corpus, also consisting of 34 research articles, was chosen from reputable peer-reviewed international journals, nominated by specialist informants as among the leading journals in the field of teaching English as a second/foreign language (published by Thomson Reuters' *Web of Knowledge ISI*). Yet, for online availability reason, the journals had to be restricted to six academic journals: "International Journal of Applied Linguistics", "TESOL Quarterly", "Journal of Academic Writing", "Journal of English for Specific Purposes", "Journal of Second Language Writing", and "Written Communication". The articles, written by experienced academic writers, were chosen at random from the issues published between January 2010 and December 2018. The writers' backgrounds were researched extensively, taking into account their names and surnames, location of their present institutions, bio information accompanying their articles, and the information in their CVs to ensure their status. Each writer's resume posted on their current institutions' websites was carefully examined to ensure that they had published in internationally renowned academic journals and that they have more than three years of experience after submitting their PhD dissertations. Articles that contained the content of a standard four-part organization (Introduction, Methods, Results, Discussion; IMRD), fully separated or integrated, were chosen. Only the main text of each RA was kept, excluding titles, tables, figures, stand-alone quotations, excerpts of data, notes, references and appendices. As the RAs by the EWs and the NWs have been published in the prestigious journals after a rigorous review process, they are considered as representing linguistic features in English.

Table 1. Description of the corpus

	EWs	NWs
No. of RAs	34	34
No. of journals	6	27
Total number of words	238,019	155,107
Average length of RA	7,001	4,562

Analysis of Corpora Using Hyland's, 2005a Model

A few metadiscourse models can be found in the literature (see the previous section, 2.1.) and for the following reasons, Hyland's (2005a) model of metadiscourse was chosen to be used as analytic framework. The main reason why Hyland's model was employed is that his model is a genre-based model, so is this study. In other words, it investigates the similarities and differences in the usage of code glosses in RAs by the EWs and the NWs in the discipline of teaching English as a second/foreign language. Second, Hyland's taxonomy draws on previous models, and so it is the most comprehensive of all (Abdi, Rizi & Tavakoli, 2010).

Hyland's (2005a) model consists of two main types; interactive and interactional, each of which includes five subtypes of metadiscourse (see Table 1). These types and subtypes of metadiscourse, although not comprehensive, contain a wide variety of metadiscourse markers.

Table 2. An interpersonal model of metadiscourse (Hyland, 2005a, p. 49).

Category	Function	Examples
Interactive	Help to guide the reader through the text	Resources
Transitions	Express relations between main clauses	In addition; but; thus; and
Frame markers	Refer to discourse acts, sequences or stages	Finally; to conclude; my purpose is
Endophoric markers	Refer to information in other parts of the text	Noted above; see Fig.; in section 1,
Evidentials	Refer to information from other texts	According to X; Z states
Code glosses	Elaborate propositional meaning	Namely; e.g., such as; in other words
Interactional	Involve the reader in the text	Resources
Hedges	Withhold commitment and open dialogue	Might, perhaps; possibly; about
Boosters	Emphasize certainty or close dialogue	In fact; definitely; it is clear that
Attitude Markers	Express writer's attitude to proposition	Unfortunately; I agree; surprisingly
Self-mentions	Explicit reference to author(s)	I; we; my; me; our
Engagement markers	Explicitly build relationship with reader	consider; note; you can see that

Interactive metadiscourse allows writers to organize their propositional content in such a way that their target audience finds it coherent and convincing. That is, it helps writers organize the flow of information as such that they guide readers by anticipating their likely reactions and needs. Therefore, its successful deployment requires writers to have an accurate "assessment of their readers' assumed

comprehension capacities, understandings of related texts, and need for interpretive guidance, as well as the relationship between the writer and reader" (Hyland, 2005a p. 50).

Contrary to interactive metadiscourse, interactional metadiscourse markers invite readers to jointly construct the text by informing them about writers' perspectives towards the propositional information and readers themselves. It helps "control the level of personality in a text as writers acknowledge and connect to others, pulling them along with their argument, focusing their attention, acknowledging their uncertainties and guiding them to interpretations" (Hyland, 2005a, p. 52).

Code Glosses

This study centers on interactive metadiscourse markers since these resources, by offering RA writers numerous tools for shaping and constraining their texts to answer the needs of their targeted readers, structuring their arguments in order for them to get the writer's interpretations and objectives (Hyland, 2005a, p. 49), play a crucial role in allowing writers to establish credibility, be persuasive, and get their claims accepted.

Code glosses—additional supply of information—are used to elaborate on what has just been said by the writer, grounded the "writer's predictions of the reader's knowledge-base", to make sure that the reader recovers "the writer's intended meaning" (Hyland, 2005a, p. 52). They are intended to assist readers with elaboration, specificity, clarification and examples. In other words, these small acts of 'propositional embellishment' aim to facilitate readers' comprehension of the propositional content by clarifying meaning, connecting "sentences to the reader's experience, knowledge-base, and processing requirements" (Hyland, 2007, p.52). As they reflect the writer's prediction of the reader's knowledge base, providing the right amount of it, without condescending to the reader, at the right location is of great importance. Elaboration can be realized reformulating and exemplifying ideas. Reformulation is a discourse function by means of which the second part rewords or restates the first part using different words to reinforce the message. So it is a 'pre-meditated', 'goal-oriented action', with the help of which the writer conveys particular meanings and/or achieves rhetorical effects (Hyland, 2007). That is to say, Hyland sees reformulation as part of a plan with a purpose. Reformulation consists of expansion and reduction.
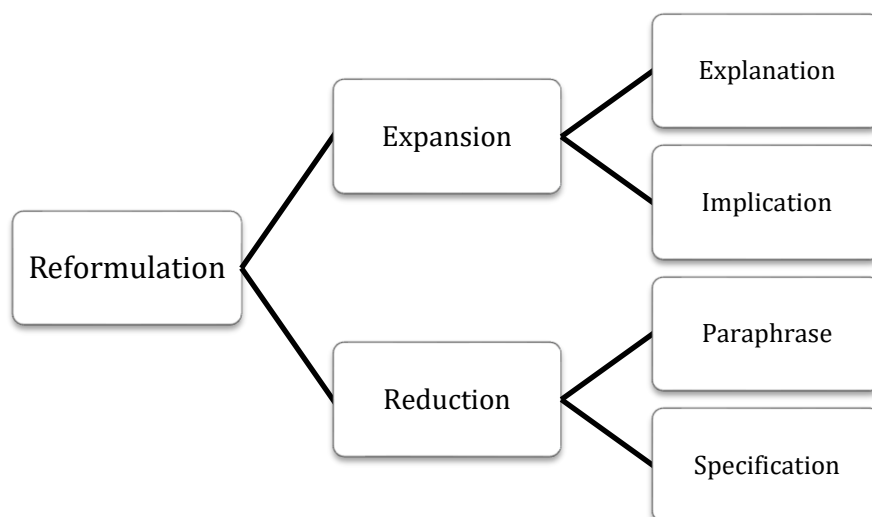

Figure 1. Discourse functions of reformulations (Hyland, 2007, p. 274)

Expansion

These reformulations, according to Hyland (2007), "restate an idea in such a way as to widen the sense in which the writer intends it to be understood (p. 274)." The expanded version is the "the reader's understanding rather than an idea or a locution." Reformulation, which is realized through an explanation or an implication drawn from reformulation, increases "the accessibility of the original or underlines the writer's preferred understanding of its meaning" (p. 274).

Explanation

Explanation is employed to increase the accessibility of a concept via a definition or a gloss. It aims to "expand the reader's understanding of material, rather than the material itself", by explaining or clarifying a technical term or a concept. Writers can provide explanation by using *that is*, *known as*, *called*, *according to*, *i.e.*, and *referred to* (Hyland, 2007, p. 274).

… Sometimes *referred to* as educational hypnosis, suggestion is one of key priorities in NLP. …. (RA by NW, Hişmanoğlu, M. italics added)

Implication

Implication-the other subcategory of expansion- as the name implies, allows writers to "draw a conclusion or sum up the main part of the major segment" (Hyland, 2007, p. 275). Writers can achieve this rhetorical goal by using *in other words*, *this means*, and *which means*, as in the following excerpt:

(1)   …These relations are explained by the associative networks which are established between the existed knowledge *in other words* L1… (RA by NW, Kırmızı, G. D. italics added)

Reduction

Unlike expansion, reduction restricts previous statements, narrowing

"the meaning of what has been said, narrowing the range of interpretation through paraphrase or specification" (Hyland, 2007).

Paraphrase

The function of paraphrase is "'gisting' or restating an idea in different words to provide a summary" (Hyland, 2007, p. 276). Writers can paraphrase by using *that is*, *in other words*, *put it another way*, *put it differently*, and *that is to say* (Hyland, 2007).

(2)   …few studies have examined L2 syntactic development in conjunction with the relationships such developments have with human judgments of writing quality… *That is to say*, while past research has focused on L2 learner development… (RA by EW, Crossley & McNamara, italics added)

Specification

This function serves neither to reiterate nor to restate but to "further detail features which are salient to the primary thesis in order to constrain how the reader might interpret it" (Hyland, 2007, p. 276). As the name implies, it enables writers to express their ideas and thoughts more precisely. Writers specify their points by using *especially*, *more specifically*, *in particular to*, *particularly*, *in particular*, *specifically*, *more accurately speaking*, *to be exact*, *to be precise*, and *especially* (Hyland, 2007).

(3)   …In this article, I want to explore the implications of the uniqueness of genre performances for our scholarship in genre studies and, *especially*, for our teaching… (RA by EW, Devitt, italics added)

Exemplification

Exemplification—a key aspect of exposition and academic writing—is a communication process through which writers make their ideas accessible through clarification, example or support (Hyland,

2007, p. 271). Exemplification indicates writers' predictions of their readers' needs and responses to them, so it plays a crucial role in the interactive process between the reader and text. It, Hyland (2007) writes, "offers an insight into the writer's 'reading' of the audience and what is likely to be known and persuasive to it" (278). In other words, it shows the writers' assumptions about their readers' understanding of the topic and their world knowledge. Writers can exemplify a point by using *such as*, *for example*, *for instance*, *an example of*, *e.g.,* and *like* (Hyland, 2007).

(4)   … When that judgment might prove offensive to the person asking, the speaker often responds with a positive remark about some peripheral, unimportant feature of whatever s/he is asked to evaluate. *For instance*, a response like (RA by NW Çetinavcı, U. R. italics added).

Procedure and Reliability (Data Coding)

After the RAs were identified, all of them were first converted into word files by using AntFile Converter, a freeware tool to convert PDF and Word (DOCX) files into plain text so that these files were compatible with corpus tools like AntConc (Anthony, 2006). Then the data collection began with an automatic case-insensitive search of all attestations of code glosses, using AntConc, a freeware multiplatform tool for conducting corpus linguistics research (Anthony, 2011). After both corpora were electronically scanned for potential code glosses identified by Hyland (2007), every instance of metadiscourse markers was manually analyzed in its context to make sure that it acted as a code gloss. After a training session of coding 10 RAs, the researcher and an English lecturer with a major in applied linguistics examined and coded all the data carefully, independently of each other. This comparison produced 88% agreement, which is acceptable according to Miles and Huberman's (1994) inter-rater reliability formula. A third rater, an Anglophone colleague who is knowledgeable about the categories was consulted for the differences. These three coders examined those disagreements and had complete agreement. Finally, t-test for independent samples was undertaken to investigate any differences of statistical significance between the frequency of the two groups' employment of code glosses.

RESULTS

In order to address the research questions, both statistical and textual analyses were done. Statistical analysis included the calculation and comparison of the occurrences of code glosses in both the EWs' and the NWs' RAs. Then, statistical tests using t-test for independent samples with unequal means were conducted on the occurrences of the code glosses to find out any significant differences. According to the results of the t-test for independent samples, a statistically significant relationship was found between the occurrences of code glosses in the EWs' and the NWs' RAs, t(df)=33.473, p= .000, η^2=.94 (see table 3). These results show that the EWs' mean (38.76) is bigger than the NWs' mean (10.91). The effect size of this difference was η^2= .94, which is wide (Büyüköztürk, 2011).

Table 3. T-test for independent samples

	n	mean	S	t	df	p	η^2
EW	34	38.76	4.49	33.473	43,890	.000	.94
NW	34	10.91	1.85				

In the textual analysis in 4.2, salient code glosses in the EWs' and the NWs' RAs were scrutinized. In line with the research questions, the following analysis is presented.

3.1. What are the similarities and differences between the EWs' and the NWs' in the use of code glosses in RAs?

To begin with, the results of the t-test for independent samples demonstrated a significant relationship between the occurrences of code glosses in the EWs' and the NWs' RAs. The quantitative

results of this study also showed that elaboration in the form of reformulation and exemplification is a key feature of academic writing. 5748 occurrences of code glosses were found in the EW corpus, roughly 241 per RA. The NW sup-corpus included 1448 code glosses, roughly 93 per RA.

Table 4. Distribution of code glosses

	EWs	NWs
Reformulation		
Expansion	395	142
Reduction	173	78
Exemplification	737	151
Total	1305	371

As both corpora consisted of unequal number of words, frequencies of the two types of code glosses were normalized to per 10,000 words to make quantitative comparisons. As can be seen in figure 2, the EWs corpus has 55 occurrences of code glosses per 10,000 words. This observation supports Hyland's (2007) finding in that he found roughly 50 code glosses per 10,000 words in his corpus from the field of applied linguistics. The NWs corpus, on the other hand, has 24 occurrences per 10,000 words, which is rather low. This could be due to two reasons: Hyland's corpus was from the field of applied linguistics, a broad field that covers education, psychology, communication research, anthropology, and sociology, which might give more leeway to writers. It could be also due to the academic writers 'expertise and proficiency in employing lexico-grammatical features of the RA. The NWs' corpus in this study consisted of articles by novice writers only.

Figure 2. Code gloss markers (per 10,000 words)
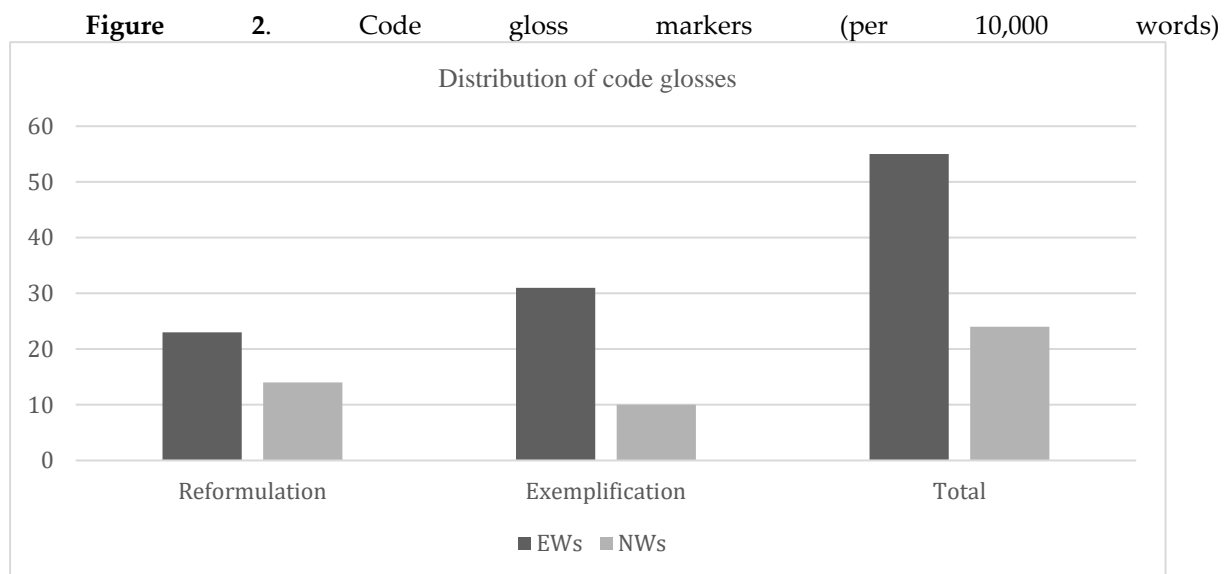
When it comes to the overall distribution of code glosses, it is seen that the EWs employed them more, amounting to a 30 percent difference. Notwithstanding this disparity, both groups, especially the EWs demonstrated that reformulation and exemplification are two central features of academic writing, an observation that is in sync with Biber et al.'s (1999, p. 884) remark that code glosses are common in academic writing. By addressing their readers' needs by elaborating their texts, both groups showed that they gave importance to engaging with their readers and involving them in their unfolding texts as was the case with Hyland's study (2007). The quantitative difference, though, gives us an idea regarding what extent these two groups attach importance to addressing their readers'.

Table 5. Code gloss markers (% of total)

Function	EW corpus	NW corpus
Reformulation	44	59
Exemplification	56	41

As can be seen in figure 2, both groups employed reformulation and exemplification markers in varying percentages. While the EWs gave priority to exemplification, the NWs prioritized reformation to elaborate their ideas. The EWs' preference for exemplification supports Hyland's (2007) finding in that his corpus, likewise, attached more importance to exemplification. The NWs' marked preference for reformulation over exemplification, on the contrary, is in contrast with Hyland's (2007) finding, which could be attributed to the fact that the NWs, as novice writers, are mainly concerned with expressing themselves, dealing with and tending to the substance and essence of subject matter in hand.

How do the EWs and the NWs Choose Code Glosses in their RAs?

In the last section, the similarities and differences in the use of code glosses in RAs by the EWs and the NWs were compared and discussed using a quantitative methodological approach. In the following sections, mainly a textual analysis is employed to analyze how the EWs and the NWs elaborated their texts and so addressed the needs of their readers through the choice of code glosses.

Expansion as Reformulation (Elaboration)

As stated earlier, reformulation occurs when writers rewrite a statement by expressing an idea in a different way. Both groups gave more prominence to expanding their ideas over reducing them (see table 4). Through expansion, these groups restated their ideas in such a way to widen the sense in which they intend these ideas to be understood, mainly to increase the accessibility of their original ideas.

Table 6. Proportions of reformulation functions (% of total)

Sub-function	EW corpus	NW corpus
Expansion	**51**	**62**
Explanation	40	97
Implication	60	3
Reduction	**59**	**38**
Paraphrase	22	83
Specification	78	17
TOTAL	100	100

As is the case with the percentages of reformulation and exemplification, both groups employed code glosses in differing percentages to expand and reduce their thoughts and ideas. The NWs attached considerably more importance to explanation, while the EWs gave more prominence to implication to expand their ideas. Explanation is "situated clarifications" writers use to "elaborate the meaning of a preceding unit to make a concept more accessible" for the reader "by providing a gloss or a definition" (Hyland, 2007, p. 274). Another way of reformulating an idea is reduction. Reduction helps writers restrict what they have already stated and narrow the scope of reader interpretations. While the NWs reduced their ideas extensively through paraphrasing, the EWs did so by specifying their thoughts and ideas. These preferences should not surprise us, as was underlined before, for the NWs' main concern seems to express themselves.

The most frequently used code glosses to reformulate ideas merit attention, for they give qualitative as well as quantitative information regarding the EWs' and the NWs' use of code glosses to reformulate their ideas. The EWs' corpus was dominated by reformulation markers for implication and

specification, while the reformulation markers for explanation and paraphrase dominated the NWs' corpus, leading to an uneven distribution of reformulation markers across the corpora, as seen in table 5.

Table 7. Most frequent reformulation markers in alphabetical order (% of total)

Marker	EW corpus	NW corpus
according to	2	28
especially	6	2
i.e.	19	--
in other words	2	11
in particular	14	--
or	13	17
parentheses ( )	18	14
particularly	5	2
precisely	5	--
specifically	12	--
that is	1	20
that is to say	1	3
Others	0	3
TOTAL	100	100

Both groups relied more on some markers, while avoiding some others. One of these preferences is for *according to* by the NWs. *According to* makes up 28% the reformulation markers the NWs employed. This finding supports the findings of earlier studies which showed that *according to* is a very common structure in novice writing (Bychkovska & Lee, 2017; Lee & Chen, 2009; Lee, Hitchcock & Casal, 2018; Thompson & Tribble, 2001). Lee and Chen (2009) underscore that this adjunct structure is quite common in L2 student writing because their competence of English which is still developing restricts them from using the broad range of linguistic resources for attribution. This expression underlines the "proposition as grounded in the subjectivity of an external voice" and indicates that "the textual voice represents the proposition as but one of a range of possible positions" (Martin & White, 2005, p. 98). The high frequency of this structure in NWs' corpus could also be due to their "simply trying too hard to sound more formal or professional" (Lee & Chen, 2009, p. 159). It is quite understandable for these writers to (over)use *according to* in order to attribute information, a phenomenon, a concept, an opinion, or a claim to a source—to an authority without accepting responsibility, mostly because these novice writers are new in the field and are producing an academic research article for the first time in their lives, with relatively limited knowledge and experience at their disposal. As *according to* is an "academic phrase or formula that they are familiar with" (Lee & Chen, 2009, p. 159), they most probably find comfort in using them (Bychkovska & Lee, 2017). Consider, for instance, the following excerpt, in which the writer uses the adjunct structure *according to* in order to offer various views on the phenomenon at hand.

(5)   …*According to* Stevens (2007), SL creates unique opportunities for language learners to develop their autonomous skills through engagement with the game design and authentic communication with other avatars worldwide… (RA by NW, Balçıkanlı, C. italics added).

The NWs also widely used two other reformulation markers, e.g., *in other words* and *that is* to expand their ideas.

(6)   …Language teachers should employ a multi-modal method in the pronunciation class; *that is*, every sound process should be taught as a totality… (RA by NW, Hişmaoğlu, M. italics added).

(7)   …While the focus of product-based writing is on what to write and how to write, *in other words*, the rules for correct writing… (RA by NW, Takkaç Tulgar, A. italics added).

In contrast, there is greater variation in the EWs' use of devices such as *i.e.*, (which makes up 19 % of the reformulation markers) for explanation and *in particular*, *precisely*, and *specifically* (which makes up 31 % of reformulation markers) for implication and specification, for the NWs' employment of these devices does not amount to 1%. The EWs used *i.e.*, mostly to explain a concept or a phenomenon, not by attributing information to an authority or a source but by explicating it themselves as the following excerpt illustrates:

(8)   …The shared space and shared object became a focal point through which the people involved understood their common objective (*i.e.*, create this animation by making sure that it meets specific learning objectives) (RA by EW, Jason Swarts, italics added)

Unlike the use of *according to*, the use of *i.e.*, underscores the writer's confidence in his/her (extensive) subject matter knowledge and skill in using one of the linguistic devices among the many linguistic resources to convey the message.

(9)   …Few studies, surprisingly, have analyzed the surface forms and rhetorical functions of citations in undergraduate student writing, *particularly* in assessed L2 writing in the context of first-year writing… (RA by EW, Lee, Hitchcock, Casal, italics added)

(10)   …It is *precisely* this type of robust reflective practice that Anna experienced and that I am advocating. In the stimulated recalls, Anna was asked to reflect… (RA by EW, Worden, D., italics added)

In these examples, the writers both highlight the specified idea while at the same time including it within the scope of the original formulation.

Reduction as Reformulation (Elaboration)

Reformulation in this category allows writers to limit the meaning of what they have stated, contracting the range of interpretation by either paraphrase or specification (Hyland, 2007). Reduction makes up 59% of the total reformulation markers of the EWs', while it constitutes 38% of the NWs' reformulation markers. In addition to this marked preference, a considerable variation in the distribution of the sub-functions of reduction merits attention. That is, the EWs preferred to reduce their ideas by paraphrasing and specifying them, 22% and 78% respectively. In contrast, the NWs did so by paraphrasing (83%) and specifying (17%) them. This observation reinforces our earlier observation that when reformulating an idea or a concept, the EWs mostly opted for specification and implication, the NWs, in contrast, chose explanation and paraphrase. With this ub-function in mind, the EWs used reformulation markers such as *in particular*, *particularly*, and *precisely*; the NWs employed in other words and that is to say (see the previous section).

Exemplification as Elaboration

As a rhetorical strategy, exemplification is fundamental to creating an interactive relationship with the reader and strengthening it. It signifies writers' anticipation of readers' needs for clarification and addressing them (Hyland, 2007). In other words, it "offers an insight into the writer's 'reading' of the audience…" and helps the reader to process the information presented "by furnishing information which may be available but not in the reader's consciousness" (Hyland, 2007, p. 278). Exemplification accounts for 56% of the EW's corpus, which supports Hyland's (2007) finding that more than 60% of the total code glosses in his applied linguistics were employed for exemplification. The ratio of the NWs' code glosses for exemplification, 41% of the total code glosses, contradicts this finding. This finding confirms Siepmann's (2005) observation that even writers at advanced stages of language learning experience difficulty in forming and using exemplifiers. Conversely, the EWs' corpus attaches considerably more importance to exemplification. In addition to this difference, the groups' preference for particular markers draws attention to yet another important observation. The EWs used them more evenly, using all of them, some with small percentages though; yet the NWs overused some, especially

such as. Four exemplification markers make up of more than 90% of the EWs' corpus and three constitute more than 80% of the NWs' exemplification markers, which is in synch with Hyland's (2007) finding that three markers, *such as*, *for example* and *e.g.*, make up of three quarters of the exemplification markers.

As seen in table 9, the EWs used *e.g.*, the most to exemplify an issue, as is the case in the excerpt below. In this extract, the writer specifies what s/he means by 'peer-reviewed forestry, ecology, and land management journals' by naming specific journals in the disciplines in question; such as, peer-reviewed forestry, ecology, and land management journals.

(11)   …The articles in this corpus are all empirical reports published in leading, peer-reviewed forestry, ecology, and land management journals (*e.g.*, Journal of Forestry, Journal of Forestry Research)… (RA by EW, Finegal, E, italics added)

Unlike the EWs, the NWs preferred *such as* the most to exemplify their points, probably because of the complexity of the use of *e.g.*, for the same function.

(12)   …For this reason, like most of the researchers in the field, *such as* White (1989), we reject this hypothesis because we believe that UG provides an answer to the poverty-of-stimulus argument in L2 as well as in L1 acquisition. (RA by NW, Özkan, Y. italics added).

Table 8. Most frequent exemplification markers, in alphabetical order (% of total)

	EW corpus	NW corpus
an example of	4	--
e.g.	30	9
for example	20	12
for instance	3	1
like	22	23
such as	20	55
Others	1	--
TOTAL	100	100

Another observation about the use of the exemplification markers lies in the writers' preference for exemplification markers. Both groups employed *for instance* a lot less than *for example*. Biber et.al (1997, p.890) underline that the use of *for instance* is a "matter of author style". For example, *for instance,* and *e.g.,* can be used interchangeably, *e.g.,* is more restricted in its use in that it is "rarely used initial position" and its use is often "associated with textbooks to add specific examples of technical terms" (Biber et.al., 1997, p. 890). Most probably because of this complexity, the NWs use *e.g.,* less.

DISCUSSION

Drawing on the widely acknowledged belief that academic writing is a social engagement, the end product of an essentially interactive accomplishment between writers and their discourse community (Hyland, 2002), this corpus-based study has examined how the EWs and the NWs elaborate their ideas by using code glosses, with a particular attention to their readers. The study shows that elaboration—reformulation and exemplification—is a significant feature of the RA and serves important rhetorical functions, an observation that echoes earlier findings that reformulation and exemplification, realized by code glosses, are highly prevalent in academic writing (Biber et. al., 1999; Cuenca, 2003; Cuenca & Bach 2007; del Saz Rubio, 2003, 2006; Hyland, 2007; Mur Duenas, 2011). Through strategic employment of reformulation and exemplification, writers support their position and increase their communicative efficiency. What is more, by doing so, writers express their judgements about their readers, show an understanding of their discourse community and how they please to state their stance towards this community, displaying sensitivity to their readers and establishing and displaying a relationship to the message and to readers (Hyland, 2000, 2005a, 2007).

The key finding of the study is that the EWs and the NWs differ noticeably from each other both quantitatively and qualitatively in using code glosses. The EWs give more importance to elaborating their ideas, employing code glosses three times more than the NWs. In elaborating their ideas, the EWs attach more importance to exemplification, the NWs to reformulation. Alongside the other findings, this finding leads us to conclude that the strategic employment of code glosses varies considerably according to how experienced a writer is. It seems that by elaborating their ideas to facilitate comprehension via reformulation more than exemplification, the NWs could run the risk of spreading the message that reformulation is "a rhetorical sleight of hand", and that "readers may need to be cautious in accepting it at face value", as Hyland (2007, p. 227) puts it. Conversely, by appealing to a more "familiar and concrete experience which overrides divergent perceptions via exemplification", the EWs communicate the message that they have an "insight into…reading of the audience" and so they can make "predictions about the reader's familiarity with the topic and world knowledge", as Hyland, 2007, p. 270 puts it. In other words, by making predictions about the reader's background knowledge about the issue at hand and their world knowledge, the EWs could have a sound knowledge of the needs of the reader and tailor their text to meet the needs of their reader.

With more frequency, type (exemplification) and sub-type (specification), and evenly distributed use of code glosses, the EWs seem to be more cognizant of the significance of this relationship. Elaboration—embellishment of ideas—affects the reader's memory of information; at either the encoding or at the retrieval stage (Anderson,1980; Reder, 1980), and elaborated input significantly enhances reading comprehension (Oh, 2001). Given these findings, it would not be an overstatement to say that the EWs display particular sensitivity to their readers' needs, demands and successful accommodation of them.

CONCLUSION

This study aimed to investigate how the EWs and the NWs elaborate their ideas in academic research articles to address and meet their readers' needs, and how they manage their relations with their readers. The findings demonstrated that elaboration—reformulation and exemplification—are complex features of academic writing, and that it serves important rhetorical functions. The key finding of the study is that the EWs and the NWs differ noticeably from each other both quantitatively and qualitatively in using code glosses. One difference, of course, is that the EWs give more importance to elaborating their ideas, employing code glosses three times more than the NWs. Secondly, in elaborating their ideas, the EWs attach considerable importance to exemplification, the NWs to reformulation. Finally, the NWs overused some code glosses, a signature feature of novice writers. By elaborating their ideas to facilitate comprehension via reformulation, the NWs could run the risk of undermining the findings and conclusions of their own research by sending the wrong message to ask the reader to cautiously approach their study. Conversely, by appealing to a more "familiar and concrete experience which overrides divergent perceptions via exemplification", the EWs communicate the message that they have an "insight into…reading of the audience". By so doing, the EWs demonstrate that they have an insider's knowledge of their readers' topic and world knowledge and that they are quite sensitive and knowledgeable about their needs, so they tailor their text to meet their readers' needs. Overall, the findings lead us to conclude that the strategic employment of code glosses varies considerably according to how experienced a writer is, lending support to the view that academic writing competence is not inherited or is not pre-determined by geographic variables, rather it must be gained through strenuous effort put into disciplinary studies with targeted instruction.

With its in-depth analysis of the quantity, frequency, and use of code glosses, this thorough study has broadened our understanding of how the EWs and the NWs approach and construct knowledge, mediate reality, manage their relationship with their readers, and project themselves into their discourse

communities. Yet, it has its own limitations. The corpus was from the field of teaching English as a second/foreign language, so the results cannot be extrapolated to other disciplinary fields. Future research may look into whether the differences found in this comparable corpus are relevant in other disciplinary areas. A further avenue of research could be looking at the use of code glosses by EWs and NWs in RAs taken from the same journals.

Despite its limitations, this study has implications for policy makers, academic writing materials designers, academic writing teachers, and especially for novice academic writers. Novice academic writers could be sensitized to reader and writer responsible writing styles and their awareness of the whys and hows of elaboration through code glosses in academic writing could be raised. The other stakeholders' attention to this important rhetorical act should be drawn, too.

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